
ABSTRACTS FROM THE 10th ALPS ADRIA PSYCHOLOGY CONFERENCE

September 27th-29th 2012

Lignano Sabbiadoro

Italy

INVITED LECTURES

Stereokinetic phenomena and the minimum principle

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Stereokinetic phenomena first observed by V. Benussi and investigated by Musatti (1924, 1955) are three-dimensional appearances produced by 2-D rigid figures in slow rotatory motion that appear solid and real. A circle with an eccentric dot inside appears as a cone with well defined height. An ellipse appears first as a deforming figure and then as a rigid disc slanted in depth or as a solid ellipsoid with its major axis slanted in depth (Mefferd, 1968). A rotating bar of constant length appears slanted in depth and 1.5 times longer than when it is stationary on the frontal plain. A circle and a semi-circle appear to connect forming an anomalous cylinder (Zanforlin & Vallortigara, 1988, 1990). Three aspects of these objects are theoretically interesting: (a) they do not appear to rotate but describe a circular translation, (b) they appear as 3-D and solid, and (c) they appear of a well defined length in depth. The first two aspects were explained by Musatti (1924, 1955) and others, as due to different perceptual mechanisms: the first as due to a "tendency to a constant orientation in space" or to the limited aperture of peripheral movement receptors (misperception); and the second as due to a constancy of form (Musatti, 1924) similar to the "rigidity hypothesis" (Ullman, 1979, 1983). The third aspect, the apparent length in depth, cannot be explained by either of these hypotheses. However, Zanforlin (1988) has demonstrated that all three aspects are connected and all can be explained on the basis of Gestalt minimum principle: a hypothetical perceptual process that minimizes both apparent speeds and the relative differences between all the different speeds of the moving points of the rotating configuration. I will present here a demonstration of the phenomena and an intuitive mathematical demonstration of the hypothesis. A more formal demonstration can be found in Beghi et al. (2008).

Associations and dissociations of learning disorders

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In order to fully specify the complex profiles of risk and protective factors of learning disorders, we need to better understand the conditions under which they co-occur as

well as the conditions under which they dissociate. In a recent epidemiological study with a large ($N = 2586$) sample of German speaking primary school children, the rates of deficits in reading, spelling, and/or arithmetic were four to five times higher in children already experiencing marked problems in one academic domain. Still, detailed comparisons of specifically selected subgroups of children with isolated versus comorbid learning disorders suggest that each disorder is associated with a characteristic cognitive profile. Dysfluent reading in the absence of spelling problems is best explained by deficits in the fast access from visual symbols to phonological representations (indicated by a marked RAN deficit). Children with isolated spelling deficits (but adequate reading performance) are characterised by deficits in phonological awareness which probably hamper the amalgamation of phonological and orthographic information. Isolated deficits in arithmetic development are typically associated with a specific impairment in understanding, processing, and manipulating numerical magnitudes. Comorbid learning disorders seem to be largely additive from the cognitive profiles associated with each disorder.

Disease and aging:**What can we learn from Darwinian medicine?**

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Darwinian medicine, an attempt to understand why natural selection has left bodies vulnerable to disease and deterioration through aging, is a relatively new approach. In this lecture, divided into three parts, we will try to outline some of its basic ideas and present some empirical results obtained within this framework. In the first part we will propose some answers that Darwinian medicine offers to a puzzling question: as evolution by natural selection has shaped, over millions of years, very sophisticated bodily mechanisms, why has it not eliminated the causes of their illness and deterioration? In the second part we will present some empirical findings, obtained on the psoriasis model, concerning the concept of "allostatic overload" as a trigger for certain types of diseases, and the differences in the immune system responses to allostatic load between individuals with different behavioural strategies—hawks and doves. The third part of the lecture will outline another major interest of Darwinian medicine—the problem of senescence, a process of bodily deterioration occurring at older ages—and the idea that the maintenance of the organism after the age of reproduction is not favoured by natural selection. In summary, we will present some of the key points of the relatively new field of evolutionary medicine and its implications for the way we view, understand, and treat disease.

Development of body representation in early ages

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Like faces, bodies are significant sources of social information. The growing consensus in the field of neuropsychology and developmental psychology supports the idea that the representation of the human body involves at least three different representational levels: (a) a sensori-motor, (b) a visual-spatial, and (c) a lexical-semantic representation of the body. Recent researches showed age-related changes in the information processing underlying different levels of body representation. In our studies we investigated this early development in children's explicit, conscious knowledge of their own and others' body's physical characteristic such as shape, size, and perceptual configuration. Here, we focused on the visual-spatial level of the body representation in typically developing children and preterm low birth weight children. Results showed configural processing for visual-spatial representation of body as human body detection is disrupted by inversion. Further findings indicated that children born prematurely with a normal cognitive level may have specific difficulties in all levels of body representation, and these impairments were associated with the spatial production. We argue that an understanding of the development of multiple representation of the body may have important implications for the emerging cognitive capacity.

Neuroimaging working memory

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Working memory, the ability to maintain a set of information needed to carry out current tasks, is one of the basic cognitive abilities. Due to its central role in cognition it is closely involved in a number of mental abilities and forms the basis of willed behaviour and executive abilities, such as planning, implementing, and controlling goal directed behaviour. Working memory correlates highly with general intellectual abilities, is among the first affected in various diseases and injuries of the brain, from schizophrenia to Parkinson's disease, and is an important factor of the quality of life. For these reasons it is one of the key research areas of cognitive psychology and neuroscience. Following from the pioneering work of Baddeley and Hitch, numerous experiments within experimental psychology have provided us with detailed understanding of individual components and processes of working memory. However, much

still remains to be explored, especially when considering how working memory is implemented and integrated in the brain. Functional brain imaging provides us with invaluable tool for addressing these questions. It enables us not only to identify brain areas implicated in working memory tasks but also with an opportunity to study the processes and mechanism involved, as well as their interaction with other cognitive subsystems and processes such as emotional processing. The aim of this talk is to present recent advancements and directions in neuroimaging of working memory as well as findings that it has afforded us in seeking to understand this core cognitive ability.

SYMPOSIA

REACHING ELITE SPORTS: SPORT CAREER TRANSITIONS OF PRE-ELITE LEVEL ATHLETES

Career transition topic: Current major trends in the conceptualization and research

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The aim of the paper is to present current trends in the conceptualization of career transitions and to present the meta-analysis of the research findings, related to the work of the members of FEPSAC's (i.e., European Federation of Sport Psychology) Career Transitions Special Interest Group. New trends in the European research on career transitions are based on a holistic lifespan perspective, describing athletes' development from not just athletic but also from psychological, psychosocial, and academic/vocational domains. The holistic lifespan perspective embodied in the developmental model of sports career (Wylleman & Lavallee, 2004) has led the transition researchers to accept a holistic view of an athlete as a person developing through stages of sports career and adapting to the demands of transitions throughout career and its termination. The presentation will be focused on the major shifts in career research during the last decade, emphasizing findings of European authors.

Gender specific career development characteristics among Slovene student-athletes: A preliminary study

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Although characteristics of athletic transitions and retirement from the athletic career apply to both female and male athletes, the majority of the career transition research has focused on male professional athletes. If, and if so, what are the gender specific demands and challenges athletes face during their career development (CD) still remains unclear. Therefore the aim of this study was to study gender specific CD characteristics of male and female athletes during their university years. Taking into account the multi-level factors of CD, the developmental life-span model (Wylleman & Lavallee, 2004) was used to develop the questionnaire for the purposes of this study. Two status groups will be used in this study: students ($n = 40$; 20 male, 20 female) and student-athletes ($n = 40$; 20 male, 20 female) aged between 19 and 24. Gender and status differences in characteristics of career transitions were observed. The results revealed some gender specific career demands and challenges male and female athletes are faced with during their university years. While recognizing gender differences in athletes' CD, there were no attempts to develop gender-specific athlete career transition models. More research on the role of gender on multi-level challenges faced by male and female athletes is therefore needed.

Slovenian talented athletes retiring from sport: Factors of sports career termination and adaptation to post-sports life

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The main problem of the study was to examine the characteristics of premature termination of sports career of Slovenian young talented athletes and their adaptation to post-sports life. The sample included 101 athletes who were recognized as talented and who had terminated their careers before the elite level. Sports Career Termination Questionnaire – Young Perspective Athletes (SCTQ-YPA; Cecić Erpič, 2011) was used to determine the characteristics of active sports career, its termination and transition to post-sports life. The items of SCTQ-YPA are answered on a 5-point Likert scale. Main factors leading to the retirement from sport were educational demands, injuries, and loss of motivation. The effect of athletic identity, voluntariness, and gradualness of sports career termination (SCT) on the difficulty of adaptation to post-sport life was calculated using ANOVA. Results showed that athletes with high athletic identity, who terminated careers involuntary and abruptly, had more difficulties during adaptation to post-sports life. During the career termination process, parents were the main source of socio-emotional support, followed by other family members and friends. Highest discrepancy between

actual and expected socio-emotional support was related to coach's behavior during athlete's transition out of sport.

Social profile and education of Slovenian athletes

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The way to become a successful athlete is very difficult and therefore only a handful of them succeed. The most important period for their development is between the ages of 12 and 18 (Brettschneider, 1999), which is at the same time the most important period for acquiring basic education. Sport and school therefore have to cooperate. The present educational system in Slovenia offers talented athletes few adjustments to ease combining sport and school, namely sport classes, national sports schools, scholarships for athletes as well as few systematic adjustments in the legal field. It is safe to presume that primary and secondary schooling for athlete is well taken care of. Unfortunately this cannot be said for higher education where athletes have just few special rights that derive from their athlete-student status. The purpose of our research was to establish the social and educational profile of Slovenian student athletes. There were 211 student-athletes (161 male, 50 female) who took part in the study. Questionnaire Social and educational status of Slovene athlete (Juraga, Doupona Topič, & Cecić Erpič, 2012) was used for studying their family environment, conditions for practicing and competing, the characteristics of the educational system at different stages, and the conditions for their education. The results will be presented from the viewpoints of the sport socialization focusing on family and sport club as important factors of socialization.

Talented Slovene swimmers migrating to USA: A preliminary study of psycho-socio-cultural aspects of sports migration

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In Slovenia lately we have been noticing the trend that young talented swimmers opt for continuing sport careers in the USA. Several swimmers (Olympic level athletes as well as athletes on a pre-elite level) decided to continue higher education in USA, combining studies with swimming for university teams. On a general level, the reason for their migration is twofold: to enhance sporting results by being in

a highly competitive environment with good training conditions as well as to gain an internationally acclaimed education. When athlete migrates to another environment, he/she has to adapt on a psychological, psychosocial as well as on a cultural level. The aim of this study is to present preliminary results of athletes' adaptations on these levels. Using both inductive and deductive content analysis, 10 Slovene swimmers (six male, four female) that transferred to USA were interviewed. A semi-structured in-depth interview schedule was designed for the purposes of this study to elicit psychological, psychosocial, and cultural aspects of the athletic migration (Cecić Erpič, Doupona Topič, & Tekavc, 2012). Results of the content analysis will be presented and discussed by using framework based on the developmental model of sports career (Wylleman & Lavallee, 2004).

ACTION CENTRED STRATEGIES IN SPORT PSYCHOLOGY

Optimization of athletic performance: Emotion-centered & action-centered strategies

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Individualized emotion-centered profiling provides the assessment tools within the framework of the IZOF model. The major focus in these assessments is on subjective and personally meaningful performance-related emotional experiences described by self-generated emotion descriptors. The approach is based on the analysis of the athletes' past performance history and their awareness of the current situation. The action-centered profiling was proposed for subjective description of movement sequence as perceived by the athlete within the framework of the identification-control-correction (ICC) program (Hanin & Hanina, 2009). This approach provides a tool for dealing with inconsistency of athletic performance (*instability of technique, a lost move syndrome, and habitual performance errors*) and substandard performance under competitive stress. To conclude, emotion-centered strategies serve to optimize performance process, whereas optimization of athletic performance affects the action process. Emotion-centered and action-centered coping in high achievement sport represent a comprehensive program of optimization of athletic performance. These two approaches are practitioner-oriented and enhance the cooperation between athletes, coaches, and sport psychologists.

The multi-action plan intervention model

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The multi-action plan (MAP) intervention model has been developed to help athletes attain optimal and consistent performance. The MAP conceptualization originates from different theoretical views. These include the optimal experience framework, the mindfulness-acceptance-commitment based approach, the individual zones of optimal functioning model, and the identification-control-correction program. The MAP model identifies four performance categories deriving from the interaction of optimal/suboptimal and automatized/controlled performance dimensions. In an optimal/automatized (type 1) performance state, the athlete experiences high levels of physical and mental energy, and tends to execute actions in an effortless, smooth, and consistent manner. Competitive stress, fatigue, or unexpected performance difficulties can enhance the performer's attention to movement execution and reinvestment in conscious processing, thereby leading to disruption of movement automaticity and, ultimately, decreased (type 3) performance. Poor (type 4) performance can also occur in conditions of low task involvement and, consequently, ineffective movement coordination. Finally, distress, fatigue, or unexpected events can trigger functionally optimal states and action-tendencies, provided that the athlete is able to "mindfully accept" his or her state, focus on the individual's core components of the action, and, therefore, enter in an optimal/controlled (type 2) performance state.

Psychophysiological patterns of performance within the multi action plan model

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According to the multi-action plan (MAP) intervention model, athletic performance can be classified in terms of both achievement level (optimal and sub-optimal) and action control (automatized and controlled). The aim of the present study was to investigate the psychophysiological, emotional, and postural patterns related to the four performance categories derived from the bi-dimensional categorization. A rifle shooter of the Italian National team was requested to perform a large number of shots (~120) during a

practice session. Prior to each shot, the athlete was asked to rate his hedonic tone (affective state) on a modified 11-point Borg scale. After each shot, he was also requested to rate his perceived levels of both control and execution accuracy of the core components of his action. EEG, ECG, SCL, and kinematic data were collected throughout performance using a 32 channels EEG system (ANT), Bioharness (Zephyr), and UFI Skin Conductance Meter in conjunction with PowerLab (ADInstruments). Results showed specific psychophysiological, emotional, and postural patterns related to the four types of performance, thereby providing support to the predictions stemming from the MAP model.

**Auditory modeling:
New frontiers to improve sport performances**

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Modeling strategies in sports consist in demonstrating a correct performance execution, in order to provide athletes with information that can be somehow represented and reproduced. Many studies demonstrated the efficacy of visual models, that is, the presentation of videos of well-executed actions. However, only a few studies focused on auditory modeling. We demonstrated that the auditory system is more sensitive than the visual system in processing rhythms associated with motor performances, and this is consistent with the idea that the auditory channel is the most appropriate means to provide athletes with temporal information. The paradigm we developed consists in recording several trials of the natural sounds produced by the athlete body movement and then using the sound associated to the best individual trial as the model to provide athletes with the correct rhythm of their action. This procedure has been applied to many disciplines in which rhythm plays an important role, such as swimming, running, long jump, hammer throw, cycling, tennis, soccer, golf, and other activities, such as basic motor exercises and dance. We have run many experiments, looking for a compromise between the necessary strict control of variables on the one hand, and the ecological application of our findings on the other hand. After ten years of research, we can affirm that the effects of auditory models on motor performances are quite consolidate, since it is demonstrated that our method is flexible enough to be applied in almost every rhythmical sport situation.

Structural dimension analysis (SDA): An action theory approach to mental representation of performance

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Within the SDA model, mental representations are thought to be in a functional relationship to motor action, thus controlling and organizing performance. In sports, mental representations must be rapidly accessed in order to provide clear criteria for selecting the appropriate motor response required for a skilled performance. Mental representations are characterized by a highly-integrated network of basic action concepts (BAC): each BAC corresponds to body postures and movement elements sharing the same function in the attainment of action goals. BACs are therefore conceived as cognitive tools devoted to transform the movement system into a controllable system, which takes into account the task, the context, and the anticipated steps of action critical for motor performance. These cognitive representation units are not represented in long term memory in isolation, but as parts of a hierarchical representation system: BACs are clustered into subdomains arising from a featural-based system of knowledge, which takes into account the type and relevance of features. The SDA model allows a psychometric analysis of the representational structure of motor actions: the role and contribution of singular BACs is firstly calculated through distance scaling; then, the hierarchical structure of BACs is obtained and a factor analysis highlights the relevant dimensions along which elements cluster together; finally, both group and individual differences in action representation are analyzed.

SOCIETY AND SEXUAL ORIENTATION

An empirical typology of Italian gays and lesbians

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A sample of 1440 gays and lesbians who answered to the Multifactor Internalized Homophobia Inventory (MIHI; Flebus & Montano, 2012), Rosenberg's Self-Esteem scale, and a modified version of Beck's Depression Inventory were classified using the procedure outlined by Overall &

Magee (1992), by dividing the sample into four subsamples and performing a cluster analysis (Ward agglomeration method) which yielded five groups. The five groups were consistently found in all four subsamples and were rated according to the level of homophobia. The Group 5 has the highest level of homophobia, low self-esteem, and a high level of depression. The five groups can be described and characterized by several social, demographic, and clinical variables: the most homophobic group tend to be workers or military personnel, divorced, with high religious practice and low education levels.

Internalized homophobia and new insights in psychotherapy with homosexual clients

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Nowadays, Mindfulness is a widely used strategy for increasing self-awareness and well-being. “Mindfulness-based stress reduction (MBSR) is a well-defined and systematic patient-centered educational approach which uses relatively intensive training in mindfulness meditation as the core of a program to teach people how to take better care of themselves and live healthier and more adaptive lives” (Santorelli & Kabat-Zinn, 2007). In particular, homosexual people threatened by problems related to internalized homophobia find themselves having to manage situations of discrimination that make them vulnerable to a series of problems of a cognitive, emotional, behavioural, as well as a physical nature. They may feel inadequate, weak, vulnerable, and suffer from lack of self-acceptance. Some reviews in current literature report a definite correlation between physical disturbances (cardiovascular disorders especially) and sexual orientation. They also report high numbers of medical visits and an increase of work days lost due to illness. The efficacy of Mindfulness based approaches, especially MBSR protocol, is an important element in confronting the psychological and physical discomfort felt by homosexuals who find themselves struggling with internalized homophobia.

Preventing homophobic bullying in schools and measuring expected outcomes

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The aim of the present research is the evaluation of the effectiveness of an intervention on gender stereotypes and gender roles for the consequent prevention of homophobic bullying, carried out during the school year 2009-2010 in the City of Florence on a sample of 338 students attending secondary classes of first degree. For this objective a specific instrument was created and administered before and after the intervention. The main results indicate a more thorough and correct knowledge about gender stereotypes and roles, and an increased awareness about some key constructs such as discrimination, sexual identity, and homophobia. A possible future research development is the predisposition of a long-term evaluation.

Religiosity and internalized homophobia in an Italian sample

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According to the dictates of the Congregation for the Doctrine of the Faith, homosexual desire, and even more homosexual behavior, are in direct conflict with the institutionalized Catholic doctrine. Gays and lesbians, unless they are completely chaste, therefore experience great internal discord. The conflict tends to resolve by choosing between the religious affiliation and homosexuality. A third way, the management of conflict, produces dangerous mental consequences for individual well-being. In this study we have considered levels of internalized homophobia, assessed through MIHI scale (Flebus & Montano, submitted), levels of self-esteem, depression, and psychological well-being in a group of 366 homosexuals (281 male and 85 female), different in religious observance. As we have hypothesized, results show that the impact of homophobic conditioning is greater in participants who consider religion very important in their life and that show a constant religious attendance. In fact, with respect to unbelievers, homosexuals with a high adhesion to dictates to Catholic religion are more homophobic, and present major depressive symptoms and lower self-esteem. We can conclude that, at least in Italian context, and with caution in generalizing our results, religious faith can represent one of the factors that interferes with the affirmation of a positive homosexual identity.

The homoparental family: An update

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In this presentation I will show the results of an empirical research on lesbian mothers, using three different instruments: a questionnaire (distributed to some 40 lesbian mothers), in-depths interviews (administered to 14 mothers), and a focus group to which six mothers spoke about their newly-formed family. According to current literature, a greater visibility and openness to society correlates with an accrued well-being and better family functioning, i.e., deeper communication, sounder and more stable relationships with partner/children, less hostility within and outside the family. I will also present a preview of the results of administering the Multifactor Internalized Homophobia Inventory (MIHI) and the "A Csaladomban-In My Family Questionnaire" to a sample of homosexual parents.

WORKSHOPS

Action-centered profiling in optimization of athletic performance: A tutorial

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The purpose of this workshop is to describe step-wise assessment procedure to identify individually optimal technique in high-level athletes. This approach is based on the analysis of the athlete's past performance history and his or her self-awareness of the current situation. The focus in these assessments is on the core components of the action (movement sequence) and personally meaningful experiences accompanying performance. Action-centered profiling provides information for an effective situational control of technique development and its correction in practices. This approach also provides an assessment tool for dealing with inconsistency of athletic performance and substandard performance under competitive stress (*instability of technique, a lost move syndrome, and habitual performance errors*). The procedural knowledge generated in action-centered profiling is also very useful in coping with unexpected situations. A detailed description of the action-centered profiling is illustrated in several case-studies involving national and international level athletes.

The multi-action plan intervention strategy: A tutorial

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The multi-action plan (MAP) intervention model is intended to help athletes improve, stabilize, and optimize their performance. Athletes undergo a four-step procedure. At first, they accurately describe their usually optimal sequence of movements for the complete execution of an action, and then choose a small number of the most important core components (three or four) deemed fundamental to achieve optimal performance outcomes. Performers are then involved in several training sessions in which they assess the level of their accuracy in the execution of the core components. Logistical ordinal regression analysis is conducted to identify the probability levels of optimal and suboptimal performance outcomes as related to the core components. Path analysis is also performed to assess the full links among core components and results. Finally, the most influential core components are examined under conditions of increased stress and fatigue. Intra-individual path analysis is again executed to examine the distress and performance link and the mediating effects of the core components. The intervention was found to be effective in enhancing the individual's awareness of the core components of the action and in overcoming distressful conditions similar to those encountered in competition.

Narrative categorical content analysis (NARRCAT)

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The NARRCAT content analysis system is based on the psychologically relevant markers of *narrative categories* and *narrative composition*. The primary focus of NARRCAT is not on psychological correlates of words, nor on functional words (as contrasted to contentual words), or on grammatical markers (e.g., past tense). Instead, it explores the evaluational, emotional, and cognitive processes of the self and the other, and the in-group and the out-group. Furthermore, it is used to explore more complex principles of narrative composition, such as spatio-temporal and outer-inner perspectives. As with other psychological content analysis systems, such as LIWC (Pennebaker, Francis, & Booth, 2001)

or RID (Martindle, 1975), NARRCAT also has dictionaries. However, because of the complex morphology of the Hungarian language and the need for disambiguation, lexicons are endowed with local grammars which perform the task of disambiguation and enable further grammatical analysis. NARRCAT is able to handle two further language processing tasks – anaphora resolution and semantic role labeling. Anaphora resolution (replacing personal pronouns with relevant proper names with the aim to identify the participants of the narratives) is solved by an external linguistic parser. Semantic role labeling partly uses external linguistic parsers, and is partly involved as support modules in the NARRCAT system. The system yields quantitative results about who or which group acts, evaluates, has emotions, thinks something of somebody or another group. Thus, the output depicts the psychological composition of interpersonal and intergroup relations that are relevant to the construction of identity. The workshop introduces how to develop NARRCAT in other languages besides Hungarian.

PAPER SESSIONS

COGNITIVE PROCESSES

Negative feedback in learning and selection of decision strategies

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In the simple heuristic approach (Gigerenzer, Todd, & ABC Research Group, 1999) it is assumed that in cue-based probabilistic inferences people select one out of a toolbox of heuristics strategies, depending on the structure of the environment. Beyond factors such as high information costs, redundancy of information, and time pressure, little is known about further factors that influence the choice of heuristic strategies, and more importantly, about the cognitive processes underlying strategy selection. In the present study we examined the influence of emotionally aversive feedback in the learning of cue validities on the subsequent strategy choice. Participants ($N = 83$) repeatedly decided which one out of two insects was more poisonous based on six dichotomous cues and received either a neutral verbal feedback or an aversive feedback for incorrect choices (white noise, 85 dB, 5 sec.). We found that overall learning of cue validities did not differ depending on the type of feedback, but participants with the aversive feedback tended to choose the simple take-the-best strategy more often the computationally more demanding weighted additive strategy, compared to participants in the neutral feedback condition. Cognitive

dissonance and diminished cognitive resources due to the increase in emotional arousal will be discussed as possible explanations for the higher prevalence of simple heuristics under emotionally aversive feedback. It will be outlined how emotions in general may contribute to strategy selection and information processing at various stages of the decision making process.

Cue-ordering and the ways to do it

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When we think about Gigerenzer's *adaptive toolbox*, we wonder about the ways to acquire the tools and the ways to use them. In this case we will concentrate on frugal strategies based on cue orders and their validity. To use these strategies, we need to learn the validity order of the cues so we can dismiss those we do not need. With mostly limited information on the cues, a way to learn these is by getting feedback on our decisions. Critics say it is almost impossible for us to learn the precise validity of the cues in an algorithmic way, but it is plausible in individual learning to get a hold of the order in validity. Todd & Diekmann (2005) presented us with some of these algorithms and used simulated data to compare those with TBB, but failed to achieve its accuracy while maintaining a higher frugality. We will concentrate on some of those algorithms (tally swap, simple swap, take the last) and test them with empirical data again. We designed an experiment based on a decision where four cues are simultaneously presented and the test subjects need to decide which of two houses has more market value, after which feedback will be given to let them know if they decided correctly. After five decisions they will have the opportunity to create a cue order of their own. In this way we hope to identify the algorithm used.

Cognitions and counterfactual thinking in the origin of fire usage

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The relevant period (2.6mya-0.3mya) is particularly characterized by oscillating ecological conditions, by the existence of genetically mutating primate (and early human) species, and by evolutionary transitions from competitive to more cooperative behavior. Natural fire may have repeatedly induced various hominid and hominine species to experiment on sequential cues taken from burning material.

However, because of different environmental conditions of fire combustion and fuel, branches of those genera presumably evolved different serial-patterns of individual and collective fire processing. In any case, fire usage (a technical behavior) is based on causal factors and had to be learned gradually (1). Beyond that, more and more necessary emotional, cognitive, and communicative competences had to be integrated (2). This paper hypothesizes: Ad (1), the cognitions referring to causal relations in this particular kind of tool use had to be accompanied by thinking about counterfactuals – especially in case of distressing results; ad (2), the empathic emotional and communicative processes may have evolved easier because of the latter. Consequently, the complex behavior “fire usage” became more sophisticated and may have served as a cultural “transition-loop” – even pushing up the reorganizations of the hominine brain.

Are the musical tempo spatially represented? Evidences and open questions

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The *spatial numerical association of response codes* (SNARC) suggests the existence of an association between number magnitude and response position, with faster left-hand responses to small numbers and faster right-hand responses to large numbers (Dehaene et al., 1993). Moreover, Rusconi et al. (2006) showed that the internal representation of pitch height is spatially organised, especially in participants with formal musical education (i.e., *spatial musical association of response codes*: the SMARC effect). We investigated whether a similar association exists between time in music (beats per minutes) and the spatial position of response execution. Both direct and indirect tasks were performed by naive subjects. The first task was to judge whether a beat sequence was faster or slower than a reference sequence pressing the right/left key with the right/left hand. The second task was to judge the timbre of beat sequences (metronome vs. non-metronome). Results showed a global trend with faster left-hand responses to *slow* beats and faster right-hand responses to *fast* beats. We can conclude that the musical tempo is spatially represented the same as pitch height and the number.

Effects of mood-inducing film material on autobiographical memory, life satisfaction, and expectations

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This research investigates mood-dependent memory in the laboratory induced by happy and sad film material. Previous research suggests that memory recall is mood-congruent. However, effects of mood-congruent or mood-incongruent autobiographical memory on life satisfaction have been less extensively explored. In this study 80 participants (aged 50-80 years) were examined. Mood was controlled and participants' recall of autobiographical memories in these induced states was examined with respect to life satisfaction and life expectation. In the first step, general life satisfaction was obtained through scaled questionnaire on two samples of 40 participants. In the second step, two weeks later, followed the first session of mood-induction using film material. One sample was the sad-mood condition and the other sample the happy-mood condition. Subsequently, a questionnaire was administered to evaluate participants' mood after the film. A second questionnaire examined autobiographical memories and a third questionnaire looked at the effects of the induced mood on life satisfaction and life expectations. Third step was three weeks later, the same procedure was repeated except the participants in the happy-mood condition were now in the sad-mood condition and vice versa. One of the hypotheses is that induced mood states influence autobiographical memory, which in turn affects life satisfaction and expectations.

Individual differences in perceiving emotional stimuli

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Emotional stimuli have an advantage in the information processing compared to neutral ones. They have an effect on attention, memory, and decision-making, as well as they predict behavioural tendencies like approach and withdrawal. Gray's theory of the *behavioral activation/approach system* (BAS) and *behavioral inhibitory system* (BIS) provides the theoretical background for our study. The BAS is responsible for the signs of reward and goal-oriented behavior, while the BIS is connected to the perception of threat. It increases vigilance and anxiety, and is sensitive to unpredictable circumstances and punishment. In the experiment, participants filled out the BIS/BAS scale and rated 24 pictures from the *international affective picture system* (IAPS) on three dimensions: (a) pleasantness, (b) arousal, and (c) control over the emotional state evoked by each picture. Results show that high scores on BAS correlates with the valence, that is, people who are more motivated to find and achieve new incentives find the IAPS pictures more positive. The BIS scores correlated negatively with the sense of control. It means that people who have stronger concerns or who are more anxious may feel to be more overwhelmed when they view the emotional pictures.

MENTAL HEALTH

The role of martyrs' wives remarriage in their children's mental health, self-esteem, and educational achievement

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The present study aims to clarify the role of martyrs' wives remarriage in their children's mental health, self-esteem, and educational achievement. There were 142 secondary students from martyrs' families selected randomly for this study. To collect the data, General Health Questionnaire-28 (GHQ-28), Self-Esteem Scale and GPA (educational achievement) were used. The independent t-test was used to analyze the data. Results demonstrated that there was no significant difference between students whose mother had remarriage and those whose mother had no remarriage on mental health, self-esteem, and educational achievement. Results showed that there was a significant difference between boy and girl students on mental health and self-esteem, i.e., boys obtained higher mean scores on self-esteem and lower scores on mental health.

Relationship of self-esteem and mental health with psychological well-being of parents of normal and borderline children

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The aim of this research is to ascertain the relationship of self-esteem and mental health with psychological well-being of parents of normal and of borderline children in Saravan City (Iran). The sample consisted of 317 parents of normal ($n = 163$) and borderline ($n = 154$) children who were selected at random for this study. To collect the data, Self-Esteem Scale, General Health Questionnaire-28 (GHQ-28) and Well-Being Questionnaire were used. Results demonstrated that self-esteem had significant positive relationship with life satisfaction, spirituality, happiness and optimism, personal growth, having positive relationships with others, autonomy, and overall scores of psychological well-being. Results demonstrated that physical symptoms, anxiety, social dysfunction, depression, and overall scores of mental health were negatively correlated with psychological well-being and its subscales. Results of stepwise regression illus-

trated that when life satisfaction was entered into regression equation in the first step, it explained 28.8% of the variance in self-esteem. In the second step happiness and optimism explained 4.6% of the variance in self-esteem, and in the third step the overall scores of well-being accounted for 0.9% of the variance in self-esteem. Finally, life satisfaction accounted for 19.4% variance in mental health.

Attitudes of parents of multiple handicapped children toward the process of deinstitutionalization

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Deinstitutionalization and dehospitalization are models of operational principles of normalization, individualization, and integration, a means to encourage building lasting relationships in the family (biological or foster). The attitude to overprotect children with disability can threaten family functioning and their independence. To analyze and to assess attitudes about the process of deinstitutionalization we designed a questionnaire. The study included 34 families from the territory of the Republic of Serbia with a child/children with multiple disabilities hospitalized in a home for children and youth in Veternik. The results of the research indicate that a very high percentage (85.3%) of parents surveyed do not consider the return of children and youth with disabilities a better solution. The 79.4% of the parents/guardians believe that the return of the child to the family can disturb family functioning. From the analysis of our results and an analysis of the pertinent literature we can conclude that families with disabled children are quite worn and there is great fear and resistance to the process of deinstitutionalization.

Planning treatment goals and assessing goal attainment in inpatient psychiatric rehabilitation: The effects of implementing the BIT-CP

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Background treatment goals fulfil multiple tasks in psychotherapy: They serve to disclose and reflect therapeutic values and standards and they form the basis of decision-

making in selecting and planning treatment. Moreover, treatment goals have a therapeutic effect by themselves and serve as criteria for evaluating outcome. In (psychiatric) rehabilitation, therapeutic goals are essential for planning treatment and evaluating outcome. The present study examined the effects of the Bern Inventory of Treatment Goals (BIT-CP) in inpatient psychiatric rehabilitation with respect to (a) selecting goal themes, (b) formal quality of therapy goals, and (c) the level of goal attainment. A total of 835 patients (68% of them female), with a mean age of 44.78 years ($SD = 8.63$) participated. Themes, formal quality, and level of goal attainment were compared prior to and after implementation of BIT-CP. Treatment goals set prior to the introduction of this tool were defined in categories and rated afterwards. After implementing BIT-CP, treatment goal themes changed. The level of goal attainment did not change significantly. The formal quality of therapy goals improved slightly and significantly. A clear effect became apparent, however, with regard to sustainability of therapeutic effects: One year after rehabilitation ended, 651 (56%) of respondents recalled their goals of rehabilitation, whereas prior to introducing BIT-CP, only 184 (36%) recalled their goals.

Attachment organizations and maladaptive schemas in psychiatric disorders

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Attachment theory suggests that insecure attachment styles are associated with risk to psychiatric disorders, especially depressive symptoms. Recently, increased attention has been focused on attempts to identify variables that mediate links between insecure attachment and various types of distress. One of the significant mediators is dysfunctional attitudes. The Experiences in Close Relationships Scale (ECRS; Brennan et al., 1998) was used to examine attachment anxiety and avoidance among 50 clinical patients diagnosed with depression, anxiety disorders, and borderline personality disorder (BPD). The Schema Questionnaire (YSQ; Young et al., 2003) was administered to identify maladaptive schemas. Results are consistent with attachment theory's assumptions that individuals with higher levels of attachment anxiety are more likely to develop depressive symptoms. BPD patients experience higher levels of both anxiety and avoidance in their romantic or intimate relationships. Patients assigned to the borderline personality disorder group scored significantly higher than those in the depressive group on the four maladaptive modes.

Theater as psychotherapy model

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This proposal of communication refers to a research experience conducted in The Experimental Laboratory of Theater at Verona University in a Ph. D. research project with University of Porto. The research project studies the construction of dramatic narratives as a psychotherapy model. The current study clarifies the resources of the construction of narratives through theater as well as identifies the psychological process evolved on the search of signs and significance of symbolic action during a dramatic performance. During the communication a semiotic approach to explain the process of identification that occurs in the triadic relationship between actor, personage, and spectator will be presented. Considering the significance of a theatrical sign, the actor as spectator identifies the scene with a life episode that makes possible the construction of a scene as a representation of life episode. This scenography construction of a narrative of life is made through the techniques of improvisation theater. In this brief, the main cluster that we intend to analyze is how the actor's dramatic performance allows the transformation of the performance through a re-significance process of the dramatic narrative.

SPORT AND PERSONALITY

EDdiction or Exercise Dependence? The sacrifice of wanna-be beauty

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Beauty, youth, and health are challenging expectations of the consumer society. Doing exercises contributes to achieving desired body image; however, extreme commitment to sport can be recognized as disease. Exercise dependence (ED) is a newly identified behavioral addiction, causing physical and mental problems while the pleasure of exercise declines. The objective of the present paper is to explore the volume and frequency of ED in a Hungarian

sample. Questionnaire survey was designed using Exercise Dependence—Hungarian version (EDS-HU) and Exercise Addiction Inventory (EAI) scales. The survey was conducted in 2010 by the Department of Clinical Psychology and Addiction (ELTE). The final sample consisted of 1745 subjects (58.6% females, $M_{age} = 31.7$ years). Our findings showed: 2.5% of the sample does exercises monthly, 27.2% three times per week and 4.9% daily. Sports are done three hours per week by 17.4%, and 6.0% does more than 10 hours per week. Six-and-a-half percent participates in sports seriously as sportsmen. EDS-HU showed 3.7% has severe ED while 70.3% belonged to the risk group. EAI detected 7.9% of exercise addicts. The two scales showed strong association. Further, EDS-HU and EAI scores were significantly correlated with exercise attendance. The findings detected that ED is significantly higher among sportsmen (6.3% on EDS, 13.1% on EAI scale). The present findings underline the relevance of investigating different approaches to ED, and thus the increasing demand of widespread and deep research in ED.

The analysis of psychological characteristics and psychological skills of prospective tennis competitors for adequate selection of somatic and cognitive techniques in enhancement of self-efficacy behavior

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Taking a sample of 68 tennis players, aged between 12 and 14-18, the differences in selected seven dimensions of psychological characteristics and psychological skills were obtained by one-way analysis of variance. In the empirical part we were trying to analyze the psychological performance skills and characteristics together with the level of psychosomatic distress (state anxiety) in competitive players. Based on previous experience in practice, the adopted psychological self-evaluation questionnaire of psychological characteristics and psychological skills was specially designed. Our long period observations and experience in the coaching process confirm our conclusions. Comparison has shown that older players have no better psychological characteristics and have even more problems with the psychological skills for effective stress reduction control. Further more, results suggest significant differences in the dimensions of self-confidence, activation control, and positive energy in favor of younger ones, especially between 12 and 14-18-year-old female players. The obtained results provide quick feedback information for sport psychologists. Such approaches offer more effective selection of somatic

and cognitive techniques for stress reduction and enhancement of self-efficacy behavior.

Locus of control, ego strength, and self-talk in athletes

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The research is aimed at studying the link between locus of control, ego strength, and types of self-talk in athletes. Research topic is based on the assumptions of ego-defence theory about the activation of characteristic psychological ego-defence mechanisms in the situations of experiencing success and failure. We start from the thesis that athletes with stronger ego and internal locus of control would believe more in positive and negative effects of self-talk on success in practicing sports than athletes with weak ego and external locus of control. Independent variables are locus of control and ego strength, while dependent variables are belief in self-talk and types of self-talk used by athletes. The following instruments were used in the research: Rotter's Locus of Control Scale (Rotter, 1966), Cattell's Ego Strength Scale (Cattell, 1978), Belief in Self-Talk Questionnaire and Type of Self-Talk Questionnaire. The study was conducted on the convenient sample of 120 athletes practicing different types of sports, aged 16 to 30. The findings of this research can help in obtaining better knowledge of psychological mechanisms contributing to athlete's success and in bringing about a differentiated approach during training process.

Mindfulness, temperament, character, and sport

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Mindfulness is a widely used phenomenon in sport psychology settings. It is used for describing the state of being present in here and now situations or self-awareness. Cloninger's bio-psycho-social theory about personality is widely used for describing temperament and character differences between various samples. In our study we used the Mindful Attention Awareness scale and the abbreviated version of Temperament and Character Inventory for finding differences in mindfulness and personality characteristics between athletes and non-athletes. In a sample of 100 athletes and 103 non-athletes we found that athletes have higher scores on the mindfulness scale, are less harm avoidant,

and more self-directed than non-athletes. In our presentation we will explain these differences from a bio-psycho-social perspective and from the metatheoretical approach of self-determination.

PERCEPTION

Psychophysical approaches to texture appearance

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Although belonging to the ordinary language, the word *texture* has been employed in visual science with a strict technical meaning. Accordingly, since the seminal researches of Julesz and Gibson, a texture is defined on the basis of the properties that characterise a visual object as owning an internal regularity and being distinguishable from other images. Human sensitivity to textural properties has been psychophysically investigated by manipulating either the overall image statistics or the structural architecture of a textured surface, which results from the combination of basic microstructures or features. Both those approaches contribute to account for the phenomenal *appearance* exhibited by a texture. In this contribution, the relevance of texture appearance is discussed in the light of its ecological function to provide information about the material properties of an object and to determine its perceived size.

The Poggendorff illusion before Poggendorff

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The mosaic Lunetta di San Lorenzo (5th century, Mausoleum of Galla Placidia, Ravenna) is a unique piece of art for its time, not only because of its vivid style in contrast with the rather hieratic pictorial representations of the same period, but also because it shows two curious visual effects: a transparency effect of gold over gold, and an effect of phenomenal collinearity between two parts of a cross which are instead physically misaligned. Both effects are found within the area of the saint's halo. In a previous study we argued that the geometrical misalignment is related to the Poggendorff illusion, which induced the artist to seek for a perceptual alignment. However, the geometrical misalignment was greater in the original mosaic than the average misalignment determined experimentally. This difference was addressed by projecting a silhouette rendering of the mosaic on a large screen, simulating both size and height of

the saint viewed from ground level. Participants aligned one end of the cross to the other from two different viewpoints: 1) a distance of 50 cm, frontoparallel to the projection; 2) a distance of 750 cm, 450 cm below the projection. Results from Condition 1 are similar to those obtained in our previous experiment. Results from Condition 2 are consistent with the geometrical misalignment of the original mosaic, supporting the hypothesis that the artist was aware of the misalignment illusion, noticed when he inspected the mosaic from ground level.

Classical and inverted lightness illusions: Comparing White's and Wertheimer-Benary effect

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Some of the most known lightness illusions, like White's effect or Wertheimer-Benary (W-B) illusion, occur when the luminance of the test region lies between the minimum and maximum luminance value of the inducing areas. However, while in certain condition White's effect inverts when target patches are lighter or darker than inducing areas (Ripamonti & Gerbino, 2001), no such effect was confirmed for the inverted version of W-B illusion (Huang et al, 2009). In this research, we varied contrast of the surrounding areas and target luminance in both White's and W-B display, to create three experimental conditions: (a) "classical" illusion with target patch luminance lying between minimum and maximum luminance of the two surrounding areas, (b) "double increment condition" with the target patch being the lightest surface on the display, (c) "double decrement condition" with the target patch being the darkest surface in the display. The luminance of the background components varied between 1.8 cd/m²-170 cd/m², while target patches varied between 3.8 cd/m²-121 cd/m². Subjects were instructed to rate the perceived brightness of the target patches against a set of standard luminance patches presented on the computer screen. While White's effect inverts according to previously established rules, results for W-B illusion showed that, contrary to previous findings, inverted effect can be observed in both decrement and increment variant of the W-B display.

Central and peripheral coherent motion discrimination in autism spectrum disorder

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Autism spectrum disorder (ASD) has been associated with a decreased *coherent dot motion* (CDM) performance, a task that measures dorsal-stream sensitivity as well as fronto-parietal attentional integration processing. In order to clarify the role of spatial attention in CDM task, we measured the perception of coherently moving dots displayed in the central or peripheral visual field in ASD and typically developing children. A dorsal-stream deficit in children with ASD should predict a general worse performance in both conditions. In our study, however, we show that in children with ASD, CDM perception was selectively impaired in the central condition. In the ASD group, central CDM efficiency was predicted by the ability to zoom out the attentional focus. These findings suggest that a dysfunction in the attentional network might help to explain the decreased CDM discrimination as well as the “core” social cognition deficits in ASD.

EDUCATION AND ACHIEVEMENT

School achievement—Is it more than intelligence?

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Intelligence is generally known to be the best predictor of school achievement. Moreover, different personality dimensions have been identified to play a role in academic effort. This study presents a broad investigation of predictor variables of school achievement, not only including intelligence and personality, but also self-discipline, interest, and motivation. Of further interest is the interaction of these predictor variables in a structural equation model, focusing on the relations between interest and intrinsic motivation, extrinsic motivation and self-discipline, as well as between intrinsic and extrinsic motivation. A sample of 464 eight graders completed questionnaires of self-discipline, interest, intrinsic and extrinsic motivation, self-efficacy, ability-self-perception, work avoidance, and conscientiousness in the fall of 2011. Intelligence test scores were assessed in summer. Hierarchical regression analyses, which were performed for grades in math, German, and English, show that other constructs beyond intelligence also contribute to the explanation of school achievement. Moreover, intrinsic motivation was found to be related to extrinsic motivation. Further analyses will be discussed.

Statistics anxiety, state anxiety during an examination, and academic achievement

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In subjects such as psychology, statistics anxiety is widespread among students and may lead to severe problems over the course of a study: e.g., students may experience learning difficulties or show lower academic achievements. The study investigates how statistics anxiety, attitudes, and trait anxiety, as a general disposition to anxiety, influence experiences of anxiety as well as achievement in the statistics exam. Participants of the study were 284 psychology students. Two weeks prior to the examination, participants completed measures of statistics anxiety, attitudes, and trait anxiety. At the beginning of the statistics examination, students assessed their present state anxiety. After 25 minutes, students gave another assessment of their anxiety at that moment. Examination scores were recorded. Structural equation modelling techniques were used to test relationships between the variables in a multivariate context. Statistics anxiety had a two-fold relationship to performance: via state anxiety experienced immediately before and during the examination, statistics anxiety had an indirect, negative influence on performance. Contrary to initial expectations, statistics anxiety also had a direct, positive influence on performance. This result may be explained by students' motivational goals. Students with high degrees of statistics anxiety should experience debilitating levels of anxiety in the exam but they should be motivated to invest effort in the exam preparations.

Emotional and cognitive evaluation of university examinations

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A convenience sample, made up of 700 university student of diverse curricula and majors (Economics, Psychology, Medicine, Sociology, Education, Law, Physics, and Chemistry) responded to 62 items of a questionnaire (Likert scale format) aimed at measuring cognitive and emotional evaluation of university examination (what purpose they have, to whom they are useful, when and why they are not useful). Emotional reactions to both bad and good grades were tapped with specific questions. Some items meas-

ured attitudes towards professors' ability to gauge students' knowledge. Factor analysis yielded 10 meaningful factors, with high to low reliability coefficients: Functionality of Examinations, Anxiety, Locus of Control and Learned Helplessness with Examinations, Expectancies About Teachers, Drive to Successful Studying, Adequacy of Credits and others.

Shy adolescents at school

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On the basis of some results that emerged in a previous study carried out by our research group on shyness among undergraduate students, the current paper aims at analysing the relationships of that construct with identity styles, emotional intelligence, perceived emotional self-efficacy, and self-regulation among adolescents. The importance of this analysis lays in the fact that today's school education requires the student to be socially and academically active for his/her success. Being shy may disrupt the learning process and the development of social skills. A sample of 385 high school students (61.9% female, 38.1% male), with a mean age of 16.9 ± 3.7 , completed a questionnaire consisted of: (a) the Revised Cheek and Buss Shyness Scale (RCBS), (b) the Revised Identity Style Inventory (ISI-4), (c) the Emotional Intelligence Scale (EIS), (d) the Perceived Emotional Self-efficacy Scales (AP_EN; AP_EP), and (e) the Adult Temperament Questionnaire (ATQ). Data were submitted to causal analyses to examine the intercorrelation between the variables of interest. The preliminary data showed that all variables were significantly correlated. Particularly, shyness correlated positively with diffuse-avoidant style, and negatively with regulation and use of emotion. The results suggest additional investigations on a larger sample of subjects, above all because of the lack of studies investigating this topic.

Dealing with procrastination: Role of group treatment program

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The aim of the present study was to assess the effect of a group treatment program on students' procrastination levels. A structured program was developed and applied by utilizing group counselling process. A five-week, 90 minute program was developed based on the Ellis's ABC model. Fourteen students (five female, nine male) participated in the study to overcome their procrastination tendencies. They completed Procrastination Assessment Scale-Student and General Procrastination Scale in the first and the last session of the process. They also filled out the questionnaires eight weeks later at the follow up session. During the process, the participants identified their irrational thoughts along with the cognitive distortions associated with their procrastination tendencies. They also practiced coping strategies to overcome their procrastination. The data was analyzed by using Friedman test to evaluate differences in medians of academic and general procrastination. The results revealed a significant decrease in the participants' both academic procrastination and general procrastination scores.

NARRATIVE PSYCHOLOGY

Responsibility and communicative memory

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Narratives of group history contain a number of intentioned and non-intentioned elements which help in understanding the hidden patterns of group identity. Since David Carr's classical study, it is clear that just as individual people create a life story for constructing their identity, communities construct their own "curriculum vitae" in a similar fashion by means of history. Societal discourses regarding events of the recent past (which are typically *immature* in terms of identity construction) can be interpreted using Jan Assmann's theory explaining the differences between cultural and communicative memory. Laic narratives of the Hungarian political transition of 1989-90 are adequate *imprints* of the communicative memory. The process occupies a specific locus in the collective memories of Central-Eastern European societies. At the last Alps-Adria Psychology Conference, I made an attempt to summarize the differences in the laic narratives of the transition process between generations, using content analysis. The current experiment deals with the question of responsibility. The research focused on the linguistic indicators and markers of

micro-, mezzo-, and macro-level of the sense of responsibility. My preliminary hypothesis was justified: the question of responsibility shows strong correlation with the previously validated activity-passivity index, and with several other indicators elaborated by the Pécs research team of narrative psychology led by Prof. János László.

Artistic vs. scientific creativity from the perspective of contemporary psychobiography

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There are some different opinions about the similarities and differences of artistic and scientific creativity. Authors like Arthur Koestler or Mihály Csikszentmihályi emphasize the essential similarities; meanwhile Heinz Kohut claims that the products of artistic creation remain connected strongly with the author's personality much more than in the case of the scientist. If we take a look back in history, we can find a special type of the creator who was somehow trapped between the worlds of arts and sciences, and we can notice that this condition may result in special ways of self-actualization. Outstanding examples of this type are Plato, Leonardo da Vinci, Friedrich Nietzsche, and Sigmund Freud. In the history of Hungarian mental sciences and arts the most exciting representative of a renaissance man was Géza Csáth (1887-1919). Csáth was a talented psychiatrist using psychoanalysis for the first time in treating paranoid schizophrenia (under his original name József Brenner), meanwhile he was a "triple artist" (writer, musician, and painter) best known by his short stories. Living the life of a doppelgänger was not an easy job for Dr. Brenner and Mr. Csáth. During the "wild analysis" of his psychotic patient he became a morphine addict, and in 1919, at the age of 32, he murdered his wife and committed suicide. In the paper I use the method of multiple case psychobiography, and compare the life and works of Csáth with his cousin Dezső Kosztolányi, who was one of the most outstanding writers of that time in Hungary. By analysing their personalities, choices, and characteristics of their short stories about matricide, we can take a look at the personal roots of creativity and the benefits and discontents of being such a complex man as Géza Csáth was.

The effects of maternal emotion regulation on mother-child narrative co-construction of autobiographical events

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Since children's verbal and narrative capacities do not emerge until the end of the preschool period, the narratives of autobiographical events are always co-constructed in the early years. Reminiscing about positive and negative life events contributes not only to the developing autobiographical memory, but also takes part in emotional regulative processes. In the presented study we analyzed co-constructed autobiographical narratives of 3-4-year-old children and their mothers, and searched for correspondences between maternal variables of emotion regulation and content and structural characteristics of the narratives. Mothers completed the Emotional Control and Impulse Control scales of the BFQ (Caprara, Barbarelli, Borgogni, & Perugini, 1993) and the Regulatory Self-Efficacy Scale (Caprara & Gerbino, 2001). Then, mother and child were asked to participate in a conversation about a positive or negative past event that happened to the child (see Fivush, 1991). We have been investigating the texts at three levels: story characteristics, maternal characteristics, and child characteristics. Our preliminary results show differences between emotionally over-controlled and emotionally under-controlled mothers at the levels of story characteristics (e.g., ratio of number of words) and maternal characteristics (e.g., emotional appraisal). The presentation demonstrates the outcomes of further investigations which are in progress.

Does language matter? The relationship between event description, conflict evaluation, and national identification

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Intergroup biases have recently been investigated using implicit measures like linguistic abstraction or linguistic agency. Previous studies demonstrated the linguistic intergroup bias in sport commentaries, political reports, and daily news. Our study, however, focuses on historical events and investigates national identification and perceived conflict as variables which can influence the linguistic biases. Four photographs with negative and positive historical events were presented to the participants, where the labels of the participating nations were systematically varied. Different picture captions were created for each photograph, varying in linguistic abstraction or in linguistic agency. As dependent variable, participants rated each title on a 7-point scale. Finally, national identification and perceived conflict were assessed. We found that higher national identification predicted higher linguistic biases. The effect of the conflict was diverse, the perceived termination of conflict had no effect in case of in-group as negative participant; however, the quality of the present relationship influenced the linguistic biases, where worse relationship predicted lower linguistic

bias, namely participants who perceived the relationship with the out-group bad were ready to assign more awareness to the in-group in case of wrongdoings. These findings suggest that there are important variables which should also be taken into account while we are studying intergroup relations.

*SEXUALITY, GENDER, AND
CULTURAL DIFFERENCES*

**Experience of heterosexual intercourse –
Who feels what?**

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Subjective experience of sexual intercourse plays an important role in sexual behavior and satisfaction. These experiences vary across persons, from positive ones like enjoyment to negative ones like guilt and fear. So far these experiences were studied mainly in context of sexual dysfunctions. Aim of this research was to examine personality and relationship correlates of various experiences of sexual intercourse. For this purpose, Goldberg's IPIP, Experience of Heterosexual Intercourse Scale (EHIS; Birnbaum et al., 2001), and Relationship Assessment Scale (Hendrick, 1988) were administered to a sample of 194 women (currently in a relationship/marriage). Factor analysis of EHIS yielded eight interpretable factors: Feelings of Mutual Love, Focus on Partner's Sexual Needs, Desire for Partner's Involvement, Sexual "Burnout", Sexual Inadequacy and Guilt, Pleasure, Letting-Go State and Focus on One's Sexual Needs. Results have shown a variety of relations between personality traits, relationship satisfaction, and factors of sexual intercourse experiences. Hierarchical regression analyses were used, with each of eight factors of sexual experiences as criterion variables and personality traits and relationship satisfaction as predictors. Generally, results show that relationship satisfaction is, compared to personality traits, better in prediction of different components of experiences. Also, agreeableness, conscientiousness, emotional stability, and intellect predict some experiences during sexual intercourse.

**Sexual orientation change efforts:
Still trying to cure gays?**

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Even though homosexuality has been removed long time ago from both DSM and ICD, the advocates of reparative therapy in many countries are still proposing treatments supposed to change sexual orientation from homosexual to heterosexual. Even though explicit views of homosexuality as "pathology" are today marginalized in the scientific debate (but still defended by a few professionals), nonetheless some "Christian scientists" stick to the principle that the idea of homosexuality being a "sin" should be "respected", and that a client's request to change his or her homosexual orientation should be accepted. These same professionals have produced researches to claim that such a change is possible and therefore should be proposed as proper treatment for those who are not comfortable with their sexual orientation. These researches, although cited in some scientific literature, have no internal or external or construct validity, and they confuse the concept of *sexual orientation* with the concept of *sexual orientation identity*. An even more serious ethical problem rises when some clinicians, although making the difference between sexual orientation and sexual orientation identity, theorises a gay-to-straight conversion on the identity level, with no care for the individuals' actual sexual orientation.

**How free we are to be – Identification strategies of a
threatened minority and implications of stigmatization
on them**

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We explored the threatened identities and the related coping strategies of Hungarian individuals categorized by the majority as Gypsies. We were interested how minority members construct their identity, how these constructs are related to their sociodemographic background, and how they affect their coping with discrimination. Questionnaire data collected from 112 individuals revealed two socialization models that affect the preferred coping strategies at the intrapsychic and group level, while identification with the majority and the minority, in negative correlation with each another, are related to different patterns of preferred interpersonal coping strategies. These results point out that the national and ethnic identifications of Gypsies are in an antagonistic relationship in the present-day Hungarian society. The choice probably depends on the visibility of stigma. This assumption was confirmed in a second study including 215 subjects categorized as Gypsy externally (by majority). Correlations among relevant variables underpin some of the previously formed assumptions: (a) the external and internal (the subject's own) perception of the visibility of stigma are correlated, (b) the visibility positively correlates

both with the strength of minority identification and with the negativity of the representation of society (i.e., the difference between a desirable and the current society), and (c) the correlations between identification and coping strategies were reconfirmed.

How race affects the decisions about trustworthiness of faces

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A robust finding in the cross-cultural literature is that people are able to recognize faces from their own race easier than faces from other races. The goal of the present experiment was twofold: (a) how race characteristics affect trustworthiness decisions about the face, and (b) how prejudice could change the perceived trustworthiness. We used three Caucasian face-identities which differed on the level of trustworthiness. Using FaceGen modeller, we transformed the original faces into African, Indian, and Asian faces. Participants were asked to evaluate the level of trustworthiness of each face on a 6-point Likert scale. Afterwards, they completed the Bogardus Social Distance Scale attached to each stimulus picture. Results showed that participants rate own-race faces more trustworthy comparing the faces from other race. On the other hand, within the same race characteristics, judgments were consistent with the level of trustworthiness of the original (Caucasian) faces. Participant's prejudice correlated negatively with trustworthiness ratings. According to these findings, people tend to evaluate faces as not trustworthy to the same extent as they reject other races.

Linguistic representation of emotions in Japanese

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Cross-cultural psychology is one of the fields of science that study the processes of coding and deciphering emotions across cultures. A number of authors describe a specific range of emotions more accessible than others to Japanese and thus underlying emotional experiences for members of this culture. Other studies focus on Japanese emotional scripts, which guide the order of expressing and understanding emotions during communication. Furthermore, extensive researches have shown that emotional display rules in Japan result in a reduced expression of both negative and positive emotions compared to Western cultures, such as U.S. and Canada. In my presentation, after a brief summary

on the recent emotional researches connected to Japanese language and culture, I would like to discuss some questions of linguistic representation of emotions in Japanese. To do so, I rely on the concept of the linguistic category model of Semin and Fiedler. My quantitative research investigates emotional expressions in Japanese, compared to Hungarian and English, in terms of amount and linguistic abstractness, as they appear in translated texts.

EDUCATION AND LEARNING

Correlation of specific learning disability and intelligence-structure

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The study deals with the examination of the correlation of specific learning disability and intelligence-structure. The author supposes that dyslexic children's intelligence-structure shows typical diffused, heterogeneous image. Furthermore, a significant deficiency can be supposed between verbal and performance intelligence. During her own research, she compared the intelligence of dyslexic children, with average or above average IQ, with those who have good reading skills. The examination method was supplied by MAWGYI-R, the revised standardized form of the Hungarian Wechsler Intelligence Scale for Children. Her examinations suggest that dyslexic children's intelligence-structure shows typical diffused, heterogeneous image, compared with their contemporaries with good reading skills. This is proved by significant deficiency between verbal and performance quotients in the intelligence test. Consequently, it can be reasonably supposed that reading disabilities, despite normal IQ, are caused by uneven, diffusive, disharmonic maturity of intellectual abilities.

Visual spatial attention is the primary cause of reading acquisition

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Reading is a unique cognitive human skill crucial to life in modern societies, but for about 10% of the children learning to read is extremely difficult. They are affected by

a neurodevelopmental disorder called dyslexia. Although impaired auditory and speech sound processing is widely assumed to characterize dyslexic individuals, emerging evidence suggests that dyslexia could arise from a more basic cross-modal letter-to-speech sound integration deficit. Letters have to be precisely selected from irrelevant and cluttering letters by rapid orienting of visual attention before the correct letter-to-speech sound integration applies. In our study we tested whether pre-reading visual parietal-attention functioning may explain future reading emergence and development. Our three-year longitudinal study shows that pre-reading attentional orienting—assessed by serial search performance and spatial cueing facilitation—captures future reading acquisition skills in Grade 1 and 2 after controlling for age, non-verbal IQ, speech-sound processing, and non-alphabetic cross-modal mapping. Our findings provide the first evidence that visual spatial attention in preschoolers specifically predicts future reading acquisition, suggesting new approaches for early identification and efficient prevention of dyslexia.

Human health as the main goal of education

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Ecological pollution has become the global problem of modern men, endangering human physical and mental health, life aspirations, even personal identity. Learning about health is an important aspect of ecological education, whose basics are set in childhood and youth. The paper deals with the study about knowledge on healthy life conducted among students of the final grade of primary school in Serbia ($N = 278$, age 15). Students completed a knowledge-test consisting of multiple-choice questions about soil, air, and water pollution, harmful emissions in nature and the household, and pollution of food consumed by modern people. The obtained results indicate that the majority of students were not familiar with the facts related to preservation of human health. Two problems were identified: (a) insufficient connection between the contents learned at school and everyday life, and (b) absence of important ecological topics from the curriculum. Bearing in mind that today's young generations' health would be exposed to increasing risks of pollution, the afore-mentioned data pose a challenge for re-defining main goals of education. Hence, the development of a long-term personal perspective of the learner becomes the main objective of education: the attitude that life is a value in and of itself, consciousness that each individual has a crucial role in preserving the environment, dedication to solidarity while facing natural disasters, and so on.

HEALTH PSYCHOLOGY

Assessment of pain – How do physicians, physiotherapists, and patient agree?

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According to WHO standards, the pharmacological therapy and other therapeutic interventions in patients with pain are based on patient's assessment. The purpose of this study was to compare patient, physician, and physiotherapist assessment of pain in 30 patients suffering of low back pain. Chronic low back pain influences the quality of life in a high degree, requires a huge amount of therapeutic intervention, and influences the fitness for work. It is well-known that assessment of pain given by patients and physicians differ in many cases. Nevertheless, studies on the level of agreement between patients and their caregivers are rare. The results of our study show moderate to high differences in pain assessment between physicians and physiotherapists on the one hand and the patients on the other hand. The agreement between these assessments is dependent on the aspects of pain (quality, intensity...). The knowledge of agreement seems to be very important for future therapeutic—pharmacological and psychological—interventions in patients with pain.

Under the knife – A pain in the neck

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Degenerative spine disorders are common medical conditions in almost every Western society, causing a huge amount of financial expense for governments (12 billion GBP annually in the UK). The leading symptom is pain, the prevalence is estimated between 12-35%, and can lead to permanent disablement. According to the conventional medical management, spine surgery is thought to be a solution in several cases, but has the limit of its effectiveness. Although spine surgery is most often adequate in managing painful condition, it leads to only a 50% reduction in primary symptoms and moderate increases in functionality. About 25% of patients fail to experience relief or improvement at all. Nowadays it's considered to be a fact that that emotions and personality can strongly affect the development of pain syndromes and the patient's recovery and rehabilitation after spine surgery. In this presentation I will introduce aspects of chronic pain management, patient assessment, and

the way a health psychologist can help to improve surgical outcomes according to the latest reviews and our practice in the National Center for Spinal Disorders in Hungary.

What symptoms predict one's vitality?

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The concept of subjective vitality refers to the state of feeling alive and alert, as being vital and energetic. In previous researches vitality has been found to relate negatively to depression, anxiety, somatization, and distress. Based on these findings, we hypothesized that those symptoms would be the significant predictors of vitality. A total number of 193 Serbian employees (76 male, four undeclared) participated in the study with the average age of 40 years ($M = 40.4$, $SD = 10.8$) and average years of employment of 15.6 ($SD = 10.8$). The following questionnaires were administered: The Four-Dimensional Symptom Questionnaire, Vitality Scale and a list of demographic characteristics. The stepwise MLRA method has been performed in order to examine the relations between the four above-mentioned symptoms on one hand, and vitality on the other. Analysis indicate that distress and anxiety have highest predictive value ($R = .54$, $R^2 = .29$, $p < .001$), while addition of depression and somatization has not reliably improved prediction of vitality. In the first step, model is defined with distress ($\beta = -.54$, $p < .001$), and in the second, beside distress ($\beta = -.67$, $p < .001$), anxiety was included ($\beta = .19$, $p < .05$). The results partially confirm the hypothesis, showing that distress and anxiety are significant predictors of vitality. Since they were obtained on a relatively small sample of Serbian employees, we propose additional research on a larger cross-cultural sample in order to confirm these results.

New technologies in breathing control: Device-guided versus cognitive methods

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Breathing is a vital function for humans and an inadequate breathing control is associated with both psychological disorders and medical diseases. In order to control breathing, many methods have been developed: some of them are based on the cognitive control and are aimed to achieve a self-regulation of respiration, others are based

on the guidance of devices that provide the correct breathing rhythm. Surprisingly, these methods have never been compared, and the present study is aimed to fill this lack of knowledge. We tested 18 healthy university students, under three respiration conditions: cognitive self-regulation, device-guided breathing, and control. In the cognitive self-regulation condition, participants were asked to breathe as constantly as possible. In the device-guided condition, participants were exposed to a recorded sound of breathing, based on their own respiratory pattern, and they were asked to synchronize their breathing with the auditory stimulus. Finally, in the control condition, participants were not given any instructions regarding respiration, but they were simply asked to relax. A within-subject design was employed. The dependent variable was the variability of breathing duration. The results showed a significant breathing standardization in the device-guided condition, while in the cognitive control condition there was only a tendency to statistically significant standardization. Furthermore, the device-guided method was significantly more effective in breathing standardization than the two other conditions. These results suggest that device-guided breathing techniques are more effective than classical cognitive strategies and represent a promising frontier in psychobiological research, because of their numerous potential areas of application.

OUT OF FOCUS—Concentration in Austrian (Carinthian) asylum seekers and refugees

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Reduced concentration is a known consequence of torture and frequently occurs in the aftermath of trauma exposure. The overall concentration level among asylum seekers and refugees in Austria (Carinthia) was examined, taking into account demographic and trauma infliction preconditions as possible predictors or moderator variables. In a sample of about 50 male adult refugees from Afghanistan, concentration is assessed with the d2 test of attention, allowing for the measurement of processing speed, rule compliance, and response quality. Trauma is assessed either through psychotherapists' diagnosis (PTSD) or by means of a shortened form of HTQ, the Harvard Trauma Questionnaire. Demographic information and possible biographic markers are provided by a questionnaire. Moderator and predictor variables will be identified by multivariate methods. We expect trauma exposure to lead to a significant decline in concentration. Since PTSD criteria are still suspected to be only partly valid for non-Western civilizations, we hope to find corresponding factors to strengthen intercultural assessment and to contribute to an improvement of current Austrian asylum procedures. Furthermore, our findings might imply

an insight to symptoms of trauma victims, who do not match latest diagnostic standards.

Characteristics of families with children with congenital anomalies

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One of the most stressful situations is the birth of a child with a congenital anomaly, because the concern for life as a young child, fear, and coping with different family organizations and reactions can cause the mother and other members of the family group to undergo different functional forms of inefficiency. An analysis of the socio-economic status of families of children with congenital anomalies and their association with the type of congenital anomalies has been conducted at the Institute of Gynaecology and Obstetrics, Clinical Center of Serbia. The study sample consisted of 60 families. The results of the research show that in most cases families are incomplete, mostly single mothers. Family placement of children with congenital anomalies provides greater efficiency of early rehabilitation-rehabilitation of children, because of the possibility of involvement and training of parents in their daily work with their children, which can accelerate the process of rehabilitation.

WORK PSYCHOLOGY

Job resources – Too much of a good thing?

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In work psychology, the job demands-resources and the job demands-control models have pointed to the salient role of job resources when predicting work-related outcomes. The main assumption of the two models is that job resources are valuable job characteristics, which are functional in meeting job demands and may buffer the negative effects

of demands on work-related outcomes. However, job resources may not be inevitably beneficial, as suggested by the vitamin model. For instance, control over one's work tasks may be important for preventing burnout only to a certain point. Beyond this threshold the impact of control on burnout may even be detrimental. The present contribution strives to examine non-linear relationships between job resources (more precisely, job control) and work-related outcomes (e.g., burnout, engagement). In order to test non-linear effects of job control, a 2-wave panel study was conducted among eldercare workers ($N = 591$, 16-month time lag). Using hierarchical regression analysis with linear and non-linear terms, we found that the non-linear term of job control significantly predicted different burnout (depersonalization) and engagement dimensions (absorption, dedication) beyond the linear term. In line with the vitamin model, high levels of autonomy were not most advantageous in terms of lower burnout or higher engagement levels. Such findings may have implications for organizational interventions aimed at fostering employees' health and motivation.

Belief in a just world and responses to (un)balanced effort-outcome structures in the job search

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Based on the assumption that the *belief in a just world* (BJW) provides an interpretative framework that facilitates the assimilation of justice related events, this study aimed at exploring the role this belief may have in responses to different outcomes of another's looking for employment. The study was designed as a test of Feather's structural model of deservingness, and used a paradigm originally developed by Feather and Dawson (1997). Specifically, a group of employed and unemployed participants were presented with scenarios in which the level of stimulus person's effort and the job search outcome were manipulated. Several measures of the outcome fairness and deservingness, target's responsibility, and of participants affective responses to outcomes were used. BJW was assessed using Croatian adaptation of the Personal BJW Scale (Dalbert, 1999) and General BJW Scale (Dalbert et al., 1987). The results provided some support for the expected moderating role of the BJW in responses to the job search scenarios primarily in the employed respondents. However, the standard interpretation in terms of the strength of the justice motive does not provide a meaningful interpretation of the overall pattern. Both high and low BJWs seem to operate as frameworks for assimilation of different outcomes. Accordingly, the results will be discussed in terms of co-existence of multiple rather than single justice related schema.

**Self-assessment of managerial competencies:
The Dunning-Kruger effect**

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A common practice in training and development of managers is using a multi-source feedback rating, sometimes called 360 degree assessment. This approach recognizes that the performance of managers is complex and is comprised of several roles or domains where different groups of raters can provide insights into their performance. The process of using multiple feedback data involves three steps: assessment of performance, provision of assessment feedback, and use of feedback for learning and change. Assessments are typically performed with rating instruments which involve multiple performance domains which are reviewed by various reviewer groups and self-assessment. These data are usually analyzed to get insight into their psychometric properties and their biases. One of cognitive bias expecting to operate in this situation is so-called Dunning-Kruger effect (1999) which presupposes that incompetent people tend to overestimate their own competence. This effect is relevant information for understanding the process of feedback provision and use of feedback for learning. It's sensible to include self-assessments in the process because they are related to the acceptance of feedbacks of others. This paper analyzes the multi-source feedbacks of 37 first line managers. Nine managerial competencies were rated from their superior managers, their colleagues, subordinates, and by self-assessment. Self-ratings are not generally inflated and they generally correlate low with rating of other reviewers. Further analyses indicate some presence of Dunning-Kruger effect in self-assessment depending on which reviewer is taken as a "true" rating of competence. Since this research is based on non-experimental data, the results should be taken with caution. Implications of findings for training of managers are discussed.

**The association between job and personal resources
and work flow among higher education teachers in
Slovenia**

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The aim of the present study among Slovene higher education teachers was to explore the association between job and personal resources on one hand and flow on the other. More precisely, interactive effects of optimism and sever-

al job resources were examined. In line with the three-dimensional model of flow, absorption, work enjoyment, and intrinsic work motivation were explored as separate outcomes. Our predictions were tested using a sample of 293 participants (46.8% of which were female) which were from all three public Slovenian universities (Maribor–47.4%, Ljubljana–39.6%, Primorska–13.0%). The sample was consisted mostly of instructors (37.1%) and assistant professors (32.1%) who worked mainly in the field of social and natural sciences (31.7% and 29.0%, respectively). The participants indicated their levels of flow, optimism, and job resources (e.g., variety, autonomy, support) using the Slovenian version of work-related flow inventory, life orientation test, and job demands-resources scales. Using moderated multiple regression, we found that optimism, variety, and autonomy were the most important predictors of flow in higher education teachers. We also found an interactive effect of optimism and variety when predicting work enjoyment and intrinsic motivation. In conditions of low optimism, a positive relationship between variety and the two flow dimensions was found. When teachers experienced high optimism, the impact of variety wasn't of any important significance.

**Relationship between emotional intelligence and
self-concept among high school teachers**

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The purpose of present study is to ascertain the relationship between emotional intelligence and self-concept among high school teachers. 142 teachers (82 women and 60 men) were selected through cluster sampling method for this study. To collect the data Emotional Intelligence Questionnaire and self-concept scale were applied. For analyzing the data Pearson correlation coefficient and stepwise multiple regression were used. Results revealed that emotional intelligence was significantly correlated with abilities, worthiness, present/past/future, believes and convictions, sociability, and overall scores of self-concept. Abilities, worthiness, and believes and convictions were entered into stepwise regression equation and in the first step abilities accounted for 20.6% of the variance in emotional intelligence. In the second step worthiness explained 4.6% of the variance in emotional intelligence and eventually believes and convictions were entered into regression equation and they accounted for 3.9% of the variance in emotional intelligence.

Law and psychology

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There were two surveys which were the basis of monitoring attitudes towards law and the operation of law and of comparing results. The first, entitled "What's Our Attitude Towards Law?", was organised in the spring of 2010, while the second was held in the spring of 2011 with the title "Law and Society". The 2010 study had a national representative sample of 1000 and a sample of 100 lawyers, giving us an opportunity to determine whether possible changes in the opinions measured in the two years on the sample of lawyers came nearer or diverged. Changes between the two samples were mainly due to the changes in preferences regarding political parties. If the observed changes couldn't be attributed to changes observed in political party preferences, answers to this question were sought for among other sociodemographic attributes. The interesting thing about the comparison is that Hungarian parliamentary elections were held between the two samplings. Comparison between the results of the two surveys followed a special method: scales were composed of statements of the 2010 study according to similar subject groups that allowed surveyors to determine which was the scale where changes were detectable and what were the background variables that could explain the measured changes, with a special view on changes caused by political party preferences. Changes of the averages of scales—or uniformities, on the other hand—can reflect modifications within each subject matter, allowing the surveyors to draw conclusions. Through the examination of changes in all scale scores we were able, starting from a certain psychological viewpoint, to determine changes in the society reaching a certain social viewpoint. Political party preferences reflected changes and uniformity at once. Comparing the results to each other it can be said that the ratio of supporters of FIDESZ, the party currently in power, has decreased seriously, while the ratio of the insecure electorate has increased highly. Meanwhile the ratio of opposition party supporters hasn't changed, whereby the correlation of forces has remained unchanged, and this influences considerably changes the attitudes, too. For if the opinion of voters of the governing party changes, that surely leads to significant changes in the society as a whole.

PSYCHOMETRICS AND METHODOLOGY

Empirical validation of the RR50-index measuring the applicability of the Pearson correlation

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The Pearson correlation coefficient plays a major role in psychological research. However, only few studies report

that the requirements for its application (bivariate normality) have been explicitly checked. Our approach focuses on the presence of outliers causing spuriously high results. The algorithm of Alexandrowicz & Vitouch (2006) uses a jackknife procedure to identify highly influential yet atypical observations. It may be considered a check whether the data set may adequately be analyzed with the Pearson correlation. While the proposed method has already proven its functionality in simulation studies, a practical application shall be considered here. For that purpose, 104 pupils from Austria and Russia were given the Zahlen-Verbindung-Test (ZVT, an assessment of fluid intelligence) and an Implicit Association Test (IAT). The proposed index reliably identified pairs of variables with outliers, with the Pearson coefficient being a demonstrably inadequate measure of correlation here. A factor analysis based on these correlations including the outliers showed a heavily distorted structure, rendering the results unusable or misleading. Advantages of the method include the uncomplicated access for inexperienced users, the simple screening opportunity for extensive correlation analyses, and the compact display (a single parametric value in lieu of a scatterplot). Free software is available from the authors.

Simulation studies on the diffusion model: Episode II

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The diffusion model has been suggested to capture the distribution of correct and incorrect response times in various speeded decision tasks and typically yields excellent fit to data. In a series of parameter recovery simulations, the boundary separation, drift rate, nondecision components of response time, and variability in the starting point of evidence accumulation were varied in five steps. For each parameter combination 120 single trials were simulated 500 times. It was found that bias in parameter recovery varied depending on the parameter: recovery of boundary separation was nearly unbiased while drift rate and variability in starting point were systematically overestimated. In a second simulation study, it was examined whether the parameters of the diffusion model supposed to represent not controllable and controllable component processes map on conceptually similar parameters of the multinomial QUAD model (Conrey et al., 2005). The QUAD model has been suggested to capture automatic and controlled processes in the Implicit Association Test (IAT). Diffusion model parameters were varied based on fitted values from previous studies (Klauer et al., 2007) to generate plausible data for the IAT. Simulated data was fitted by both models. Preliminary correlations between the fitted parameter values of both models suggest that boundary separation in the diffusion

model maps onto both parameters of the QUAD model (D and OB) that reflect controlled processes.

Are Rokeach values still valuable for scientific research? Slovenian studies

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The work of American social psychologist Milton Rokeach is among the most influential research traditions of values in social sciences. On the basis of his conceptual division of values in terminal and instrumental ones (the original Rokeach Value Survey) many studies were conducted in the context of personality, behavior, and social structure, as well as national and cross-cultural studies. The influence can also be traced to other research approaches of values (e.g., Schwartz Value Survey). The author will present some of the results and findings of his research with Rokeach Value Survey on different samples from Slovenian sociocultural context. Convergences in similar underlying structure, changes in importance of values in time perspective, suitability of the conceptual division of Rokeach's values, and comparison of findings with other value research approaches will be discussed. In sum, according to analyses and evaluations of different studies, the author will try to answer the question about conceptual and applied relevance of Rokeach's approach to values.

Women, men, and invariance of horizontality: A meta-analysis of the Water-Level Test

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The Water-Level Test is a simple developmental task that has been introduced in the late 1940s to assess the concept of invariance of horizontality in children. Due to its simplicity, it was expected to be easily solvable by virtually all healthy test-takers by the age of 9. Surprisingly, subsequent test administrations showed considerable amounts of incorrect answers even in adult samples. Moreover, in most following investigations substantial sex differences favouring men could be shown, ranging from $d = -0.01$ to 1.84. In the present meta-analysis, we demonstrate sex differences in the Water-Level Test in more than 150 healthy samples ($N = 25,000+$) from 1948 to 2011. Men showed better performance than women, yielding effect sizes of about half a standard deviation ($d = 0.55$). Multiple weighted meta-regressions showed more pronounced effects in adult samples

than in samples of children and adolescents, thus conceivably reflecting emerging effects of sex-specific hormones. Effects were larger when tasks were presented as multiple choice items, whereas other variables showed no moderating influences (group vs. individual test, item number, power vs. speed & power test, published vs. unpublished study, publication year, reference vs. no reference line in task, sex of first author of study, shape of vessel). In all, our study demonstrates robust sex differences on the Water-Level Test that appear to be differentiated in regard to age and answer mode, but remain robust over time.

Environmental antecedents of children's behavioural difficulties

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Our aim is to investigate direct impact and possible chain effects of environmental variables on children's emotional and behavioural difficulties. A two-year longitudinal study has been conducted in order to collect data across three waves from two different types of raters, that is, children, aged from 8 to 12 years old at the first wave, and their parents. Specifically, children described their behavioural difficulties on Strengths and Difficulties Questionnaire (SDQ), whereas parents gave information about their own difficulties as well as their family psychological environment (perceived stress, support, parenting styles). Preliminary results revealed that children's SDQ scores at T2 are predicted by Family Problems at T1 and Stress levels at T1. Moreover, results revealed that there was a synergic effect in prediction of children's SDQ scores at T2 between Family Problems at T1 and Stress levels at T1. These results suggest that children's perception of their Strengths and Difficulties at T2 is temporally linked to some environmental variables as they are perceived by their parents. Finally, we hypothesize that the effect of Family Problems as referred by parents at T1 on children's Strengths and Difficulties at T3 is mediated by parents' Stress levels at T2.

Usability of a face-recognition based login-challenge

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A standard password or PIN could be easily spied out, e.g., by a quick glance over an owner's shoulder when the access code is entered, or by listening in to a conversation where the secret key is blabbed to another person. Graphical passwords, which are composed from images rather than letters or digits, are an elegant way to circumvent such trivial attacks, as arbitrary and perhaps complex images are much harder to memorize upon a momentary glimpse. With the human brain being evolutionary specialized on recognizing human faces (Pascalis & Kelly, 2009), why not use faces to form a pass-code? To investigate the usability of such an alternative we conducted a series of field-trials with a prototype implementation of a graphical password authentication system, where participants had to select, memorize, and recall a sequence of either three or four faces from a login-screen, which depicted 12 randomly assigned and synthetically generated faces. We conducted a quantitative statistical analysis to evaluate error rates. Our qualitative investigation showed—in line with the findings in previous research (e.g., Van Belle et al., 2010)—that in addition to the overall impression of the faces (physiognomy, etc.) a majority of respondents considered a number of biometric determinants to memorize and distinguish the faces used for our prototype. Furthermore, we observed a strong willingness to accept face-recognition based authentication as an alternative to conventional passwords.

CREATIVITY, SPIRITUALITY, AND THERAPY

Psychoenergetic Drawing®: Processing of emotions and insights through the use of color and graphic movement and words

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This technique of drawing has been managed according to the principles of the Psychoenergetic of Peter Schellenbaum. The patient is invited to concentrate on the predominant emotion and to let the colors that he feels at the time flow on the paper sheet, in an almost sub-vigilant state, according to the *energetic signals* that he shows. The patient is invited to express the feelings drawing arouses in him. The therapist accompanies the flow of emotions and memories, always in resonance with the patient. Psychoenergetic Drawing® is very useful in processing the emotions coming out from the work with encoded and symbolic images. There is continuity between the work with these images and Psychoenergetic Drawing®: the same graphic patterns, colors, and shapes appeared in drawing the symbolic images, and in processing the energetic signals through Psychoenergetic Drawing®. This process allows the psychotherapist to

calibrate the complex psychological processing according to the resources and possibilities that the patient has in the present moment. Psychoenergetic Drawing® has proven to be very useful in the elaboration of psychological trauma, where the psychotherapist must proceed with great delicacy and caution in the development of traumatic contents.

Agency and mentalization in the stories of divorced people

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In our investigation life stories of divorced people were analyzed. Dictionary-based local grammars were developed within the NOOJ integrated language-analysis environment for psychological narrative content-analysis. This software enables morpho-syntactic, textual level analysis. The markers of agency and mentalization were identified in these texts. Agency is the ability to act effectively and has a wide range of psychological forms: e.g., dominancy, autonomy, self-efficacy, and coping. Mentalization is the ability to attribute mental state to others and the self; it allows us to perceive and interpret the behaviour in terms of intentional mental states (e.g., goals, purposes, feelings, beliefs, and emotions). The results of the narrative analysis are interpreted and discussed focusing on the relationships with the measured attachment style of the person, the preference of the way of coping, and the status of intimacy-isolation life crisis (Erikson).

Ethical concepts, clinical symptoms, and coping behavior: Differences and similarities in Christian and Muslim cultures

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According to Shweder's cultural psychology, Western societies orient by (a) *the ethic of autonomy*, whereas Asian and African ones also endorse *the ethics of* (b) *community* and (c) *divinity*. In Study 1, we tested these assumptions by comparing value descriptive nouns from a German, Arabic and Northern Sotho (African) lexicon. These concepts were rated by Christian native speakers from Austria ($N = 456$) and South Africa ($N = 400$) and Muslim ones ($N = 737$) from Egypt with respect to their importance as guiding mo-

tives in life and the ratings were factor analyzed. Among other specificities, results pointed to an individualist approach to religion in Austria and a community oriented, holistic one in Egypt and South Africa. In Study 2 we tested cultural hypotheses on clinical symptoms and found distinct patterns of posttraumatic stress in Muslim refugees from Chechnya ($N = 50$) and Afghanistan ($N = 50$) and Christian ones from West Africa ($N = 50$). Study 3 tested assumptions on culturally specific coping behavior in Muslim migrants from Chechnya ($N = 94$) and Turkey ($N = 66$), suffering from posttraumatic stress and/or depression. Whereas the Chechen clients benefited from community oriented group interventions, those from Turkey did not, reflecting cultural differences between the two groups. Differences and similarities found in the three studies are in accordance with the hypotheses derived from Shweder's theory and will be discussed within this conceptual framework.

Attachment to God, religious coping, and God image

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Relation to God characteristic of each person is an important variable in the psychological study of religiosity. Though authors do not investigate the issue in this presentation, individual experiences—both religious and non-religious—lead to specific representations of God, a God image characteristic of each person. This image of God affects how our relation is formed with God—both in general and at times of adversities. Authors investigated how attachment to God and religious coping relate to God representation. We hypothesized that high attachment avoidance and negative religious coping would be related to a distant, philosophical God; while low attachment avoidance and positive religious coping to a merciful, benevolent God. Further we expected high attachment anxiety to be connected with higher level of negative emotions toward God. We tested our hypotheses on a sample of 45 Roman Catholics (30 female; 27.83 ± 5.62 years of age) by using Attachment to God Inventory, Brief RCOPE and free associations to the word "God". We analyzed data with SPSS for Windows 17.0 and SPAD-T. As results three dimensions of God representation emerged: (a) level of abstraction (abstract vs. specific); (b) formality of relation with God (formal-normative vs. informal-personal); (c) transcendence of God (transcendent-mystical vs. reductive-psychological). Connection of the dimensions with other variables partially confirmed our hypotheses.

PERSONALITY

The Big Five and the general factor of personality: Predictive power for different aspects of well-being

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The present study focused on different aspects of subjective well-being: emotional (EWB), psychological (PWB), and social (SWB). We were interested in predictive power of the general factor of personality (GFP) as compared to the predictive power of the Big Five personality traits for the three aspects of well-being. We expected the GFP to explain about the same proportion of the variance in well-being as the Big Five personality traits. Our study included 1064 participants (293 males and 771 females) aged from 18 to 91 years ($M = 38.9$; $SD = 16.1$ years). They fulfilled the Big Five Inventory (John, Donahue, & Kentle, 1991) and the Mental Health Continuum – Long Form (Keyes, 2002). After controlling for age and gender, the Big Five personality traits predicted from 27 to 31% of variance in well-being, thus supporting previous findings about the importance of personality for individual's well-being. The highest proportion of variance of all three aspects of well-being was explained by extraversion and neuroticism, while PWB and SWB were accounted by other personality traits too. The GFP explained nearly the same proportion of the variance of PWB and SWB as the Big Five personality traits, whereas the predictive power of GFP for EWB was somewhat lower than of the Big Five. According to the evolutionary perspective, these results may reflect an adaptive function of the GFP that is also shared by PWB and SWB, but not by EWB.

Predictive and protective factors in gambling

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Economic crisis and online gambling are some of the factors that are causing the exponential increase of players. The current research focuses on those factors which could protect against the negative outcomes of gambling. We examine the role of: (a) identity styles and motivational con-

structs as potential predictive factors of risk and/or pathological behaviours, and (b) potential protective factors such as resilience. The aim is to analyse the relationship between the above mentioned variables, including self-esteem and locus of control, and gamblers' behaviour. Four hundred and eight participants (67.6% female, 32.4% male), mean age 22.13 ± 5.1 , filled out a questionnaire composed of: socio-anagraphic data, South Oaks Gambling Screen (SOGS), Resilience Scale for Adults (RSA), Rosenberg Self-Esteem Scale (RSES), Identity Style Inventory (ISI4), Locus of Control Behavior Scale (LCB), and Gambling Motivation Scale (GMS). Causal analysis is applied to assess the relationships between the variables. Preliminary analyses showed a significant correlation between gambling levels and age ($r = .134$), LCB ($r = .165$), intrinsic motivation ($r = .44$), extrinsic motivation ($r = .406$), amotivation ($r = .34$), informational style ($r = -.255$), diffuse-avoidant style ($r = .122$), self-perception ($r = .235$), structured style ($r = .175$), family cohesion ($r = .16$), and social resources ($r = -.213$). Deeper analyses will be discussed. The findings suggest a need for additional research on a larger sample.

Personality continuity from middle to late childhood

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Personality continuity in childhood is generally investigated via parents' ratings of their children's personality. The present longitudinal project is aimed at exploring how children's ratings of their own personality are stable across two years. Both 8- to 12-year-old children and their parents provided children's personality descriptions along questionnaires developed to assess the main five factor model domains of personality; three waves of data were collected. Different forms of continuity were explored (absolute, rank-order, individual continuity) for both children's and parents' ratings. Possible inter-links between children's and parents' descriptions were observed as well. Results showed that children's ratings are relatively stable for boys and girls (although less stable than their parents' evaluations), but marginally associated with their parents' reports. Implications for personality continuity and change assessment in childhood are discussed.

Age-related differences in explicit and implicit self-esteem

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Self-esteem is one of the main concepts in social psychology. In the last decade there is growing interest in the so-called implicit dimension of self-esteem which works at an automatic level, hence mostly inaccessible to introspection. The main purpose of this study was to investigate implicit and explicit self-esteem in two age groups. The samples of 30 participants each (ages 17-35 years and ages 58-86 years) were compared using data of Implicit Association Test and an explicit measurement (Multidimensional Self-Esteem Scale; Schütz & Sellin, 2006). Results show significant enhancement of self-reported emotional self-esteem in later life but no meaningful difference in implicit self-esteem. Goal of the second part of the study was to identify controlled and automatic cognitive processes underlying IAT-performance. There is evidence that executive functioning plays a role in IAT but until now it was rarely taken into account. Especially when exploring age-related differences we have to consider systematic differences in executive abilities producing biased IAT-effects. QUAD model (Conrey, Sherman, Gawronski, Hugenberg, & Groom, 2005) is used to disentangle four cognitive processes that are relevant for IAT-performance. Modelling aims at understanding the data under consideration of cognitive decline in older age.

Intrinsic motivation and self-regulation

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The presentation deals with the relationship between motivational regulation styles, especially intrinsic motivation based on the self-determination theory (SDT; e.g., Ryan & Deci, 2002), and different aspects of implicit self-regulation (Kuhl, 2010), and meaning of life (e.g., Schnell, 2010). Hanfstingl et al. (2010) found out that the postulated connection between basic needs (autonomy, competence, and social relatedness) and intrinsic motivation is not a direct one, but mediated by facets of implicit self-regulation. Further analyses showed that this mediating effect is probably only detectable when people are very highly motivated. To investigate this problem in more details, 300 people with high motivational variance were asked to fill out the following instruments: Volitional Components Inventory (VCI; Kuhl & Fuhrmann, 2008), the scales Meaning of Life and Crisis of the Sources of Meaning and Meaning in Life Questionnaire (SoMe; Schnell, 2009), Resilience Scale of Schumacher et al. (2004), and a questionnaire to measure the motivational style based upon SDT. The data show that subgroups clustered by meaning of life, crisis, and resilience differ highly significant in self-regulation, motivation, and basic needs fulfillment. They also show different patterns

of correlations between these variables. Whereas highly motivated still show connections between motivation, self-regulation, and basic needs, these connections disappear in the lower motivated group.

NEUROPSYCHOLOGY AND PSYCHOPHYSIOLOGY

Different processing of fractions in left and right hemisphere

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Fractions can be processed using a global approach, when we extract the numerical value, a componential approach, when we focus on the numerator and/or denominator, or with both approaches. We investigated how the left (LH) and the right (RH) hemispheres deal with these different approaches. We used a priming paradigm where both the prime and the target were fractions. There were four prime-target relations: fractions with Same Numerator (SN), Same Denominator (SD), Multiplicative (MULT) and Unrelated (UNR). The prime appeared centrally, while the target appeared in the left (RH), or in the right visual field (LH). The task was to compare the target with the fraction 1/2, or the number 1. When the target was compared with 1/2, RTs were faster with the SN fractions than with the SD, and LH faster than RH. Moreover, the target-standard absolute distance predicts RTs of fractions in both the LH and RH, while the target-standard componential distance predicts RTs of fractions when they were presented only in the RH. When the target was compared with 1, RTs with the SN fractions were the fastest. Only the target numerator-denominator distance predicts RTs of fractions presented in both hemispheres. Our results showed that during fraction processing the RH can use both a global and/or a componential approach, but the LH can use only a global approach. Task demands influenced the strategy used in our experiments.

A neurocomputational account of mental curve tracing

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A neural model is proposed whose temporal dynamics simulates the properties of mental curve tracing. Behavioral studies revealed that the tracing is a time consuming process that serially spreads attentional label along the target curve.

However, the speed of tracing is not fixed and it could be flexibly adjusted depending on the density of image elements. Single-unit recordings in the monkey primary visual cortex showed that tracing is associated with elevated firing rate for neurons whose receptive field fall on the traced curve. In order to explain behavioral and neurophysiological findings, the proposed model implements a novel form of neural filling-in that enables activity spreading along the target curve. Filling-in occurs at multiple spatial scales in order to account for different speeds of tracing. The model implements object-level competition and selection among distinct image elements. Computer simulations showed that the model exhibits appropriate scaling of tracing speed with distance between curves, thus emulating the hot spots of attention. The speed of tracing slows down when the curves are close to each other and speeds up when they are far apart. Furthermore, the model is able to store the traced pattern in short-term memory. Results of computer simulations suggests that the proposed model captures important aspects of the mental curve tracing offering new insights into neural processes involved in this important visual ability.

Can training change individual differences in ability?

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Functional changes in the brain induced by training are increasingly investigated in neuroscience. Training programs range from perceptual and motor activities to working memory (WM) and executive updating mental processes. In general we can identify two distinct approaches to training of ability: (a) training of behavioral components like WM, problem solving, and similar; and (b) direct training of brain activity—*neurofeedback* which can influence behavior. In the presentation we are going to describe two training studies conducted in our laboratory. The aim of the first study was to influence mental rotation ability of females with origami training. In a parallel group experimental design, respondents from the origami group, after 18 hours of training, significantly increased their performance on a test of mental rotation. The cortical activation patterns in the origami group women changed from theta synchronization (ERS) in frontal and parieto-occipital areas observed on the pretest to theta desynchronization (ERD) in frontal areas and increased theta synchronization in parieto-occipital areas on post tests. This pattern was accompanied by increased inter- and intrahemispheric coupling between frontal and parieto-occipital, and central and parieto-occipital areas, as well as intra and interhemispheric decoupling in frontal areas. Similar to these changes, a decrease in oxy-hemoglobin concentration in the frontal areas of respondents

from the origami group was observed. The post test cortical activation patterns of females (origami group) were rather similar to the patterns observed in males who were high on mental rotation ability. In the second study we investigated whether training on working memory could improve fluid intelligence, and the effects on neuroelectric (ERD/ERS) and hemodynamic (NIRS) patterns of brain activity. In a parallel group experimental design, respondents of the WM group after 30 hours of training significantly increased performance on all tests of fluid intelligence. The characteristic of the impact of WM training on neuroelectric brain activity was a time related synchronization (ERS) in the theta and lower-1 alpha bands and a more topographically significant (location, hemisphere) increase in lower-2 and upper alpha desynchronization (ERD). The neuroelectric as well as hemodynamic patterns observed in individuals after WM training suggest that the training has influenced the WM's retention as well as processing components guided by the central executive. The changes in the upper alpha band (ERD) would further suggest that processes related to long term memory were also influenced. In conclusion, the results of both studies lend further support to the hypothesis that training can improve components of intelligence which are also reflected in changed brain activity.

Does listening to breathing sounds improve joint performances?

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Several studies provided evidences about the mutual influences between respiration and performance: breathing is influenced both by motor (Rassler & Kohl, 2000) and mental processes (Wientjes & al., 1998). In joint actions requiring high degree of synchronization participants tend to breathe together to manage precise temporal coordination. This paper presents two studies aimed to explore if breathing sounds convey information about the performed activity and how much they serve interpersonal coordination. In Study 1, 180 participants listened to ecological tracks of breathing sounds related to six activities different in degree of mental and physical effort in two conditions: listening vs. imitation. Most demanding activities were most identified. Imitation significantly improves identification accuracy ($F = 13.048, p < .001$). Study 2 was aimed to develop a multilayer analysis model to relate partner's respiratory behaviour during joint actions and to describe their respiratory and acoustic features. Audio recordings of breathing sounds of a dyad were taken during a baseline and a joint obstacle course, both videorecorded. Classes of respiratory, acoustic, and coordination indexes were extracted and related to six action units. The model provided quantitative measure-

ments of respiratory behaviour that enable descriptions and comparisons between conditions and actions. Results motivate further and wider analysis on how respiration is used to support joint actions.

Auditory vestibular suppression

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The term *vestibular suppression* is used to describe a perceptual phenomenon where vestibular stimuli do not yield adequate information for a proper interpretation of velocity and direction of self-movement and we seek to rely entirely on visual stimuli. These visual stimuli completely suppress the incorrect information transmitted by the vestibular system during prolonged self-motion with constant velocity. We conducted an experiment to determine whether a similar vestibular suppression can be achieved by auditory stimuli. Untrained volunteers ($N = 100$) were subjected to Barany chair rotations with accelerations of $4^\circ/s^2$ and terminal velocities of $120^\circ/s$. Participants were randomly selected into four groups which during rotation received no other stimuli, visual stimuli, stationary auditory stimuli, or rotating auditory stimuli. We tried to induce somatogyral illusion, visual vestibular suppression, auditory vestibular suppression, and auditoryvection. Participants were assessing their perceptions of the direction and velocity of self-rotation using two joysticks mounted on the armrests of the rotating chair. We discovered that auditory cues induced vestibular suppression, although it was not as strong as with the visual cues. The effect of sound location in both vestibular suppression andvection was influenced by the strength of somatogyral illusion and by the belief that auditory stimuli represent a stationary sound field. We conclude that the visual vestibular suppression is a bottom-up process and that the auditory vestibular suppression is a top-down cognitive process.

HEALTH AND WELL-BEING

Well-being: Evolutionary perspective

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The subject of our paper is the relation between well-being and physical health. From the holistic perspective of human being, our assumption is that psychological bal-

ance and ability to successful adaptation, coping with life stresses, and mastering to a range of demands, significantly contributes to physical health. The basic problem of paper is whether there is a relation between the identified psychological indicators and physical health. The specific problems are: (a) is there relation between the identified positive psychological indicators and physical health and (b) is there relation between the identified negative psychological indicators and physical health. The research method was correlation design conducted on the sample of Serbian university students ($N = 110$). The research was conducted by means of Bojanovic Inventory of Mental and Physical Health. The Cronbach alpha reliability level ranged from .74 to .88. Results confirmed some of our hypotheses. By applying factor analysis procedure we extracted four factors: Ambition Orientation, Adaptive Orientation, and Destructive Orientation showed no significant correlation with physical health, while factor named General Dissatisfaction With Oneself and the People showed significant negative correlation with physical health. The results and implications were discussed from evolutionary psychology perspective.

Less is more – The positive effects of therapeutic fasting on emotional well-being

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This study is based upon the findings of therapeutic fasting of F. X. Mayr in the 20th century, the guidelines of the German expert-group *Ärztegesellschaft Heilfasten und Ernährung e.V.* (ÄGHE, 2002) and the evaluation study of Peper (1999). It aims to fortify the hypothesis that therapeutic fasting has a higher effect on emotional well-being the longer the fasting diet lasts and the more restrictive—in sense of kilocalories per day—it is. Fasting is defined as the ability to live for a certain period of time under minimal ingestion without any physical harm, while meeting all necessary macro and micro nutrients through the body's natural resources (ÄGHE, 2002). Therefore we followed 19 persons from German and English speaking countries fasting inpatient for 4 to 15 days according to the fasting method of F. X. Mayr or doing a Mild Clearing Diet (MCD) according to Rauch and Mayr (2009). The sample has been divided post-hoc in two groups. The first group of long fasting people (LFP) got a treatment for a period of at least seven days. The second group of short fasting people (SFP) fasted for less than seven days or got a light digestible diet (MCD) with an approximately normal amount of kilocalories per day (1600 kcal/d). Analysis showed a significant distinction between LFP and SFP in depression, anxiety, joyfulness, and exhaustion. Effect sizes have been high.

Leisure time and well-being

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The aim of the present study was to examine the relationship between different ways of spending leisure time and well-being. The sample included 1200 participants from Croatia (mean age = 46.5). The participants were asked how often they do different activities in their leisure time, how happy or unhappy they feel on these days, and how is their general health. The most preferred activity on a daily basis is watching television, followed by listening to music and spending time with friends. Most respondents spend their time with friends or relatives on a weekly basis. The top two activities most Croatians never do are handwork and cinema. Correlational analyses showed that self-reported happiness and health status are significantly associated with age and different ways of spending leisure time. Separate logistic regressions for male and female participants were conducted with happiness (unhappy/happy) and health status (unhealthy/healthy) as criteria and participants' age and different ways of spending leisure time as predictors. The results showed that when participants' age, as significant negative predictor, is controlled only sports and gym are significant predictors of male happiness, and attending cultural events, doing handwork and spending time on the Internet are significant predictors of female happiness. Age is the only significant predictor of male health status and when age is controlled going to the cinema is the only significant predictor of female health status.

Therapeutic recreation: A method of rehabilitation of children living with chronic and life threatening illnesses

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The purpose of the presentation is to introduce a Hungarian non governmental organization, Bátor Tátor Foundation, which offers therapeutic recreation camping programs for children with chronic and life threatening illnesses such as cancer, diabetes, JRA, and haemophilia since 2001. Considering its methods and its attitude to children and health, Bátor Tátor is a high-standard and unique initiative in Central Europe. The recreational camping programs are offered free of charge to the campers and their families, who benefit from its functional intervention, leisure education, and recreation participation, which all facilitates their physical and

psychosocial rehabilitation. The programs convey outcomes including growth in physical functioning and social skills and enhances emotional well-being, self-esteem, and quality of life.

Generativity or stagnation: The biological and psychological changes examined on middle-aged women

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Most of the studies concerning body image and body image satisfaction are carried out among adolescence and young adults who are going through intensive biological and psychological changes. Older adults, according to Erikson's developmental stages, are going through significant hormonal and psychic changes. This topic is mostly discussed from the point of view of medical or personality psychology dealing with body changes in menopause or psychological aspect of midlife crisis. Our study aims to present an empirical research carried out among midlife women. It is based on Erikson's psychosocial developmental model that is concerned with body image changes in relation to normative developmental crisis appearing in midlife period. Information on demographics, medical and reproductive history, medication use, menopausal symptoms, identity, generativity, body image satisfaction, intimacy, and marital satisfaction were collected on women aged between 40 and 65. Results are discussed in the context of clinical and personality psychology.

MOTOR CONTROL AND SPORT PSYCHOLOGY

Contralateral transfer of learning unibrachial movement in right-handed subjects

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The aim of this investigation was to find out possible differences in the transfer of learning unibrachial movements from right to left arm, and vice versa. Two groups of 20 right-handed female subjects (18–20 years) were trained to execute arch movements of 20, 40, 60, and 80 degrees by lower arms without visual control. One group started the training with right arm, followed by the left, and the other

group started with the left arm, followed by right. Every subject had 25 trials with each of the four movement amplitudes, by both arms. For every trial, decision time (time from the signal to the start of movement) and movement time (from the start to the end of movement) were recorded (ms). After this procedure with one arm, the subjects started training with the opposite arm. As might have been expected, results showed the effects of movement amplitudes and the dexterity on movement time. Decision time, however, was the same for all the movement amplitudes of the same arm, but it was shorter for right arm movements. This means that execution programmes of the learned movements need the same time to be activated regardless of their amplitudes. Shorter decision times for the right arm movements were due to the shorter path and the time needed for the information from the movement programming centre in the left hemisphere to get to the primary motor cortex of the same hemisphere. There were no differences in movement and decision times for right arm between the groups. The group who started training with right arm, however, had shorter times for the left arm, which suggests that transfer occurred only from the right to left arm, but not vice versa.

Interaction of the personality traits and phases of menstrual cycle with the efficiency in a psychomotor task

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Numerous studies have shown that cyclic changes in hormones during the menstrual cycle have effects on efficiency in various tasks. It is also known that introverts have normally a higher level of arousal than extraverts, therefore they differ in efficiency on the same tasks. The aim of this study was to find out the effects of menstrual and follicular phases on efficiency of introverts and extraverts in the Fitts Tapping Tasks (FTT). A group of 21 introvert and a group of 25 extravert female subjects, 20 to 25 years of age, voluntarily took part in this study. Both groups of subjects were doing six tasks (one to six bits of difficulty) of FTT in menstrual and follicular phases of the cycle. The time of each task was one minute in duration, where the number of taps/min was recorded, together with the subject's assessment of the task difficulty on the Borg scale. The analysis of results showed a significant difference in efficiency between introverts and extraverts only in the most difficult task of six bits, in the follicular phase, where the efficiency of extraverts was better than introverts. The difference could be explained by hyper arousal of introverts caused by summative effects of their generally higher arousal level and the follicular phase arousal, which is higher than in other men-

strual phases. Generally lower level of arousal in extraverts, jointly with the follicular arousal, resulted in more optimal level of arousal and a better performance. Task difficulty assessments on Borg scale given by introverts were significantly higher than those of extraverts, which was especially marked in the follicular phase.

Meta-analysis of digit ratio (2D:4D) as a correlate of sports performance and achievement

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Digit ratio (2D:4D) is a widely researched, validated retrospective biomarker for the organizational effects of prenatal androgen exposure (PNAS; Zheng & Cohn, 2011). A first meta-analysis (PAID; Hönokopp & Schuster, 2010) of one 2D:4D research subliterature (concerning 2D:4D and sports performance) was already outdated upon publication and contains numerous errors of omission and commission. For these combined reasons, we present a new meta-analysis on the topic (50+ studies, total $N = 7000+$), the findings of which invalidate main conclusions of the preceding meta-analysis as well as prevailing research opinions. Key findings include: case-control studies evidence lower (i.e., more masculinized) 2D:4D in athletes (vs. non-athletes). Similarly, correlational (athletes-only) studies find lower 2D:4D corresponds to higher sports achievement. Effect specificity/heterogeneity is indicated by stronger effects among men (vs. women), for team sports (vs. other), and endurance (vs. athletic) sports. Signs of publication bias in this research literature include stronger effects among published (vs. unpublished) reports, particularly so due to one group of researchers (vs. all other), accompanied by citation bias (above-average citation rates for stronger-effect studies). Our results elucidate inconsistencies and biases in this quickly expanding literature and contribute to knowledge development (foremost, effect dissection: possible causes for observed 2D:4D/sports achievement correlations).

Does perceived sport competence influence physical activity enjoyment?

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In the sport and physical activity (PA) field, enjoyment is a positive affective response to the sport experience (Scanlan & Simons, 1992) and it can also be considered an important factor in promoting active lifestyles and regular

PA among school-aged children (Carraro et al., 2008). The aim of the present study was to investigate the effects of perceived sport competence on PA enjoyment. Participants were 394 pupils (173 boys and 221 girls) aged between 12 and 13 years ($M = 12.2$). The Physical Self-Description Questionnaire—Short (PSDQ-S; Marsh et al., 1994) and the Physical Activity Enjoyment Scale (PACES; Carraro et al., 2008) were completed. Pearson's correlation was used to measure the association between variables. Multiple linear regression analysis was conducted to investigate the correlation between PSDQ-S scores (independent variables) and PACES total score (dependent variable). The following positive associations were found between PSDQ-S variables and PACES total score: endurance ($r = .527, p < .001$), flexibility ($r = .206, p < .001$), strength ($r = .365, p < .001$), coordination ($r = .427, p < .001$), and sport skill ($r = .546, p < .001$). Multiple linear regression analysis showed the following score indices: $SE = 7.76, t = 20.79, R^2 = .363, F(5, 388) = 44.13, p < .001$. Our results highlighted positive associations between physical self-concept scales and PA enjoyment, and our hypothesis that perceived sport competence can be considered a good predictor of PA enjoyment was confirmed. The results could contribute to our understanding of the processes involved in the promotion of active lifestyles and regular PA among young people.

Enjoyment during activity with different cardio equipment: Comparison between expert and inexperienced practitioners

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Enjoyment is considered one of the main determinants of adherence in regular physical activity for people of all ages. The aim of this study was to evaluate enjoyment experienced by two groups of practitioners (experts and inexperienced) when they performed short sessions of exercise on three different types of cardio fitness equipment. Participants were 133 volunteers (51 men and 82 women) with a mean age of 32.4 years ($SD = 10.8$). Seventy-three were experts and 60 inexperienced. They performed eight minutes of exercise on each of three types of Technogym cardio equipment: treadmill, elliptical, and Vario. Participants had to regulate exercise intensity on the basis of their feelings. At the end of each 8-minute period, they filled in a questionnaire included a 12-item adapted version of the Physical Activity Enjoyment Scale (PACES) and two visual-analogue scales about fun and movement naturalness. No significant differences were found in PACES scores for the

three types of equipment between expert and inexperienced participants. Naturalness of exercise was significantly higher ($p < .01$) with Vario for experts compared with the inexperienced participants. Both experienced and inexperienced participants reported lower PACES scores when using elliptical ($F = 12.98, p < .001$). Different levels of experience with fitness equipment seems not to influence enjoyment, confirming the notion that modern technology can also facilitate the use of this equipment for inexperienced people.

STRESS, COPING, AND ANXIETY

Does distress play a mediation role between vitality and satisfaction with life?

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The main goal of this study was to test the hypothesis of a possible mediation role that distress plays between vitality and life satisfaction. Previous studies showed that those who were more distressed had lower levels of mental well-being, satisfaction with life, and subjective vitality. Also, significant negative correlations were found between measures of psychological distress and vitality in studies conducted in France, and in Serbia as well. A total of 121 students of University of Novi Sad agreed to participate in the study (69.4% of them female and 30.6% male, with average age of 22 years [$M = 22.7, SD = 2.2$] and average grade of 8.2, $SD = 0.7$). Three following questionnaires were administered to them: The Satisfaction With Life, Vitality Scale and The Four-Dimensional Symptom Questionnaire. The regression analyses indicate that people with higher level of vitality have lower level of distress ($r = -.39, p < .001$), and that the people with higher level of distress manifest lower level of life satisfaction ($r = -.28, p < .01$). The Sobel test analysis ($STT = 2.62, p < .001$) has shown significant mediation role of distress in relation between vitality and life satisfaction. The results have confirmed our hypothesis, and, therefore, theoretical and practical implications of these findings will be discussed. Bearing in mind that this research has been conducted on a sample consisted solely of students, it should be repeated on a more representative sample.

Child personality and parental stress in families of children with intellectual disabilities

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The present study compared parental perceptions of their children's personality and parental stress in families of normative siblings to families of dyads with a younger child with intellectual disability (ID; different etiology and level). A sample of 200 children (45% with ID; $M_{\text{age}} = 6.7$ years) and their older normative siblings ($M_{\text{age}} = 10.2$ years; $M_{\text{age gap}} = 3.6$ years) were described by their mothers and fathers separately, using the Inventory of Child Individual Differences—Short (Slobodskaya & Zupančič, 2010). Parental stress was assessed employing the PSI (Abidin, 1995). Mothers and fathers strongly agree in their ratings of children's personality and levels of self-perceived parental stress. Relative to their normative peers, the children with ID were rated significantly lower in extraversion, conscientiousness, openness, and disagreeableness by both parents; the assessments of those traits were negatively related to the level of child ID. Parental perceptions of older siblings of children with ID did not differ significantly from ratings of siblings of normative children. Parents of children with ID reported higher levels of parenting stress than parents of both normative children. Controlling for the same rater bias, ratings of sibling personality dimensions were predictive of parental stress. The child's level of ID was also associated with parental stress in both parents.

Some correlates of worry and generalized anxiety disorder

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Anxiety sensitivity, defined as a fear of anxiety symptoms, is believed to be a risk factor in the development of psychological disorders, with a specific effect on the anxiety disorders. Generalized anxiety disorder (GAD) is characterized by excessive, uncontrollable, and often irrational worry about everyday things that is disproportionate to the actual source of worry. Different worry intensities have been linked to the anxiety sensitivity in clinical and non-clinical populations, with some other factors contributing to the development of GAD symptoms, such as perceived alienation from parents and peers. Since previous studies have given contradictory accounts of relationship between these variables, our goal was to examine relationship between perceived parent/peer alienation, anxiety sensitivity, and GAD symptoms on a sample of Croatian university students. Participants have filled out Anxiety Sensitivity Index, The Generalized Anxiety Disorders Questionnaire, The Inventory of Parent and Peer Attachment and The Penn State Worry Questionnaire. We found a positive relationship between

anxiety sensitivity, parent/peer alienation, worry, and GAD symptoms, and have partially confirmed our hypothesis of mediation effects of anxiety sensitivity on the relationship between parent/peer alienation, worry, and GAD symptoms.

Exercise to reduce anxiety and depression in people with intellectual disability

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People with intellectual disabilities (ID) are often reported as having high anxiety states and depressive symptoms that can compromise daily living functions. Although positive effects of exercise on anxiety and depressive symptoms have been reported among general population and in clinically defined groups, research is scant concerning the role of exercise on mental health in ID people. The purpose of this study was to investigate the effects of a short term exercise programme on anxiety states and depressive symptoms in a group of adults with ID. Twenty-seven people with a mild to moderate ID (age = 40.1 ± 6.2 years; 16 male, 11 female) were randomly assigned to an exercise ($n = 14$) or a control group ($n = 13$). The exercise group participated in a 12-week exercise programme and the control group in a painting activities programme, both with a frequency of two times per week, one hour per session. Participants filled in the State-Trait Anxiety Inventory form Y, the Zung Self-Rating Anxiety Scale and the Zung Self-Rating Depression Scale as adapted for individuals with ID. Questionnaires were administered before entering the study, after six weeks and at the end of the intervention. ANOVAs for repeated measures reported anxiety and depressive scores significantly lower ($p < .001$) in the exercise group over time compared with those of the control group. Results seem to support the positive effect of a short term exercise programme in improving mental health in persons with ID.

POSTER SESSIONS

PSYCHOLOGY OF SPORT AND PHYSICAL ACTIVITY

A socio-ecological approach to children's physical activity: Preliminary results

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The socio-ecological model is grounded in the assumption that considering the combination of individual, social, and environmental factors explains physical activity (PA) behaviours the best. The purpose of this preliminary study was to explore relations among personal (gender, socioeconomic status, ethnicity), individual (self-efficacy and enjoyment), social (perceived parental support), environmental variables (equipment accessibility and neighbourhood safety) and PA among fourth grade children. Twenty children (12 boys, 8 girls) were involved in this preliminary study. They completed a battery of questionnaires and wore a triaxial accelerometer (GT3X+, ActiGraph, Pensacola, FL) for seven consecutive days. One boy was excluded from the analysis because the wear time validation of the accelerometer was not consistent with the data required (at least 10 hours/day, one weekend day, four weekdays). The outcome was measured as average minutes of moderate to vigorous PA (> 3 METs) per day (MVPA). A positive significant correlation was found between self-efficacy and weekly self-reported PA. No differences were found by gender on MVPA, individual, social, and environmental variables. Self-efficacy and enjoyment values were significantly higher ($p < .05$) among children who perceived that their mother often did PA. MVPA was significantly higher for children with non Italian parents' ethnicity. Investigation will be carried out further involving a more numerous group and parental data.

Physical activity among health studies students

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The purpose was to investigate the level of regular physical activity among students, students' physical exercise self-efficacy, and perceived benefits and barriers for participating in physical activity. Participants were 180 physiotherapy students of the University of Applied Health Studies (50 male and 130 female). The short form of International Physical Activity Questionnaire (IPAQ) was used to estimate the level of physical activity. The results are expressed as metabolic equivalent-hours per week (MET-hour/week). Exercise Benefits/Barriers Scale (EBBS; Sechrist et al, 1985) was also used. Physical exercise self-efficacy was measured with 5-item scale (Schwarzer, 2012). Median total physical activity for the whole sample was 73.7 MET-hour/week. On weekly basis, most of the students (61%) are vigorously, 23% are moderately and 15% are low physically active. Males are significantly more active than females. The greatest perceived benefits were physical performance and psychological outlook. The greatest perceived barriers

were family discouragement and physical exertion. Physical exercise self-efficacy was moderate. Male students have higher self-efficacy than female students. We can conclude most of the students are vigorously or moderately active. Students feel strong benefits from regular physical activity, mostly because of its impact on their physical performance and psychological outlook. Female students tend to be less active than male students and have lower self-efficacy.

**The exercise in diabetes type 2:
A longitudinal study**

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The exercise is an important factor in preventing the onset of diabetes type 2 (T2DM) and an essential component of its treatment. The T2DM involves about 90% of people with diabetes, aged between 40 and 65 years. The current guidelines emphasize the importance of practicing exercise at least 30 minutes a day 3-4 times a week. Despite the evidence, adults with diabetes are less likely to engage in regular physical activity, perceived as a significant and difficult change in lifestyle. Our previous studies focused on the analysis of predictors of adherence to the exercise, have investigated the role of regulatory and physical self-efficacy and physical self-concept, in relation to the stages of change. Results showed that exercise seems to affect levels of regulatory self-efficacy and self-perception. The present longitudinal study aims to demonstrate how these psychological variables change during an exercise program. We enrolled a total sample of 63 adults with T2DM in physical activities conducted once a week for a period of five months. For each participant, the level of perceived stress, body image, and self-efficacy were measured. In order to assess whether the exercise has produced changes in psychological variables, a subsample of 17 diabetic patients who have completed the program was analysed. The results show no significant changes in relation to levels of self-efficacy and perceived stress, while changes in physical activity levels are observed. Methodological concerns are discussed in order to establish useful correctives to enhance the research.

**Body and soul health and wellness of people with
physical disabilities**

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The fact that a person lives with a physical disability changes the relationship between the disabled person and the world around him/her. The moving experiences correlate with the cognitive skills, the sociability, and with health of the body and soul. In a part of our poster we show our research about 28 physically disabled children – 50% with cerebral palsy, 50% not CP – of the age of 11-14. We have examples about their bodies' functional statement, their cognitive skills, and the perception of the world from this special state. We use Woodcock-Johnson Test of Cognitive Abilities and the Wechsler Intelligence Scale for Children-IV. Additionally, the poster presents education at Department of Somatopedagogy, Faculty of Special Education, Eötvös Loránd University on the following subjects: therapy and education for people with physical disabilities, subjects about adaptive sports, and help in activity of daily living. Beyond these, we show our students' training school. This is a special educational institute for children with physical disability, which supports the pupils' mental and physical wellness with many kinds of services.

**The function of superstitious behaviour of disabled
people in sport: A psychoanalytic review**

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The aim of the present work is to reveal the deeper meanings of lucky charms, ritual acts, and superstitions in the life of parasport. Previous researches have attempted to develop theories about the function and origin of superstitious beliefs using a large scale of psychological methods. The relation between superstitious behaviour and trait anxiety, self-esteem, or locus of control is known as well as the different forms of the phenomenon. The recent study using a psychoanalytic perspective attempts to interpret these objects and acts as transitional inner helpers for disabled people in sport. The role of superstitious behaviour is investigated in the process of recovering from a trauma and becoming a parasportsman with deep interviews. A relation with posttraumatic growth is also assumed.

**Sensation seeking in extreme sportsmen, prosocial
risk-takers, and antisocial risk-takers**

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The aim was to compare the performance of prosocial risk-takers (rt), antisocial rt, extreme sportsmen, and a control group on the 8-item Brief Sensation Seeking Scale (BSSS-8). There were 495 individuals, consisting of 170 firemen (32.15 ± 5.4), 194 violent criminals (33.5 ± 9.2), 71 extreme sportsmen (34.7 ± 8.4), and 60 control subjects (33.24 ± 7.6). All participants were men. The BSSS-8 has four subscales: Thrill and Adventure Seeking, Experience Seeking, Disinhibition, and Boredom Susceptibility. It contains two items of each subscale. There were no significant differences among the four groups in the Experience Seeking subscale ($F(3, 491) = 2.247, p > .05$). In the case of Thrill and Adventure Seeking there was significant difference between the groups ($F(3, 491) = 8.98, p < .05$): extreme sportsmen scored significantly higher than prosocial rt ($p = .032$), antisocial rt ($p = .004$), and the control group ($p = .000$). Disinhibition also showed significant differences among the groups ($F(3, 491) = 6.77, p < .05$): antisocial rt scored significantly higher than prosocial rt ($p = .004$) and the control group ($p = .000$). We found significant differences in the subscale of Boredom Susceptibility ($F(3, 491) = 7.454, p < .05$): extreme sportsmen scored significantly higher than prosocial rt ($p = .000$), antisocial rt ($p = .000$), and the control group ($p = .000$). We can conclude antisocial rt are more attracted to the dissolution of inhibition by means of taking alcohol, they are more interested in parties and plunging, as well as more characterized by the need of sexual variedness than prosocial rt. Criminals do not show differences from extreme sportsmen in that respect. At the same time they do not seem to be interested in risky sport activities.

Motivational climate, resilience, and burnout in male athletes

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Achievement goal theory is a widespread theoretical perspective for studying motivation. Theory underlines the importance of motivational climate created by significant others, parents, and coaches. A mastery involving climate defines success in terms of individual progress and skills improvement, whereas a performance involving climate emphasizes social comparison and competition. Some athletes could perceive sport demands as excessive experiencing burnout. Resilience is the athlete's ability to experience positive adaptations when coping with sporting adversity. The

study examined relationships among motivational climate, resilience, and burnout in different aged athletes. The sample ($N = 99$) comprised male athletes participating in a regional competition of different sports. Athletes were aged 15-46 years ($M = 22.46 \pm 8.98$): a first group ($n = 52$) aged 15-16 years ($M = 15.42 \pm .49$) and a second group ($n = 47$) aged 20-46 years ($M = 30.26 \pm 7.33$). Participants rated a single item evaluating perceived competence, and completed Italian versions of PMCSQ, RS, and ABQ. Compared to older, younger athletes reported higher scores of emotional/physical exhaustion. Regression analysis results showed that performance climate was directly related to all burnout dimensions, whereas resilience was inversely related to reduced sense of accomplishment. Findings suggest performance-involving climate to be a situational factor that fosters burnout, and individual's resilience to be a protective factor.

Examining relationship between personality characteristics and exercise dependence

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The main purpose of this study was to examine the relation between personality traits, based on five factor model, and exercise dependence symptomatology. There were 423 voluntary participants (216 male and 201 female) who exercise regularly over a year selected for this study. By using EDI-2 questionnaire, participants who scored in the at-risk range were excluded from analysis. All athletes completed the Exercise Dependence Scale (EDS-21) and the Big Five Questionnaire (BFQ). The results seem to confirm the relation between exercise dependence and certain personality characteristics (Hausenblas & Giacobbi, 2004), suggesting that extraversion, neuroticism, and agreeableness may potentially underlie the exercise dependence symptomatology. This finding tries to give a contribution to understand the role that personality can play in the etiology of exercise dependence. This could be relevant for potentially identifying individuals who may be at-risk for dysfunctional dependence behaviors.

Spatial abilities in male athletes: Seasonal variations

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Spatial ability might be considered an integral component of some sports (especially those which require precise

visuomotor coordination). It has also been linked with both organizational and activational effects of androgens. While it has been reported that athletes have the increased levels of androgens, there is no clear pattern of results when it comes to differences in spatial ability between athletes and general population. The aim of this study was to (a) explore the differences between athlete and non-athlete students in two different types of spatial abilities – mental rotations and spatial visualization, and (b) test for seasonal variations in those two types of spatial ability (in relation to activational effects of testosterone, which is higher in autumn than in spring). A total of 170 athlete and 125 non athlete male students participated in the study. The results showed that athletes did outperform non-athletes in mental rotations, but not in spatial visualizations. Likewise, there was a significant seasonal effect in ability to mentally rotate, but not in the ability to visualize space. Athletes tested in autumn had significantly lower scores in mental rotation than athletes tested in spring, which is in accordance with the proposed curvilinear relationship between testosterone and spatial ability. Previously reported inconsistencies in comparison between athletes and general population might be due to the non-unitary nature of spatial abilities: thus athletes might excel in mental rotations, but not in the other forms of spatial ability.

**How to perceive the rhythm of human actions?
Use your ears!**

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It is demonstrated that humans discriminate rhythmical stimuli in the auditory modality better than in the visual modality. However, previous researches focused on laboratory tasks and used artificial stimuli rather than stimuli associated with human motor performance. In the present study we extended the rhythm discrimination research, investigating the discrimination of a complex motor task, such as a tap dance performance. In two experiments, we tested 52 subjects, expert tap dancers and novice people, who were exposed to movies and soundtracks of paddle sequences performed by a tap dance instructor. The 50% of the sequences followed an even rhythm, the remaining 50% presented a single step with a rhythmical error included in a range between 12% and 20%, compared to the even performance (uneven trials). The task of the subjects was to discriminate the rhythm of performances by expressing a dichotomous response: *even* or *uneven*. The results evidenced responses superior to the chance level in all the auditory conditions.

The participants discriminated visual rhythms only when the rhythmical errors were more than 16%. The accuracy was constantly better in the auditory conditions, rather than in the visual conditions. Expertise differences emerged only in the auditory condition. These outcomes are consistent with the literature and confirm the elevated sensitivity of the acoustic channel to rhythmical stimuli. These findings suggest that the temporal information of action could be more easily inferred by dancers and/or athletes through auditory models, rather than through visual models.

Using auditory stimulation to enhance athletes' strength: An experimental study in weightlifting

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In the last fifteen years, sport psychology researchers have developed different perceptual strategies based on auditory stimulation in order to improve athletes' skills. Most of these strategies focused on providing athletes with the correct timing of action in order to make this information available for motor production setting. However, it has also been demonstrated that some sounds can be a useful tool to modulate the physiological arousal in order to optimize sport performances. In our study we propose a protocol of intervention based on the stimulation with an auditory track which intensity varies in correspondence of the physical effort of each phase of a bench press exercise. Eighteen participants performed three bench press lifts, both in the experimental condition (with the auditory stimulus) and in the control condition (without any stimulation). We measured the power exerted during the lifting. The results show that athletes can take advantage of the stimulus we provided, evidencing a higher average exertion of power in the experimental condition, compared to the control condition. Concluding, these results suggest that auditory perception can be a productive field of research in developing experimental strategies to improve athletes' skills.

HEALTH AND CLINICAL PSYCHOLOGY

Body satisfaction and dieting awareness among 4- to 6-year-old children

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Prevalence rates of eating disorders are increasing dramatically and the persons concerned, whether anorexic, bulimic, or overweight and obese, are becoming younger. Current studies about body satisfaction of young people document that most of 8- to 14-year-old children want to be thinner and at least one third of girls try to reduce their weight (Anschutz et al., 2011). Whether the wish to be thin already exists in preadolescents, and how strong, was the content of the present study. The body satisfaction of a sample of 32 4- to 6-year-old kindergarten children was found out with figure-stimuli-tests. In a following qualitative interview questions of dieting awareness were discussed. The results show that body satisfaction is positively correlated with BMI-percentiles. Dieting awareness among 4-year-olds is very low, but it increases strongly from the fifth age. Furthermore, the study documents prejudices against overweight people and the importance of comments about weight from familiar and social surroundings. Currently, based on these first findings, a comprehensive investigation is prepared to find measures for prevention of weight regulation disorders.

Evaluation of an aftercare program for patients with eating disorders

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Eating disorders represent a health problem which must not be underestimated in Austria. For instance, the lifetime prevalence of bulimia nervosa in women up to the age of 50 years is approximately 5%, and almost 2,500 of the 15- to 20-year-old females suffer from anorexia nervosa. Anorexia nervosa and bulimia nervosa are difficult to treat; in many cases patients relapse and treatment is de facto very expensive. Forty-two percent of patients who were able to stabilize their weight after an inpatient treatment still tend to relapse. Trying to decrease that rate, the hospital of Klagenfurt is offering a wide range of ambulant settings in order to create a local network for patients with eating disorders. The present research evaluates the effects of an aftercare group of patients with eating disorders at the central hospital of Klagenfurt. This group consisted of three male and 19 female patients who attended the group after the regular medical and psychological treatment. Their mean age was 29.7 years and their illness lasted 87 months on average. As a result of the aftercare-group there was a reduction of depres-

sive symptoms, a more vital body image, a better subjective quality of life, and a higher body mass index, but dysfunctional attitude was not reduced. In fact, the outcomes showed a significant positive effect on the eating disorder symptoms and the general psychopathology.

Reading the risk of eating disorders from picture viewing? Correlations of Eating Disorder Inventory and ratings to IAPS pictures

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Eating disorders and body image disturbances show a rising prevalence in Western countries. They are multicausal diseases involving psychological and biological predispositions, family characteristics, and socio-cultural factors. Preventive interventions and programmes should be developed in order to support the early recognition and the healing process. The aim of our study is to develop a non-verbal method for identifying the characteristics of sub-clinical forms of eating disorders. At the first stage of this project, 71 participants filled out the Eating Disorder Inventory (EDI) and rated 25 pictures from the International Affective Picture System (IAPS) (e.g., high- and low-calorie food, fork, plate, social eating, binge eating, etc.). Correlations have been found between the scores of EDI subscales and the ratings of IAPS dimensions (valence, arousal, and control over emotional states). Higher scores on Bulimia subscale correlated with lower level of control over emotional states evoked by high-calorie food pictures. Those who gave higher scores on Drive for Thinness subscale rated the cutlery (fork, plate) highly arousing. On the basis of the first results from a non-clinical sample, we conclude that this non-verbal method (using standard pictures and a three-dimensional rating technique) can be a valuable tool for identifying the sub-clinical characteristics of eating disorders.

From tomorrow on never again? Keeping the motivation for cessation of illegal substances addiction during inpatient treatment

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Is there a motivational component difference between clients who come in a drug specific treatment on their own initiative and those who are constrained on the basis of §39SMG (therapy instead of punishment)? Fifteen clients on own initiative and 15 clients according to §39SMG of a residential treatment facility for addictions of illegal sub-

stance abuse participated in this study. The clients in accordance with §39SMG have significantly higher occurrences in all scales of the Sense of Coherence scale. The clients on their own initiative obtained higher results in the treatment motivation questionnaire. According to the results of the motivation questionnaire, 12 of the clients on their own initiative responded that they decided for this treatment having no exterior constraints. The results confirmed the first hypothesis: clients on their own initiative are motivated intrinsically. The results also confirmed also the second hypothesis: clients who undergo an inpatient treatment constrained by §39SMG are motivated extrinsically. The results infirmed the third hypothesis: fewer clients according to §39SMG interrupted the treatment. The results of this study show clearly that the §39SMG is an important and effective part of the therapy instead of punishment concept, which this study scientifically proved.

Adverse childhood experiences in patients with fibromyalgia and neuropathic pain

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While neuropathic pain (NP) can be linked to physical reasons, the etiology of fibromyalgia syndrome (FMS) remains unexplained. Increasingly FMS is related to adverse childhood experiences (ACE) like abuse or neglect. There is a need to establish to what extent patients of FMS and those with NP differ from each other in this respect. Twenty-two FMS and 25 NP patients (14 men and 11 women) were able to be included in the study. With the help of the Childhood Trauma Questionnaire (CTQ) ACE could be collected methodically. Furthermore, numerous other factors were taken into account: depression and fear (Hospital Anxiety Depression Scale, HADS, and Beck Depression Inventory, BDI), sensibility to pain (pain sensibility scale) and the subjective health-related quality of life (HQL), state of health (SH), and intensity of pain (numeric rating scale). Patients with FMS more frequently report about emotional ($U = 194.500$, $p = .025$) and sexual abuse ($U = 193.000$, $p = .029$) than NP patients. However, there seem to be no significant differences of physical abuse and neglect and emotional neglect. Nevertheless NP patients' outcome of trivialization ($U = 184.000$, $p = .031$) was determined to be higher than those of FMS patients. Moreover, fundamental differences could be established in regard to HQL ($U = 123.000$, $p = .001$) and SH ($U = 183.000$, $p = .047$). Patients with FMS expected their results to be a lot worse than NP patients. There occurs to be no important difference in regard to depression, anxiety, pain sensibility, and intensity of pain. Yet, there ap-

pears to be an interrelationship between ACE and depression (BDI II: $r_{sp} = .675$; HADS-D: $r_{sp} = .642$) as well as fear (HADS-A: $r_{sp} = .605$). The results show that emotional and sexual abuse occurs more often in combination with FMS patients; however, it is not possible to constitute causes regarding the etiology. The difference between HQL and SH lead to the assumption that NP patients deal better with pain. Further studies should investigate the aspect of relevance of gender due to the fact that no men with FMS were involved in the study.

Gender differences in pain perception and depression in migraine patients

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Scientists as well as people in general agree that pain is a very complex experience in which emotional component has an important role. Negative emotions, such as depression, are usually connected with experience of pain, especially when that pain is repeating. Migraine attacks are characterized by moderate to severe pain which may influence patient's emotional status. In individual patients depressive reactions are expected to be influenced by the severity of migraine pain. The aim of our study was to compare perception of pain and level of depression between male and female migraine patients. We surveyed a total of 89 age-matched migraine outpatients (57 females, mean age 40.54 ± 10.39 years, and 32 males, mean age 39.66 ± 12.24 years). The intensity of depression was assessed by the Beck Depression Inventory (BDI) and the perception of average pain intensity in a migraine attack was displayed by the Visual Analogue Scale (VAS). The results on VAS showed that 70% of female patients reported severe intensity of pain (scores 8-10) while males had equally distributed scores for moderate (4-7) and severe intensity of pain. On the other hand, female patients were less depressed than male patients on BDI ($t = 3.6$, $p < .01$). We conclude that gender differences in perception of pain intensity in migraine attacks do not appear to be a major contributing factor to the level of depression in migraineurs.

One way to help families cope with grief – A bereavement camp in Hungary

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Everything changes in a family when a child dies in a chronic, e.g., oncological, disease after a hard painful dying

process. The family mourns as a system, mourns as a system consisting of subsystems, and the members mourn alone in their own way. When a child dies, most of the grief support from family members and friends gets focused on the parents. The parents themselves are often very overwhelmed by their loss. During the bereavement the supporting environment gets tired after a while and the siblings can be “forgotten mourners”. In fact, being a mourning sibling is a really painful difficult state/identity. They are usually expected to be grown up and therefore they tend to be premature; they are delegated to support other members of the family, particularly a surviving parent and/or younger brothers and sisters. A bereavement camp offers the support to both children and adults, helping teenagers, parents, and younger kids to cope with grief. In Hungary we perceive the need to help these families and we introduce a special method to do so, based on therapeutic recreation and the help with the grieving processes.

Illness representations and psychological distress in cardiovascular patients: A pilot study

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Coronary heart disease (CHD) is often accompanied by psychological disorders, of which depression and anxiety are the most common. Especially depression shows strong relationship with development and prognosis of CHD, but illness perceptions of patients were identified as predictors of health outcomes also. Our aim was to investigate prevalence of depression and anxiety in CHD patients, analyse the associations of psychological distress, Type D personality, and illness representations, and compare two measurement methods of illness perceptions with each other. Thirty-one CHD patients (age $M = 60.29$, $SD = 7.38$) completed Beck Depression Inventory, Spielberger State Trait Anxiety, Type D Scale-14, Purpose in Life Test, Illness Perception Questionnaire-R, and made drawings of own heart. Questionnaires were filled out at three measurement points by patients: preop examination (1), before (2) and after (3) surgery. State anxiety reduced significantly (t1-t3), according to this, they perceived consequences of disease less serious after surgery. Depression scores remained stable during the first part of the study, moreover, rising was demonstrated at t3 ($p < .05$). Depression was in connection with perceived personal control at measurement points. Drawings showed associations with state and trait anxiety ($r = .45-.58$, $p < .05$). Preliminary results demonstrate strong linkage between psychological well-being and illness perception, and

drawings seem to be useful to investigate illness representations also.

Improving stress management skills by means of a stress counseling intervention

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The malicious effects of stress upon physical and psychological health status are well established. Lots of studies showed that subjects who attend a stress management intervention achieved positive effects on their stress management behaviors, like improving their coping strategies to reduce stress. The present study focuses on a stress counseling intervention offered by an Austrian insurance company and evaluates the motivations for participation and the effects of the counseling. The study plan is twofold, covering a retro- and a prospective phase. During the first one, participants of the last two years will be sent a questionnaire along with a standardized stress assessment (Skala zur Allgemeinen Selbstwirksamkeitserwartung). The main purpose of this study part is to gain insight into the reasons for participating in the program. Further, data on major stress factors (job stress, life changes, relationship and social difficulties, financial problems, physical or psychological health, disability to relaxation...) will be collected. In the second, prospective, part of the study, participants will be asked to take part in an interview and to fill out a standardized questionnaire for measuring the self-perception of stress (Perceived Stress Questionnaire). The focus of this part will also be assessing the current stress factors and their possible change from session to session, thus allowing us to evaluate the effectiveness of the program.

Heartbeat perception in panic disorder patients

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The perception of bodily cues is a core element in psychological model of panic attack. We focused on heartbeat perception since this can be a psychological cue to identify panic attack. Experimental evidences showed that panickers are significantly more accurate in heart perception than normal subjects who usually underestimate their heart frequency. A common experience of panickers during an attack is the perception of an increase of heartbeat frequency that usually doesn't coincide with a real physiological increase.

This could enhance the level of their attention towards heartbeat. There are no researches investigating the relation between the level of attention allocated to heartbeat and the precision and the accuracy in reporting it. The aim of the present study is to investigate the effect of heart auscultation on the accuracy and the precision in a recognition task. We compared the performance of panic disorder patients to that of a normal control group. We generated acoustic tracks that reproduced natural heartbeat sounds having different frequency. Subjects were first acoustically exposed to their own heartbeat by mean of a stethoscope and successively they had to recognize their own heart rate from the range of proposed acoustic stimuli. The dependent variables were the precision and the accuracy in detecting the real heartbeat. Results showed that panickers performed better in the heart rate recognition task, both in terms of precision and accuracy.

Enhanced sensitivity to agoraphobic experiences and early representation of parental rearing behaviour in healthy young adults

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This study examined the sensitivity to agoraphobic fears influenced by perceived parental rearing behavior using a sample of healthy young university students. We analyzed the relationship between the memory representations of the parents' rearing style and the avoidance behavior. 305 students participated in the study. Self-report questionnaires were used: the Fear Survey Schedule (FSS) and the EMBU, which is used to assess the recall of the parental rearing style. The results show that there is a link between agoraphobic fear and the representations of parents' rearing behavior. Agoraphobic fears were found to be more frequent among girls than boys, and the difference was statistically significant ($\beta = -0.176, p = .005$). With respect to the parents' rearing attitudes, the data show that the lack of an emotionally warm father ($\beta = 0.207, p = .011$) and paternal overprotection ($\beta = 0.214, p = .002$) are sensitizing factors. Further, both the mothers' attitude of acceptance and their emotional warmth was positively related to agoraphobic fears ($\beta = 1.298, p < .001$). The results suggest that agoraphobic avoidance behavior can occur not only among individuals with clinical levels of anxiety, but also among healthy individuals as a result of unique upbringing conditions. Several sensitizing factors were not examined, and the investigation of normal people limits the interpretation of the results.

The prevalence of postnatal depression in some centers of Friuli Venezia Giulia

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The estimated prevalence of post natal depression (PND) varies in literature from 10% to more than 15% considering both pregnant women and new mothers. There are several psychosocial risk factors for PND. The EPDS (Cox, 1987) is a widely used 10-item screening tool for detecting symptoms of PND: it has been translated into many languages and tested on diverse population samples, with women and their partners, in both the antenatal and post-natal periods. The EPDS was originally proposed as a one-dimensional measurement tool, but most of the factorial analyses have shown instead that it would be better defined through multi-factorial structures. The Italian version of the EPDS (Carpiniello et al., 1997) is a reliable and valid screening tool for perinatal depression. The recommended cut-off point is 9/10—a score of 10 or higher indicates that depressive symptoms have been reported. The aim of this work is to show the preliminary results of a research finalized to identify the prevalence of PND in a sample of 400 women collected in four public Health Hospitals in Friuli Venezia Giulia. The EPDS was given to the mothers on the second day and three months after delivery. Women not able to understand Italian and with preexistent mental disorders were excluded.

Psychological immunocompetence and personality factors in psoriasis, IBD, and thyroidism

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The aim of this pilot study is to find out whether there is any coping strategy, depression level, and personality factors of the patients with psoriasis, IBD (includes M. Crohn and colitis ulcerosa), and thyroidism which can play an important role in coping with chronic diseases. We used the standardized self-report versions of Beck Depression Inventory (BDI), Psychological ImmunSystem Inventory (PISI) and Temperament and Character Inventory (TCI). Patients of the Medical Departments of University of Pécs have taken part in the examination: 37 people were diagnosed with

psoriasis (18 women and 18 men), 57 with thyroidism, 36 with IBD (20 women and 16 men), and we have data from 35 persons as the control group. There was no significant difference in depression indicators. We found that use of self-respect, resilience, empathy, and creativity are significantly higher in the patient groups than in the control group ($p \geq .05$). Empathy and resilience are significantly higher ($p \geq .05$) used as a coping strategy in thyroidism patient group than in psoriasis patient group. Harm Avoidance and Self-directedness seem to be important factors in personality structure which correlate ($p < .01$) with psychological immune system and with BDI scores. It is very important to know as much information as possible about chronic and severe somatic diseases in order to find better treatments or/and prevention and, if the total recovery is not possible, to reach the best quality of life.

Psychoncology online

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This study is a critical review dealing with the application of online psychotherapy and its possible application in psychoncology. The e-therapy consists in a psychotherapy aimed to establish a long term self-help relationship between a patient and an online therapist. There are different kinds of applied e-therapy that have been proved by empirical research to reduce psychopathological symptoms such as severe food disorder, anxiety, phobias, depression, and post-traumatic stress disorder. In the literature, the effectiveness of online therapy for different psychological symptoms has been only partially proved. Furthermore, advances in technology may offer effective methods also for psychoncology. Internet has become a widely used resource for cancer patients and health-care professionals. Many websites provide medical information about cancer, psychoeducation, and psychotherapeutic interventions as online support groups that help members cope with illness, provide emotional support, and facilitate psychosocial adjustment. The present study thus appears of interest for the identification of the individual specific needs for online support of both individuals with psychological symptoms and cancer patients.

Palliative care and emergency medical services – A delicate balancing act?

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Emergency medical services (EMS) are responsible for saving life if a person's vitality is threatened. Palliative care on the other hand focuses on different aspects and does not try to keep life under all circumstances. Main objectives are to alleviate pain and to sustain quality of life during the last stage of life. Demographic changes and high medical standards are leading to an increasing population of aged people. In terms of our research we were especially interested in the growing number of geriatric or palliative emergency cases in (nursing) homes for the elderly. So our survey focused on the handling of emergency situations in homes for old people in the view of doctors ($N = 62$) working for the Red Cross' ambulance in Carinthia. The purpose was collecting data (status quo) to work out the improvement strategies in the next step. A balancing act between emergency care and palliative care is often required by the EMS if important information and documents are missing or if the patient's will unknown. Furthermore, additional palliative knowledge seems to be helpful for decision-making in emergency cases with the elderly people. Some more issues to discuss could be figured out in this study which are very important to reduce the gap between emergency medicine and palliative care.

The palliative patient in nursing homes – Decision between palliative and emergency care

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In a typical emergency case the emergency doctor is first of all focused on life support, acute treatment, and stabilization for transport to the hospital. On the other hand palliative care is defined as the improvement of the quality of life for patients at the close of their lives and not the absolute extension of survival time. If an emergency doctor is called from a nursing home to a palliative patient in the terminal phase, he is faced with the decision between palliative and emergency care in combination with the consideration of ethical and legal aspects as well as the patient's will. The present research evaluates the operations of Austrian emergency doctors in nursing homes. In the context of different initiatives (for instance, palliative treatment plans) in the diverse federal states of Austria there will be regional distinctions in the assessment of the working conditions. On the other hand, there is an influence of post-qualification experience following the kind of basic education on the measures taken in the case of emergency. The results show that a special education in palliative care has a positive influence on the decision to leave elder people in the nursing home. A lack

of information about the patient, his primary diseases, and his personal perceptions in an acute crisis are complicating the necessarily prompt decisions of the emergency doctor.

**Reducing hospital transfers from nursing homes
– Focusing on residents’ quality of life**

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Nursing home residents are frequently hospitalized and many of these hospital transfers are potentially avoidable (Kada et al., 2011; Ouslander et al., 2011). In Carinthia, Austria, a project was initiated, aimed at reducing hospital transfers by training physicians and nursing staff and by improving interdisciplinary cooperation. The measures were implemented in two nursing homes (intervention group). Two comparable nursing homes without interventions were used as control groups. In addition to transfer rates and perceived interdisciplinary cooperation (results presented elsewhere), residents’ quality of life was defined as an important indicator of the success of the project. The present paper presents the results regarding quality of life. Quality of life was measured in a panel of 185 nursing home residents (treatment group: $n = 121$, control group: $n = 61$). The “Vienna list” (Porzsolt et al., 2004; Richter et al., 2003), a proxy for quality of life in patients suffering from dementia, was completed for all residents by the primary nurses at baseline (T1) and after the intervention phase (T2). The panel’s mean age at T1 was 84.8 years ($SD = 8.48$), 84% were female. Despite nursing home residents’ multi-morbidity, quality of life remained stable over the intervention period of approximately six months. Previous studies evaluating the success of interventions reducing hospitalization rates focused primarily on economic indicators. The impact on patients’ health-related quality of life was largely ignored. The present study fills this gap by demonstrating the utility of multiple indicators.

Space and blindness

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Blindness and low birth weight prematurity have an effect on the physical fitness (condition) and some cognitive functions such as spatial reference and space orientation. The poster presents the connection between physical

fitness, space orientation, and Braille letter confusion. The poster is a part of a major research concerning the background of Braille letter confusion and it deals with physical fitness, mental rotation ability, and spatial orientation (ego- and allocentered spatial frames of reference tasks) of 7–11-year-old children. The 104 children taking part in the investigation were matched by age, VQ, gestation period, and sex. Based on this, the following four groups were created: (a) blind-low birth weight premature, (b) blind-full term, (c) sighted-low birth weight premature, and (d) sighted-full term children. The physical fitness of the children was measured by the Eurofit Fitness Testing Battery. The test of mental rotation was carried out with a self-developed tool which can be used with both blind and sighted children. The allocentric and egocentric spatial orientation tasks were adapted for the blind participants as well. The research is searching for the explanation of tactile and the “sighted” letter-confusion by examining the performance in spatial (mental) rotation and in tasks concerning the spatial orientation and comparing the four groups. The main question is whether any significant differences exist between the results of the four groups.

Deficiencies of treatment of mentally ill patients in geriatric departments – Attitude and structural causes

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Patients in geriatric departments exhibit mental health problems to a notable extent. The question is if depression and anxiety disorders are being underdiagnosed and if a more thorough assessment with established testing methods could raise the detection rate. Further research questioned the frequency of therapy of mental diseases in Austrian geriatric departments, as well as the potential benefits of increasing the frequency of therapy. Using a benchmarking instrument, 9,041 geriatric medical cases were evaluated. The occurrence of depression and anxiety disorder in basic assessment was collected via Geriatric-Depression-Scale. The frequency of psychological interventions was also recorded. An expert survey involving department heads of Austrian geriatric hospital wards was conducted in order to ascertain the reasons for low frequency of treatment and little emphasis on psychological intervention. In spite of an increased examination frequency, the mean occurrence of 30% of mental illness of hospitalized geriatric patients was confirmed. In Austria only 9.7% of those patients get appropriate psychological treatment whereas in this study 51% of mentally ill patients took part in therapeutical interventions. The expert estimation of the occurrence of a mental illness was correct (30%), and im-

pediments to psychological interventions were: lacking resources in the psychological staff, too short duration of stay and delayed diagnosis. This low frequency of therapy cannot be explained by multimorbidity alone, other structural and attitude-caused reasons might be involved. By intensifying diagnostic assessment and providing sufficient psychological therapeutic services this rate of therapy could be raised to more than 50% as was proven in Waiern.

Severe traumatic brain injury and the *young male syndrome*: Why do the males take risks?

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The aim of our study was to prove the influence of *young male syndrome* in the etiology of severe traumatic brain injury. Both of genders are interested in mating at the age of 15-35 years, therefore the males in this period take the risks and expose themselves to dangers for the sake of success. Evolutionally *willingness for risk-taking* may serve as a signaling device of male physical displays in the context of mating. This behavior that includes risk taking, aggression, showing-off, and confrontations/scrums with other males was defined by Wilson and Daly in 1985 as the young male syndrome. In an attempt to define whether such a behavior might lead to severe traumatic brain injury in humans we have analyzed the data of twenty male patients who previously suffered severe head injury. The proportions of single young males among the injured, as well as the circumstances of accidents, were assessed to identify risk taking behavior in association with age. The purported role of impulsivity was also analyzed. Although, due to the relatively low number of patients in the database, the results are of preliminary nature, we have proven that risk taking behavior associated with the young male syndrome may be a major cause of severe head injury among young individuals. Our results attract attention to the development of novel and efficient preventive strategies, involving participation of psychologists/psychiatrists, in order to prevent and to reduce the incidence of traumatic brain injuries.

Autobiographies and recovery in psychotherapy

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Every medical treatment – as well as psychotherapy – is connected to the ambition of recovery. But recovery can only be studied problematically, because we neither have clear samples, nor even adequate data. Researchable transcripts or patients' systematic self-reports are in most cases extremely difficult to find. A Psychosomatic and Psychotherapeutic Rehabilitation Ward in Budapest ("Tündérhegy") has a huge collection of data from patients. Every patient is expected to write an autobiography, to take a medical anamnesis inventory, a social inventory, and a MMPI-2 at the arrival to the hospital, and another MMPI-2 test before the leave. But the question arises: what can be the appropriate method to study these data? We assumed that self-documents include signs of attitude towards the treatment and the recovery. So our main goal was to explore linguistic features which may refer to this attitude. First we tried to make groups from data, but this didn't lead to any significant result. It could have happened because diagnoses are not clear, regarding that multiple diagnoses are often used at the ward, and some parts of the first and the last diagnoses are not identical. After this we have found an adequate method for making groups on the basis of indexes of MMPI-2, which is important especially because indexes are more objective than diagnoses. So we analyzed the changing of three MMPI-2 indexes (anxiety, depression, scutter) of 105 patients, and three clusters were found: best-recovered, average-recovered, and worse-recovered group. Then we could start to analyze the life stories of the best-recovered and the worse-recovered group. Our first results are that there are some differences in texts of these two groups, so we can find certain features which are connected to the extent of recovery. Autobiographies written at the start of psychotherapy and data from patients can give us some hidden information about the extent of recovery in the future.

King Lear and the self-confidence-crisis index

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Our study amends classical narrative psychological analysis (László, 2008) with examination of phonetical elements. We analysed the first and the last monologue of Shakespeare's King Lear. Content and language phonetic units of mood changes and of the crisis were evaluated in parallel. We studied the mood changes in the hypothetical effect of phonetic parameters, in part based on earlier studies (Scherer, 1989), and in part based on our own hypotheses. We found that the language content structure does not correspond to units of the phonetic structure; they determine intensity, quality, and evaluation of the mood changing together, which would be poorer in the absence of any. We have introduced a self-confidence-crisis index, which aggre-

gates the content and features of the vocal parameters for different elements (short speech section, high volumes, volume intervals, self-reference, negation, and we reference). This gives us an accurate picture of the utterance deemed critical details, and if it is a crisis, about the level of the crisis.

The variance of antidepressant drug prescription in Carinthia

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In Austria the prescription rates of psychopharmacologic medication in general and antidepressant drugs in particular have been rising steadily over the past two decades. The analysis of the current state of psychopharmacological drug therapy, as dominant part of the disease management concept of depressive disorders, is essential for the measurement of the adequacy of treatment. Within the scope of this study a secondary data analysis was conducted using outpatient antidepressant prescription data of the Carinthian Regional Medical Insurance Company. Prescription rates as well as their socio-economic distribution for an observation period of five and/or nine years are provided. The results show an annual increase of 6.98% of antidepressant drug prescription from 2003 to 2011, mainly due to growing prescription of SSRIs, which represent 61.5% of all antidepressant drug prescriptions. Comparable to international findings, primary care physicians (PCPs) are the main providers of antidepressant medication, responsible for 80% of the annual prescriptions in Carinthia. Remarkably, there is a great variance of prescription rates among Carinthian PCPs. For example, the annual prescription rates in 2007 range from 4 to 2373 (md = 631.0, mo = 1084) prescriptions per PCP. On average 24% of antidepressant drug recipients do only get one prescription per annum. These findings – among others – suggest further investigations in consideration of quality of care delivered.

COGNITIVE PROCESSES

The lightness of Ebbinghaus like disks with illusory contours

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The aim of the experiment was to modify the phenomenally enhanced lightness at the basis of the appearance of *anomalous* figures through an illusory modification of their size, an effect that previous experiments have proved to affect perceived lightness (Zanuttini & Daneyko, 2010). The packs, contributing to the onset of an anomalous disk, can behave as inducers in an Ebbinghaus like display: the smaller the packs, the larger the opaque figure (Zanuttini, 2012). Three disks created by black packs of increasing size (as they were enlarged, their number was reduced) on a light grey background were used as experimental stimuli. Two conventional disks of the same geometrical size, one darker and one lighter than the background, were added. The displays were presented according to the pair comparison method (Thurstone, 1927). Each disk came into view for 5 sec randomly on a monitor, both on the left and right side of the screen. Thirty observers took part in the experiment in a room almost darkened. First they were asked twice to evaluate the magnitude of the disks, then twice their lightness (i.e., which one looked larger or lighter in each pair). Scale separations have been computed for disks magnitude and disks vividness (Guilford, 1954). Both the perceived size of the anomalous disks and the phenomenal lightness, at the basis of their appearance, are affected by the size of the packs; the order and the distance of the stimuli on the two different continua are not the same.

Is there a SNARC effect for non-symbolic numerical quantities?

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The *spatial numerical association of response codes* (SNARC) showed the existence of an association between number magnitude and spatial position of response (Dehaene et al., 1993). Recently, the spatial representation of non-symbolic numerical quantities (dots) has been investigated using a line bisection task (de Hevia and Spelke, 2009; Gebuis and Gevers, 2011) and obtained contradictory results. We investigated whether there is a spatial association between non-symbolic numerical quantities (dots) and response position using a simple detection experiment (Fischer et al., 2003). The dots were used as a prime and they appeared at the centre between two lateral boxes. The participants' task was to respond by pressing the space bar as soon as they detected the target which appeared after the prime. Results showed reaction times faster for small quantities associated with the left target and for big quantities associated with the right target. Moreover, we found a spatial association only for the SOA 400 ms. Our data support the idea that the non-symbolic quantities have a spatial representation, in the form of a left-to-right oriented mental line.

The encoding-specificity effect in auditory and visual memory

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Previous studies have shown that information in short-term memory is encoded acoustically, while those in long-term memory are encoded semantically. However, there are some arguments for the existence of other encoding forms in short-term and long-term memory. In addition, different studies have shown that the way in which information is encoded in memory strongly affects recall or recognition success. Therefore, the aim of this study was to investigate the encoding-specificity effect on encoding non-words presented visually and auditory. Fourteen participants took part in this study in which there were four experimental situations, defined by the visual and auditory non-words presentation in encoding and recognition phase. The number of correctly recognized non-words was measured. Based on the results, the hypothesis of the existence of the encoding-specificity effect is not confirmed. Furthermore, participants were more successful in the situation of auditory encoding and recognition, which could be explained by the functioning of the working memory. However, participants did not show greater success in recognizing non-words in the situation of visual encoding and auditory recognition, compared to the situation of auditory encoding and visual recognition. Possible explanations are discussed.

Modelling an emergency situation: How do emotional valence and arousal affect visual search performance?

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Extremely threatening situations (e.g., fire, war, accident, natural disaster) can occur in life endangering the integrity of human body and mind. There are individual differences how people act in emergencies. Is it predictable who will be blocked and who will operate in an effective way? The aim of our experiment was to find a possible answer to the question. Using the theoretical frame of emotion and cognition, we modelled an emergency situation, and defined the emergency and normal states via the terms of valence and arousal – the everyday situation has low intensity and neutral valence while the emergency can be defined as a high intensity negative stimulus. We measured the effect of the valence and arousal in an attention task (finding numbers in a matrix). The stimulus appeared as the combination of

a number-matrix and an IAPS picture where 3 x 2 types of stimuli were presented (negative, neutral, and positive valence; medium and high level of arousal). Participants ($N = 196$) were separated into three groups on the basis of the difference between their baseline and experimental performance: (a) the ones who get faster, (b) the ones who get slower, (c) the ones with no change. Results show that intensity has an effect on visual search regardless the valence: arousal can either slow down participants with high baseline or speed up people with low baseline. The second result is that the negative valence enhances the effect of arousal: the group with low baseline becomes even faster while the group with high baseline is getting blocked. Neutral and positive emotions did not evoke this effect.

The effect of emotional salience on spatial working memory – Preliminary findings

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The effect of emotional salience on long-term memory is well-documented, whereas studies of the effects of affect on working memory show inconsistent findings. In addition, the majority of studies focus on emotional salience as a distractor, whereas its potentially enhancing influence remains relatively understudied. We used a novel paradigm of spatial working memory to explore possible deleterious and enhancing effects of negative emotional salience on delayed spatial working memory adapted from primate physiology experimental work. Ten participants performed two versions of a spatial working memory task. In the first part they had to remember the position of either a red circle or a circular picture of either negative or neutral valence. After a short delay participants reported the position of the target by using a joystick to move a circle to the relevant position, enabling continuous measure of accuracy. In the second part an additional negative or neutral image was shown during the delay. In half of the trials the subjects had to ignore the second stimuli if they were neutral (neutral as distractor) and update the remembered location if they were negative. In the other half of trials the instructions were reversed (negative as distractor). The results revealed an important effect of emotional salience for both task-relevant and distractor stimuli, suggesting the existence of both negative and positive effect of emotional salience on working memory. Further research is needed to better qualify this relationship.

**Negative emotions related to aesthetic appreciation:
A pilot study**

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The aesthetic experience is based on the attention to the object and arousal, and cognitive and affective evaluation processes (Leder et al., 2004; Markovic, 2012; Nadal et al., 2008). The different aesthetic theories (arousal theory, prototype theory, processing fluency theory) can be criticized, especially because of the effect of artistic work evoking protest and strong emotional reactions, and because of not clarifying the role of negative feelings/emotions (Silvia, 2009). There had been a vivid debate about the “aesthetics” of fear, anger, disgust, and other negative emotions (Dodds, 2009; Eco, 2007; Hagendorn, 2007; Meager, 2003; Menninghaus, 2003; Plantiga, 2006), and some empirical results have been reported (Cooper & Silvia, 2009; Silvia & Brown, 2007). Regarding the hypothetical difference between experts and laymen (Pihko et al., 2011), in our pilot study we examined aesthetic emotions evoked by paintings and photographs in relative experts’ (artist students) and in non-expert young adults. The aesthetic evaluation/emotion induction, arousal, and understanding were measured with scales. Results are interpreted not/or partially in regard to their sensitivity to aversive stimuli, but in regard to the assumed significant difference between the two groups in their aesthetic perception and evaluation.

**Pantomimes facilitate verbs (but not nouns)
comprehension**

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Recently evidence was found that the motor representation of the body is involved in conceptual knowledge processing. Specifically, iconic gestures and pantomimes are characterized by a certain degree of isomorphism between the shape of the gesture and the entity that is expressed by the gesture. This isomorphism is maximum when the iconic gesture represents an action. Thanks to this close relation, we hypothesized that the iconic gestures would differently modulate the processing of action-verbs and object-nouns. We investigated the relation between iconic gestures and words using a priming paradigm. Participants watched a short videoclip with an iconic gesture followed by an object-noun or an action-verb. The meaning of the gesture and

the word could be the same or different. The task was to create a mental image of the word. We recorded the time to form the mental image (RT), and event related potentials (ERP) synchronized with the presentation of the word. The main result showed that watching an iconic gesture with the same meaning facilitates the process to form a mental image of a given word, and therefore the process to access the meaning of the word. Moreover, electrophysiological data (N400 component) showed that this facilitatory effect was greater for action-verbs than for object-nouns. The results are discussed in the context of the semantic relations between gestures and words.

**The role of controllability in past and future
hypothetical thinking**

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Counterfactual and prefactual thinking are two crucial components of the human ability to mentally simulate reality. The content of these hypothetical thoughts may affect and be affected by predictions and evaluations. In this study participants imagined a better past or a better future after having experienced the same negative event (poor performance in a game) and made predictions about future improvement in a second game. Results showed that the content of hypothetical thoughts (focused on controllable or uncontrollable features) was influenced by the actual and the perceived quality of participants’ performance and, more strongly, by the kind of thoughts they were requested to produce: prefactual thoughts elicited significantly more controllable modifications than counterfactual thoughts. As regards predictions about future performances, they were affected by pre-event expectations, evaluations of past performance, and the content of hypothetical thoughts (regardless of the temporal focus, controllable modifications were associated with higher predictions).

**The CSI effect: Media influences on legal decision
making**

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The CSI effect describes a supposed media influence on juror behavior in a criminal trial. The partly unrealistic high-tech work of criminal prosecution on television leads to increased juror expectations for scientific evidence. As long as a contemporary jury does not see this kind of evidence

in a real courtroom, it may tend to acquit the defendant despite other evidence such as eye witness testimony. Forty undergraduate students of Klagenfurt University participated in this study. After asking them about their TV viewing habits, two juries of frequent CSI viewers and two juries of non-viewers were formed. Participants had to evaluate the reliability and accuracy of several types of evidence, including DNA analyses, fingerprints, and ballistics. They were asked which types of evidence they would expect to see in a criminal trial. Subsequently, the jurors were given a short case, and were asked to estimate the relevance of several types of forensic and non-forensic evidence for their verdict. Both individual decision making (juror level) and group decision making (jury level) were investigated. CSI viewers were more likely to convict the defendant due to forensic evidence, and showed a tendency towards higher reliability ratings for this evidence. Judging from our data, a CSI effect seems to exist also in European samples, though less pronounced than in the US. Whether television crime dramas can have an influence on real juries in actual trials is still to be determined.

Moral damage:

A project for a pilot exploratory study

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This project is aimed at trying to better define and quantify moral damage. Moral damage can be defined as the amount of moral suffering caused by a traumatic event. Lawyers are very interested in psychological research on this topic, since they need a tool to assess moral damage. But the first question that needs an answer is whether it is possible to measure it. Due to the extreme complexity of the topic, we intend to restrict the domain to car accidents. The idea is to show short videos of car accidents having different outcomes in terms the gravity of injuries, thus generating a situation that has a high emotional investment. We intend to measure some physiological parameters (e.g., heart rate, skin conductance...), to administer some questionnaires, and some tests, like the Implicit Association Test. People who had car accidents, together with a comparable control group, constitute the population we intend to test. These measures will help us to define a criterion to scale moral damage according to the category of car accident.

Risk perception of different means of transport

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The increasing technological progress and the growing demand for mobility has led researchers to investigate how people perceive the risk related to the use of different means of transport. In particular, researchers have focused on the representation of risk and danger, as well as on factors involved in the creation and distortion of risk perception. One of the aims of this research was to investigate the perception of risk related to various means of transport: car (as driver), car (as passenger), motorcycle (as driver), motorcycle (as passenger), bike, train, bus, and walking (pedestrian). To measure the aspects related to transport risk, a questionnaire covering the following four dimensions has been constructed: (a) subjective probability of an accident, (b) general probability of an accident, (c) assessment of the consequences of an accident, and (d) worry about experiencing an accident. All answers were given on a 7-point Likert scale. With respect to the assessment of consequences and to the worry about experiencing an accident, the motorcycle was considered the most dangerous means of transport. An interesting relation emerged between the assessment of consequences and the level of worry (car vs. motorcycle): the worry (emotional evaluation) about experiencing an accident exceeded the cognitive evaluation of the consequences of an accident. This opens the question: Is risk perception influenced more by emotional or cognitive factors? The probability of being personally involved in an accident was lower than the probability of another person being involved in the same accident regardless of the means of transport (driver optimism).

Wii and gaming realism: The effect of violent videogames is dependent on user experience

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It has been demonstrated that playing a violent videogame has both a (a) perceptual and a (b) social effect, reducing respectively the happy face advantage (HFA, i.e., happy faces are recognized faster than sad faces) and prosocial behaviour. Furthermore, playing a violent videogame using a gun shaped controller leads to a significant increase in aggressivity. In our study, we investigated whether playing a violent videogame with a gun shaped controller on a console which requires a full body motor control enhances the negative effects on both HFA and prosocial behavior, as suggested by the general aggression model. We asked par-

ticipants ($N = 60$) to take part in two playing sessions of 10 minutes each, playing either a neutral (sport, Group 1) or a violent videogame with a Nintendo Wii console. The violent videogame could be played either with a standard Wii controller (Group 2) or with a gun shaped controller (Group 3). Before and after the first playing session participants underwent prosocial behaviour self-rating projective measures. Following the second playing task, they were asked to recognize emotional facial expressions—unambiguous vs. ambiguous—from the Ekman and Friesen database. For the HFA, a significant interaction between accuracy and ambiguity across groups was found: while Group 2 showed a decrease in the HFA as expected, in Group 3 there is an inversion of the effect, with a sort of contrast between playing experience (i.e., violent) and face categorization (faces are more often interpreted as happy). Prosocial behaviour ratings significantly decreased in all groups, suggesting that the negative effects of playing could be more related to frustration than violence. The results are discussed in relation to the interplay between action, perception, and social cognition.

Testing phenotype matching and sexual imprinting theories

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Sexual imprinting and phenotype matching theories are two rival concepts of evolutionary psychology. The former suggests that during childhood humans internalize the facial appearance of the opposite-sex parent, which later serves as a basis of mate choice. The latter emphasizes the reproductive advantages caused by the similarity of mates. We tested the predictions of these theories, and how attractiveness of potential partners and parental attachment influence face preferences. Male and female composite faces were constructed with different levels of attractiveness. Shape-only transforms of the composites were created, so as to resemble either subjects, their parents, or a control face. Volunteers were instructed to choose the most attractive one from two images. Finally they were asked to fill out the EMBU attachment questionnaire. Both male and female preferred self-resembling faces, provided they were warped into the most attractive composite. Subjects with high scores on the Rejection subscale preferred faces resembling their opposite-sex parent less than those with low scores. Emotional Warmth predicted men's choice similarly. Preference for self-resemblance interacts with attractiveness so that when facial cues reflect high genetic quality, subtle markers of genetic similarity also become important. Furthermore, those with good relation to their parents are more willing

to choose partners resembling them, which is in agreement with the predictions of sexual imprinting theory.

Facial beauty: Modular or holistic characteristics?

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The aim of this study was to answer the question whether information from an opposite-sex face is processed in a holistic way as a gestalt in evaluating attractiveness, or certain features are more likely to account for such a decision. In further analysis we tried to find out to which degree facial features (phenotypic markers) in our study are predictive in judging attractiveness and what is the order of their importance in evaluating the physical appearance of others. Facial stimuli were made by photographing students (55 female, 47 male) in a standard way. These photographs were judged by female ($n = 74$) and male ($n = 96$) students on a 1 to 7 scale considering attractiveness. Predictor variables were constructed by measuring facial features of faces on the photographs. We analyzed the data by stepwise regression analysis with attractiveness score as dependent variable. According to our results, there is a unanimous ranking of different facial areas, which supports the hypothesis that perceiving beauty can occur through perceptual filters. This means that certain features are more likely to account for attractiveness than others. We also found sex differences in the perception of facial beauty.

DEVELOPMENTAL PSYCHOLOGY

Structure of metaemotion of mothers of securely and insecurely attached children

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In a relationship between mother and child, attachment is an unequal relationship and represents constant challenge that demands mother's adjustment to each developmental stage of a child's life. There is a need for further research into the characteristics of mothers and the characteristics of children which contribute to the development of secure or insecure attachment. Current research examined the differences in the structure of maternal metaemotions (evaluation of personal sadness and intense anger as well as level of awareness of personal and child's emotions of sadness, intense anger, and handling child's emotions) between boys and girls aged 5 to 7 who are securely or in-

securely attached. Research included 80 children and their mothers (41 boys and 39 girls). For attachment evaluation a MCAST technique is used (structured doll play methodology for attachment evaluation; Green, Stanley, Smith, & Goldwyn, 2000). Structure of mother's metaemotions is measured with questionnaire The Structure of Parental Metaemotions (Brajša Žganec, 2002). Research results show that more girls are securely attached to mothers compared to boys. There is no difference between mothers of securely and insecurely attached children in structure of metaemotions. There is a significant difference between structures of mother's metaemotions of securely and insecurely attached girls. Results show a statistically significant difference on a scale of handling child's emotions between structures of mother's metaemotions of securely and insecurely attached girls, while on a scale of evaluation of personal sadness and intense anger and scale of level of awareness of personal and child's emotions of sadness, there were no differences. Results show no statistically significant differences between structures of mother's metaemotions of securely and insecurely attached boys.

The relationship of family structure and family relationships to psychosocial adjustment in preschool children

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Previous studies have shown that children's developmental outcomes depend on the family structure in which they grow up, but also that the family relationships may be more important for children's development than the family structure itself. For this reason we decided to examine social behavior and somatic problems of preschoolers depending on their family's structure and relationships, as well as the children's gender and age. Participant were 73 married and 72 single mothers of preschool children (78 boys and 67 girls, mean age of 4.9 years), from one small town in Croatia. The scales used were the Family Cohesion, The Family APGAR, the PROS/AG and The CBCL Somatic Complaints scale. The results showed no significant differences in somatic complaints of children living in one-parent and two-parent families, regardless of children's gender and age. Differences in aggressive behavior depended only on children's gender, with boys being more aggressive than girls, regardless of the age and children's family structure. Prosocial behavior did not differ between boys and girls, but children living with single mothers were estimated as more prosocial than children living in two-parent families. Single and married mothers did not significantly differ in

the perception of their family's cohesion and satisfaction with different aspects of family functioning, so these family characteristics were not significant differential features of child behavior in families of different structures.

The role of echo in understanding verbal irony

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In order to clarify the role of echo (Sperber & Wilson, 1992) in verbal irony, I conducted three studies with children aged 5 to 8. In the first study, short stories containing true or false delusion and true or false irony were shown to the children. I found that subjects understood the beliefs of the speaker better in case of false irony than in case of false delusion, even though understanding of both communicational situations requires second-order mentalization. In the second study, half of the false ironic and false delusive utterances were echoic, and half of them were not. The results showed that the echoic nature of an utterance facilitates its understanding, even if the utterance itself is not ironic. In the last study, I analysed the children's capacity to understand echoic and non-echoic irony and delusion, related to their performance in first- and second order mentalization tasks. Logistic regression did not show any relationship between second-order mentalization skills and the understanding of explicitly echoic irony. These results show that children tend to apply an echo-based, heuristic interpretational strategy, and therefore are able to interpret ironic statements, even if they are not yet capable of higher-order mentalization. This could be the developmental base of Gibbs' findings (Gibbs, 2007) that adults understand irony without processing the literal meaning of ironic utterances.

The relation between cognitive theories of autism and the results of an emotion recognition research

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Autism, which is a pervasive developmental disorder, is being examined more frequently in different disciplines. Cognitive psychology offers more and more explanative theories, but none of them explains the whole syndrome. Therefore most scientists believe that autism is caused by separate but correlative diseases. Through our research (Angyal & Pachner, 2011) we will demonstrate the kind of relations that can be found between our results and two admitted theories—(a) the weak central coherence and (b)

Baron-Cohen's theory. In the research we compared the skill of recognizing basic emotions in the case of individuals with autism, individuals with moderate mental retardation, and typical young adults. Besides using photos of facial expressions like in earlier studies (Faces-test; Baron-Cohen, Wheelwright, & Jolliffe, 1997), we also applied dynamic stimulus materials such as vocal recordings (Belin, Fillion-Bilodeau, & Gosselin, 2008), and videos (Simon, Craig, Gosselin, Belin, & Rainville, 2008), and by displaying two different types of stimulus we examined the integration between two modalities. Our results did not confirm any of the two hypotheses; therefore we agree with those alternative theories that originate the different features of autism from a domain-general problem rather than from several separate deficits, for example the Gepner and Féron's temporo-spatial processing disorders hypothesis.

Adolescent's aggressive and prosocial behavior in relation to parental behavior

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The aim of the study was to investigate the role of parental behaviour on adolescent's prosocial and aggressive behavior. Data were collected on a sample of school-age children from Croatia (171 males and 219 females). Parental behavior was measured on the emotional dimensions (acceptance and rejection) and on the dimension of control. Since results show gender differences in social behavior (females behave less aggressive and more prosocial than the males), analysis were conducted separately for females and males. Results of the regression analysis seem to indicate that parental behavior plays a minor role in predicting females' aggressive behavior, while the role of parental behavior is not statistically significant in predicting females' prosocial behavior. In the case of males, parental behavior was a significant predictor of aggressive and prosocial behavior, i.e., it explains a significant part of the variance of both types of behaviors. A significant predictor of aggressive male's behavior is the mother's control. Males who experienced greater maternal control, and those who perceived mother's actions as an effort to modify their behavior and experience, manifest more aggression. Father's control was significant predictor of prosocial behavior. Young men who perceive father's behaviour as controlling, criticizing, and manipulating increasingly manifest prosocial behavior patterns. It should be noted that the parental behavior measured by dimensions of emotionality and control was a significant predictor of aggressive behavior among females and males, while in the prediction of prosocial behavior parental behavior is a significant predictor only among males. The re-

sults of this study seem to indicate that parental behavior in the developmental period of adolescence is a significant predictor of behavior in boys, more than it is in the case of girls. The obtained results can be interpreted in light of the role of socialization factors on the development in dependence to gender identity.

Social network in adolescence: Who are the significant others?

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One of the most important characteristics of the adolescence are changes within social networks. These changes include: changes in quality of parent-child relationships, gradual replacement of peers as an important source of influence, and development of romantic relationships. The main goal of this study was to explore adolescents' perceptions of quality of relationships with a mother, a father, a sibling, a best friend, and a romantic partner. The large sample of adolescents completed Network of Relationship Inventory (NRI; Furman & Buhrmester, 1992) assessing their perceptions of the quality of relationships with these significant others. The full measure includes nine subscales (Companionship, Conflict, Instrumental Aid, Antagonism, Intimacy, Nurturance, Affection, Admiration, and Reliable Alliance). Two factors were also derived for each relationship: social support and negative interchanges. Results suggest that adolescents' perceptions of social support were found to be related across all five studied relationships. Mothers and fathers were seen as the most frequent providers of support, especially in early adolescence. Along with friends, results present romantic partners as a great source of social support (especially in late adolescence), but also as a source of negative interchanges. Discussion centers on the role that various relationships play at different points in development.

Perception of household engagement in intimate relationships: Mutual partner's perspective

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Perceptions of household engagement, joint social activities, expectations, and mutual responsibilities in intimate relationships are a subject of enduring interest in developmental psychology because they offer us a great deal of insight into the understanding of communication patterns, conflict management, and satisfaction in intimate relation-

ships. Despite the huge body of research in this field our understanding of relational schemes and perception-related mechanisms behind mismatches in partner-related communication is in many respects surprisingly limited. The current study tested the assumption that interaction between gender roles, communication patterns, and personality fit within intimate relationship accounts for mutual mismatches in perceptions of joint activities. To test this prediction, we employed a test battery to assess communication patterns, distribution of household engagement, perception of joint social and leisure activities, attitudes toward traditional gender roles, and Big Five Inventory to assess personality traits. Sixty couples (120 adults), aged 28-50 years, participated in the study; mixed statistical models were run to test for both intra- and inter-couple variability. The results are discussed in terms of gender roles, communication patterns, personality fit, and understanding of household engagement, as well as mutual social- and leisure-related activities.

Specific associations among psychosocial variables, health, and survival in older persons

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Different authors have offered different hypotheses and theoretical definitions of the association between survival and physical health, and survival and psychosocial factors. Also, the existing empirical research findings show noticeable inconsistencies regarding both the role and the significance of psychosocial factors in their association with health and survival in older people. The aim of this research is to investigate the potential differences in these associations for groups of older persons with different sociodemographic characteristics. The participants in this research were 814 older persons, 538 women and 276 men, on average 76 years old at baseline data collection. The participants' data were collected in 1998, by survey questionnaire consisting of measurement scales, administered individually in the form of structured interview by a trained interviewer, and followed up until the end of participants' life. Women survived longer than men, especially never married women. Participants' educational status did not contribute significantly to survival. Combinations of multivariate analyses showed that psychosocial variables self-assessed health, functional ability, and social support significantly contributed to the prediction of survival. Thus, biological status, psychophysical health, and psychosocial status, respectively, contributed the most in explaining survival.

EDUCATIONAL PSYCHOLOGY

Effects of different types of training on early mathematics ability

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In the last decades a large body of literature has examined the role of domain-general and domain-specific precursors of mathematical learning disability and some studies confirmed that some abilities of kindergartners can predict later math achievement outcome. With regard to domain-general precursors, a lot of authors investigated the role of working memory in the development of mathematical abilities and demonstrated that the working memory is the main general predictor of mathematical competence. The other important aspect for the acquisition of the mathematical competences is represented by the domain-specific components that have been referred to under the general name of number sense, or the ability to represent and manipulate numbers nonverbally. In the last years the idea of working on domain-specific or domain-general precursors using different types of training aimed to enhance mathematical abilities of children has emerged. The goal of this study is to compare the effect of two different kinds of training on early mathematics ability of kindergartners: the first is a working memory training (domain-general precursor) and the second is a number-sense training (domain-specific precursor). The results of this research showed that systematic working memory training can improve both working memory and number sense abilities while the number sense training can improve specifically the number sense competences of children.

Making mathematics with mind and body: An example from the history of teaching calculus

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Cognitive theories concerning the relationship between mind and body are useful for improving the teaching and learning of mathematics. We present here an example of methodologies based on these kinds of theories and applied at the beginning of the 20th century in Austrian secondary schools of the Küstenland, especially in the case of teaching calculus. The method which we examine was proposed

as a practical mathematics teaching method by Josef Jacob (1859-1918), the Director of a Gymnasium in Vienna, and was inspired by the theories of the Austrian physicist and philosopher Ernst Mach (1838-1916), who recognized this by writing the preface to the volume in which the method is described. The so-called *Jacob method* is based on a well-explained theoretical background and is of great modernity in the light of the theory of embodied mathematics by Núñez and Lakoff. In particular, the importance of muscular activity in the process of creating and developing concepts, often stressed by Jacob and derived from Mach's ideas, resounds in this modern theory.

Personality traits, goal orientations, self-efficacy, and value of learning as predictors of achievement in chemistry

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Finding ways to predict and improve academic performance received much attention lately. It is well-known that many factors have influence on student's academic achievement, and some of them are context specific. The relationship between academic success (in term of grades) and the Big Five traits, goal orientations (mastery approach, mastery avoid, performance approach, effort avoid), self-efficacy, and value of learning chemistry were explored in this study using a sample ($N = 292$) of high-school students. Correlation analyses showed that school classes (second/third), conscientiousness, emotional stability, mastery approach and effort avoid goal orientation, self-efficacy, and value of learning chemistry were related to chemistry grades. All correlations were positive, except for the one between chemistry grades and effort-avoid goal orientation. Further, following a hierarchical regression three sets of variables were used to predict chemistry grades: sociodemographic variables, personality traits, and, as third, goal orientations, self-efficacy, and value of learning chemistry. It was shown that self-efficacy was the most powerful predictor of grades. Surprisingly, of all the others variables, only emotional stability was a significant predictor of achievement in chemistry.

Correlation of results obtained on the WISC-IV and school achievement in Croatia

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WISC-IV is one of the most comprehensive tests of intelligence in the world. It has 15 different subtests and each of these subtests measures a specific cognitive skill. Those subtests sum up to five different indexes: verbal comprehension, perceptual reasoning, working memory, processing speed, and full scale IQ. In this research we investigated the correlations of all subtests and indexes with three different school grades: mathematics, foreign language, and mother tongue. The grades were taken from 219 students who finished the first semester and represent an average of grades from the whole semester. The research sample consisted of children from 13 to 14 years of age. Correlations were ranging from a low .09 to .67. Subtests had of course lower correlations with grades, in comparison to indexes. We investigated which subtest contributes the most to a specific school grade. We found that subtests which measure general verbal intelligence (like Block Design, Arithmetic, Matrix Reasoning) had high correlations with all grades. As expected, some subtests like Vocabulary and Information had higher correlations with language classes. More detailed results will be presented in the paper.

Predictors of Slovene students' reading achievements in PISA 2009

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Programme for international student assessment (PISA) is an international study which aims to evaluate education systems worldwide by testing the skills and knowledge of 15-year-old students in participating countries. In the PISA 2009 cycle, the domain of reading literacy was covered extensively. Using hierarchical linear modelling, we developed a predictive model of reading achievement of Slovene first-year students in four upper-secondary school programs ($N = 4250$). Students represented Level 1 units and schools represented Level 2 units. In the model, selected personal predictors and predictors of family and learning environment were used as Level 1 predictors and the educational programme was used as a Level 2 predictor. About 52% of the total variance in reading achievement was explained by the type of the upper-secondary school program, 3% by the differences among schools within school programs, and 8% by the differences among students within schools. Higher reading achievements were found in girls, students with higher socio-economic status, and in those who speak Slovene at home, have higher interest in reading, perceive teacher's stimulation of students' reading engagement as higher, use metacognitive strategies in reading, interpret literary texts, and read online more frequently.

**Information literacy course evaluation:
The case of first year psychology students**

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In the light of ever more important role assigned to information literacy (IL) in higher education, our study aimed (a) to evaluate an effect of IL course on the first year psychology students' IL and (b) to follow changes in acquired IL in time. Courses on IL were shown to enhance students' IL in previous studies. Two groups of first year psychology students from two Slovenian universities participated in a quasi-experimental study. Experimental group (EG) consisted of 44 students and control group (CG) consisted of 42 students (mean age in both groups was 19 years). Students' IL was assessed using the Slovenian version of the questionnaire Information Literacy Study (ILS; Mittermeyer & Quirion, 2003). Students in EG attended an IL course as a part of their study, whereas CG did not. The ILS questionnaire was applied three times in both groups, namely before the beginning of IL course (Time 1), at the end of the course (Time 2), and a few months after (Time 3) the course. ILS was applied in CG in corresponding times. There was a significant increase over time in IL of EG and was the highest at Time 3, which shows long-term effects of IL course. At the same time the differences in IL between EG and CG were increasing in favour of EG. Results have shown an important role of IL course in students' IL development over time. Study implications and limitations are discussed.

Correlation between academic motivation and innovative activity of students

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The article presents the empirical exploration of correlation between academic motivation and innovative activity of students. The purpose was to clarify the essence of academic motivation and innovative activity of students and the correlation between them. Innovative activity and academic motivation were measured using questionnaires. Descriptive statistics, correlations, t-test, and factor and regression analyses were calculated. The sample includes 1507 bachelor students, 627 male and 880 female. The students' innovative activity is at a satisfactory level of development—students at the middle level of innovative activity prevail. The students' academic motivation is also at a satisfactory level of development—again students at the middle

level of academic motivation prevail. There are statistically significant differences between female and male students in the innovative activity and in the academic motivation. The relation between the students' innovative activity and academic motivation will be presented.

How competent is the supervision of master-theses at Alps-Adria University, Klagenfurt, Austria?

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This research deals with the competences in the supervision in the curricular area at the University. Initially the term *competence* or *competency* was introduced in the educational area in 1973 by Mertens. Competence is the ability of a person to do a job properly. Some scholars see this definition as a combination of skills, knowledge, and behavior. In this research personal, methodical, social, and technical competences are taken into consideration. A quantitative design and inferential statistics have been used. The validity of the competences items has been proved by reliability test. The result of the exploratory factor analyses showed two factors. The Friedman test shows the ranking of the competences. As a conclusion, the data are in positive area, which means the competences in supervising of master-theses are very high. The study should be repeated in economics and education because the participation of the students of these fields was very low. The definition of competence has its origins in business education.

Children's and students' memory hooks

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It is a well-known phenomenon that we can retain contents better when we use learning strategies like chaining or rhyming. Furthermore, students with higher interest and higher intrinsic motivation use higher elaborated learning strategies and retain contents better in their memories (e.g., Blickle, 1996; Cordova & Lepper, 1996). We suppose that in this case the higher interest is the reason for using deeper learning strategies, and not vice versa. In our study, we want to focus on the variability of memory hooks and under what circumstances children are able to create their own hooks. Moreover, we want to investigate if funny memory hooks foster interest in learning per se. The project started with a

collection of children's self-made memory hooks during an event called "children's university" that took place at the University of Klagenfurt. In the poster we want to present first findings of this event and further ideas we want to implement.

Reading and writing errors in lexical development of children from 8 to 12 years old

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This research is focused on writing and reading errors in lexical development of children from 8 to 12 years old, such as tautology, grapho-phoneme constraints, consecutive effects, image value, and dominant meaning/frequency of use. The objective of this research is to show empirical data about these preceding processes. In the first phase of the research the participants were 100 males and females in each grade level, ranging from third to fifth grade. In the second phase, the participants were 472 in third, 495 in fourth, and 521 in fifth grade. In the first phase the participants were asked to define a list of words (belonging to all grammatical categories and with high image value and dominant meaning/frequency of use) taken from short readings of primary textbooks. The passages used were those reflecting a popularity rating above 80%. The Flesch index of readability (with a value between 64 and 73, higher than mean value of 50) was applied to the readings. The participants were asked to answer the questions which they thought fit best in the time it took to give a written answer. In the second phase, we proceeded to elaborate the test with four multiple choice questions which were subject to item analysis. The results seem to show that these preceding processes are not isolated, casual phenomena, but systematic errors in lexical development.

PSYCHOMETRICS AND METHODOLOGY

Varying response formats and item positions: Psychometrically equivalent?

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In practical applications, subscales from a test are used separately without reestablishing its psychometric properties. Such a separation leads to new item positions, possibly

causing position effects and invalidating the dimensionality assumption. Moreover, a change of item parameter estimates would in turn lead to different person parameter estimates. The present study analyzes the change of psychometric properties when rearranging the items of an instrument and changing their response format. The chosen instrument was the Big-Five-Inventory, Kurzfassung (BFI-K; Rammstedt & John, 2005) with four to five items per subscale and five response categories per item (strongly agree to strongly disagree). Four versions were compiled, the first one containing the items in the originally published manner, the second with rearranging the items according to the five subscales, and the same two versions, providing dichotomous response format (applies/not). For analysis, the Rasch model and the partial credit model were applied. A direct comparison of the versions shows significant differences with respect to item positions. Concerning the response format, the likelihood ratio test (Andersen, 1973) exhibits slightly better results for the dichotomous versions of the instrument. Hence, both item arrangement and response format clearly influence model fit and item difficulty. The conclusions of the study are twofold: response format has to be chosen carefully and subscales cannot easily be cut out from larger scales.

Psychometric analysis of a mathematical skills test for children aged 8 years

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In order to identify symptoms of dyscalculia, nine items intended to fit the triple code model according to Dehaene (1992) were developed. Seven of these items were designed in two ways, either following traditional concepts or in a child-oriented fashion (e.g., with bees and elephants representing the content). The items were given to a sample of 134 children of the third form of elementary schools in two Carinthian districts, allowing about the half of the children to choose which kind to work with. Two of the nine items did not show any significant deviations from the Rasch model and 32 items were conspicuous of showing differential item functioning. Several selections allowed retaining the model for six items, representing two of the three codes (analog magnitude representation and the auditory verbal word frame) of the Dehaene model. For the visual Arabic number form and the recoding processes it seems to be far more difficult to construct adequate items. Under certain conditions, the test's design affected the children's performance. It needs to be considered that with a sample of 134 observations, the likelihood ratio test has limited power to detect model deviations. However, the present analyses are promising, which is to be confirmed in further studies.

Application of SEM to discern the dimensionality of implicit associations

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The Implicit Association Test (IAT) is an instrument for measuring associations among various concepts and attributes. Usually, IAT effects are computed using the so-called improved scoring algorithm which is based on D, the standardized mean response time difference between IAT's compatible and incompatible conditions. A measurement model based on structural equation modeling (SEM), as suggested by Nosek and Sriram (2007), allows a more elaborate evaluation of IAT's psychometric properties and defines the implicit association of interest as a single latent variable that determines the response time differences between conditions. In the present study, we examined whether applying a measurement model provides more insights concerning the nature of the latent constructs underlying the IAT effects. Pupils from Austria and Russia ($N = 104$) completed an IAT as well as instruments measuring attitudes towards mathematics and literature in an explicit manner. Several SEM models were tested and varied considerably depending on whether it was computed for correct response times or for the improved measure D. The best fitting model involved the differences between the compatible and the incompatible condition for each of the four categories, one single latent attitude factor, and correct response times ($N = 104$, $\chi^2 = 1.22$, $p = .54$, GFI = 0.99, RMSEA < 0.001). It will be discussed how the manifest response time differences between conditions are related to explicit attitude measures, and how the SEM analysis can be used for the assessment of the dimensionality of the associations captured by IAT effects.

Psychometric properties of Sensitivity to Punishment and Sensitivity to Reward Questionnaire (SPSRQ) in an Hungarian sample

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The negative and positive affectivity are one of the most important temperament factors of personality. Gradual advance in exact measurement of the composition of temperament is stimulated by the demand of looking deeper into the aetiology of depression, anxiety, and psychosomatic dis-

eases. The study demonstrates the first data from the adaptation of Sensitivity to Punishment and Sensitivity to Reward Questionnaire (SPSRQ) on a Hungarian sample, which was constructed by Torrubia (2001). The SPSRQ was validated by use of self-report versions of Temperament and Character Inventory Revised (TCI-R); Anxiety Sensitivity Profile; Albany Panic and Phobia Questionnaire; STAI and Fear Survey Schedule (FSS). There were 363 students recruited from an university, 251 female and 112 males. Females obtained significantly higher scores ($t = -3.205$, $p \leq .001$) than males on SP. Males obtained significantly higher scores ($t = 1.977$, $p \leq .05$) than females on SR. Both SP and SR scales were negatively correlated with age (SR: $r = .182$, $p \leq .001$; SP: $r = -.120$, $p \leq .02$). The results obtained in this study clearly indicate that the validity of SPSRQ is supported by anxiousness, anxiety, fear, and temperament factor scores but the factor analysis points to some open question about the cultural stability of SR and SP factors and the measurement of sensitivity to reinforcement theory.

A Csaladomban-In My Family: A questionnaire to assess family environment

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We will report about the construction of a 90-item questionnaire, aimed at assessing the family environment through a description given by one parent. A sample of over 800 parents (who had at least one pupil in school) provided the answers (Likert scale format) from which a factor analysis yielded 14 scales, thus confirming the results of a previous version of the questionnaire. The 14 factor scales measure several aspects of the family life, and refer to (a) the partner (Partner's Emotional Detachment), (b) the child being assessed (Extraversion, School discipline, Maturity, Orderliness, Social competence, Controllability) and (c) self-description (Regrets for Setting up a Family, Autocratic-Democratic Guidance, Emotional Independence, Perfectionism). All scales reported acceptable to good Cronbach Alpha coefficients. A second-order factor analysis yielded four meaningful factors, which were termed (G1) Assessment of the Child, (G2) Nomic or Rule-Implementation Style, (G3) Personal Satisfaction, and (G4) Educational and Emotional Style.

Validating the Szondi-Test: Effect of drive classes on sympathy choices

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In the psychological research the validity of projective tests, as for example the Szondi-Test, has always been a question. Although the Szondi-Test has high ecological validity, and in the 20th century there were attempts to provide evidence for its statistical validity, these results were not useful because of psychometric problems and because of the fact that researchers changed the evaluation of the test. In our study our goal was to examine one of the possible solutions of this discrepancy. In our experiment we took 10 profile Szondi-Tests with the participating 48 volunteers and determined their drive classes. We used this type of categorization as a grouping variable for further study. We took pictures of the participants and, in the second part of the experiment, we asked them to rate all the pictures taken by sympathy. Based on Szondi's theory of genotropic choices, our hypothesis was that our participants would find the members of their own drive class more sympathetic than the members of other drive classes. Our results show that belonging to a drive class determined by the Szondi-Test had a significant effect on the sympathy choices.

Personality structure in children and adults rated with pre-adolescent NEO PI-R

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Cross-cultural and gender stability of the Five-Factor Model (FFM) has been proven through many empirical evaluations. Studies conducted on children have informed us about the structural and differential trait stability, along with significant stability of means and ipsative data (De Fruyt, 2006). Although parent's ratings of personality using the FFM have been used in both adolescent and children population, few studies have investigated preadolescents' ability to rate themselves using measures of the FFM. The aim of this study was to create a self-report NEO PI-R inventory for preadolescents. A total of 200 preadolescents and 195 adults rated their personalities using the 88-Item NEO PI-R preadolescent version, created for the purposes of this study. The results of principal component analysis showed well-known five-factor structure in adult sample, while in preadolescents' sample some factors were mixed (e.g., Openness and Agreeableness). Tucker's congruence coefficient indicated that factors obtained in preadolescents cannot be considered equal with five factors obtained in

adult sample. Furthermore, only factors Neuroticism and Consciousness were replicated according to factorial replication threshold of .85.

PSYCHOPHYSIOLOGY

On the origins of the lie detector: Vittorio Benussi and the respiratory symptoms of lying

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The history of the lie detector is that of a myth, an obsession: finding the symptoms of the lying behaviour, registering and measuring falsehood through the confessing and self-reporting body. It has passed through centuries and through disciplines, involving science, literary, and psychology studies, as exemplified by characters such as the lasso-toting heroine Wonder Woman. It has arrived in the present, with the "new" lie detectors based on the principles of neuroscience. Among the origins of the lie detector, prime importance may be given to the contribution afforded by the psychologist Vittorio Benussi (1878-1927) in his studies on lying, first at the University of Graz and then at the University of Padua. Benussi's research reveals a character of originality and modernity in the pioneering work on "respiratory symptoms of lying" (1914): he aimed to determine experimentally the constant differential somatic concomitants for the two opposing situations of consciousness – the awareness of lying and the awareness of telling the truth in front of a group of people. He identified such concomitants in "respiratory symptoms": thus he discovered that there were precise and distinct patterns which corresponded to the awareness of lying and to the awareness of telling the truth and he proposed a formula in mathematical terms by introducing as a parameter Störriing's fundamental respiratory quotient.

The impact of time-of-day of measurement and morningness-eveningness as personality trait on sensory and perceptual-motor performance

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Performance in a variety of tasks can change depending on the time of the day. The aim was to investigate the assumption of possible interaction effect between time of day of measurement and morningness-eveningness as a sta-

ble personality trait. Assumption was that interaction effect will occur between morningness-eveningness and time of measurement. Morning types are assumed to show better sensory-motor performance in measurement taken during morning time, and worse during measurement during the evening time. Opposite trend was expected for evening types. Participants took part in the experiment twice: once in the morning (8-10 a.m.), and once in afternoon (18-20 p.m.). Within each session the first measure was pain threshold for mechanical pressure. Second measure was speed and accuracy in visual searching task. Independently of those two sessions information on participants' morningness-eveningness traits was collected by questionnaire. Participants were divided in two independent groups: morning and evening type. The results did not confirm our assumptions. There were no interaction effects between type of personality and time of measurement. Both types showed similar pain sensitivity and the same performance on visual searching task, regardless of the time of measurement. In spite of lack of assumption confirmation, these results have methodological value. Probably there is no need to control for assumed interaction effect in planning research in the field of pain perception or sensory-motor performance.

**Pathological gambling and biofeedback:
An analysis of physiological arousal**

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There is discussion pathological gambling is determined by neurobiological mechanisms. In fact, studies on physiological arousal of gambling reveal varying results. Furthermore, although the effects of gambling on a large number of parameters have been documented, no findings exist on the effect of gambling on heart rate variability. Therefore, psychophysiological assessments measuring skin conductance level, electromyography, and respiratory rate were conducted on a group of gamblers and controls for the first time. The purpose of the study was to describe the differences between gamblers and non-gamblers, while playing on a slot machine, wagering their own money. In addition to the 20-Questionnaire of Gamblers Anonymous, the participant's arousal was recorded before (baseline), while, and after gambling. To examine the differences, time series analyses and correlation analyses are used. Based on the past scientific results, significant differences between the groups are expected with the changes much more pronounced in gamblers. Aside from that, one can assume that there are differences between the times of measurements connected to changes in physiological responses to wins and losses.

The outcomes are discussed in light of the knowledge from different research areas and may contribute to a better understanding of psychophysiological arousal in pathological gambling.

The nature of emotions in the Graz tradition and in the current affective neuroscience

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In Brentano's psychology any mental state is characterised by intentionality, i.e., the reference to a mental content. Similar to judgments and thoughts, emotions also therefore have to be grounded on representations and refer to an object (e.g., to be afraid of *something*). Those ideas have been broadly acknowledged by Alexius Meinong and became representative of the so-called Graz school. Vittorio Benussi, although being a disciple of Meinong, hypothesised on the contrary the existence of pure emotions independent from intentional objects (e.g., to experience a pure fear) and tried to experimentally disentangle emotional functions from cognitive ones. Benussi employed hypnosis in order to analyse mental states and to induct pure emotional (e.g., happiness, terror, pleasure) or pseudo-cognitive states (e.g., evidence, assent, denial), and studied their psychophysiological correlates, such as respiration. In the present contribution we summarise the Benussi's investigations on the nature of emotional states and we discuss the relationship of emotions to intentionality in the context of the current perspectives of affective neuroscience, which to some extent support the thesis of the independence of emotions from cognition.

The impact of the modification of body image on pain perception

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At present, there are no psychological methods for pain relief affecting pain perception through the modification of body image. However, there are some well-studied neuropsychological phenomena that can be used in order

to correctly test the possible efficiency of such pain control strategies. In our research we examined the impact of the so-called *rubber hand illusion* (RHI) on the subject's pain experiences. During the RHI one of the participants' hand is hidden out of view, and an artificial hand (rubber hand) is placed in front of the participants in a way that the experimenter can simultaneously touch the rubber hand and the unseen real hand to make the participants see the rubber hand being touched and feel the touch through the real hand. Thus, as a result of the simultaneous visual and tactile stimuli the brain starts modifying the body image, which may cause the participants to feel that the rubber hand is their own hand (ownership) and to increasingly ignore the proprioceptive information coming from their unseen hand (disownership). A behavioral measure of the RHI is the so-called *proprioceptive drift*, which shows that the participants mistakenly perceive the position of their unseen hand to be closer to the rubber hand. According to our hypothesis, the disownership of the unseen hand may lead to reduced pain perception in the given hand. In order to test our hypothesis we measured the proprioceptive drift caused by the RHI, and we also measured the pain-threshold and the subjective intensity of pain induced by heat stimuli in the participants' hand affected by the illusion.

**Game theory and brain imaging:
A successful match? An attempt to identify neural
correlates of Machiavellian strategies**

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In spite of having shortcomings in various areas of social cognition, especially in mindreading, Machiavellian (Mach) individuals are typically very successful in several other tasks, including solving social dilemmas. We assume that a profound examination of neural structures associated with decision making processes is required to learn more about Machiavellians' abilities that enable them to successfully exploit and manipulate others. More specifically, we predict that compared to low-Machs, high-Mach persons show elevated activity in brain areas involved in the cognitive control of emotions, sensitivity to reward and punishment, and flexible problem solving. The neural bases of these processes possibly encompass the dorsolateral prefrontal cortex (dlPFC), lateral orbitofrontal cortex (lOFC), anterior cingulate cortex (ACC), and the caudate nucleus (CN). Building upon previous neuroimaging data acquired by our research group, we report here a newly designed event-related fMRI experimental paradigm we are currently using to scan individuals as they play a series of single turn trust games.

**Fooling the expert motor cortex: Behavioral and single
pulse transcranial magnetic stimulation investigations**

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Several studies have shown that elite athletes are able to extract kinematic information of domain-specific actions to predict their future course ahead of realization. This pinpoints the importance of motor expertise in the fine-tuning of specific anticipatory motor-simulation mechanisms. Little is known, however, on the perceptuo-motor processes and neural correlates of the athletes' ability to deal with deceptive actions. Combining psychophysics and transcranial magnetic stimulation we investigated the impact of motor and perceptual expertise on the ability to predict truthful and fooling soccer actions. We manipulated the congruence between the body kinematics and ball trajectory of penalty kicks and tested the predictive abilities of expert kickers, goalkeepers, and novices. Kickers and goalkeepers outperformed novices in anticipating the ball direction from the initial body movements, but kickers were more fooled than goalkeepers and novices by incongruent body-ball trajectory kinematics. Crucially, viewing congruent and incongruent actions engendered a comparable facilitation of kickers' lower-limb motor representation, which correlated with their greater susceptibility to be fooled. In contrast, an opposite modulation of motor facilitation to incongruent actions was obtained in goalkeepers and novices. Thus, dealing with deceptive movements is facilitated by non-motor strategic learning and may require the update of simulative motor representations of others' actions.

SOCIAL AND PERSONALITY PSYCHOLOGY

Personality types and dimensions of aggressiveness

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The main aim of this study was to examine relations between personality types and different aspects of aggressiveness. Applying a person-centered approach, three personality types based on the HEXACO-PI-R scales were identified

in a sample of 260 participants by hierarchical clustering method. They have been described as anger-hostile (all values higher except for Agreeableness), resilient or prosocial (lower Emotionality and higher values in the remaining dimensions), and reserved (lower Emotionality, Extraversion, Conscientiousness, Openness and moderate Agreeableness). These types were related to the four aspects of aggressiveness (affective-impulsive and hostility, which are related to affective-hostile function of aggressiveness, and revengefulness and domination, which are related to the instrumental function) assessed by AHRD questionnaire. Results indicate that the resilient type differ in affective-hostile aspects of aggressiveness, but the other two personality types differ in the aspects of instrumental function. The anger-hostile type displayed the highest scores on affective-impulsive aggressiveness and hostility, and reserved type on revengefulness.

Arousal level, bullying behavior, and coping strategies

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It is known that victims of school bullying use less effective coping strategies, but little recent researches have examined differences among bullies, victims, and bully/victims. Also, there is a large void in investigating the association between arousal level, bullying behavior, and coping strategies in previous research. Therefore, the aim of this study was to examine whether arousal level and role in bullying behaviour are related to five of coping strategies (social support, problem-solving, distancing, internalising and externalising). In a cross-sectional survey 478 primary school children (232 girls and 246 boys), 11 to 15 years of age, completed questionnaires on self-reported bullying and victimization behaviors, coping strategies, and arousal level. The results of regression analysis showed that gender, age, arousal level, and the role in bullying behavior are statistically significant predictors of coping strategies in conflictual peer interactions. It has been found that victims and bully/victims are characterised by externalising coping.

Victimization during childhood and revictimization in adolescent dating relationships

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The aim of this study was to explore whether maltreatment in childhood contributed to adolescent dating violence. A convenience sample of 220 teenage girls and boys ($M = 17.2$, $SD = 0.43$) completed self-administered anonymous questionnaires. The Conflict in Adolescent Dating Relationships Inventory was used to gather information about dating violence. Multitype maltreatment data was obtained from the Comprehensive Child Maltreatment Scales for Adults. Prevalence rates for maltreatment in childhood varied from 15% to 42% depending on type of maltreatment. Regarding type of violence, prevalence rates varied from 19% to 36% for sustained dating victimization and from 10% to 37% for violence toward partner. Results suggest that boys who were victims of emotional violence by their fathers in childhood are more prone to emotionally abuse their dating partners as well as to being exposed to emotional violence in dating relationships. However, there were no statistically significant associations between levels of emotional violence by mother and later abuse, as well as being abused in dating relationships. Physical abuse and neglect by father, mother, and other persons in childhood does not contribute to latter violence toward partner, or to being abused in dating relationships. Findings indicated that emotional maltreatment by father in childhood contributes to violence in adolescent dating relationship.

Do we look like princesses or temptresses? Effect of menstrual cycle on women's benevolent and hostile sexism

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Previous research demonstrated that during ovulation phase of the menstrual cycle women displayed significant shifts in their behaviors and motivations as part of sexual selection. For instance, women make themselves maximally attractive to enhance their ability to appeal to a high quality mate. In this study, we tested whether women during the ovulation phase match men's stereotypical needs and display more sexist attitudes and gender-based prescription. To test this hypothesis, we tracked participants' menstrual cycle and assessed their levels of benevolent (e.g., "women are creatures to be adored") and hostile sexism (e.g., "women are perceived as seeking to control men"). Women displayed significantly higher levels of both benevolent and hostile sexism in ovulation phase compared to follicular and luteal phases (quadratic trend). This evidence suggests that women conform themselves to men's gender sexist attitudes during the phase of the menstrual cycle in which sexual mating and sexual reproduction are highly relevant.

Survey on females' attitudes towards being betrayed: Testing an evolutionary model

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According to the short-term mate choice strategy approach, motives for seeking prostitutes are to be found in the nature of male sexuality. The evolutionary interpretation of female promiscuity's motivational base emphasizes the adaptive benefits of female promiscuity under certain circumstances. The aim of our study was to test a third idea. According to our model women, who prefer long-term relationships over one night stands are adaptively interested in their partner cheating on them with a prostitute (rather than engaging in other kinds of sexual relations), because this finance based external sexual liaison is the least threatening for the stability of an emotionally committed relationship. University females students ($N = 208$, mean age \pm SD = 23.55 ± 7.13 , min = 18, max = 50) completed our survey. Female participants are presumed to recognize the advantages and threats of their partners' sexual relations with prostitutes compared to other possible forms of betrayal. Hence it is hypothesized that women overtly support the possibility of their partners' relations with prostitutes. Our results show that women are able to evaluate the favorable and unfavorable effects of their partners' relations with prostitutes. At the same time they do not directly support this form of betrayal over other possibilities. However, in our thought-experiment female participants were more approving of their partners' relations with prostitutes, than they guessed their partner would demand such relations.

Sexual subjectivity in relation with self-esteem among students

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Sexuality in adolescence is slowly becoming viewed as integral part of adolescence identity formation. This shift toward a more normative perspective made researchers prone to study those aspects of sexuality development which represent an important dimension of an individual's conception of self. Sexual subjectivity is one of those aspects of sexuality development which represents the perceptions of pleasure from the body and the experiences of being sexual. Sexual subjectivity is often described as a necessary com-

ponent of agency and thus of self-esteem. Most of the previous studies investigated sexual subjectivity comparing females with different sexual experience; therefore, there is no evidence of gender difference in sexual subjectivity. The purpose of this study was to compare male and female students in five dimension of sexual subjectivity (sexual body-esteem, entitlement to pleasure from self and from partner, efficacy in achieving sexual pleasure, and sexual self-reflection). There were 258 students (155 females and 103 males) assessed with The Sexual Subjectivity Inventory and Rosenberg Self-Esteem Scale. Results show that average age of sexual initiation is 17 years (for female and male students). Most females report that love and being in love is the reason for sexual initiation, while for male students, excitement is the main motive. Men experience orgasm more often during sexual intercourse. A similarity was found between male and female students in sexual subjectivity. The only difference was that females reported more entitlement to pleasure from partner than male students. Further, a positive correlation was found between self-esteem and all dimensions of sexual subjectivity (except for entitlement to pleasure from self) in the male sample. In the female sample self-esteem was in relation with sexual body-esteem and efficacy in achieving sexual pleasure.

Psychological facing up to financial crisis in university students: Well-being, personality traits, and coping strategies

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It is well-known that personality traits affect response to the financial crisis in terms of financial decision making and financial risk taking. In this study, modified version of Family Affluence Scale (FAS), Italia Personality Inventory (Short version), Health Survey (SF-36v2) and Coping Orientation to Problems Experienced questionnaire (COPE-NVI) were used to investigate the relations among personality, well-being, and coping during the current financial crisis. Sample consists of 121 university students (60 females and 61 males, mean age 23.8 years). Two conditions are considered: first, the COPE questionnaire is preceded by the reading of 12 titles of financial crisis articles; and second, with no reference to crisis. The differences between two conditions are not related to well-being but to social support. In particular, if financial crisis thought is activated, the score of social support strategy is higher. Furthermore, introversion significantly influences social support; in fact, low levels of introversion are associated to high scores in social support. Finally, scores of social support and transcendent orientation are significantly higher in females than males. In conclusion, for university students social support

seems to be a useful factor for facing up to financial crisis. For future investigations, it could be interesting to extend this study to workers.

Loneliness in adolescence and links with family and peers social support

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Loneliness as a subjective and unpleasant experience is the result of deficits in social relationships. It increases in adolescence, and it is a source of the experience of inadequacy of social relations. The aim of this study was to examine gender differences in adolescents' sense of loneliness and to establish the correlation between loneliness and several indicators of the quality of social relationships, quality of family interaction, and quality of friendships. The study included 390 adolescents, of which 171 males and 219 females. Scales used are the social loneliness scale, the scale of quality of family interaction and friendship quality scale. Results showed that males feel significantly lonelier than females. Generally, social support contributes significantly in explaining the variance of females (48%) and males (33%) loneliness. Generally quality of family interaction and friendship quality variables are those that significantly contribute to the explanation of loneliness among young people. Research results indicate the important role of gender in the development of loneliness. For males quality of family interaction and friendship quality equally contribute to the explanation of loneliness, while in females there was a significantly higher proportion of quality of friendships. Considering that the results of this research showed that the female's sense of loneliness was significantly more related to friendship, it is the role of socialization factors with regard to gender.

The effects of identification with one's national in-group on in-group biases

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Identification with one's national in-group is a relevant variable for predicting a whole range of effects. However, for many reasons, it is difficult to measure identification. Unitary identification scales are inadequate both conceptually and empirically (see Ashmore, Deaux, & McLaughlin-Volpe, 2004). In our studies we developed a multidimensional

identification questionnaire ($N = 616$), which differentiated between glorifying the in-group and feeling attached to the in-group. In the subsequent studies, we demonstrated the relationship between various intergroup phenomena and the modes of identification. In two studies ($N = 200$) we explored the relationship between implicit linguistic biases and identification patterns. We found that high glorification scores predicted higher linguistic biases. For example, when in-group members were the perpetrators, high glorifiers preferred passive forms ("Romanians were killed"). However, when out-group members were the perpetrators, they chose more active forms ("Romanians killed the Hungarians"). In the next two studies ($N = 172$) we investigated the relationship between identification patterns and emotions. Participants with high attachment scores experienced group-based emotions more often than other in-group members. In a situation where the in-group members were perpetrators, high glorifiers used exonerating cognitions (such as blame the out-group for the event) and consequently refused to experience negative group-based emotions. In a final study ($N = 150$) differently-identified participants evaluated significant historical events with great differences. Many significant historical events are subject to interpretation and evaluation. Generally, high glorifiers are more intense about both the negative and the positive events.

Alternative roles of punishment in experimental settings: Beside strong reciprocity

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Strong reciprocity has powerful cooperation-enhancing effects in both real life and experimental game situations, yet punishment may obtain alternative roles depending on social context and personality characteristics of participants. We examined punishing behavior among 80 subjects with different levels of Machiavellianism in a strongly competitive 10-round public goods game with costly punishment condition. Participants received fees of prefixed amounts based on their final rank in the game. Despite the punishment condition, the amount of contributions decreased steadily during the game. High-Mach participants contributed significantly less to the common account, received significantly more punishment, and imposed more punishment on others than low-Machs. At the beginning of the punishment stage high-Mach players had significantly more money on their private accounts than low-Machs. Due to the combined costs of received and imposed punishment, this difference disappeared by the final round. The results indicate that social contexts (intensive competition) and the subjects' personality characteristics (Machiavellianism)

both exert modifying effects on the role punishment takes. Here, high-Mach subjects punished each other in order to achieve a higher rank and a financially better outcome. Thus, in certain social conditions, punishment primarily functions as a means of rivalry, instead of a way of second-order cooperation, as strong reciprocity suggests.

Who trusts, who reciprocates, and who retaliates?

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Machiavellianism is a combination of a behavioural strategy characterised by the tendency to manipulate and exploit others, and a worldview resting upon cynicism and opportunism. The aim of our study was to explore the extent to which highly Machiavellian (Mach) people tend to trust others, reciprocate favors, and retaliate in answer to the harm they receive from others. To model everyday relationships, we used the so-called trust game: a two-person experimental situation in which participants took part with a stranger as a partner. There were 144 university students that took part in the study and played for real money. Their level of Machiavellianism was measured by the Mach IV-Questionnaire. Our results show that there is no significant difference in the deposits made as the first players between high- and low-Machs. We found, however, that as second players, high-Machs tend to reciprocate the favors of the other player to a lesser degree than low-Mach participants. The results also indicate that highly Machiavellian people don't show a tendency to retaliate in answer to the unfair offer made by the partner. We assume that Machiavellians make decisions with cool-blood: they do not feel injustice but always reciprocate a little, regardless the amount of money they received from the partner.

Are there personality traits that predispose applicants to fake noncognitive measures in personnel selection?

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Previous research has shown that applicants' faking on personality questionnaires could lower their predictive validity and reduce the quality of selection decisions. Hence, several models that specify key determinants of applicants' faking responses on noncognitive measures have emerged. One of the common elements of these models is the important role of applicants' personality in predicting their motivation to fake and consequently faking behavior.

Nevertheless, this assumption lacks systematical empirical validation. The goal of the present study was to investigate the role of applicants' personality facets in predicting the amount of faking on a noncognitive questionnaire. The total of 202 participants responded to personality inventory twice – first under instructions to respond honestly and afterwards under instructions to respond as an applicant in a simulated selection program. The difference between personality scores in two conditions represented the individual amount of faking, which was then regressed on the facet scores. As expected, the results confirmed significant contribution of Conscientiousness and Neuroticism facets in explaining the variance of faking. However, the most efficient predictors seem to be the facets of Openness. The obtained results provide support for personality traits having an important role in predicting applicants' faking behavior on noncognitive measures in personnel selection.

Stressors and resources in caring professions: A mixed-methods study on the burdens of work, coping, and health behaviours

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The current and projected demographic situation is often portrayed as a catastrophe or crisis situation in the public media and in academic discourse. The aging population and the resulting susceptibility to physical and mental illnesses not only presents health services research and planning with enormous tasks but also has a dramatic impact on the daily work routine of caring professionals. The study presented here investigates the burden aspects of the profession as well as protective factors via a sequential quantitative-qualitative design. The settings of the care home and the intensive care unit were chosen in order to contrast their daily work routines. In the first stage, the caring professionals were given a two-part self-assessment questionnaire on stressors, resources, and health behaviours. In the second stage, these aspects were discussed in more detail in semi-structured interviews. Based on existing research, the data from the intensive care staff ($n = 90$) could be matched with the data from the care home staff with regard to the variables of age, profession, gender, and lifestyle. Institutional demands, time pressure, and the resulting structural violence were addressed by both samples. Furthermore, the subjects also reported critical coping strategies such as smoking, distancing themselves, and excessive eating. In view of the demographic challenge and an increasing need for qualified caring professionals, it is imperative that measures for targeted health promotion are planned and implemented.

Burnout syndrome and the examination of dysfunctional attitudes in health care employees

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The aim of this study is to measure the level of physical, mental, and emotional distress in burnout syndrome in case of health care employees (doctors, nurses, and assistants). We have measured this phenomenon in two oncological departments (30 and 33 people), in a G.E. practice (13 people), and in a maternity ward (18 people) with standard international self-evaluation reports. We used self-report anonymous questionnaires, which consisted of the standardized

version of BOQ, BOS, and DAS and questions concerning job satisfaction and sociodemographic questions. There was no significant difference in burnout indicators between the departments. In case of the different medical attendance forms, the average numbers reach that level where attention and intervention are needed. Concerning the DAS data, the oncological department with a higher range of medical attendance shows a statistically significant difference from other departments. Maternity ward employees compared to the G.E. employees present a deviation both in the DAS Autonomy and in the Entitlement subscales. The qualification and the number of children are influential factors for the DAS subscales. The marital status has a significant influence on the Approval subscale. Sex and age were not potential factors. We can conclude preventional and interventional possibilities based on the changes of DAS subscales may have significant effect on the therapy of burnout syndrome.

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