ABSTRACTS OF POSTER PRESENTATIONS

Presentation number: EAA 01

CDKN2B – A GENE AT THE CROSSROADS OF LONGEVITY-RELATED PATHWAYS

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CDKN2B is a tumour suppressor gene encoding p15INK4B, an inhibitor of cyclin-dependent kinases that plays an important role in cell cycle regulation and senescence. It is located near the chromosomal region 9p21.3 that in other studies showed association with risk for coronary heart disease, as well as with longevity and parental lifespan. This study aims to explore whether rs4977756 and rs1333049 — two variants from this region reported by functional analyses to affect CDKN2B — influence longevity and late-life survival in the Croatian population. In a sample of 314 Croatians aged 85 and over, 43 single nucleotide polymorphisms (SNPs) associated with longevity in other studies were genotyped. The effect of two CDKN2B variants on longevity was tested using univariate logistic regression, while the impact on survival, both for the CDKN2B variants individually and for SNP-SNP interactions with other variants, was tested using Cox regression analysis. We did not detect a significant effect of rs4977756 and rs1333049 on chances for achieving longevity (90+ years), and individually neither significantly affected survival. However, the tested SNPs had a significant impact on survival above 85 years of age in interactions with variants of the TP53 (rs1042522) and FOXO3 (rs4946935, rs12206094, rs13217795, rs2764264) genes, as well as with the rs2149954 variant of the LINC02227 gene, which was previously also associated with risk for cardiovascular disease. Although it is possible that our sample size was too small to detect an effect on longevity, analysis of the genetic interaction of two variants enabled detection of an effect on survival beyond 85 years. Moreover, these effects were shown to be independent of the participants' health status. These results indicate that CDKN2B plays an important role in crosstalk between different pathways involved in longevity, such as DNA repair and cell cycle regulation, as well as the insulin signalling pathway.

Keywords: Longevity, Survival, Genetic interactions, Oldest-old, SNP

Presentation number: EAA 02

DOES BREASTFEEDING HAVE AN IMPACT ON THE TEETHING PROCESS?

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Background and aim: The eruption of the first tooth is influenced by various factors, including genetics, sex, and birth parameters. The objective of this study was to investigate whether the method of feeding during the first few months of life has an impact on the process of tooth eruption in children aged 2-4 years. Material and methods: The study included 164 children (81 boys and 83 girls) aged 2-4 years. It was conducted in randomly selected nurseries and kindergartens in Lodz, a city in central Poland. Parents completed a questionnaire regarding the type of feeding in the first months of a child's life. Additionally, participants were queried about the month in which their first tooth emerged. Results: The U Mann Whitney test showed that breastfed children had earlier tooth eruption ($Z = 2.180$; $p = 0.0293$). This relationship was observed in boys ($Z = 2.465$; $p = 0.0137$), but not in girls ($Z = 0.522$; $p = 0.6018$). The results of the multiple regression confirmed that the longer children are fed in a mixed way, the later they teethed (Beta
$= 0.300$; $p = 0.0079$). This relationship was observed also in girls (Beta $= 0.342$; $p = 0.0310$). Conclusions: Breastfeeding may accelerate the teething process, while mixed feeding may delay the eruption of the first milk tooth.

Keywords: nutrition, teething process, children

Presentation number: EAA 03

RELATIONSHIP BETWEEN BONE MINERAL DENSITY, FAT MASS, AND FAT-FREE MASS IN OBESE AND NON-OBESE YOUNG ADULT WOMEN

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The present study investigated the relationship between fat mass (FM), fat-free mass (FFM), and bone mineral density (BMD) in young adult women from Slovakia. The study included 508 healthy young women aged 18 to 30 who underwent body composition and BMD measurements using the InBody 770 bioimpedance analyser and the Quantitative ultrasound device Sunlight MiniOmniTM. The participants were divided into two groups, defined by their percent body fat (PBF) in obese PBF ≥ 28% and non-obese PBF < 28%. Spearman correlation analysis was used to test the associations. The results showed a significant negative correlation between speed of sound (SOS) and FM ($r = -0.141$, $p = 0.042$), visceral FM ($r = -0.139$, $p = 0.044$), FFM ($r = -0.143$, $p = 0.039$), and lean body mass in the left arm ($r = -0.152$, $p = 0.027$) in obese women. In contrast, a positive correlation between SOS and PBF ($r = 0.121$, $p = 0.036$) and FM in the left arm ($r = 0.115$, $p = 0.049$) was observed in non-obese women. Analogue results were also observed between Z-score values and the same body composition parameters in both groups. In conclusion, we suggest that higher values of FM-associated parameters are associated with a lower BMD and worse bone quality in obese women. On the other hand, FM is associated with a higher BMD and, thus, better bone quality in non-obese women. Funding: Cultural and Educational Grant Agency of the Ministry of Education, Science, Research and Sport of the Slovak Republic (KEGA 046UK-4/2023).

Keywords: Bone health, fat mass, fat-free mass, bone density

Presentation number: EAA 04

THE INFLUENCE OF GRAVITY ON THE MEASUREMENT OF FACIAL SOFT TISSUE THICKNESS WITH A NON-INVASIVE ULTRASOUND DEVICE

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Data on facial soft tissue thickness (FSTT) is currently widely used in forensics and medicine. It forms the basis for craniofacial reconstruction and identification methods. This study was conducted to evaluate the differences in FSTT between measurements in upright and horizontal/supine positions in living subjects. The analysed sample consisted of 127 participants aged 17 to 86 years from Slovakia. Information on biological sex and age was collected. Eight anthropometric landmarks in the medial line and nine bilateral landmarks in upright and horizontal/supine positions were used to measure FSTT using a non-invasive General Electric LOGIQe R7 ultrasound device. It was found that the position of the measured participant influenced more than half of the measured landmarks ($p < 0.05$), while the differences in the mean values did no more than 1.31 mm. Most FSTTs achieved higher values in the supine position. In the analysed group, regardless of sex and age category, only the glabella, supramental, pogonion and canine fossa landmarks showed greater FSTT values in the upright position, with the largest difference in the canine fossa landmark, where it reached 1.10 mm. Other landmarks showed significantly larger values in the supine position, ranging from 0.11 mm for the metopion landmark to 0.84 mm for the infraorbital landmark. The present study contributes to the current research on FSTT by demonstrating the differences in FSTT values depending on the measured position in the Slovak population using the non-invasive ultrasound method. The results of the study show that it might be more useful for facial reconstruction to use measurements on living individuals in an upright position, as FSTT changes both negatively and positively in the measurement positions. Funding: Cultural and Educational Grant Agency of the Ministry of Education, Science, Research and Sport of the Slovak Republic (KEGA 046UK-4/2023).

Presentation number: EAA 05

SELF-REPORTED LACTOSE INTOLERANCE IS ASSOCIATED WITH IMPAIRED BONE TISSUE QUALITY IN HEALTHY YOUNG WOMEN

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This study investigates the relationship between the self-reported lactose intolerance (LI) and bone mineral density (BMD) in the radius forearm bone in young women from Slovakia. We assessed 508 Slovak young women aged 18 to 30 years, divided into subgroups on their LI status, of whom 89 (17.52%) were women with LI and 419 (82.48%) without LI. BMD defined by speed of sound (SOS) and Z-score, was analysed by the QUS device (Sunlight MiniOmni™). Regression analysis tested the associations. Our results showed that women with LI had significantly lower SOS and Z-score compared to women without LI (4052.56 ± 105.03 vs. 4080.76 ± 111.93, p= 0.031; -0.43 ± 1.03 vs. -0.16 ± 0.98, p= 0.048, respectively). Finally, regression analysis detected the greatest influence of age, total weight and LI on the SOS and Z- score. Negative values of the B coefficient indicated that the presence of LI (B= -26.936; p = 0.034) and higher total weight values (B= -0.853; p = 0.050) were associated with lower SOS. Furthermore, the LI (B=
-0.266; p = 0.022) and higher total weight (B= -0.009; p = 0.029) were associated with lower Z-score. In conclusion, we suggest that the self-reported LI is associated with bone tissue in the radius forearm bone and has a negative impact on bone health in young Slovak women. Funding: Cultural and Educational Grant Agency of the Ministry of Education, Science, Research and Sport of the Slovak Republic (KEGA 046UK-4/2023).

Keywords: bone health, lactose, young women, food intolerance

Presentation number: EAA 06

OSSEOUS NON-METRIC VARIATIONS OF THE FEMORAL HEAD-NECK JUNCTION. POIRIER'S FACET IN THE SKELETAL POPULATION FROM RADOM (14TH-17TH AND 18TH-19TH CENTURIES)

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Osseous changes of the femoral head-neck junction have been the subject of anatomical and anthro¬pological studies for many years. Among them, certain morphological features (Poirier's facet, Allen's fossa, femoral plague) have been consid¬ered. Disagreement on terminology and descriptions, poor knowl¬edge of the variability and distribution of these traits and the absence of standardised scoring methods make it difficult to interpret their meaning. The aim of the study is to analyze the frequency of Poirier surfaces in the skeletal population from Radom (14th–19th centuries). Poirier' facet was analyzed on the femurs of 367 adult individuals (184 males, 140 females, 43 adults of unknown sex). In the late medieval population of Radom (14th-17th centuries), Poirier's facet lesions on the femurs were found in 33% of individuals, and in the skeletal series repeating the 18th-19th centuries, this percentage was 34%. In the analyzed skeletal group, the Poirier surface was usually observed on both femurs. A higher incidence of lesions was noted in 18th–19th century men compared to 14th–17th century men, while in women, Poirier's surface was slightly more frequently observed in 14th–17th century individuals. In Radom in the 14th–17th centuries, no statistically significant differences were found in the frequency of Poirier's surfaces between men and women (38% in men, 29% in women). In Radom from the 18th to 19th centuries, men were characterized by a significantly higher frequency (44%) of this change compared to women (18%). Due to the fact that the appearance of a Poirier's facet lesion on the femur is often associated with physical activity (work), the absence or presence of differences in the frequencies of this skeletal feature could be related to the absence/presence of differences in the type of physical activity. However, poor knowledge about the etiology of the Poirier surface, insufficient archaeological and historical knowledge about the lifestyle of the inhabitants of Radom and the small sample size from the 14th to the 17th century do not allow drawing clear conclusions. Further analysis is necessary.

Keywords: skeletal population, femoral head, femoral neck, changes of the femoral head-neck junction, Poirier's surface

Presentation number: EAA 07

STATURE ESTIMATION FROM MEDIEVAL JUVENILE SKELETONS USING LONG BONE LENGTHS

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Previous studies emphasize the impact of socioeconomic status, specifically its influence on chronic malnutrition and infectious diseases during critical periods of growth and development. Stature serves as a composite reflection of growth and development, often serving as a proxy for overall population health, both in contemporary populations and in the skeletal remains of historical populations. The present study aimed to assess the estimated stature of children and adolescents by examining long bone lengths. The sample comprises two medieval immature skeletal series aged between 1 and 17 years: The Dilkaya (n=90) skeletal collection from the East Anatolian Peninsula, and the Havuzdere (n=87) skeletal collection from the West Anatolian Peninsula. Femur and tibia lengths were used to predict stature using age-specific formulas, and crural indices were calculated. Stature estimates ranged from 54 cm to 162 cm. Dilkaya children appeared to be taller for most ages; at ages 8 and 12, predicted stature from tibia length was found to be statistically significant between archaeological groups (p<0.05). The population of Havuzdere has continued to live in isolation among Muslim groups after the conquest of Istanbul. It is known that they are particularly disadvantaged in terms of food intake due to their current socio-political position, and we believe that this situation also reflects on the height of children and adolescents. On the other hand, the population of Dilkaya is one of the popular trading areas in Eastern Anatolia, especially known for its rich resources in animal husbandry and freshwater fishing. This has also been reflected in the height measurements of the juvenile population.

Keywords: Stature estimation, child skeletons, Medieval archaeological population, Anatolia

Presentation number: EAA 08

OVERDIAGNOSIS OF CANCER; ANTHROPOLOGICAL PERSPECTIVE

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Before the 20th century, cancer diagnoses relied primarily on assessing patients' symptoms and physical findings, often resulting in late-stage diagnoses and dire prognoses. With limited medical accessibility and technical capabilities, cancer was often synonymous with imminent death. However, the advent of modern medicine and technological advancements has revolutionized cancer diagnosis, allowing for earlier detection through radiological and biochemical innovations such as CT scans, PSA tests, MRI imaging, and endoscopic procedures. Despite these strides in early detection, the deep-seated fear of cancer ingrained in human psyche persists into the 21st century. This disconnects between improved diagnostic capabilities and lingering fear has given rise to a modern medical dilemma: the phenomenon of overdiagnosis. This term describes the identification of cancers that may never progress to cause harm during an individual's lifetime, leading to unnecessary treatments and potential harm. In the current medical landscape, the clinical significance of early-stage cancers, many of which may follow diverse trajectories including regression, dormancy, or slow progression without symptoms or mortality, remains inadequately understood. Consequently, medical practices often treat these early-stage cancers with the same aggressive approaches as late-stage malignancies, such as radical surgical resection. Cancer screening programs, while aimed at early detection and prevention, inevitably contribute to overdiagnosis. The meticulous evaluation of these programs from an anthropological perspective is essential. Such an approach allows us to consider the cultural, social, economic, and political factors that influence perceptions of cancer, medical decision-making, and the allocation of healthcare resources.

Keywords: overdiagnosis, cancer screening, early detection

Presentation number: EAA 09

LIFESTYLE HABITS AND INFLUENCE OF SPORTS PRACTICE IN ITALIAN ADOLESCENTS: COMPARISON BETWEEN GIRLS AND BOYS

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Adolescence represents a phase of deep physical and psychological changes. Sports practice appears to have a positive influence on adolescents, thus also improving their body composition. This is especially relevant when we consider that obesity in adolescents is recognized as a global major public health problem. This study aims to understand the influence of sports practice on anthropometric measures in both sexes and whether lifestyle habits differed between sexes. The study was carried out on 239 students (146 boys and 93 females aged from 10.9 to 14.7 years) attending a middle school in Ferrara (Emilia- Romagna region, Italy). The survey took place in November 2023 and anthropometric variables (stature, sitting height, weight, waist circumference, skinfold thicknesses) were directly collected by an expert anthropometrist. Moreover, a trained operator asked questions regarding lifestyle habits (screen time, time spent studying, and sports practice). Years at peak height velocity (YPHV) and %F were calculated. The majority of the students practiced sports (69.5%), with a mean of 4.6 ± (2.8) hours/week. In particular, emerged that boys practice more sports than girls (74.7% and 61.3%) and they trained more than females (4.8 ± (2.6) hours/week vs 4.0 ± (3.3) hours/week). Girls spent more time in front of a screen in comparison to males (2.9 ± (1.7) hours/day vs 2.5 ± (1.9) hours/day) and more hours per day studying (2.2 ± (1.1) hours/day vs 1.7 ± (0.9) hours/day). The majority of the students were normal weight, but 28.7% of males and 28% of females were overweight or obese. The Two-way ANCOVA (adjusted for YPHV), analysing the effect of sports practice and sex on body size and body composition, revealed that, as expected, boys were taller, and heavier, with wider waist and upper arm circumference. On the other hand, sports practice positively influenced body fat regardless of sex.

Keywords: adolescence; growth; Italy; sports; anthropometry

Presentation number: EAA 10

CAN NOTHING MOTIVATE YOU? THE EFFECTS OF PLACEBO INTERVENTION ON FITNESS-RELATED PARAMETERS OF ADOLESCENTS WITH VARYING BODY MASS AND COMPOSITION STATUS - THE ROLE OF MOTIVATION IN PHYSICAL ACTIVITY

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The study aims to analyse the effects of placebo intervention on parameters related to physical fitness in participants aged 12-18 with varying body mass and body composition status. Data collection is ongoing. Up to this point, 31 adolescents (9 boys) underwent anthropometric measurements, body composition analysis and a beep test. They were randomized into experimental (a drink [placebo] presented as a beverage that enhances energy levels, strengthens muscles, and improves overall physical fitness) or control (participants were explicitly informed that they would be consuming water) groups. The researchers conducting the fitness test and obtaining physiological and morphological data were blinded to the study's true purpose. Physiological, behavioural and subjective parameters related to the exercise were obtained. Additionally, data regarding the motivation for physical activity (SMS-15, The Situational Motivation Scale) and declared level of physical activity (HBSC questionnaire) were collected. The analyses are still ongoing. Currently, no differences were observed between the groups regarding age categories, sex distribution, or anthropometric variables. There was a statistically significant effect of the placebo on the level of motivation to achieve the best possible results, $t(29) = -1.886$, $p = 0.035$. Control declared lower motivation levels (M = 6.81, SD = 1.42) than the placebo group (M = 7.87, SD = 1.68). There were no significant differences in initial and maximal heart rate (p=0.225), number of beep-test levels (p=0.210), maximum running speed (p=0.210), or recovery pace in phase I (p=0.214), phase II (p=0.349), and overall (p=0.194). Notably, trends favouring placebo were observed. The results suggest that a placebo may affect adolescents' motivation for high sports achievement. Thus, the placebo effect may be beneficial, especially for children with higher BMI or body fat {%BF], because physical activity can be particularly challenging for them.

Keywords: obesity, overweight, physical activity, motivation, placebo, children

Presentation number: EAA 11

NEW HOMO ERECTUS JUVENILE REMAIN FROM CHINA (LUANCHUAN, HENAN) AND THE MORPHOLOGICAL IMPLICATIONS OF DECIDUOUS LOWER SECOND MOLAR IN HUMAN EVOLUTION

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A new juvenile Homo erectus fossil has been uncovered in central China (Luanchuan, Henan province) from the Middle Pleistocene. This specimen, No.12SJD #1, is a deciduous lower second molar embedded in a fragment mandible, representing the only well-preserved H. erectus dm2 with stratigraphic records in China and even in East Asia. Therefore, it provides us with unique evidence of a juvenile East Asian Homo erectus. Through a broad comparative study of metrical and morphological features, we have demonstrated the characteristics of the Luanchuan dm2 and discussed the implications of the different traits in human evolution. The Luanchuan dm2 is similar to Zhoukoudian Homo erectus and demonstrates certain primitive characteristics such as a narrow crown (small crown index), buccal mesial groove on protoconid, lingual mesial groove on metaconid, and fine crests on hypoconid on EDJ. It also exhibits distinctive characteristics such as a basin-shaped anterior fovea and a special pattern on EDJ: dw with type 3 DTC. Additionally, the groove pattern Y6 and protostylid are common features with Asian Homo erectus and modern populations of Asia. Some of the primitive features are preserved in Holocene modern populations, such as the relatively narrow crown and talonid crest presented in the Houtaomuga neolithic and bronze age site.

Keywords: Middle Pleistocene, East Asia, Homo erectus, deciduous teeth, human evolution

Presentation number: EAA 12

BIOLOGICAL DISTANCES OF THE POPULATION OF THE ISLAND OF RAB, CROATIA, CALCULATED BASED ON ANTHROPOMETRIC MEASUREMENTS OF THE BODY AND HEAD

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One of the ways to assess the relationship between the studied populations is to determine their "biological distances". The most suitable measure for the assessment of biological distances based on continuous variables is the Mahalanobis distance D2 analysis. The sample included in this analysis consisted of 600 adults of both sexes, residents of five settlements on the island of Rab, Croatia (Rab, Banjol, Barbat, Supetarska Draga and Lopar). The aim of the research was to estimate the biological distances between these five populations, separately by sex and separately for each set of investigated variables (anthropometric variables of body and head). In order to assess which populations form groups according to the sets of investigated variables, we performed a cluster analysis using Ward's method and Mahalanobis distances. Clusters formed in the space of morphological dimensions showed the following: women from the city of Rab are distant from women from other island settlements in anthropometric measures of both head and body, while in men, head anthropometric variables separate the men from the city of Rab and body variables separate the men of Banjol from other populations of men on this island. Such a finding suggests the conclusion that even the partial isolation of some populations of the island of Rab, caused by evolutionary processes, resulted in a clear phenotypic differentiation of the group. The grouping of today's population communities from the island of Rab, based on the analysis of morphological characteristics, coincides with the known course of settlement of this island and the dynamics of island migrations of its population.

Keywords: isolated population, biological distances, anthropometry, island of Rab, Croatia

Presentation number: EAA 13

ABCC2 GENE POLYMORPHISMS ASSOCIATED WITH MULTIDRUG RESISTANCE IN CROATIAN ROMA

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The ABCC2 gene encodes the multidrug resistance-associated protein 2, MRP2, an ATP-binding cassette transporter that plays an important role in detoxification and chemoprotection, as it transports a phase II products of biotransformation (various compounds as glutathione, glucuronide, and sulphate conjugates). Some ABCC2 polymorphisms affect the pharmacokinetics of certain groups of drugs, and consequently the effectiveness of pharmacotherapy and the risk of adverse reactions in clinical practice. The Roma, a transnational minority present in many countries world-wide, are an example of a founder population that shares a common Indian origin, with persistent, centuries-old socio-cultural isolation. The genetic structure of Roma groups is strongly influenced by traditional endogamy. This research aims to determine the frequency of six single nucleotide polymorphisms (SNPs) of the ABCC2 gene in 440 subjects who belong to three sociocultural different and geographically distant Roma groups in Croatia. Genotyping was performed using the KASP method. Three SNP loci, rs56199535, rs56220353 and rs56296335, were monomorphic. Minor allele frequency (MAF) of rs3740066 was the highest in Međimurje Roma (48.8%), compared to Baranja (45.0%) and Balkan Roma (35.1%) ($p<0.001$). MAF of rs717620 was also higher in Roma from Međimurje (39.3%) than in Roma from Baranja (26.5%), and in Roma from Zagreb (14.4%) ($p<0.00001$). MAFs of rs2273697 did not significantly differ between the three Roma groups, but genotype frequencies did — the most heterozygotes were in the Međimurje Roma group ($p<0.05$). The prevalence of alleles and genotypes in polymorphic ABCC2 loci differs between three Croatian Roma groups, presumably as a result of their reproductive isolation. Differences in MAF frequencies of rs3740066 and rs717620 between Roma and 1000 Genomes populations of European-origin suggest that adverse drug effects should be considered when administering MRP2 enzyme — mediated drugs.

Keywords: genetic variants, gene ABCC2, multidrug resistance-associated protein 2, pharmacogenetics, Roma population, Croatia

Presentation number: EAA 14

THE EFFECT OF ACUTE HYPOBARIC HYPOXIA TO BLOOD PARAMETERS OF INDIVIDUALS RESIDING IN LOWLAND AREAS OF THE JAPANESE ARCHIPELAGO

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Exposed to hypobaric hypoxia (HH), such as at high altitude, triggers hemodynamic adjustments to maintain oxygen levels in unadapted lowlanders. When changes in peripheral oxygen saturation (SpO2) and heart rate are known, the effects of humoral regulations under HH conditions remain unclear. We examined blood endocrine, inflammatory, and immune parameters during acute HH exposure (75 min at 3500 m equivalent) in young men living in lowland areas of the Japanese archipelago using a climatic chamber. Aldosterone and cortisol decreased significantly, while interleukin (IL)-6, IL-8 and white blood cell (WBC) counts increased significantly after HH. Our findings indicate that even brief HH exposure elicits significant changes in blood parameters, with individuals exhibiting lower SpO2 showing more pronounced responses. These results underscore the impact of SpO2 on humoral regulations during acute HH in lowlanders.

Keywords: hypobaric hypoxia, environmental adaptation, individual variation, hemodynamics, cytokines

Presentation number: EAA 15

GENE POLYMORPHISMS AND DIVERSITY OF COLD-ADAPTATION IN HUMANS

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Humans would need to adapt to cold during their migration from Africa to Eurasia. Thermogenesis is considered to be indispensable for maintenance of body temperature in cold because humans do not have dense fur or firm subcutaneous fat like other mammalian species in high latitudes. In particular, brown adipose tissue (BAT) plays a role in non-shivering thermogenesis and their thermogenesis efficiency is considering high because BAT is mainly located in anatomically deep regions than the skeletal muscle, which is the main tissue of shivering thermogenesis. Genes involved in differentiation and thermogenesis functions of BAT have been reported by studies using model animals. However, mainly due to difficulties in evaluating BAT activity in humans, identifying genes that determine the diversity of the human BAT thermogenesis has not progressed. We assessed BAT activity of healthy East Asian adult men and women using different approaches including fluorodeoxyglucose-positron emission tomography and computed tomography (FDG-PET/CT) or infrared thermography (IRT) and evaluated the effects of genetic polymorphisms. Targeted loci included beta-adrenergic receptor genes, which have been shown to be functionally important in human BAT thermogenesis, and six BAT-related loci that showed traces of positive natural selection in high latitude populations. As the results, we found significant associations between single nucleotide polymorphisms (SNP) in beta 2-adrenergic receptor genes and BAT activity. In contrast, all of the SNPs that showed traces of positive natural selection were found not to be associated with BAT activity. These data provide new insights into the contribution of gene polymorphisms to cold adaptation via non-shivering thermogenesis in humans. We will further increase the number of genes to be analysed and discuss the potential of our research findings.

Keywords: brown adipose tissues, cold adaptation, thermogenesis, single nucleotide polymorphism, human genetics, human evolution, positive natural selection

Presentation number: EAA 16

TRANSCENDING BORDERS: ANTHROPOMETRIC INSIGHTS AND BODY IMAGE AMONG TURKISH MIGRANTS IN GERMANY AND THE NETHERLANDS

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Human migration phenomena, influenced by economic, political, cultural, and environmental factors, operate on "Push-Pull" dynamics. These migrations shape immigrant populations in behaviour, social dynamics, dietary patterns, growth trajectories, reproductive strategies, and overall well-being. Since the 1960s, Turkish immigrants have predominantly settled in Germany and the Netherlands. This study aims to understand changes in anthropometric variables among adult Turkish immigrants due to migration, also exploring the factors influencing their body image and height. A cross-sectional study was conducted, involving a random sample of 190 Turkish immigrants (75 males,115 females) aged 18-65 residing in Germany and the Netherlands, alongside 278 non-migrant individuals (120 males,158 females) living in Turkey. Anthropometric data including height, weight, circumferences, and skinfold thickness were collected, and a body image survey was administered. The collected data were analysed using the R Studio V4.3.1 practical interface, which employed Principal Component Analysis (PCA) to assess the relationship between anthropometric measurements and the Body Image Questionnaire. Results from linear regression models demonstrate the association between the dependent variable (Height) and independent variables (Body Image, Education, BMI). No statistical difference was found in the height of Turkish immigrants in Germany and the Netherlands compared to those in Turkey; however, being overweight was more prevalent among the immigrant groups. Comparisons between Turkish immigrants and non-immigrants showed higher body image scores among both European males and females. The absence of height differences between Turkish immigrants and individuals living in Turkey may stem from inadequate integration of immigrants into the new society. Nevertheless, it was observed that educational level positively influences the height of both sexes among Turkish immigrants and non-immigrants.

Keywords: Migration, Anthropometry, Height, Weight, BMI, Body Image, Turkish immigrants, Germany, the Netherlands

Presentation number: EAA 17

INCREASED FLUCTUATING ASYMMETRY OF X-RAY OSTEOMETRIC TRAITS OF FINGER BONES IN BEDOUIN MEN OF SOUTH SINAI

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Background: It's generally accepted that fluctuating asymmetry (FA) reflects the body's response to environmental stress. South Sinai Bedouin tribes live in extreme environmental conditions; it's logical to expect an increase in deviations from strict bilateral symmetry & disturbances in the regulation of ontogenetic processes. We aim to evaluate the level of fluctuating asymmetry using osteometry of phalanges radiographs in South Sinai adult Bedouin men versus that of Israeli Jewish men (control group). Method: Study of 70 radiographs of both hands for Bedouins (18–55 years) from a Sinai Expedition (79'– 82') using standard measurement techniques. Bone dimensions, epiphysis width & medullary canal parameters were studied for distribution & presence of directional asymmetry in both hands (thumbs excluded). For all bone traits fluctuating asymmetry value (per individual) was calculated (Formula: FA(%)=|(2(L - R))/(L + R)|. If directional asymmetry was detected, adjustments were made to the measurements, & then averaged fluctuating asymmetry values were calculated for each trait. The comparative material was synchronous data on Israeli Jews of the same age category. To assess differences in fluctuating asymmetry, the Mann-Whitney test was used. Results: the analysis shows a statistically significant increase in fluctuating asymmetry scores compared to the Jewish data. Greater variability among Bedouins is typical for such parameters of the proximal phalanges of the fingers of the II & III rays of the hands the length & width of the bone, the width of the medullary canal, & the width of the epiphyses. Conclusions: Increased asymmetry fluctuation in Bedouin populations is consistent with the concept of fluctuating asymmetry as a measure of development instability under extreme conditions. However, it cannot be ruled out that the increase in fluctuating asymmetry is also facilitated by a high level of inbreeding in Bedouin tribes (Jewish population is panmictic).

Keywords: fluctuating asymmetry of x-ray osteometric signs of finger bones, extreme environmental conditions

Presentation number: EAA 18

INFLUENCE AND INTERACTION OF SPECIFIC ENVIRONMENTAL FACTORS ON THE IDENTIFICATION FEATURES OF LATENT FINGERPRINTS

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In dermatoglyphic and forensic practice, it is important to increase the knowledge about the influence of environmental factors on the identification features of latent fingerprints in order to increase the probability of positive personal identification of offenders. The aim of the study is to investigate whether there is a multifactorial influence of environmental factors on the quality of latent fingerprints, especially in the evaluation of minutiae (2nd level identification features). In this study, 1272 latent fingerprints exposed to snow, water, direct sunlight and forced placement of an object with latent prints in snow were examined. The frequency of minutiae on all latent footprints exposed to each environmental factor was assessed. Using a multivariate general linear model (GLM) with Bonferroni correction, we found a significant influence of each environmental factor on the number of minutiae evaluated on degraded latent fingerprints. The interaction of factors such as snow and direct sunlight, frost and direct sunlight, frost and forcible immersion of an object with latent fingerprints in snow significantly influenced the frequency of minutiae on latent fingerprints. Our results clearly show that the influence of environmental factors on latent fingerprints is multifactorial and significantly affects the identification feature (minutiae). These findings can contribute to how latent traces should be secured and used in forensics. This study was supported by the Cultural and Educational Grant Agency (KEGA 046UK-4/2023) of the Ministry of Education, Science, Research and Sport of the Slovak Republic.

Keywords: forensics, dactyloscopy, minutiae, latent fingerprints, multifactorial effect

Presentation number: ISGA 01

SECULAR TRENDS IN BODY COMPOSITION OF YOUNG ADULTS IN SLOVENIA

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Objectives: To determine secular trend in body composition (fat-mass, lean body mass) in young adults. Methods: Anthropometric data of young adults aged 20-25 years (N = 5303; males 1985, females 3318) from the Slovenian (data)Base of Anthropometric Measurements from 1960 to 2023 were used. Body mass index (BMI), waist circumference (C), and skinfold thicknesses (SFT; triceps, abdominal, thigh) were used to assess overweightness/obesity. Upper arm muscle area (UMA), calculated from upper arm C and triceps SFT, and thigh muscle area (TMA), calculated from thigh C and thigh SFT were used to assess lean body mass. Analyses of variance and multiple linear regressions were performed. Results: Over the last 63 years, positive secular trends (p < 0.001) were observed for body height (at present (in years 2020-23), males are on average 5.3 cm taller than in years 1960-69; females 4.5 cm) and for (abdominal) body fat accumulation. With regard to the latter, this was particularly evident from abdominal SFT (B = 0.151, R2 = 0.169) in males and from waist C (B = 0.111; R2 = 0.107) in females. Interestingly, average BMI has not changed significantly over time in females (change from 22.1 to 22.5 in six decades). In the same period, negative secular trend (p < 0.001) was observed in TMA in both sexes (males: B = - 0.427, R2 = 0.000; females: B = - 0.875, R2 = 0.300), and UMA in females (B = - 0.106, R2 = 0.063). Conclusion: A simultaneous increase in the accumulation of body fat, especially in the abdominal area, and a decrease in limb muscle mass in young adults over the past six decades is of great concern. As both factors increase health risks, immediate actions and lifestyle change interventions should be taken to reverse these trends. Furthermore, the results of the present study emphasize the importance of monitoring obesity with a measure such as waist C in addition to BMI, as BMI fails to exert sufficient sensitivity for detecting overweightness/obesity.

Keywords: secular trend, young adults, anthropometry, body fat, muscle area

Presentation number: ISGA 02

ASSOCIATIONS AMONG MATERNAL AND INFANT BODY COMPOSITION, FEEDING PRACTICES, AND PERCEIVED INFANT EATING BEHAVIOR IN SAMOAN MOTHER-INFANT DYADS AGED 2-4MONTHS

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Samoa is a South Pacific nation experiencing rising obesity and related metabolic disease prevalence. Breastfeeding has been shown to reduce risks for the development of obesity in childhood and later adulthood. Initiation of breastfeeding rates is almost universal in Samoa; with around 90% of infants fed any human milk, but there is opportunity to improve the proportion of infants exclusively breastfed to 6 months (51.7%). Little is currently known about how Samoan mothers perceive infant appetite in breastfed infants, which has implications for early cessation of exclusive breastfeeding and introduction of solid foods and/or formula. Here we explore how different maternal and infant characteristics are associated with maternal perceptions of infant satiety among exclusively breastfeeding Samoan mother-infant dyads. We administered the Baby Eating Behavior Questionnaire (BEBQ) to n=100 mothers of exclusively breastfed infants aged 2-4 months alongside the collection of maternal and infant anthropometric andbody composition measurements, human milk samples, information on breastfeeding practices, and maternal/household demographic characteristics. The five BEBQ constructs - Food Responsiveness (FR), Enjoyment of Food (EF), Satiety Responsiveness (SR), Slowness in Eating (SE), and General Appetite(GA) — were analysed using Pearson correlations for their associations with maternal and infant characteristics. We found that BEBQ constructs were correlated with infant age (-; SR & GA), area of residence (-; SE), infant weight-for-length Z-score category (+; EF), infant length-for-age Z-score category(-; FR), feeding routine (+; EF & GA, -; SR), average feeding bout length (+; SE & GA), and maternal confidence in milk quantity (+; EF). In conclusion, maternal perception of infant appetite appears to be influenced partially by infant body composition and breastfeeding patterns in our sample.

Keywords: Samoa; Breastfeeding; BEBQ; Body Composition; Breastfeeding Patterns

Presentation number: ISGA 03

METABOLOMIC INSIGHTS INTO ENVIRONMENTAL POLLUTION:IDENTIFYING BIOMARKERS AND MECHANISTIC PATHWAYS OF METABOLIC DISRUPTION

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Metabolomics research can be a valuable tool for identifying new biomarkers associated with exposure to environmental pollutants and for generating hypotheses that deepen our understanding of the mechanistic pathways related to metabolic alterations. In this review, we will examine data from significant studies that identify metabolites impacted by air pollutants such as metals, ultrafine particles, and particulate matter.We will investigate their mechanisms of action, the biochemical impacts they cause, the metabolic pathways they influence, and the potential diseases or adverse health outcomes that may result from exposure. Hypotheses based on observed data suggest that these metabolites could serve as indicatorsof specific toxic effects, aiding in the identification of exposure-related health risks. By providing a clearer picture of how environmental exposures influence metabolic processes, this review contributes to our understanding of the topic. Future research should focus on refining these biomarkers and pathways to develop targeted interventions and preventative measures that mitigate the health impacts of pollutants

Keywords: Metabolomics, Environmental Pollution, Biomarkers, Mechanistic Pathways, Air Pollutants

Presentation number: ISGA 04

PREDICTION OF NEONATAL SURVIVAL AMONG PACIFIC ISLANDER PRETERM BIRTHS IN THE US

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Predicting neonatal survival is essential for targeting interventions to reduce neonatal mortality. Pacific Islanders have been underrepresented in existing prediction tools and have unique, maternal obesity-related risk factors for both preterm birth and neonatal mortality. Using neonatal sex, birth weight, and gestational age, we developed a graphical tool for neonatal survival among Pacific Islander singletons in the US. Birth-infant death data files from the US National Centre for Health Statistics for 2014-2018 were used. Pacific Islander mothers and singletons without congenital anomalies born between 22-36 gestational weeks were included. Poisson regression models were used to predict neonatal mortality (<28 days of life) rate including neonatal sex, birth weight, and gestational age in weeks as predictors. Predicted survival rates in the graphical tool were based on "1-mortality rate". Of the 5192 included neonates, the neonatal mortality rate was 2.0%; 43.5% of mothers had pre-pregnancy obesity, and 16.5% of neonates were born large-for-gestational age. Birth weight and gestational age had a non-linear association with neonatal death, and their interaction was included in the model. Retaining neonatal sex, models with gestational age at birth or both birth weight and gestational age at birth performed better than the model with birth weight only. This is the first graphical tool for neonatal survival prediction among preterm-born Pacific Islander singletons in the US. Using only neonatal sex, birth weight, and gestational age, this graphical tool is a straightforward reference for survival among groups of neonates with similar characteristics.

Keywords: Pacific Islanders; neonatal mortality; survival prediction; gestational age; birth weight

Presentation number: ISGA 05

ASSOCIATION BETWEEN URINARY PENTOSIDINE AND MUSCLE MASSAMONG YOUNG MALE UNIVERSITY STUDENTS: A PRELIMINARY STUDY

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Pentosidine is representative of cross-linked structure of advanced glycation end products (AGEs) andhas been suggested as a biomarker to assess bone and muscle quality. As studies on pentosidine in young adult men are limited, we aimed to clarify the association between urinary pentosidine with musculoskeletal status and physical performance in young men. A total of 27 male university students (age range: 19-25 years) participated in this study. Anthropometric measurements (body composition by InBody 430), thigh muscle thickness by ultrasound, and urinary biomarkers (pentosidine) were measured. In the partial correlation analysis adjusted for age and height, higher urinary pentosidine levels were significantly associated with age and anterior thigh thickness. Our findings suggest that pentosidine is negatively correlated with a few muscle indicators. Therefore, pending future validations, urinary pentosidine may bea biomarker of AGEs for young men's health.

Keywords: pentosidine, anterior thigh thickness, young male university students

Presentation number: ISGA 06

ASSOCIATION BETWEEN MATERNAL AGE AND BIRTH SIZES IN BULGARIAN NEONATES

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Many factors influence the prenatal period, but parental factors (including morpho-functional status ofmother and father, age, birth order, etc.) exert important significance. The aim of the study is to evaluatethe influence of maternal age on the birth weight and length of neonates. Data of 1526 (799 boys and 727 girls) neonates born in 2020 and data of their mothers were collected from the birth registry of the Obstetrics and Gynecology Hospital "St. Sofia", Sofia. Only data of livebirth singleton infants were analysed by statistical software SPSS 16.0. Z-score transformation was applied to birth weight and length. One-way ANOVA analyses with post hoc Tukey Honestly Significant Difference Test were performed to assess the influence of maternal age on neonatal dimensions. The significance of the sexual differences is assessed by the t-test of Student ($p \leq 0.05$). The mean maternal age was 29.46 ± 6.17 years as only in the group of boys eight of the mothers (1.0%) were over 45 years of age. The highest percentage of mothers (31.2%) fall into the 30-34 age group, followed by mothers aged 25-29 (26.9%). The percentage of mothers over 39 years is the lowest (4.6%). Maternal age has a significant impact on the newborn body weight (p=0.0001) and body length (p=0.001). The neonates, whose mothers are between 25 and 44 years have birth sizes above and around the average (Z-score is between 0.02 and 0.16). Boys and girls born to mothers under the age of 20 are the smallest (Z-score is negative: — 0.44). Their birth weight and length significantly differ ($p \leq 0.05$) from those of babies born to mothers of other age groups. The maternal age significantly affects the anthropometric characteristics of neonates. The babies born to older mothers (excluding the group 45+) have larger body sizes. Acknowledgments: The work was supported by the Bulgarian National Science Fund: Grant КП-06-Н51/7 from 11.11.2021

Keywords: maternal age, birth weight, birth length

Presentation number: ISGA 07

JOINT MODELLING OF NON-TIME TO EVENT LONGITUDINAL DATA: ASYSTEMATIC REVIEW OF METHODOLOGY AND APPLICATIONS

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Background: In recent years, the application of joint modelling for longitudinal data has increased, especially for time-to-event data. Joint modelling has been shown to; a) reduce bias in parameter estimation, b) increase the efficiency of statistical inference by incorporating the correlation between measurements, and c) allow the borrowing of information in cases where there is missing data for one variable of interest. Most joint modelling methods and applications are on time-to-event data, focusing primarily on one continuous and one binary variable. However, in practice, there are two or more time- varying variables of great interest, and they have not been given much attention in joint modelling. Therefore, in this systematic review, we aim to summarise the current state of joint modelling of non-time- to-event longitudinal data to draw recommendations for future research. Methods: We will review current methodologies of joint modelling for non-time-to-event data for univariable and multivariable longitudinal data. The search will include five databases: Embase, Medline, Scopus, PubMed, and Web of Science. We will extract information on the application field, statistical methods, association structure, estimation methods, and software used. We will also identify gaps and challenges in the joint modelling of longitudinal data. Results: After searching the five electronic databases, we identified 1912 records that will undergo a screening process. From this screening, we will select eligible studies for further analysis. The approaches to modelling the non-time-to-event longitudinal data will be reported, mimicking the description provided in the methodology section. Conclusion: Joint modelling has been proven to accurately predict non-time-to- event longitudinal data. However, researchers are limited in their ability to fit these models. It is a promising area of research and requires further investigation.

Keywords: Joint modelling, longitudinal data, non-time-to-event outcomes

Presentation number: ISGA 08

A MACHINE LEARNING CLASSIFICATION MODEL FOR PREDICTING BIRTH OUTCOMES AND NEWBORN ANTHROPOMETRY IN THE CRIBS BIRTH COHORT-PROBLEMS OF UNBALANCED CATEGORIES

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In the past 20 years, there has been many studies with different models of machine learning widely usedfor prediction of birth outcomes and newborn anthropometry. Predictive modelling uses big data with multimodal variables such as genetic, psychological, demographic, socioeconomic and obstetric characteristics. Machine learning (ML) is a subset of artificial intelligence. Monitoring the performance ofML models involves evaluating accuracy, precision, recall and F1 score. The aim of this study was to examine the prediction for criteria term of delivery and body weight for gestational age (WGA) based on psychological, biomedical, demographic, socioeconomic variables and cigarette consumption. The sample consisted of 216 healthy pregnant women and their newborns, participants in the Croatian Islands' Birth Cohort Study (CRIBS) who had complete information from questionnaires and all biomedical documentation. The random forest classification model was created without and with the application of SMOTE (synthetic minority oversampling technique). A resampling strategy was used due to imbalanced number of subjects in delivery at term vs. delivery before term categories, as well as between newborns in AGA/yes vs. AGA/no categories. The random forest model applied for criteria term of delivery on real subjects showed a very accurate and specific prediction but less sensitive or imprecise due to a more biased classification of subjects in the majority category of delivery at term. Furthermore, the random forest model applied for the AGA criterion on real subjects showed a very accurate and sensitive prediction, but non-specific due to heterogeneous groups of subjects in both AGA/yes and AGA/no categories. Application of the random forest model using the SMOTE technique enabled better prediction with increased evaluation measures for both criteria. It is reasonable to conclude that increasing the amount of data and obtaining more information leads to efficient prediction.

Keywords: machine learning, random forest model, term of delivery, weight for gestational age, birth cohort, the CRIBS study

Presentation number: ISGA 09

ACCELERATION OF AXIAL ELONGATION AND ITS ASSOCIATION WITH PREPUBERTY OCULAR BIOMETRY

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PURPOSE: To determine the relationship between acceleration of the axial elongation and prepubertyocular biometrics from 8.5 to 14.5 years old. METHODS: A prospective cohort study was performed in 67 right eyes of elementary school students for six years (8.5 to 14.5 years). All participants underwent optical axial length, anterior chamber depth and lens thickness measurement annually. The annual axial elongation was calculated in each year. Then, the acceleration of the axial elongation was quantified bythe coefficient of the regression analysis. Spearman's correlation was used to investigate the correlation between ocular biometrics at 8.5 years old and the acceleration of the axial length. RESULTS: The mean axial length at the first year was 23.39 ± 0.92 mm. The mean axial elongation for 6 years was 1.52 ± 0.50 mm, and the mean acceleration of the axial elongation was -0.015 ± 0.048. Acceleration of the axial elongation was significantly correlated with 8.5 years old axial length ($r = -0.44$, $p < 0.001$), anterior chamber depth ($r = -0.42$, $p < 0.001$), and lens thickness ($r = 0.33$, $p = 0.007$). CONCLUSIONS: Hyperopic ocular biometry at the age of 8.5 years may be the accelerating factor of axial elongation during early adolescence.

Keywords: Eye growth, axial elongation, myopia

Presentation number: ISGA 10

QSAR AND MACHINE LEARNING APPROACH TO ASSESS THE POTENTIAL BIOACTIVITY OF METABOLITES

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Metabolomics, the comprehensive study of small molecules in biological systems, has become a powerful tool for uncovering disease mechanisms and identifying potential biomarkers. Central to metabolomics research is the need to assess the bioactivity of metabolites, which can provide insights into their physiological effects. Quantitative Structure-Activity Relationships (QSAR) based on machine learning,offers a promising approach to predict the bioactivity of metabolites based on their chemical structures. QSAR is a computational technique that associates the chemical structures of molecules with their biological activities. It allows us to predict the biological activity of unobserved compounds based on their structural features, offering insights into their potential effects on biological systems. In this study, we applied machine learning-based QSAR to evaluate the potential bioactivity of endogenous metabolites.The models were trained on known bioactive compounds from the Tox21 dataset and validated to ensure robustness and accuracy. In the next step, a dataset of metabolomics profiles from the COPSAC2010 childhood cohort was used to predict metabolite bioactivity with the pretrained models which returned activities across 7 biological targets for each of the metabolites. Given the predictions, our findings reveala significant association between predicted bioactivity and physiological outcomes, demonstrating the utility of QSAR and machine learning in metabolomics research. Moreover, the widespread use of these computational methods highlights how they can change metabolomics by allowing quick and thorough analysis of metabolite bioactivity.

Keywords: qsar, machine learning, metabolomics, biological targets, bioactivity

Presentation number: ISGA 11

STATISTICAL METHODS TO IDENTIFY GROWTH FALTERING IN CHILDREN

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The first 1000 days of life are thought to be essential to a child's development, both physically andmentally. Children who suffer from growth faltering can also be at higher risk of disease, impaired development and death. Therefore, it is crucial to be able to distinguish when a child is growing well and when their growth may be faltering. Currently there are many definitions which are used to diagnose achild's growth as faltering. These can vary depending on the country the child is in, and the growth charts used. However, due to arbitrary choices and varying thresholds, current definitions of child growth faltering can have some limitations. Recently with increased computational power there has been the opportunity to develop statistically novel methods for estimating growth patterns. One such method is to take a functional approach to the data where measurements of the child's weight are considered to be observations from an unobservable underlying smooth process. Viewing the data as a continuous curve both overcomes issues which can arise with the irregularity of data collection and reduces the dimensionality, hence having the potential to increase computational efficiency. This work will present a comparison of the effectiveness of both existing and emerging methods in identifying a variety of patterns of child growth faltering. An extensive simulation study will be used to quantify the performance of each method.

Keywords: growth, faltering, functional data analysis, statistics, data science, data analytics

Presentation number: ISGA 12

EPIGENETIC CHANGES IN NR3C1 GENE

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Epigenetics is the study of changes in gene function that are mitotically and/or meiotically heritable and that do not entail a change in DNA sequence. On such level of regulation is methylation, which decreases with age, meaning a newborn has higher DNA methylation compared to the older population. Epigenetic markers are hereditable yet adaptable, changes can happen throughout life, from early prenatal development through adulthood. Some epigenetic changes can be added or removed in response to changes in behaviour or environment and these changes can affect our health in different ways. During the sensitive period of prenatal development, a pregnant woman's environment and behaviour during pregnancy, such as her diet and other habits, can change the baby's epigenetic markers and affect the possibility of contracting various diseases in older age. The research was conducted using data collected during the implementation of the "Croatian Island's Birth Cohort Study (CRIBS)" project, aimed at elucidating factors related to metabolic syndrome (MetS), which increasingly affects a significant part of the population with a prevalence of more than 30% in the general population of Croatia, with a higher rate on Croatian islands, up to 58%. The specific characteristics of the eastern Adriatic islands allow for the development of patterns of risk factors that influence the occurrence of MetS. The aim of this research was to detect and compare epigenetic changes in terms of methylation of the NR3C1 gene in pregnant women and their newborns in relation to place of living: mainland vs islands. The underlying assumption is that differences in adaptation related with place of living may influence methylation levels.

Keywords: epigenetics, NR3C1, methylation, pregnancy

Presentation number: ISGA 13

SIZE AT BIRTH AND HEAD CIRCUMFERENCE-HEIGHT INDEX IN NEWBORNS WITH SKELETAL DYSPLASIAS FROM A REFERRAL PEDIATRIC HOSPITAL IN ARGENTINA

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Introduction: Skeletal dysplasias are rare diseases affecting bone and cartilage, with a prevalence of 3.2/10,000 newborns in South America.1 Auxological evaluation of the newborn is important as an indicator of neonatal morbidity and mortality and it is a simple tool to suspect skeletal diseases. Objectives: To determine the prevalence of low Weight (W), Body Length (BL) and body disproportion (BD) at birth in patients with molecular diagnosis of achondroplasia (ACH), hypochondroplasia (HCH), hypophosphatemic rickets (HR), and SHOX (S). Materials and Methods: Retrospective and descriptive study of anthropometric data obtained from medical records between 2002 and 2023. Children with recorded W, BL, and Head Circumference (HC) with gestational age were included, and the z score was calculated according to INTERGROWTH-21st 2,3. 2,3 The HC/BL index z-score was calculated according to Argentine references.4 Results: Out of 581 patients, 453 were included: 62% diagnosed with ACH, 12% HCH, 18% HR, and 8% S. The mean gestational age was 38 weeks (SD 8.78). The mean BL was 46.20 cm (-1.06 DE) and 31%, 12%, 2%, and 8% were small for gestational age for ACH, HCH, HR and S, respectively. The mean W was 3.21 kg (SD 0.45) and 1.42%, 1.78%, 6.17%, and 8.33% had low W at birth for ACH, HCH, HR and S, respectively. The mean HC was 35.82 cm (SD 1.99). Macrocephaly (>2 SD) was present in 47.14%, 32.14%, 4.93%, and 5.55%, and relative macrocephaly (HC/BL > 2 SD) in 57,8%, 28,5%, 1,2% y 13,8% for ACH, HCH, HR and S respectively. No significant differences were found in birth size between offspring of affected (n=59) and unaffected mothers. Conclusions: Perinatal auxology is a useful, simple, accessible and low-cost tool for early suspicion of skeletal diseases. Seventy-eight percent of registered patients had complete perinatal anthropometric data. The deficiency in recording anthropometric data at birth represents a missed opportunity in pediatric care.

Keywords: Skeletal dysplasia, neonatal morbidity and mortality, Argentina

Presentation number: ISGA 14

DEVELOPMENT OF DISEASE-SPECIFIC GROWTH CHARTS FOR ARGENTINE PRADER WILLI SYNDROME WITHOUT HORMONE GROWTH TREATMENT

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In order to generate and report growth curves for height, sitting height, hands and feet for Argentine children with Prader Willi syndrome (PWS) without growth hormone treatment, 169 children (81 boys) aged 0–19 years attending in the main public pediatric hospital, Hospital Garrahan, were measured between 1992 and 2019. Methods: anthropometric measures (1174) were obtained according to standardized methods in patients with molecularly confirmed PWS. Growth curves were developed and the 3rd, 10th, 25th, 50th, 75th, 90th and 97th percentiles were estimated applying the LMS method for summarizing growth data which adjusts for skewness. The height data were plotted for comparison purposes with the normative 50th percentile using argentine reference and german PWS growth data*. Results: Growth curves for height, sitting height, hands, and feet were developed from 169 male and female infants with PWS aged 0 to 19 years. Mean adult height was 145.3 cm (N=88) and 153.2 cm (N= 81), which are 15.4 cm and 19.6 cm below the 50th percentile of the argentine general population, for girls and boys respectively. In comparison, with German PWS, the argentine PWS references differences were 3.3 cm and 5.9 cm below in girls and boys, respectively. Regarding mean sitting height, it was 9.03 cm and 9.61 cm shorter than Argentine references in girls and boys, respectively. Conclusion: There are differences in adult height between argentine and german PWS references. Countries specific local growth references for children with some genetic conditions such as Prader Willi Syndrome are valuable tools for detecting additional conditions affecting growth, for estimating final height and recording responses to growth hormone therapy, commonly used in infants and children with PWS. *Hauffa, B.P. et al (2000).

Keywords: Prader Willi Syndrome. Anthropometry. Height.

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