



# FIRST 100 YEARS OF ORTHOPAEDICS EDUCATION AT THE SCHOOL OF MEDICINE, THE UNIVERSITY OF ZAGREB

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**SUMMARY** – In Croatia, hospitals where patients with diseases of the locomotor system were cared for date from more than 100 years ago. However, we consider the beginning of orthopaedics in Croatia to be the year 1908 when Božidar Špišić (1879 - 1957) founded the first Orthopaedic Institute in Zagreb. In 1917, the School of Medicine, University of Zagreb was founded, and when the first students were in their fifth year of studies, the Department of Orthopaedic Surgery was established on December 15, 1922, and Božidar Špišić became an Assistant Professor. From that date until today, Orthopaedics has been an independent department within the School of Medicine. The Department of Orthopaedic Surgery was primarily established for the education of medical students. Another important activity of the Department was the training of orthopaedic surgeons and specialists in overlapping fields with orthopaedics. In 1973, the department made a program of postgraduate studies in orthopaedics. The department also participated in postgraduate studies of other professions overlapping with orthopaedics and held numerous post-graduate courses and continuous medical education for doctors. Also, the department organised both domestic and international meetings, symposia, and congresses. Within the scientific post-graduate and doctoral studies, the Department of Orthopaedic Surgery members are lecturers in many courses. This article presents the work and development of the Department of Orthopaedic Surgery in the first 100 years of orthopaedics education at the School of Medicine, University of Zagreb and clinical work as a part of the University Hospital Centre Zagreb. It is a presentation of time periods under nine heads of the department, starting from Professor Božidar Špišić all to the current head Professor Domagoj Delimar.

**Keywords:** *Schools, Medical; Education; Orthopedics; History of Medicine;*

In Croatia, hospitals where patients with diseases of the locomotor system were cared for date from more than 100 years ago. However, we consider the beginning of orthopaedics in Croatia to be the year

1908 when Božidar Špišić (1879 - 1957) founded the first Orthopaedic Institute in Zagreb. A further step forward in the development of orthopaedics was made during the First World War, with the arrival of a large number of wounded people from the battlefield in 1915. This led to the foundation of orthopaedic institutions, workshops, and schools for the disabled in Zagreb. In 1916, Božidar Špišić acquired the Civil School building on Kukovićeve Street, where he opened the first orthopaedic hospital with a capacity of 200 beds,

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orthopaedic workshops, and a school for the disabled, which could treat around 600 patients. His book „*How we help our disabled – pictures from our orthopaedic hospital and schools for the disabled*“, published in 1917, at the height of the First World War, is a perfectly illustrated document of those activities (Figure 1)<sup>1</sup>.

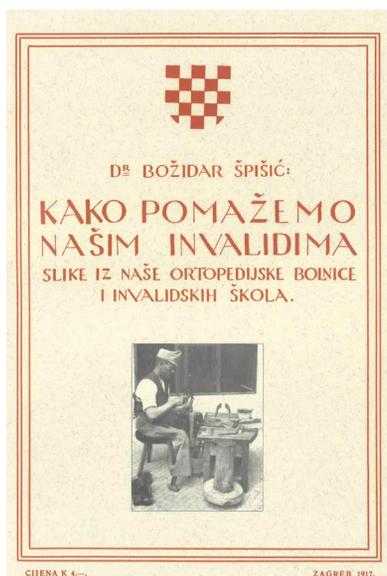


Figure 1. Cover page of the book „*How we help our disabled – pictures from our orthopaedic hospital and schools for the disabled*“ published in 1917.

Božidar Špišić was willing to transfer the great knowledge gained during that period to the stu-

dents of the School of Medicine at the University of Zagreb. As a result, the Department of Orthopaedic Surgery was founded on December 15th, 1922, while Špišić became Assistant Professor (ger. *Privat-Dozent*). In 1929, Špišić was appointed as an Associate Professor, and in 1933 as a Full Professor of Orthopaedic Surgery. During his academic career, Božidar Špišić held prominent positions and was the Dean of the School of Medicine in Zagreb in two time periods (1937/38, 1941/42, and 1942/43), as well as the Rector of the University of Zagreb in 1942/43 and 1943/44. In 1930, he was elected a Corresponding Member of the Yugoslav Academy of Sciences and Arts (nowadays the Croatian Academy of Sciences and Arts).

In 1917, the School of Medicine, University of Zagreb was founded, and when the first students were in their fifth year of studies, the Department of Orthopaedic Surgery was established, on December 15, 1922<sup>2</sup>. From that date until today, Orthopaedics has been an independent department within the School of Medicine. In 1922, orthopaedics classes for medical students were held in the “Sveti Duh” Orthopaedic Hospital (where Dr Ferdo Grospić was hired as an assistant in 1924), and from 1927 to 1930 classes were held in the private Orthopaedic Institute of Professor Špišić at Palmotičeva 22. In 1930, the Department of Orthopaedic Surgery was moved to the Children’s Hospital at Šalata 4. The Department further moved to a newly built building at Šalata 6 in 1940, where it operated until the great earthquake that hit Zagreb on March 22, 2020 (Figure 2).



Figure 2. The building at Šalata 6, Zagreb, where the Department of Orthopaedic Surgery moved in 1940.

Since then, the Department of Orthopaedic Surgery has been moved to the University Hospital Centre Zagreb (Rebro), where it operates today. At the Šalata location, the Orthopaedic Polyclinic at Šalata 7, where most of the classes take place, is still in business. Furthermore, the lecture hall and the Department's first floor of the Polyclinic remain in function.

Since the 1970s, classes have been held at the Institute for Orthopaedic Aids at Božidarevića 11, at the Children's Hospital at Klaićeva Street, at the Department of Orthopaedic Surgery at the Clinical Hospital "Sveti Duh" and at the Department of Orthopaedic Surgery at the Clinical Hospital Dubrava. The aforementioned classes outside the main Department of Orthopaedic Surgery in Šalata were led by regular and titular teachers, namely: Professor Veljko Mandić, Assistant Professor Saša Manev, Assistant Professor Miroslav Jelić, Professor Pavao Durrigl, Professor Branko Strinović, Professor Josip Zergollern, Professor Vladimir Kovač.

Orthopaedics has been a compulsory subject for medical students since 1922, with lectures and practical exercises in plastering, orthopaedic gymnastics, massage, and physical therapy, with classes being held for 2 hours every week. Classes were held through three semesters every Saturday in the private Orthopaedic Institute of Božidar Špišić, and from 1930 in the Department of Orthopaedic Surgery at šalata 4. With the relocation of the Department of Orthopaedic Surgery in April 1940 to the newly built building at Šalata 6, ideal conditions for the education of Orthopedics were created. Špišić organised the most modern orthopaedic service of that time, and within the Department, there was a lecture hall, a library, and a museum<sup>3,4,5,6</sup>.

The Department of Orthopaedic Surgery was primarily established for the education of medical students. Another important activity of the department was the training of Orthopaedic surgeons and specialists in overlapping fields with orthopaedics. In 1973, the Department of Orthopaedic Surgery made a program of postgraduate studies in Orthopedics and was one of the first Departments at the School of Medicine in Zagreb to start its implementation. The Department also participated in postgraduate studies of other professions overlapping with Orthopedics (surgery, rheumatology, physical medicine, school medicine, occupational and sports medicine, paediatrics, and genetics), and held numerous post-graduate courses and continuous medical education for doctors. Also, the Department organised both domestic and international meetings, symposia, and congresses. The "Božidar Špišić" Symposium, which is continuously held once a year and where members of the Department present the latest achievements in certain areas of orthopaedics and traumatology, is particularly appreciated and very well attended.

Within the Department of Orthopaedic Surgery, an elective course in sports medicine is held, which was founded in 1998 by Professor Pećina. Within the scientific post-graduate and doctoral studies, the Department of Orthopaedic Surgery members are lecturers in many courses, and the members of the Department also organise regular category I training courses for doctors.

The Department of Orthopaedic Surgery paid significant attention to teaching textbooks. It started with Božidar Špišić's first publication "*How we help our disabled*", which was written even before the establish-

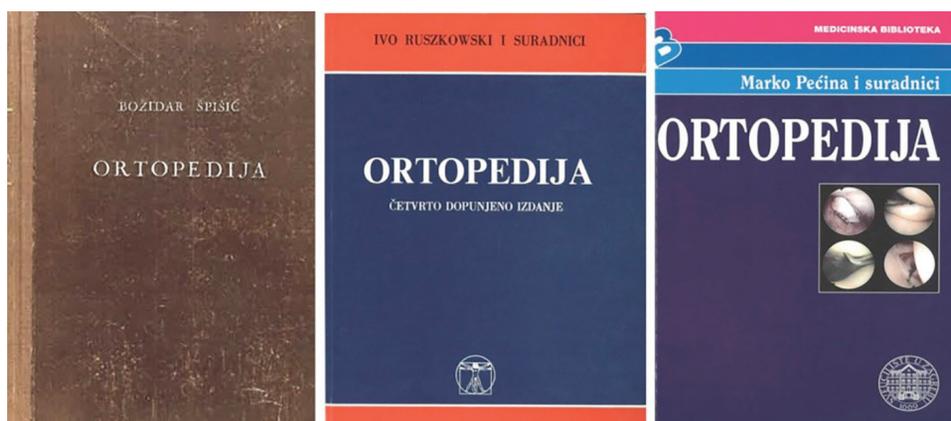


Figure 3. Cover pages of the official textbooks of Orthopaedics for students of the School of Medicine, University of Zagreb.

ment of the Department, all to the first real textbook that Božidar Špišić published when he was already retired, back in 1952. For the purpose of this text, we list only the official textbooks for undergraduate teaching in the subject of orthopaedics\* (Figure 3):

Božidar Špišić. ORTOPEDIJA, Školska knjiga Zagreb, 1952.

Ivo Ruzskowski, et al. ORTOPEDIJA, Jugoslavenska medicinska naklada, Zagreb 1970;1979;1986;1990.

Marko Pećina, et al. ORTOPEDIJA, Naklada Ljevak, Zagreb, 1996.;2000;2004.

\*(numerous books have been published for the need of post-graduate teaching and doctoral studies and advanced training courses of the 1st category; all of them are listed in the Central Medical Library)

A brief overview of the work and development of the department in these 100 years within the School of Medicine is shown through the presentation of periods and the activities and influence of individual heads of the department on the work of the department during those periods (Table 1) (Figure 4, Figure 5).

Table 1. List of heads of the Department of Orthopaedic Surgery over the last 100 years

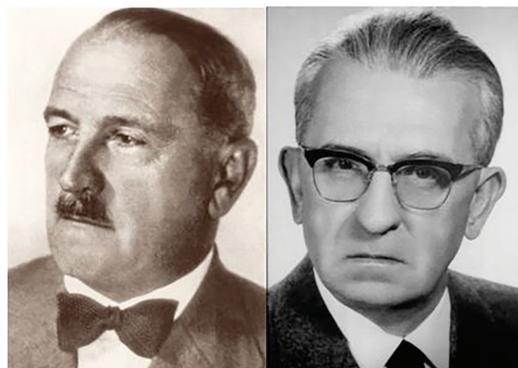
Heads	Time period
Professor Božidar Špišić	1922 – 1946
Professor Ferdo Grospić	1946 – 1964
Professor Albert Starzyk	1964 – 1972
Academician Ivo Ruzskowski	1972 – 1982
Professor Tihomil Matasović	1982 – 1985
Academician Marko Pećina	1985 – 2005
Professor Miroslav Hašpl	2005 – 2007
Professor Darko Antičević	2007 – 2013
Professor Domagoj Delimar	2013 – today

The Department of Orthopaedic Surgery gained real momentum for holding classes in 1930, when the Department of Orthopaedic Surgery was established under the leadership of **Professor Božidar Špišić**, on the first floor of the Šalata 4 Children's Hospital building, with 25 beds, a room for orthopaedic procedures, a room for plastering, office premises, and an infirmary, on the ground floor of the eastern part of the building.

At the same time, construction began at the beginning of 1930, and in April 1940, the Department of Orthopaedic Surgery began operating in the newly built building at Šalata 6. Professor Špišić organised one of Europe's most modern clinical orthopaedic services at the time, with a patient ward with 60 beds, an infirmary, operating rooms, a radiography department, a laboratory, a library, and other auxiliary services<sup>7,8,9</sup>.

Professor Špišić retired in 1946, and the Department was taken over by **Dr. Ferdo Grospić**, who was elected Assistant Professor in 1947, Associate Professor in 1948, and Full Professor of Orthopaedic Surgery in 1958. After the Second World War, Orthopedics developed more as a surgical profession and started treating trauma cases of the locomotor system. Unlike Professor Špišić, who practised predominantly conservative treatment, prosthetics, and care for disabled adults and children, Professor Grospić gave impetus to the development of operative methods of treating children and adults and introduced a world-famous method of surgical treatment of dysplastic hip – the Codivilla-Grospić method<sup>10</sup>. Ferdo Grospić also developed sports traumatology, especially specialising in knee injuries, and operated on famous athletes from all over the so-called „socialist block“ of countries, especially the USSR<sup>11</sup>. Professor Grospić was also vice-dean at the School of Medicine in Zagreb. On his initiative, the Institute for Orthopaedic Aids was founded in Božidarevićeva Street 11 in 1961 as a part of the Department of Orthopaedic Surgery. The leadership of the Institute was entrusted to Professor Veljko Mandić, who became the head of the Institute and set it apart in 1962 as an independent organisational unit within University Hospital Center Zagreb, remaining as its head until 1983.

After the retirement of Professor Grospić, in 1964, **Dr. Albert Starzyk**, who was elected Associate Professor of Orthopedics in 1961, was elected as head of the Department. Professor Starzyk continued Grospić's work, especially the development of the field of surgical Orthopaedics, inventing a method of lateralization of the acetabulum in dysplastic hips, furthermore inventing anti-rotational Kuntcher nail with wings for derotational osteotomy of the proximal femur in children and adolescents<sup>12</sup>. It should be noted that Professor Starzyk was and remains recorded in the history of Photo Club Zagreb as a renowned artistic photographer. In addition, he was highly respected in the Croatian Hunting Association and was



Božidar Špišić

Ferdo Grospić



Albert Starzyk

Ivo Ruszkowski

Tihomil Matasović

Figure 4. Heads of the Department of Orthopaedic Surgery, School of Medicine, University of Zagreb from 1922 to 1985.

the co-author of the book *“Introduction to Hunting”*, further being recognized as an expert in ballistics. At the time when the Department was headed by Professor Starzyk, the field of prevention, especially of hip dislocations, was flourishing and establishing cooperation with paediatricians on the issue of postnatal hip dysplasia and the need for its immediate treatment. New operative methods were introduced, including hip and knee arthroplasty. New surgical interventions based on the principles of applied biomechanics were applied, under the guidance of Professor Ruszkowski. Professor Stanka Kovačić introduced modern methods of conservative treatment of scoliosis and kyphosis and modern methods of surgical treatment of patients with cerebral palsy. She was also the first head of the post-graduate course (3rd degree) in Orthopaedics in 1975, one of the first within the School of Medicine in Zagreb. Professor Pavao Durrigl introduced new diagnostic methods and conservative treatment of spine diseases. Furthermore, he established the Center for Vertebrology within the Department of Orthopaedic

Surgery as well as the Vertebrology Section (later Society) of the Croatian Medical Association.

In 1972, Professor Starzyk retired, and **academician Ivo Ruszkowski**, who had been elected Full Professor of Orthopaedic Surgery that year, took over the leadership of the Department of Orthopaedic Surgery. Since 1972, the work at the department has been reorganised in accordance with progress in the profession, science, and healthcare needs. Operative techniques were perfected and, owing to modern anaesthesia, more and more complex operations were being performed. Hip arthroplasty developed particularly and became a routine surgical procedure. In that period, the biomechanics of the locomotor system was specially studied within the department. The Section for Biomechanics of the Croatian Medical Association was also founded under the leadership of Professor Ruszkowski, and with an interdisciplinary approach, everyday clinical work was associated with the science of locomotor system biomechanics<sup>13</sup>. Professor Ruszkowski, together with engineer Professor Osman Muftić and fellow



Figure 5. Chairs of the celebration of 100 years of Orthopaedics education at the School of Medicine, University of Zagreb. On the picture from left to right heads of the Department in chronological order: Marko Pećina, Miroslav Hašpl, Darko Antičević, Domagoj Delimar

engineers from the Faculty of Mechanical Engineering and Naval Architecture, with anatomists Professor Vasilij Nikolić and Professor Predrag Keros, and with Professor Bego and fellows from the Faculty of Veterinary Medicine, founded and for many years led the so-called “Zagreb Biomechanical School”. Furthermore, as a product of multidisciplinary work, even a hip endoprosthesis called ROM (Ruszkowski-Orlić-Muftić) was designed and used in practice<sup>14</sup>. Ivo Ruszkowski was elected an Associate Member of the Yugoslav Academy of Sciences and Arts in 1980 and a Full Member of the Croatian Academy of Sciences and Arts in 1991. Under the leadership of Professor Ruszkowski, the Department of Orthopaedic Surgery published the book „*Ortopedija*” in 1970, which grew into an official textbook, with the last edition published in 1990.

From 1982 to 1985, the head of the Department of Orthopaedic Surgery was **Professor Tihomil Matasović**, who focused the department more on the development of children’s orthopaedics and especially on the application of ultrasound diagnostics of the locomotor system. At that time, the Reference Center of the Ministry of Health of the Republic of Croatia was established within the department, and the book „*Ultrasound of locomotor apparatus*” was also published<sup>15</sup>. In cooperation with Professor Branko Strinović, Matasović established the Croatian Society for Children’s Orthopedics of the Croatian Medical Association and

published two editions of the book „*Dječja ortopedija*” (*Children’s Orthopedics*), Školska knjiga, Zagreb<sup>16</sup>.

From 1985 to 2005, the head of the Department was **academician Marko Pećina**, who during his tenure emphasised scientific research and the application of scientific achievements in professional work at the department. Cooperation with academician Slobodan Vukičević and his scientific group intensified in terms of experimental research at the Faculty of Veterinary Medicine, as well as in the application of Bone Morphogenetic Proteins in clinical practice. These were the beginnings of translational medicine not only within the Department of Orthopaedic Surgery but also within the whole School of Medicine. Dissertations were prepared based on conducted experimental research and valuable articles were published in esteemed scientific journals. Members of the department participated in the research projects of Professor Pećina (gene therapy of mineralized tissues) performing experimental surgeries at the Faculty of Veterinary Medicine in Zagreb with the cooperation of the team of academician Dražen Matičić. Arthroscopy of the knee and surgical treatment of scoliosis and kyphosis were introduced into daily clinical practice, and sports traumatology was particularly developed. Professor Pećina participated in the establishment and work of the Croatian Olympic Committee, and he was also in the delegation of Croatian athletes at the 1992 Barcelona Olympics. In 1998, the elective course “*Sports medicine*”

was introduced within the Department, and the corresponding textbook was published<sup>17</sup>. During the global campaign “*Bone and Joint Decade*” Professor Pećina was the founder and coordinator of the Croatian National Committee, and in 2005 he received exceptional recognition by being elected as the WHO Bone and Joint Decade ambassador under the auspices of the UN. Among numerous domestic and international recognitions, M. Pećina’s election as a “distinguished member” of the International Society of Orthopaedic Surgery and Traumatology should be highlighted, and it should be noted that he is an honorary member of many domestic and international orthopaedic societies, including the Croatian Medical Association. He received the Josip Juraj Strossmayer award for a published book twice, the Croatian Lifetime Achievement Award in Science, the City of Zagreb Award, the Croatian Award for Science “*Ruđer Bošković*”, the Croatian Award for Sports “*Franjo Bučar*” and several awards at domestic and international symposia and congresses. It should be especially noted that M. Pećina is a founding member of the European Spinal Deformity Society, of which he was vice-president, and that he organised the “*First European Congress on Scoliosis and Kyphosis*” in Dubrovnik in 1983. He was the Editor-in-Chief of the internationally recognized journal *International Orthopaedics*, and is a member of the Editorial Board or Editor of 4 domestic and 7 international journals. Professor Pećina was elected as an associate member in 1990, and in 2004 as a full member of the Croatian Academy of Sciences and Arts. From 2010 to 2018 he was head of the Department of Medical Sciences of the Croatian Academy of Sciences and Arts, and from 2000 to 2005 he was vice-dean for science at the School of Medicine University of Zagreb. Since 2006 he has been working as a professor emeritus.

At the time when the Department of Orthopaedic Surgery was led by Professor Pećina, the Clinic for Orthopaedic Surgery was run by Professor Krešimir Koržinek, who was the head of the clinic from 1993 to 2004. Professor Koržinek developed intensive cooperation with the AO group from Switzerland and introduced new operative techniques based on AO principles into the daily work of the clinic. Also, he introduced the application of the Ilizarov external fixator into the daily clinical practice and organised continuous training courses on the application of Ilizarov and external fixators in general, especially during the war in Croatia, in which he actively participated.

After Professor Koržinek, the head of the Clinic in the period 2004–2008 was Professor Dubravko Orlić, who continued the tradition of applying biomechanics in Orthopaedics, introducing new procedures in the diagnostics and treatment of tumours of the locomotor system. Also, he started to collaborate with European society for tumours of the locomotor system. In association with Professor Ruszkowski and engineer Professor Osman Muftić, he constructed a model of the hip endoprosthesis called ROM (Ruszkowski-Orlić-Muftić). In two mandates (1997 – 2005) Professor Orlić was the president of the Croatian Medical Association.

From 2005 to 2007, the head of the Department of Orthopaedic Surgery was **Professor Miroslav Hašpl**, who particularly developed arthroscopy, primarily of the knee, but also of other joints, and continued experimental work on the possibility of cartilage damage healing. He collaborated with researchers from Western Europe with whom he published valuable scientific papers in the international community. Professor Hašpl is a member of many reputable orthopaedic societies, and he was the national delegate of Croatia to the International Society of Orthopaedic Surgery and Traumatology (SICOT). He was also a national delegate in the European Federation of National Associations of Orthopaedics and Traumatology (EFORT) in front of the Croatian Orthopedics and Traumatology Association (COTA), also a national delegate of the Croatian orthopaedic association in the European Union of Medical Specialists (UEMS), Section for orthopaedics, during the harmonisation specialisations in orthopaedics with the propositions of the European Union.

During the mandate of academician Pećina and the mandate of Professor Hašpl, Professor Nikola Čičak also worked at the department. Professor Čičak focused on the problem of shoulder diseases and injuries and introduced new arthroscopic surgical methods in the treatment of acute and chronic shoulder injuries. He also organised training courses and international scientific meetings. Moreover, Professor Ranko Bilić devoted himself to the problem of the treatment of diseases and injuries of the hand and introduced into clinical practice preoperative computer planning of corrective osteotomies in the area of the wrist. Furthermore, Assistant Professor Šimun Šakić modernised diagnostic procedures and surgical treatment of patients with cerebral palsy.

From 2007 to 2013, the head of the Department of Orthopaedic Surgery was **Professor Darko Antičević**, under whose leadership children's orthopaedics and multidisciplinary treatment of patients with bone dysplasia were particularly developed. New surgical methods of intramedullary fixation in children were introduced, such as telescopic nails in the treatment of fractures and deformations of long bones in patients with osteogenesis imperfecta, elastic stable intramedullary nailing (ESIN) with titanium implants in children with fractures and deformations, as well as growth control procedures in the area of the knee and ankle with implants ("eight-plate"). In addition, undergraduate courses in Orthopaedics in English for foreign medical students were introduced (2007/2008). Professor Antičević developed cooperation in the field of paediatric orthopaedics with European and American experts as well as European and global associations. As the president of the Croatian Association for Children's Orthopedics (HDDO), Professor Antičević organised HDDO meetings in Croatia twice a year, where European experts regularly participated together with domestic experts. He was the president of the organising committee of the 29th Congress of the European Pediatric Orthopaedic Society (EPOS) in Zagreb in 2010 and edited, according to this event, the book „Bibliography of paediatric orthopaedics 1984 - 2008“. <sup>18</sup> Professor Antičević was responsible for the organisation of European and international professional and scientific meetings in Croatia and abroad, e.g. EPOSNA i.e. the joint Congress of European Pediatric Orthopaedic Society (EPOS) and the Pediatric Orthopaedic Society of North America (POSNA) in Barcelona in 2017. He became a world-renowned paediatric orthopedist, which was reflected in his election as president of EPOS and president of the International Federation of Pediatric Orthopaedic Societies (IFPOS). He participated in the editorial boards of world-renowned journals in the field of paediatric orthopaedics.

**Professor Domagoj Delimar** became the head of the Clinic for Orthopaedic Surgery in 2008. Moreover, he was elected head of the Department of Orthopaedic Surgery in 2013, and he holds both positions to this day. Professor Delimar introduced new operating methods, reconstructive surgical procedures, and arthroplasty procedures in the area of large joints, especially in the treatment of dysplastic hip in adulthood, from which he published his methods and modifications of surgical procedures <sup>19,20</sup>. Professor Delimar

promoted further cooperation with foreign clinics, especially with the Clinic in Vienna, and the Harvard School of Medicine, Massachusetts General Hospital Boston. He facilitated the attendance of physicians from the department at training courses throughout Europe and North America. Also, he is the president of the Croatian Orthopaedics and Traumatology Association (COTA) and has organized many international congresses under the auspices of COTA. Professor Delimar, both as head of the Clinic of Orthopaedic Surgery and as head of the Department of Orthopaedic Surgery, had an enormous task of organising the work of both the Clinic and the Department under new conditions after the earthquake in Zagreb on March 22, 2020. The Department was relocated to Rebro, operating in "tenant" conditions, expecting the construction of a new building within the University Hospital Center Zagreb (Rebro), given that the building at Šalata 6 would no longer be able to be used as a hospital.

In the 100 years of the Department of Orthopaedic Surgery, there were nine heads of the department who all worked and strived towards one goal - to care for patients with locomotor system pathology as well as possible. To do so, they focused on the education of younger generations - medical students, residents, and doctoral students. From the first beginnings of orthopaedics classes at the School of Medicine, and especially after the establishment of the Department of Orthopaedic Surgery in 1930 (at the Children's Hospital Building), all physicians, those who were employees of the School of Medicine in teaching positions, as well as clinical (so-called hospital) doctors, greatly focused on education.

During the celebration of 100 years of Orthopaedics education at the School of Medicine, University of Zagreb in December 2022, the Department of Orthopaedic Surgery is consisted of:

Members of the Department of Orthopaedic Surgery in cumulative employment:

Professor Domagoj Delimar, MD, PhD

Professor Mislav Jelić, MD, PhD

Professor Ivan Bojanić, MD, PhD

Associate Professor Tomislav Đapić, MD, PhD

Associate Professor Tomislav Smoljanović, MD, PhD

Assistant Professor Ivan Bohaček, MD, PhD

Mislav Čimić, MD, PhD, postdoctoral fellow

Mario Josipović, MD, PhD, postdoctoral fellow

Ozren Kubat, MD, PhD, postdoctoral fellow

### Members of the Department of Orthopaedic Surgery in titles:

Assistant Professor Miljenko Franić, MD, PhD

Katarina Barbarić Starčević, MD, PhD, titular postdoctoral fellow

Damjan Dimnjaković, MD, PhD, titular postdoctoral fellow

Igor Šmigovec, MD, PhD, titular postdoctoral fellow

Josip Vlaić, MD, PhD, titular postdoctoral fellow

Tomislav Čengiđ, MD, PhD, titular postdoctoral fellow

We will briefly highlight the activities of the members of the Department of Orthopaedic Surgery in cumulative employment.

Professor Mislav Jelić is dedicated to the treatment of articular cartilage damage, especially of the knee joint, using bone-cartilage grafts, and he implanted the first knee meniscal allograft in our country. He is particularly active in scientific and research activities and is connected with researchers around the world and participates in or is the leader of important scientific projects.

Professor Ivan Bojanić introduced arthroscopic surgical treatment of the ankle joint and elbow into everyday clinical practice. He continues the tradition of sports traumatology within the framework of orthopaedics, and expands the acquired knowledge by organising continuing education courses.

Associate Professor Tomislav Đapić continues to develop the field of paediatric orthopaedics, with special emphasis on pelvic osteotomies for hip dysplasia, as well as surgical treatment of patients with cerebral palsy and spinal deformities.

Associate Professor Tomislav Smoljanović developed diagnostic and surgical arthroscopy of the hip joint.

Assistant Professor Ivan Bohaček devoted himself to the treatment of tumours of the locomotor system, as well as arthroplasty and rearthroplasty of the hip and knee.

Mislav Čimić is advancing the field of surgical treatment of spinal deformities by introducing new instrumentation methods.

Mario Josipović is dedicated to knee and shoulder arthroscopy and arthroplasty and complex reconstructive operations of the locomotor system.

Ozren Kubat is dedicated to children's orthopaedics, including deformities of the spine.

Over the past 100 years, the teaching of Orthopaedics at the School of Medicine in Zagreb has followed all the changes that took place in the field of biomedicine. Also, the teaching was in line with the needs of both individuals and society as a whole. This is still the case today when diseases and injuries of the locomotor system are a significant burden on society. Given that the human lifespan is increasing, the problem of degenerative joint changes, osteoporosis, and pathological bone fractures is growing. The way of life of a modern individual leads to an enormous increase in spine diseases, leading to many working days being lost. It is estimated that in the near future, a quarter of the income of health funds will be spent on the treatment of consequences due to traffic accidents. Playing sports and recreation is a trend in modern lifestyle, often resulting in acute and chronic injuries of the locomotor system. These problems have been recognized at the global level, and the World Health Organization founded a movement called "*Bone and Joint Decade*" in 2000, which is still ongoing, renewing its contents every 10 years in accordance with the up-to-date literature. The medical specialty of orthopaedics, named so by the French doctor Nicolas Andry in his book published in 1741, plays an important role in taking care of the health of the locomotor system. Practically since that time, the classic definition of orthopaedics is valid, saying: "*Orthopaedics is a medical specialty that deals with the study, prevention, and treatment of diseases and injuries of the locomotor system*". Over time, some other medical specialties took over the care of prevention and rehabilitation, thus the Anglo-Saxon name of the specialty was "Orthopaedic Surgery". Finally, the European Union of Medical Specialties (UEMS) came up with today's program and name of the specialty as "Orthopedics and Traumatology". Orthopaedics is an example where it can be observed how the content of the work of a particular profession changes over the years depending on the change in pathology. The scope and way of working in Orthopedics have changed so much today that some speak of it as if it were a new profession. However, the development of medicine and new technical achievements have only led to new and better treatment approaches to certain orthopaedic problems, which is evident from the excellent results of the application of artificial joints. For example, hip arthroplasty was declared the "operation of the 20th century"<sup>21</sup>. Spectacular results have also been achieved using surgical arthroscopy of large and small joints. The future of orthopae-

dics is in the hands of molecular biology and so-called regenerative orthopaedics. Tissue engineering is already a part of clinical practice in terms of the application of cartilage cell culture or bone morphogenetic proteins, all the way to gene therapy.

The Department of Orthopaedic Surgery of the School of Medicine at the University of Zagreb was for a long time the only and most important institution for the education of Orthopaedic Surgeons not only from Croatia but also from the wider region. For example, from 1941 to 1973, 105 Orthopaedic Surgeons completed and passed the specialist exam at the department, many of whom later in their working lives held leading positions in the field of orthopaedics in Croatia and the former Yugoslavia. In the Republic of Croatia itself, "Zagreb orthopaedic students" participated in the establishment of departments, clinics, and chairs at the newly founded medical schools (Rijeka, Split, Osijek). Guided by this fact, we invited colleagues from all over the Republic of Croatia to participate in the creation of this special supplement of *Acta Clinica Croatica* dedicated to the 100th anniversary of the teaching of orthopaedics at the School of Medicine at the University of Zagreb (Figure 6).

We will end with the well-known saying "*Life is movement, movement is life*", as modern medicine has extended one's life duration, and orthopaedics is making that life worth living.

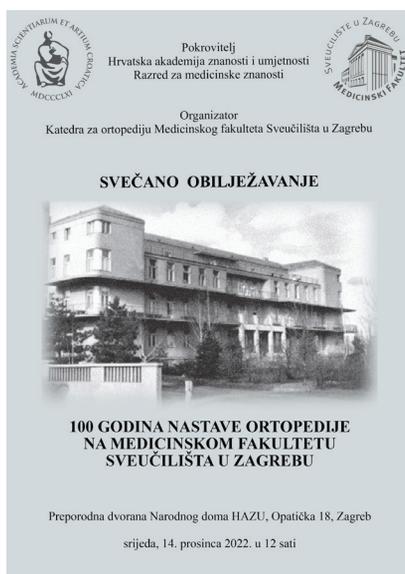


Figure 6. Cover page of the Programme of the celebration of 100 years of Orthopaedics education at the School of Medicine, University of Zagreb.

## Acknowledgments

The authors would like to thank Mihovil Plečko, MD for providing technical support for the writing of this article and his contribution to the editing of the *Acta Clinica Croatica* Supplement devoted to the celebration of 100 years of Orthopaedics education at the School of Medicine, University of Zagreb.

## Declaration of conflict of interest

None.

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#### Sažetak

### PRVIH 100 GODINA NASTAVE ORTOPEDIJE NA MEDICINSKOM FAKULTETU SVEUČILIŠTA U ZAGREBU

*M. Pećina, M. Hašpl, D. Antičević i D. Delimar*

Premda su i ranije u Hrvatskoj postojale bolnice u kojima su se zbrinjavali bolesnici s bolestima i ozljedama lokomotornog sustava, organiziranim početkom rada ortopedije u Hrvatskoj smatra se 1908. godina kada je Božidar Špišić (1879. - 1957.) u Zagrebu osnovao prvi Ortopedski zavod na slavonskom jugu. 1917. godine utemeljen je Medicinski fakultet Sveučilišta u Zagrebu, i kada prvi studenti dolaze na petu godinu studija medicine, utemeljuje se i Katedra za ortopediju, a dr. Božidar Špišić postaje docent 15. 12. 1922. godine. Od tog datuma pa sve do danas ortopedija je samostalan predmet i Katedra u okviru Medicinskog fakulteta. Katedra za ortopediju prvenstveno je osnovana za edukaciju studenata medicine, dok je slijedeća značajna djelatnost Katedre za ortopediju bila i ostala izobrazba specijalista ortopeda i specijalista struka koje se preklapaju s ortopedijom. 1973. godine Katedra za ortopediju započela je provoditi plan i program postdiplomskog studija iz ortopedije, a održava i mnogobrojne postdiplomske tečajeve te tečajeve trajnog usavršavanja liječnika. Također, Katedra organizira domaće i međunarodne sastanke, simpozije i kongrese. Na znanstvenom postdiplomskom i doktorskom studiju članovi Katedre za ortopediju voditelji su mnogih kolegija. Prikaz rada i razvoja Katedre za ortopediju u proteklih 100 godina djelovanja u okviru Medicinskog fakulteta Sveučilišta u Zagrebu i Klinike za ortopediju Kliničkog bolničkog centra Zagreb podijeljen je na više vremenskih odsječaka, počevši od prvog pročelnika profesora Božidara Špišića sve do današnjeg, devetog pročelnika Katedre za ortopediju i predstojnika Klinike za ortopediju Kliničkog bolničkog centra Zagreb profesora Domagoja Delimara.

Ključne riječi: *Medicinski fakultet, edukacija, ortopedija, povijest medicine*