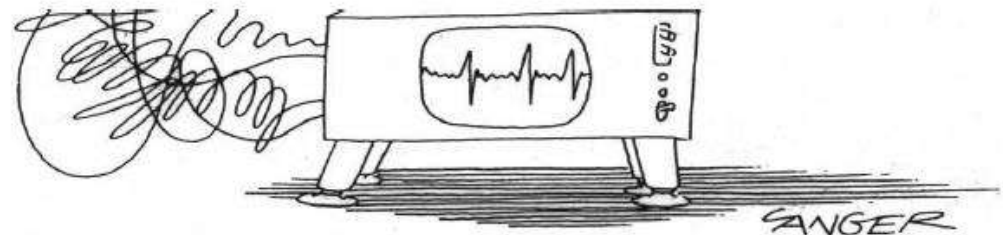
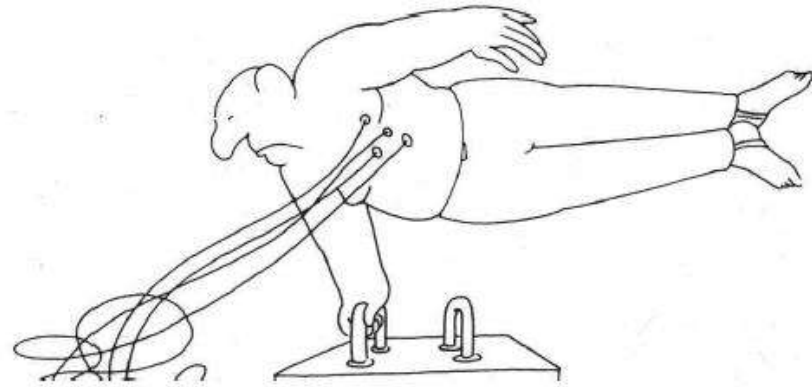


# SPORTS MEDICINE AROUND THE WORLD

Coordinated by P.J. Jenoure  
for *Sport Health* magazine



## SPORT AND EXERCISE MEDICINE

# AROUND THE WORLD

PETER J. JENOURE, MD FROM SWITZERLAND, SPECULATES ON WHAT THE SPECIALTY OF SPORT AND EXERCISE MEDICINE WOULD LOOK LIKE IN AN IDEAL WORLD.

In an ideal world, the specialty of sport and exercise medicine, "...embodying theoretical and practical medicine which examines the influence of exercise, training and sports, as well as the lack of exercise, on healthy and unhealthy people of all ages to produce results that are conducive to prevention, therapy and rehabilitation as well as beneficial for the athlete himself" (official International Federation of Sports Medicine (FIMS) definition) would be taught in all medical schools in a similar way as the classical medical specialties. This would ensure that every physician would be equipped to use focused expertise in dealing with an athlete's specific problem, but more importantly, know the importance and benefits of using exercise and movement to treat patients suffering from the wide list of diseases directly related with inactivity. Furthermore, postgraduate training would be at the disposal to those who desire to study further to become specialists, similar to other medical specialties. Obviously this rough concept would need to take into account the specifics of each country – organisation of the health system, the resources, the needs... etc.

Continuing the dream, we ask what an ideal postgraduate teaching program could look like. It would be an average of five years practical and theoretical training, like most other specialties, which would produce a competent expert in the prevention, treatment and counseling of sport and exercise medicine issues. Sport and exercise

medicine exists as an area that encompasses a range of skills and knowledge that overlap many other disciplines – musculoskeletal medicine (e.g. orthopaedic surgery, rheumatology, rehabilitation medicine, emergency medicine, occupational medicine), primary care, public health medicine as well as a range of other specialties involved in specific problems (e.g. cardiology and neurology), training physiology, biomechanics and more. In this way, the sports medicine practitioner would be an extremely well trained physician, which would hopefully award them more respect than representatives of the field actually receive (at least this is the case under our latitude with the sports physician often considered with much caution), especially in the medical field.

Leaving the dream and getting back to the reality unfortunately shows quite another picture, especially when you review the situation of sport and exercise medicine worldwide. In a series of articles which will appear in *Sport Health* over the coming issues we have conducted a review of sport and exercise medicine in various countries, hoping it will contribute to improving the understanding between all sport and exercise medicine practitioners. Most importantly, it is hoped it will help to establish sport and exercise medicine as a discipline that draws upon basic and applied biomedical and clinical sciences for the furthering of knowledge and ensuring best practice in the diagnosis and management of sport and exercise medicine clinical problems. The discipline of sport and exercise medicine is relevant to the whole population and seeks to promote health, to prevent disease or injury, to apply optimal treatment and rehabilitation, and to measure outcomes. It is therefore important we gain an understanding of its worldwide application.





## SPORT AND EXERCISE MEDICINE

## IN THE UNITED STATES OF AMERICA

THIS ARTICLE, WRITTEN BY CINDY J. CHANG, MD, FORMS PART OF A SERIES PUBLISHED IN *SPORT HEALTH* TO LOOK AT THE STRENGTHS AND WEAKNESSES OF THE SPORT AND EXERCISE MEDICINE (SEM) SYSTEMS IN VARIOUS COUNTRIES, PROVIDING IDEAS AND INSPIRATION FOR ALL COUNTRIES ON HOW TO IMPROVE INFRASTRUCTURE IN THIS EMERGING SPECIALITY.

VIEW PAST ARTICLES HERE

VIEW PAST SPORT AND EXERCISE MEDICINE AROUND THE WORLD EDITORIAL HERE

Medical schools in the United States award either the Doctor of Medicine (MD) or Doctor of Osteopathic Medicine (DO) degree, either of which is required to become a physician or a surgeon in the United States. There are presently 141 MD-granting academic institutions, accredited by the Liaison Committee on Medical Education (LCME) and 30 DO-granting institutions, accredited by the American Osteopathic Association's Commission on Osteopathic College Accreditation (COCA).

The state of New York has the most medical schools in the United States with 15 (13 MD and 2 DO), followed by California with 11 (9/2), and then Ohio with 8 (7/1). Medical students at osteopathic medical colleges receive training in Osteopathic Manipulative Treatment (OMT) that MDs do not receive. OMT involves using the hands to diagnose and treat illness or injury.

While approximately 40 medical schools offer combined undergraduate/M.D. programs, and eight offer combined undergraduate/D.O. programs, the vast majority require admission requirements of an undergraduate degree (four years, Bachelors of Arts or Science Degree) which includes one year of biology, one year of physics, one year of English, and two years of chemistry (through organic chemistry). Applicants are also expected to take the Medical College Admission Test (MCAT).

Most medical schools run a four-year program, the first two years primarily classroom and the lab. The courses range from anatomy and genetics & pathology to behavioural medicine and clinical ethics, public health issues, fundamentals to start learning the art of medicine and patient care. After these first two years, medical students take Step 1 of the United States Medical Licensing Exam

(USMLE), and need to pass to move on to the last two years of medical school.

The second two years are clinical rotations in various specialties such as family medicine, obstetrics, psychiatry and surgery in hospitals & clinics. Between the third and fourth year, medical students begin the application process and then interviews for residency, with decisions ("the match") announced in March of the fourth year. By this time the second phase of the USMLE (Step 2) has been taken, testing medical knowledge and diagnostic & clinical skills. Residency programs rank their applicants based on the Step 1 and Step 2 scores, as well as medical school performance and recommendation letters. Step 3 of the USMLE is usually taken early during the residency, and if successfully completed, he or she can then be licenced as a practicing physician.

For the osteopathic medical student, there is a different series of exams to pass to qualify for a state medical licence called the Comprehensive Osteopathic Medical Licensing Examination (COMLEX). Part 1 and Part 2 are taken during medical school, Part 3 is taken after medical school graduation, during residency. Some osteopathic students choose to take the USMLE, as some allopathic (MD) residency programs will not accept COMLEX as the board test requirement for application to the residency.

One can study the field of sports medicine only after a primary care residency or an orthopaedic residency, there is no residency in sports medicine. These residencies last between three to five years. The primary care residencies are usually family medicine, paediatrics, internal medicine, emergency medicine, and physical medicine & rehabilitation (physiatry). Sports Medicine/

Musculoskeletal Medicine can be an elective rotation in these residencies. There are approximately 160 accredited primary care sports medicine fellowships, and 30 accredited orthopaedic fellowships. These usually are one year in duration, and some are two.

Primary Care Sports Medicine focuses on the prevention, diagnosis, and treatment of non-operative sports-related injuries and medical conditions. Approximately 90% of all sports injuries are non-surgical. Applicants for accredited primary care fellowships in sports medicine participate in a national match through the National Resident Matching Program. Fellowship training incorporates both longitudinal experiences and focused specialty rotations, providing a comprehensive clinical experience that allows the development of expertise in the care of a wide range of medical and musculoskeletal problems. It involves exposure to issues seen in children and adults, and includes the care of elite and recreational athletes. Splinting and casting, musculoskeletal ultrasound, concussion evaluation & management, and exercise physiology are among the areas of expertise taught during fellowship. Primary care skills are enhanced, including a primary care continuity clinic and participating in the education of residents & medical students, and teaching & presentation skills are also developed. A research project is highly encouraged and at times required. Experience working with multiple levels of sports teams including training room and event coverage is mandatory.

After the completion of primary care fellowship training, the physician is then eligible to take a subspecialty examination in Sports Medicine (Certificate of Added Qualification in Sports Medicine, or CAQSM). There is also an examination

for the Subspecialty Certificate in Orthopaedic Sports Medicine. Of note, physicians must be board certified in their primary specialty (e.g. family medicine, orthopaedics) as well.

These subspecialty certificates are valid for 10 years (which is similar to the duration of board certifications in medical specialties). At that time, another certificate is issued after passing a recertification examination.

The American Medical Society for Sports Medicine (AMSSM), established in 1991, is a multi-disciplinary organization of 2,500 sports medicine physicians, the vast majority with fellowship training and added qualification in sports medicine who combine their practice of sports medicine with their primary specialty. The American Orthopaedic Society for Sports Medicine (AOSSM) was established in 1972 and has almost 3000 members.

## USEFUL ADDRESSES:

American Medical Society for Sports Medicine (AMSSM): <http://www.amssm.org>

American Orthopaedic for Sports Medicine (AOSSM): <http://www.sportsmed.or>



This is stock/romana\_slavik



## SPORT AND EXERCISE MEDICINE

## IN PORTUGAL

THIS ARTICLE, WRITTEN BY DR. MARCOS AGOSTINHO, FORMS PART OF A SERIES PUBLISHED IN SPORT HEALTH TO LOOK AT THE STRENGTHS AND WEAKNESSES OF THE SPORT AND EXERCISE MEDICINE (SEM) SYSTEMS IN VARIOUS COUNTRIES, PROVIDING IDEAS AND INSPIRATION FOR ALL COUNTRIES ON HOW TO IMPROVE INFRASTRUCTURE IN THIS EMERGING SPECIALITY.

VIEW PAST ARTICLES HERE

VIEW PAST SPORT AND EXERCISE MEDICINE AROUND THE WORLD EDITORIAL HERE

Sport and Exercise Medicine (SEM) in Portugal has been officially acknowledged as a speciality since 2009 by The Portuguese Medical Association. Specific training, or residency, in sports medicine lasts for a total of 48 months (four years), being preceded by foundation training shared by all other medical specialities and designated as a "common year", or internship, lasting a total of 12 months (one year).

The scope and purpose of Portugal's SEM residency is based on the knowledge that it is a medical speciality that deals with the prevention, prophylaxis, diagnosis and treatment of various pathologies related to physical exercise and sports practice in all age groups. Because of its specific characteristics, it is closely linked to various medical specialities and plays a key role in the development of exercise and sports programs for the population. SEM has been playing a major role in the prevention of cardiovascular, metabolic, oncological, psychiatric and other diseases through the prescription of regular physical exercise. It has a multidisciplinary character, covering all age groups and all levels of exercise and sports practice, using various diagnostic, therapeutic and research techniques that require a deeper understanding. SEM in Portugal is a field that is destined to be boosted in quantitative and qualitative terms, requiring the resident physician to have a solid knowledge-base in the various medical fields related to physical exercise, therefore allowing a good and solid practice of medicine.

The first one-year internship is comprised of the four following rotations with its respective duration: Internal medicine (four months); Paediatrics (two months); General surgery (two months); Primary health care; Family Medicine and Public Health (three months); Optional month with rotation choices with the following

specialties: Emergency Medicine; Psychiatry or Obstetrics and Gynaecology. The successful conclusion of first-year internship is mandatory for the physician to begin specific training (residency).

The next four years of residency (specialised training) is composed of the following rotations with its respective duration: General Sports Medicine (12 months); Cardiology (nine months); Immunology (three months); Exercise Physiology (three months); Trauma & Orthopaedics (six months); Physical Medicine and Rehabilitation (three months); Clinical Pathology & Toxicology (three months); Optional rotation (three months) in Sports Nutrition & Dietetics or Sports Psychology; the remaining six months of residency is practised in the medical department of a sports institution. Each rotation has its own objectives, comprised of specific performance and knowledge tasks within every rotation. The Cardiology rotation, for example, includes specific training periods in sports cardiology, electrocardiography, echocardiography, stress testing and Holter tests.

In the SEM residency, a performance evaluation is done at the end of each rotation with the consideration of the following parameters: technical execution capacity; professional appreciation; professional responsibility and human relations. The knowledge assessment of the SEM speciality is based upon an annual residency report, included in the annual evaluation. Knowledge assessment is continuous and formalised with an annual oral exam, consisting of the evaluation of activity reports of the current period in question and a medical examination performed on an athlete with the elaboration and discussion of the respective clinical report. An additional post-graduation course in Sports Medicine is taken into account in the final curricular evaluation, having a certain

weight in the final exam grade. The Portuguese College of Sports Medicine, part of The Portuguese Medical Association, is the official entity that regulates the certification of the SEM speciality, by final examination after the conclusion of the SEM's four-year residency.

An alternative method of obtaining SEM certification, currently accepted by the Portuguese College of Sports Medicine, can be obtained by meeting specific proposed criteria in order to obtain the title of specialist in SEM. To be admitted for curricular evaluation pertaining to the final exam, the candidates must fulfil the following requirements:

1. MD degree and medical practice for more than six years;
2. Successful conclusion of a postgraduate course or master's degree in SEM recognised by The Portuguese Medical Association;
3. Differentiated practice of SEM for a period of no less than four years, involving rotations included in SEM's residency;
4. Scientific and education activity in the form of papers presented, published and/or participation in meetings of a scientific nature in the field of SEM;
5. Experience in the medical supervision of athletes and/or teams properly certified by a physician directly related and/or involved with the documented activities.

Meeting these requirements, the candidate is allowed to hand in a curriculum vitae of all academic and medical activity relating to SEM at the beginning of the current year subject to

evaluation. The final examination is similar to the SEM's residency comprised of a medical examination performed on an athlete, or case studies, and a final oral exam.

SEM in Portugal is currently represented by The Portuguese Society of Sports Medicine (SPMD), a non-profit organisation, which was constituted by public deed on October 15, 1994, by 17 founding doctors. This public event took place as a consequence of the existing conditionality that up until then, The SPMD was a section of The Society of Medical Sciences of Lisbon. Internal regulations and statutes were drafted and approved. In order for The SPMD to be able to play a more interactive, dynamic and cohesive function for its members, a headquarters was created in Lisbon, Portugal's capital city. The SPMD's symbol was approved, along with the creation and organisation of a secretariat in order to provide a structure essential to its operation. The Portuguese Society of Sports Medicine is currently a member of

The International Federation of Sports Medicine (FIMS) and The European Federation of Sports Medicine Associations (EF-SMA).

## ABOUT THE AUTHOR

**Dr. Marcos Agostinho** is a Primary Care Sports Medicine Physician in Torres Vedras, Portugal where he divides his day among clinical duties in Family Medicine, General Practice and Sport & Exercise Medicine. He is currently Deputy Editor of The BMJ Open Sport & Exercise Medicine journal and Associate Editor of The British Journal of Sports Medicine. He is also a Team Member for The Portuguese National Program for the Promotion of Physical Activity (Directorate-General of Health), Local Clinical Director of The Diabetes em Movimento@ Torres Vedras Community Program and Coordinator of the "Exercise & Health" Study Group from The Portuguese Society of Sports Medicine. You can follow him on Twitter, @MarcMedMD.

## USEFUL ADDRESSES:

Portuguese Society of Sports Medicine  
Website - [www.spmd.pt](http://www.spmd.pt)  
Facebook - @spmd.pt

Portuguese College of Sports Medicine  
Website - [www.ordemosmedicos.pt](http://www.ordemosmedicos.pt)



## SPORT AND EXERCISE MEDICINE

IN **SOUTH KOREA**

THIS ARTICLE, WRITTEN BY DR. JOHN YUN JUN YANG, MD FORMS PART OF A SERIES PUBLISHED IN SPORT HEALTH TO LOOK AT THE STRENGTHS AND WEAKNESSES OF THE SPORT AND EXERCISE MEDICINE (SEM) SYSTEMS IN VARIOUS COUNTRIES, PROVIDING IDEAS AND INSPIRATION FOR ALL COUNTRIES ON HOW TO IMPROVE INFRASTRUCTURE IN THIS EMERGING SPECIALITY.

VIEW PAST ARTICLES [HERE](#)

VIEW PAST SPORT AND EXERCISE MEDICINE AROUND THE WORLD EDITORIAL [HERE](#)

**W**e have western and oriental medicine in Korea. Western medicine is taught in 41 Korean universities in Korean. Oriental medicine is taught in 12 universities in Korean. Western and oriental medical schools may choose one or both of two programs which are a traditional undergraduate and a graduate program.

The traditional undergraduate programs are made of a 6-year curriculum structure, in which students typically take general elective courses and basic science courses in the first two years, followed by two years of pre-clinical courses, and another two years of clinical clerkships. The 4-year graduate programs, requiring four years of undergraduate education to be eligible for admission to a medical program were introduced in 2002 and have one year of basic sciences, one year of pre-clinical courses, and another two years of clinical clerkships.

The structure of medical studies varies from one program to the next but the curriculum for each program must meet broadly established standards that are set nationally. Western medical programs should be accredited by the Korean Institute of Medical Education and Evaluation. Following graduation of any programs, all medical students must pass their national licensing examinations to become a medical or oriental medical doctor and be able to see the patients independently anywhere in the country and continue with their training. Western medical graduates can proceed to do one year of internship and three or four years of resident training, three years of training in Family Medicine or four years in other specialties. About 90% of students among around 3,100 western medical graduates, continue to do the residency training program. After finishing these programs,

they can take nationally supervised examinations to become specialists. Oriental medical graduates can proceed to do one year of internship and three years of resident training. About 30% of students among around 700 oriental medical graduates, continue to do the residency training program.

Sports medicine training in western medicine (from now on, the western medicinal aspects of sports medicine are described because of lack of information about oriental sports medicine and its rarity) is not usually offered as one structured course through medical schools in South Korea, but sports medicine topics are taught during some specific courses (Musculoskeletal, Orthopaedics, Rehabilitation, Cardiology for example). It is possible to do elective training in sport medicine as part of a residency program, but it is limited to some hospitals. After completion of resident

programs, you can enter the 1-2 years fellowship course which is not mandatory. It may include sports medicine training as part of specialty fellowships such as Orthopaedics, Rehabilitation medicine and Family Medicine. Until now, the fellowship program curriculum is not established uniformly and made by different institutions.

Sports Medicine is not currently recognized as a medical specialty in South Korea. The Korean Society of Sports Medicine (KSSM) which is the professional organisation for all sport medicine issues in Korea certify the subspecialty diploma in sports medicine. To apply for the examination to get the diploma, you should have a medical doctor licence and 500 academic points which are composed of attending academic meetings and sports medicine CME courses, dissertations, publications and/or experiences as a team physician or a fellow of sports medicine. The examination is offered once a year. However, the subspecialty diploma is not considered as the mandatory certificate

to be involved in the sports medicine field as yet. But if you have the certificate, you may get the related job more easily. KSSM is trying to publicise the importance of the subspecialty diploma in sports medicine and recommend only physicians with the diploma for medical teams providing care for athletes competing at major sporting events.

The multidisciplinary Korean Academy of Sports Medicine offers a variety of educational opportunities including biannual scientific meetings, multiple academic courses and workshops for medical doctors, nurses, physical therapists, nutrition experts and athletic trainers.

As of July 25th 2014, there are over 500 Korean medical doctors with the KSSM subspecialty Diploma in Sport Medicine. The certificate is valid for five years; the renewal is done by credits one can obtain at recognised congresses and courses.

**USEFUL ADDRESSES:**

Korean Society of Sports Medicine  
- <http://www.sportsmed.or.kr/>



# SPORT AND EXERCISE MEDICINE IN NEW ZEALAND

THIS ARTICLE, WRITTEN BY PROFESSOR DAVID GERRARD OBE, FORMS PART OF A SERIES PUBLISHED IN *SPORT HEALTH* TO LOOK AT THE STRENGTHS AND WEAKNESSES OF THE SPORT AND EXERCISE MEDICINE (SEM) SYSTEMS IN VARIOUS COUNTRIES, PROVIDING IDEAS AND INSPIRATION FOR ALL COUNTRIES ON HOW TO IMPROVE INFRASTRUCTURE IN THIS EMERGING SPECIALITY.

[VIEW PAST ARTICLES HERE](#)

[VIEW PAST SPORT AND EXERCISE MEDICINE AROUND THE WORLD EDITORIAL HERE](#)

New Zealand Sports Medicine had its beginnings 50 years ago, when a group of physicians at the University of Otago Medical School in Dunedin convened a special interest group under the Chairmanship of Dr Norrie Jefferson. The stimulus for this meeting had been an earlier visit by Sir Arthur Porritt, a London-based surgeon who, with Sir Adolphe Abrahams, in 1953, had established the British Association of Sport and Medicine. Porritt was a New Zealand trained doctor from the Otago Medical School, a Rhodes scholar to Oxford and a track medalist in the 1924 Paris Olympics. He became a distinguished general surgeon appointed to the care of the Royal Household. Sir Arthur Porritt was also an influential member of the International Olympic Committee.

## MEDICAL SUPPORT FOR ATHLETES

From those early beginnings in 1953, the New Zealand Federation of Sports Medicine, as it was then known, catered for doctors actively involved with athletes, commonly through team responsibilities. New Zealand was developing a proud legacy in international sport and as a country of a little more than 4 million people, continues to "punch well above its weight" in the international arena. Track and field athletics, yachting (including sailboarding), rugby football, cycling, equestrian sport, kayaking, swimming and triathlon are amongst disciplines New Zealand athletes have demonstrated international success. At recently at the Rio de Janeiro Olympics in 2016, New Zealand athletes won four gold medals and 18 medals overall, to

finish third on the basis of medals per head of population.

In 1964, the New Zealand team to the Tokyo Olympic Games included its first official Team Physician, Dr Henton Grigor. Since then, New Zealand teams at major international events for able-bodied and disabled athletes, continue to have the support of medical and affiliated health professionals. Today, the medical team has expanded to include doctors, physiotherapists, masseurs, psychologists and chiropractors, consistent with international trends and in keeping with team requirements.

## ACADEMIC SPORTS MEDICINE

The early advent of sport science in New Zealand added to academic research that was soon to inform sports medicine practice. Post-graduate training in sports medicine has been offered for the past 12 years by the Universities of Otago and Auckland where candidates can gain a postgraduate diploma in sport and exercise medicine through a combination of residential courses and distance learning. Academic sports medicine in New Zealand has evolved over the past 30 years with the University of Otago becoming the first to appoint senior academic staff in the discipline. In 2013 the University of Otago awarded the first Full Professorship in Sport and Exercise Medicine in New Zealand. Topics relating to paediatric sports medicine, nutrition, drug use, injury, exercise-related cardiopulmonary dysfunction and musculoskeletal medicine have become incorporated into the undergraduate medical curriculum at the University of Otago.

## SPORTS MEDICINE AS A SPECIALTY IN NEW ZEALAND

Sports medicine doctors in New Zealand fall into three distinct groups. First, primary care doctors with empathy for sport and whose general practice tends to attract athletes. Second, doctors with a postgraduate diploma in sports medicine whose practice is a combination of primary care and sports medicine. And thirdly those doctors who have obtained full Fellowship of the Australasian College of Sports Medicine that requires an extended period of advanced registrar training and subsequent examination. Since 2000 in New Zealand and 2012 in Australia, Fellows of the Australasian College have been recognised by the Medical Council of New Zealand, or the Australian Medical Council respectively as vocationally registered specialists.

Today, the speciality is more increasingly accorded the scope of "sport and exercise medicine" to reflect the fact that practitioners are not simply involved with athletes at the elite end of the sporting spectrum and that a wider group with the community seeks information on lifestyle modification and exercise prescription.

## SPORTS MEDICINE NEW ZEALAND (INC)

Sports Medicine New Zealand (SMNZ) is a non-profit-making multidisciplinary organisation for all health professionals and other groups and individuals interested in community health, with special reference to the principles of sports medicine and exercise science. It is guided by a Code of Ethics and Professional Conduct and membership is

drawn from 12 regional branches. SMNZ serves its members through a twice-yearly, peer-reviewed journal (NZ Journal of Sports Medicine) regular newsletters and an annual scientific conference.

## THE AIMS OF SPORTS MEDICINE NEW ZEALAND ARE AS FOLLOWS:

1. Promote graduate/postgraduate educational opportunities in the various sciences related to sports medicine.
2. Disseminate current information from all sources through SMNZ's official publication, the NZ Journal of Sports Medicine, published twice yearly. Click this link for the New Zealand Journal of Sports Medicine Authors Guidelines.
3. Organise lecture tours by prominent sports medicine authorities to give members the opportunity to increase their knowledge of sports medicine.
4. Organise scientific seminars and conferences at regional, national and international level involving selected prominent experts in the field of sports medicine.
5. Co-operate with national bodies such as the Sport and Recreation New Zealand (SRNZ), Sport and Exercise Science NZ, Accident Compensation Corporation, NZ Society of Physiotherapists, NZ Medical Association, Royal NZ College of General Practitioners, NZ Olympic Committee and international bodies including the International Federation of Sports Medicine (IFSM), the Australasian College of Sports Physicians (ACSP), Sports Medicine Australia (SMA), the British Association of Sports Medicine (BASM) and the

American College of Sports Medicine (ACSM).

6. Advise individual sports participants, sporting organisations, government departments and local bodies on matters related to sport, health and national fitness.
7. Associate with all areas of community health with special emphasis on matters concerned with the recreational and physical activity of people of all age groups.

## ABOUT THE AUTHORS

**Professor David Gerrard OBE** CNZM FRB ChB(Otago) FACSp FRCSMNZ is the first full Professor of Sport and Exercise Medicine at a New Zealand University. He was a former Olympic swimmer and Commonwealth gold medalist, currently serving as Chair of the WADA Therapeutic Use Exemption Expert Group, a member of the WADA Health, Medical and Research Committee, Vice-Chair of the FINA Sports Medicine Committee and a member of the IBA Anti-Doping Advisory Committee. He has over 80 peer-reviewed publications and book chapters and over 30 years of research activity in sport and exercise medicine. He is a Fellow of the Australasian College of Sports Physicians and a Fellow and Life member of Sports Medicine New Zealand.



# SPORT AND EXERCISE MEDICINE IN FRANCE

THIS ARTICLE, WRITTEN BY D RIVIERE, MD, PHD FORMS PART OF A SERIES PUBLISHED IN *SPORT HEALTH* TO LOOK AT THE STRENGTHS AND WEAKNESSES OF THE SPORT AND EXERCISE MEDICINE (SEM) SYSTEMS IN VARIOUS COUNTRIES, PROVIDING IDEAS AND INSPIRATION FOR ALL COUNTRIES ON HOW TO IMPROVE INFRASTRUCTURE IN THIS EMERGING SPECIALTY.

VIEW PAST ARTICLES [HERE](#)

VIEW PAST SPORT AND EXERCISE MEDICINE AROUND THE WORLD EDITORIAL [HERE](#)



*At the end of the first year of common studies, a very selective entrance examination permits only one person per 7-10 candidates (depending on the medical school) to be accepted into the second year of study, making it a very selective field.*

In France, approximately 1,000 physicians have a practice solely dedicated to (a small number) or partly focusing on (often a small part) sports medicine. Sports medicine is not a specialty like cardiology or neurology for instance. In fact, it is an additional competence recognised by the French National Medical Chamber (Ordre des Médecins).

Until 2002, two types of diplomas allowed physicians to obtain certification in sports medicine. The former was called C.E.S. (Certificat d'Études Spécialisées), i.e. Specialised Studies Certificate which has since ceased to exist and has been replaced with the present Sport Medicine and Biology Capacity, SMBC (Capacité de Médecine

et Biologie du Sport). This is obtained after acquiring a practising physician license, i.e. at the end of medical studies and thesis validation.

Medical education in France (France has 37 schools of medicine) spans nine to ten years depending on the speciality, with six 'common' years followed by either a three-year internship (specialisation in general medicine) or four-year internship (other specialities). At the end of the first year of common studies, a very selective entrance examination permits only one person per 7-10 candidates (depending on the medical school) to be accepted into the second year of study, making it a very selective field.

When undertaking SMBC, the physician can perform the learning either immediately after their medical thesis, or several years after. This education is performed in approximately 20 countries (several schools of medicine gather together) and lasts only one year with approximately 120 hours of theoretical learning on all fields of sports medicine (physiology, orthopaedics, cardiology, physical activity for health, doping). Forty half days of practical education in accredited hospitals, clinics or medical centres within high level sport institutes are also required. The final diploma is delivered after a written examination, with added oral examination depending on the school of medicine. Numerous physicians seek even greater knowledge and complement their existing studies with specific university diplomas, such as sport trauma medicine, undersea and hypobaric medicine, mountain and emergency medicine, and nutritional aspects of sport, to name a few.

Since 2002, a more specialised path than SMBC has become possible. It is called Specialised Complementary Study Diploma, i.e. in French, DESC (Diplôme d'Études Spécialisées Complémentaires). Compared with SMBC, the main interest is the practical training. This education is not accessible to physicians who have already completed their studies (they can only undertake SMBC) but is available to those involved in the internship part of the diploma as this education includes

two internship stages; one of six months in a sports medicine functional exploration department and another six months in a sport orthopaedic department. After thesis, the physicians perform another practical year, called post-internship, in accredited departments of hospitals, clinics or medical centres in high level sport institutes (e.g. National Institute of Physical Education, National Institutes for Soccer or for Rugby). During these two years, six periods of three days of theoretical knowledge complementing the knowledge acquired during the internship stages is completed. The diploma is delivered at the end of the post-internship, during a national examination (usually the day before the annual meeting of the Sport and Exercise Medicine French Association). This examination is based on the appreciation of a written report based on original research work which is orally presented. Taking into account the relatively small number of possibilities in post-internship stages, only one 'student' per university and per year can perform the DESC (20-24 per year for the whole of France).

Learning in medicine is never finished. Professional training in sports medicine can be undertaken by joining the Sport and Exercise Medicine French Association and attending the national meeting and/or by joining regional affiliated associations. More recently two new 'authorities' were created - The French

College of Sports Medicine and Trauma Teachers (for all aspects of sports medicine education) and the National Professional Council of Sport Medicine (for all aspects of professional practice). An aim of these associations is the development of the post graduate training in sport medicine included in the post graduate training for all French physicians called DPC (Développement Professionnel Continu), i.e. Continuous Professional Training. In 2014, the first official sessions were held during the national meeting of the Sport and Exercise Medicine French Association, one on the nutritional aspects of sport medicine and the second on medical 'prescription' of physical activity in chronic pathologies. And very recently, the French Parliament voted for a law on the Prescription of Physical Activity as part of the treatment for long term afflictions. Looking to the future, in 2020-2021, the DESC and SMBC will be replaced by a Transverse Specialist Training (Formation Spécialisée Transversale) which is currently being developed.

#### ABOUT THE AUTHOR

**D Riviere**, MD, PhD is the Vice President of the Sport and Exercise Medicine French Association and President of the French College of Sport Medicine and Trauma Teachers.



# SPORT AND EXERCISE MEDICINE IN CANADA

THIS ARTICLE, WRITTEN BY DR DARRELL MENARD FORMS PART OF A SERIES PUBLISHED IN *SPORT HEALTH* TO LOOK AT THE STRENGTHS AND WEAKNESSES OF THE SPORT AND EXERCISE MEDICINE (SEM) SYSTEMS IN VARIOUS COUNTRIES, PROVIDING IDEAS AND INSPIRATION FOR ALL COUNTRIES ON HOW TO IMPROVE INFRASTRUCTURE IN THIS EMERGING SPECIALITY.

VIEW PAST ARTICLES [HERE](#)

VIEW PAST SPORT AND EXERCISE MEDICINE AROUND THE WORLD EDITORIAL [HERE](#)

**M**edicine is taught in 17 Canadian universities. English programs are offered in Vancouver, Calgary, Edmonton, Saskatoon, Winnipeg, Sudbury, Hamilton, Toronto, Kingston, Ottawa, London, Halifax and St John's. French programs are offered in Quebec City, Montreal and Ottawa.

The structure of medical studies varies from one program to the next but the curriculum for each program must meet broadly established standards that are set nationally. The schools require four years of training to graduate with a medical degree. This usually involves three years of a mixture of academic and clinical training with the fourth year being mainly clinical. Following graduation, all medical students must pass their national licensing examinations to be able to continue with their residency training. Graduates can proceed to do two or three years of training in Family Medicine or do four to six years of training in a medical speciality such as orthopaedic surgery or psychiatry.

For a variety of reasons, not everyone who graduates from medical school is selected for postgraduate training. These programs all come with a number of nationally supervised examinations (oral, practical and written) which must be passed before one can practice independently. Once all of their academic and clinical training is completed, physicians must apply for a licence to practice medicine for every province in Canada in which they wish to practice. Most physicians only practice medicine in one province. In addition, in order to get paid, you must also apply for a billing number for each province that you practice in.

Sports medicine training is not offered through Canadian Medical Schools but it is possible to do elective training in sports medicine as part of your program. You can also concentrate your surgical training in orthopaedics which will provide some additional sports medicine exposure. Once a physician has

completed their training in family medicine or a specific medical speciality, they can apply for one of the Primary Care Sport Medicine Fellowships that are offered through several Canadian Universities (PGY3). There are currently 12 of these fellowships offered every year and they range from one to two years in duration. All Fellowships are governed by a uniform curriculum established and agreed upon by the Fellowship Directors of each program. Once the fellowship is completed, the physician must pass a nationally run six-hour OSCE (Objective Structured Clinical Examination) to receive their Diploma in Sport Medicine. This examination is administered by the Canadian Academy of Sport and Exercise Medicine (CASEM) – the professional organisation for all sport medicine issues in Canada. Regardless of your level of training (neurosurgeon, paediatrician, psychiatrist, family physician, etc.), physicians must have successfully passed the Diploma in Sport Medicine examination to be recognised as a sport medicine physician in Canada.

For those physicians who have not undertaken a formal fellowship, there is a practice eligible route where practising physicians can

apply to sit the exam as long as they meet the eligibility criteria (a minimum of two-years clinical practice, 50 hours of event coverage and attendance at a sport medicine conference). When these physicians feel they are adequately prepared, they can challenge the CASEM diploma exam which is offered once a year. On average, approximately 35 to 40 physicians a year pass their CASEM diploma exam.

Sport Medicine is not currently recognised as a medical speciality in Canada. CASEM is currently working hard to make this happen but the process is extremely complex and will take many years to achieve. Currently, only physicians with the CASEM diploma are allowed to refer to themselves as sport medicine physicians in Canada. In Ontario, the Ministry of Health will designate family doctors with the CASEM diploma as having a "Focused Family Practice in Sport Medicine" – which allows them to see other physician's patients without a medical referral. CASEM is working on having "subspecialty" recognition for physicians who have either a Canadian College of

Family Physicians certification or a Royal College speciality.

Currently only Canadian physicians with the diploma in sport medicine are considered for medical teams providing care for athletes competing at major sporting events such as the Canada Games, Commonwealth Games, Pan Am Games, FISU (University Games), Olympic Games, etc. CASEM also works to ensure that properly qualified physicians are available for national and international events that are held in Canada – for example the 2015 FIFA Women's World Cup. CASEM offers a variety of educational opportunities including an annual symposium, Basic Team Doctor's course, Advanced Team Doctor's course, etc.

As of 20 May 2014 there were just over 500 Canadian physicians with the CASEM Diploma in Sport Medicine.

#### USEFUL ADDRESS:

Canadian Academy of Sport and Exercise Medicine – [www.casem-acmse.org](http://www.casem-acmse.org)

#### ABOUT THE AUTHOR

Dr **Darrell Menard** lives in Russell, Ontario where he and his wife have a focused family practice in sport medicine. In 2014 he retired after 40 years of service with the Canadian Army Forces and continues to work as the Surgeon General's specialist advisor in sports medicine. He has provided medical coverage at a large number of national and international sporting events including the Military World Games, the Pan Am Games, the 2012 Olympic Games and he will be part of the medical staff for the Canadian Paralympic team competing at Rio 2016.





# SPORT AND EXERCISE MEDICINE IN SOUTH AFRICA

THIS ARTICLE, WRITTEN BY DR PHATHOKUHLE ZONDI, DR JON PATRICIOS AND PROFESSOR CHRISTA JANSE VAN RENSBURG FORMS PART OF A SERIES PUBLISHED IN SPORT HEALTH TO LOOK AT THE STRENGTHS AND WEAKNESSES OF THE SPORT AND EXERCISE MEDICINE (SEM) SYSTEMS IN VARIOUS COUNTRIES, PROVIDING IDEAS AND INSPIRATION FOR ALL COUNTRIES ON HOW TO IMPROVE INFRASTRUCTURE IN THIS EMERGING SPECIALTY.

[VIEW PAST ARTICLES HERE](#)

[VIEW PAST SPORT AND EXERCISE MEDICINE AROUND THE WORLD EDITORIAL HERE](#)

As former president Mr Nelson Mandela once said, "Sport has the power to change the world". Sport was indeed a key contributor to the smooth political transition process in South Africa, and helped bring together our nation, dissipating tensions at a time when South Africans tethered on a tight rope of political and social uncertainty as the country traced itself for a new democracy and all it promised. Everlasting victories at the 1995 Rugby World Cup and 2006 African Cup of Nations (AFCON) were watershed moments in our country, in which all South Africans stood united, beaming with pride and patriotism that defined our recent history and inspired hope for the future. Ask any South African old enough to have experienced the euphoria of those times, and watch first as their eyes glass over in recollection, and then a faint smile and warmth spreads across their face.

That may have been what sport meant to us then, but fast forward 20 years and the landscape of sport has changed dramatically in South Africa, indeed sport still embodies hope for many South Africans representing unity, inclusivity, our potential as a country, and for some an opportunity to escape depressing realities and strive for a better life. Significantly, however, sport is no longer something only a select few benefit from, something the majority watches from the sidelines or from the comfort of their coaches. In 2015, when by most public and public-private partner ships, sport had become a tool accessible to all South Africans to varying degrees. Multiple industries have been built as sport has developed in South Africa, with sports medicine standing out as one such field. If sports medicine internationally was a marathon, South Africa may have been poorly seeded in 1994, but 20 years later employing tactics learned from our peers and strategies brewed at home, we strive to bump shoulders with our international counterparts and become stronger contenders as the race progresses.

## EXERCISE SCIENCE AND SPORTS MEDICINE AT A GLANCE

The sports health industry in South Africa comprises of sports and exercise medicine (SEM) physicians working in partnership with a strong contingent of exercise scientists, physiologists, biomechanists (post-graduate qualified exercise rehabilitation specialists), physiotherapists, dietitians, psychologists, podiatrists, and chiropractors. South Africa has 23 parastatal tertiary institutions, nine of which have courses in biokinetics, eight of which offer courses in physiotherapy and only four of which offer post graduate qualifications in SEM. The industry is bolstered by the auxiliary professions both in terms of numbers and contribution to research and scientific practice employed in the country. Most of these practitioners are concentrated in urban and peri-urban areas, with physiotherapists, perhaps, being the only profession represented in the rural areas of South Africa. This distribution of resources is hardly surprising as most of the clients who currently make use of sports and exercise medicine services are concentrated in urban and peri-urban South Africa.

The South African Sports Medicine Association (SASMA) is a multidisciplinary professional and scientific body whose objective is to promote SEM to the benefit of the South African community. Specifically, SASMA is involved with:

- Facilitating growth and networking of SEM practitioners through regular regional and national CEM meetings.
- Implementing educational programs for members, coaches, athletes and the general public.
- Publication of a journal (the South African Journal of Sports Medicine) and other educational material, as well as social media interaction such as a website, Facebook page and Twitter handle (@sasmadiscuss).

SASMA is seen as the umbrella body of SEM in South Africa, and works closely with other similar interest groups both locally and internationally.

## INJURY PREVENTION AND REHABILITATION

### Participation in Sport

Soccer, rugby and cricket are the most commonly played sports in South Africa.<sup>7</sup> Beyond the country's big three, sports such as athletics (specifically road running), aquatic sport, cycling, hockey,

golf, surfing, netball and boxing are also popular amongst both recreational and high performance athletes. The pattern of participation in sport is determined both by accessibility to facilities and the demographic profile of participants.

### Injury Profiles

The location of one's practice directly influences the types of injuries seen by clinicians. For example, those clinicians that work at tertiary institutions will most likely see injuries associated with sporting codes offered at those institutions, while clinicians in private practice will most likely see injuries sustained by recreational athletes (most commonly runners and cyclists) or school-going athletes from nearby schools (rugby, soccer, cricket, swimming, netball).

An informal survey completed by sports medicine practitioners in private practice (contributors to this article) revealed the following injury patterns in private practice.

Sport	Injury
Distance Running	Tendinopathies, muscle strains, bone stress injuries, medical conditions
Cycling and Mountain Biking	Head and shoulder trauma, knee injuries
Rugby	Musculoskeletal trauma, concussion
Soccer	Lower limb injuries (contusions muscle strains, sprained ligaments), tendinopathies

Table 1. Injury patterns commonly seen in private practice



## SPORT AND EXERCISE MEDICINE IN SOUTH AFRICA

### Rehabilitation

The majority of South African sports medicine practitioners work in multidisciplinary teams. These teams are either housed in one building in the form of a "sports medicine clinic", or may exist more informally in the form of a firmly established network of specialists to whom practitioners refer patients. In the multidisciplinary team, the rehab "specialist" consists of physiotherapists for acute injury management, and biomechanists for end-stage rehabilitation.

In most instances in private health care, the clinician in first contact with an athlete is a physiotherapist, a general practitioner or a sports physician. When seen by a physiotherapist, the athlete will often be managed by that clinician until full recovery unless a referral to a doctor needs to be made for special investigations. When first seen by a physician, the athlete is investigated and managed and referred to an appropriate service provider should further management be required, following up at pre-determined intervals with the primary practitioner.

In general, athletes seen at multidisciplinary "sports clinics" are more likely to receive a multidisciplinary approach to rehabilitation compared to those seen by practitioners who practice in isolation. For example, at tertiary institutions such as the University of Pretoria in Gauteng and Stellenbosch University in the Western Cape, athletes are treated in a multidisciplinary injury clinic that comprises of general practitioners, sports physicians, physiotherapists, massage therapists and biomechanists. Both these institutions also have a High Performance Unit that includes sports scientists, nutritionists, physiologists and psychologists whose primary focus is the high performance athletes, and secondary focus is recreational athletes.

Figure 2 shows the Injury Protocol at the University of Pretoria. The simplified flow chart illustrates the movement of the athlete from one practitioner to the next during the rehabilitation process. It is important to note that the athlete is seen by the attending physician at routine intervals throughout the rehabilitation process.

### Affordability of Treatment

First aid treatment at sports events is arranged and funded by the event organiser and offered free-of-charge to participating athletes. Any further management and referral is for the account of the athlete or team.

The off-field sports medicine facilities described above are currently only offered in private health care which services approximately 28-35% of South Africa's population.<sup>17</sup> Patients using public health care are managed at a clinic by general practitioners and nurses, or referred to physiotherapy or orthopaedics as required. The reality, however, is that health care workers in public clinics have a limited knowledge of sports injuries and, as such, many patients are under-treated, with consequences that often affect sports performance. Although the level of skill and knowledge improves in secondary and tertiary centres which have physiotherapy or orthopaedic departments, inefficiencies in the referral system often result in patients only being seen by these specialists six weeks to three months after sustaining an injury.

Seventeen percent of the population benefits from access to private health care via insurance companies, with out-of-pocket expenditure accounting for the remaining 18% of users.<sup>18</sup> Medical treatment for recreational athletes is usually self-funded (either insurance companies or cash) while medical care for professional athletes is often club funded or in a select few, funded by the National Olympic Committee.



Figure 2: University of Pretoria's Injury Protocol

### THE ROLE OF ANTI-DOPING AND DRUG-FREE SPORT

The South African Institute for Drug-Free Sport (SAIDS) spearheads the anti-doping movement in South Africa. Since the agency's inception in 1998, they have led the development of a national anti-doping strategy and implemented a comprehensive drug testing programme for all major sporting codes in South Africa, conforming to the highest international standards. They provide anti-doping education to the public and to all personnel in sport, and also consult to other African countries on capacity building in the continent.<sup>19</sup>

Practitioners involved in sports on a regular basis profess that South Africa's anti-doping methods meet the highest standards at a professional level, but concede that these efforts seem to fall short at amateur, club and school level. Understandably, SAIDS has chosen to prioritise professional sports, and although they do exercise some influence at an amateur level, their efforts seem to be thwarted by the lure of quick fix remedies that are easily accessible in malls, or readily offered by a few rogue practitioners. This is a global challenge and certainly not unique to South Africa. Nonetheless, SAIDS is determined to strengthen their influence at all levels, and in 2014 launched a high-school anti-doping and drug education campaign. This was in response to recurrent anecdotal and scientific evidence of an increasing use of anabolic steroids at South African schools for both performance and image enhancement.

### THE FUTURE OF SPORTS MEDICINE IN SOUTH AFRICA

#### Scope for improvement

As with any high-performance team, stakeholders in the field are constantly seeking ways to improve on the strengths of industry and simultaneously minimize its shortfalls.

Highlighted in the South African Sports Ministry's National Development Plan is the goal to increase mass participation and accelerate development in sport.<sup>20</sup> Ideally this mandate should be strongly aligned with a goal to improve access to sports medical facilities in both the public and private sector as accessibility to and affordability of special investigations and specialist consultations remain a challenge in both sectors. In the Department of Health's 2013 Annual Report, the Minister of Health

acknowledged the "exploding prevalence of non-communicable diseases" and the role of lifestyle interventions in the prevention and management of these diseases.<sup>21</sup> There are no specialists to manage this pandemic in our public health care system, and SEM practitioners are ideally skilled to fill this gap. An academic committee has been established to address this and has made significant progress in its application to institute SEM as a specialty in South Africa. The ultimate goal is to improve training infrastructure and government SEM services, goals which tie in with broader health initiatives of both the Department of Health and the Department of Sport and Recreation.

Always open to acknowledge where we can improve, South Africa's SEM practitioners also welcome the opportunity to showcase our policy and research achievements. The University of Cape Town is one of four IOC Research Centres worldwide, and continues to produce high impact research that has influenced clinical practice and improved athlete safety. South Africa also has two FIFA accredited research facilities (University of Cape Town and University of Witwatersrand), centres recognized for their contribution to football-related research. We also boast three universities that are International Federation of Sports Medicine (IFMS) accredited centres collaborating with their international counterparts in education and research initiatives.

South Africa is internationally recognized for its contribution to rugby research pioneering concussion programmes such as the BokSmart programme, which has been presented on numerous occasions internationally and has been replicated in various forms in a number of countries.

In the past two years, university sports has seen a significant boost in participation, professionalism and media coverage, providing a development platform that allows athletes to compete at a semi-professional level while continuing with studies. The sports medical support services at these events are equal to the best in the country.

Our unique challenge as African SEM practitioners is producing world-class athletes in the face of significant resource constraints, often third world and life threatening medical conditions such as HIV and TB, and environmental challenges such as extreme heat, high altitude, travel illnesses and infectious diseases. Our circumstances inspire creativity as one

constantly juggles different treatment options, their relative costs, and their comparative efficacies. We pride ourselves in our ability to find simple solutions to complex challenges.

We pride ourselves in the sports facilities in Pietermaritzburg, Pretoria, Stellenbosch and Durban, which attract a multitude of international athletes capitalizing on our climate during their winter seasons. We pride ourselves in our progress as an industry and the significant strides we have taken to establish ourselves in the international fraternity.

#### The Break-Away Lap

2015 was a significant year for South Africa's big three sports. Although we bowed out in the group stages of the AFCON Cup, we remained inspired and produced noteworthy performances in the Cricket World Cup and later, in the Rugby World Cup, both ending in third place finishes. All throughout we donned our makaraps, dusted off the vuvuzelas and continued to wave our flag proudly in support of our boys!

As for the SEM practitioners, we continue to struggle to be part of the lead pack, focused and headstrong. Those in the

race, through SASMA, are now strategically focusing on handing over the baton to the next generation of SEM practitioners now ready to lead the pack, as we progress to the next phase of SEM internationally. In Africa, we believe in the strength of unity and collaboration. And so, we aim to keep with the pack as SEM advances internationally acknowledging that we will all take turns in the lead but never cognisant of the African proverb, "If you want to go fast, go alone. If you want to go far, go together."

#### ABOUT THE AUTHORS

**Dr Phathokuhle Zondi** and **Professor Christa Janse van Rensburg** are from the University of Pretoria.  
**Dr Jon Patricios** is from the Morningtide Sports Medicine Clinic.

#### VIEW REFERENCES HERE



# SPORT AND EXERCISE MEDICINE IN SWITZERLAND

THIS ARTICLE, WRITTEN BY PETER JENOURE MD, FORMS PART OF A SERIES PUBLISHED IN *SPORT HEALTH* TO LOOK AT THE STRENGTHS AND WEAKNESSES OF THE SPORT AND EXERCISE MEDICINE (SEM) SYSTEMS IN VARIOUS COUNTRIES, PROVIDING IDEAS AND INSPIRATION FOR ALL COUNTRIES ON HOW TO IMPROVE INFRASTRUCTURE IN THIS EMERGING SPECIALTY.

VIEW PAST ARTICLES HERE.

VIEW PAST SPORT AND EXERCISE MEDICINE AROUND THE WORLD EDITORIAL HERE.

In Switzerland, medicine is taught in five medical schools across the country, in Geneva and Lausanne in French, in Bern, Basel and Zurich in German. A medical school in Italian is planned for the near future in Lugano, in close cooperation with one of the other universities for the basic sciences.

The structure of the studies is similar in the five schools, under the coordination of a national body of the Department of Education. Three years constitute bachelor level, with examinations twice a year. The last three years (one of these years is mostly clinical in a hospital) are at master level, in the second year of master level, a master thesis must be presented. Similar to the bachelor level, exams allow students to pass from one year to another. A final state exam closes the study and opens the door to practice (and to post-graduate training). A doctor title is not mandatory, but until now is achieved by most physicians.

A recent enquiry among teachers with a sports medicine interest at all of these medical schools confirmed that, at the time of enquiry, none dispense a structured, controlled training in sports medicine for students. In Geneva, during

the third year, an optional course in sports medicine is proposed to 15 students. A PowerPoint presentation on a topic of the student's own choice acts as the exam. In Lausanne, from autumn 2015, a three hour per week course will start for students in their first master year (=4th study year). In 2014, a 20-hour curriculum was also implemented. In Zurich, sports medicine topics are taught during some specific courses (Orthopaedics and Cardiology for example). Finally, in Basel, 15 medical students can follow a one-week course in sport and exercise medicine. Bern indicated no specific teaching.

After this pre-graduate stage, most physicians apply for a post-graduate training in one of the 45 proposed specialities, including family medicine, a full speciality. These specialities are classical ones such as internal medicine, surgery, orthopaedic, paediatrics and so on. The training of any of these specialities can only take place in accredited hospitals and clinics, and in some of them, the passage in a university clinic is mandatory. The average time to obtain one of these titles is five years, with some requiring up to seven years. An oral and written exam concludes these



*To obtain this official certification in Sports Medicine, the candidate has to be in possession of a physician's diploma, a specialist title, be member of the Swiss Medical Chamber FMH, have followed the eight courses and passed the oral and written exam. He/she also must attest a six month full time practical stage in a sports medicine institution.*

specialisations. This post-graduate training is managed by a department of the Swiss Medical Chamber (FMH, Foederatio Medicorum Helveticorum) in the name of the National Health Department.

Next to these main professional titles, 32 further qualifications, called complementary formation certificates are at a student's disposal. Sports medicine is one of them, as a manual medicine, or ultrasonography, as examples. The particularity of these qualifications is that it is the scientific society of the specific branch that rules the whole training, according to regulations recognised by the Medical Chamber FMH. Therefore, in our case, it is the Swiss Society of Sports Medicine (SSMS) that organises and runs the eight two to three day courses in the various areas of the discipline.

To obtain this official certification in Sports Medicine, the candidate has to be in possession of a physician's diploma, a specialist title, be member of the Swiss Medical Chamber FMH, have followed the eight courses and passed the oral and written exam. He/she also must attest a six month full time practical stage in a sports medicine institution.

The certificate in Sports Medicine is valid for five years; renewal is achieved by credits one can obtain at recognised congresses and courses.

For doctors coming from abroad with a foreign diploma, recognition possibilities for similar titles obviously exist.

At the end of 2012, 381 sports medicine 'specialists' were recognised in the FMH statistics.

At the present time, there are no efforts to create a full speciality of sports and exercise medicine, as the authorities believe that the needs within a small five million inhabitant country are not sufficient to allow for 100 per cent activity in the field.

#### USEFUL ADDRESSES

- Swiss Society of Sports Medicine SSMS-SGSM: <http://www.sgsn.ch>
- Swiss Medical Chamber FMH: <http://www.fmh.ch>



# SPORT AND EXERCISE MEDICINE IN JAPAN

THIS ARTICLE, WRITTEN BY TORU OKUWAKI, MICHIKO DOHI, AND TAKASHI ONO FORMS PART OF A SERIES PUBLISHED IN SPORT HEALTH TO LOOK AT THE STRENGTHS AND WEAKNESSES OF THE SPORT AND EXERCISE MEDICINE (SEM) SYSTEMS IN VARIOUS COUNTRIES, PROVIDING IDEAS AND INSPIRATION FOR ALL COUNTRIES ON HOW TO IMPROVE INFRASTRUCTURE IN THIS EMERGING SPECIALTY.

VIEW PAST ARTICLES HERE.

VIEW PAST SPORT AND EXERCISE MEDICINE AROUND THE WORLD EDITORIAL HERE.

## Which types of practitioners typically look after athletes and what training do they require?

In Japan, medical doctors and physiotherapists working at medical institutions mainly look after athletes, as well as practitioners in private or alternative medical areas, such as oriental medicine (Kampo) doctors, acupuncturists, masseurs, judo-therapists, or chiropractors who are also in charge of paramedical care for athletes. The license for medical doctors and physiotherapists is the national qualification, however some other practitioners in alternative medical areas are allowed to practice medicine.

On the other hand, in the sports field, 'sports doctors' and 'athletic trainers' are in charge of medical and paramedical care for athletes. 'Sports doctors' have been certified by three organisations: the Japan Sports Association (JASA, 1982), the Japanese Orthopaedic Association (JOA, 1986), and the Japan Medical Association (JMA, 1991), in chronological order. There are 5,596 doctors currently registered as JASA-certified sports doctors (current as of 01/10/2014). There are 2,324 athletic trainers currently registered as JASA-certified athletic trainers (current as of 01/10/2014).

## What are the main sports played in Japan and which injuries are most common?

According to the statistical data provided by the Ministry of Internal Affairs and Communications (2011), walking is the most popular activity in Japan (40 million people, 35 per cent of all those who are active), followed by bowling (15 million, 13 per cent), swimming (12 million, 11 per cent), training and exercise with a machine, jogging, climbing and hiking, cycling, fishing, and golf. Baseball, which is one of the nation's popular sports, is played by eight million people (seven per cent), and soccer by 6.4 million people (six per cent).

Unfortunately, the epidemiological data on sports injury that covers all ages and sports categories has not been obtained. The School Safety Department of Japan Sports Council has conducted research on injuries and accidents that occur to school children whilst under school supervision, and has reported the data every year since 1980. The Department has also provided a medical expenses system (Injury and Accident Mutual Aid Benefit System) for school children and 99 per cent of school children nationwide subscribe to the system.

According to their research results, during 2009-2013, the occurrence of sports injury (within the sports of soccer, baseball, volleyball, basketball, rugby, tennis, kendo, judo, gymnastics, swimming, and track and field) was approximately 260,000 cases per year and the frequency was approximately 9,300 cases per 100,000 per year. In terms of gender, the number of occurrences in men was more than twice that in women (100,000 cases per year in men > 80,000 cases per year in women), but hardly differed in the frequency of occurrence (about 9,000 cases per 100,000 per year). In terms of age, the occurrence rate was largest in 14 year olds, where the frequency was highest in 17 year olds. Looking at the number of occurrences each month, injuries occurred most often at the beginning of the new school year, especially in May (in Japan the new school year starts in April). For the site of injury, the ankle joint suffered most (21 per cent of all injuries), followed by the hand and fingers, head, and knee joint. Sprain was the most observed in terms of ankle injury, fracture and sprain for the hand and fingers, and bruises for the head (including face, especially eyes or teeth). When viewed by pathology, fracture occurred most, followed by sprain and bruise, with these three injury types accounting for 75 per cent of the whole injuries (about 200,000 cases per year) in terms of sports category, the most injuries were recorded in basketball (about 68,000 cases per year) followed

by soccer and baseball, however, rugby was the most at risk of injury (about 33,000 cases per 100,000 per year) when viewed by occurrence frequency in relation to participation, with the sport being more than twice that of basketball (about 14,000 cases per 100,000 per year). In the autumn of 2015, a nationwide epidemiological research project for sports injury is expected to be established by the National Sports Agency.

## How are athlete treatment visits funded at the professional, university and amateur level (public, private, insurance)?

In Japan currently, there is no division of insurance due to competition level. Typical insurance targeting all competitive categories is done via the National Health Insurance System, which is intended for use by the entire nation. Via this system, people can visit medical institutions and access medical services at 30 per cent of the actual costs. This is the same even in top athletes. At the Medical Center of Japan Institute of Sports Science (JISS), athletes pay 30 per cent of the actual cost for any medical services they have sought. In some universities and companies, athletes can access services for free or low-cost provided they are done by their own health management center or medical office. In regards to the compensation system when receiving medical treatment, there is a disaster mutual aid benefit plan for school children, general life insurance, or failure solation system for each sports association. It is expected that a nationwide insurance system for sports injury is to be established by the National Sports Agency in the autumn of 2015.

## Are anti-doping measures seemingly effective in Japan?

Since it was established in 2001, the Japan Anti-Doping Agency (JADA) has actively provided information and guidance on doping in sports competitions held in Japan, not only at the international level, but also at a domestic level ranging from junior tournaments to the National Sports Festival, and has conducted educational activities even for sports-related medical affiliates. However, in spite of the anti-doping activities of the Japan Sports Association Sports Science Committee, people engaged in sports are not so interested in doping control at present. Furthermore, before the establishment of JADA, implementation for providing

education or the testing of doping has been entrusted to each sports association which has resulted in a difference of consciousness between each association.

With the establishment of JADA, anti-doping activities in Japan have been implemented however it was not a smooth transition. Triggered by the Japanese Government's conclusion to the UNESCO International Covenant in 2006 and the Tokyo Olympics bid activities for 2016 and 2020, anti-doping activities in Japan have begun to accelerate, and now, 78 organisations are currently members of JADA (current as of 09/01/2015). Since 2009, JADA has started to cooperate with the Japan Pharmaceutical Association for certifying the 'Sports Pharmacist' and has been involved in anti-doping activities such as providing accurate information on drugs for athletes and preventing athletes from the unauthorised use of drugs. Since 2013, the Japan Ministry of Education, Science and Culture has incorporated descriptions about doping in the government course guidelines for high school students with the aim of preventing not only athletes but all young people from drug abuse.

Doping tests are regularly done with 2,300 done in 2005, 4,000 in 2006, and more than 6,000 in 2013. Among the 6,145 cases tested in 2013, only six were positive (0.1 per cent positive rate) and most were a result of 'careless doping'. Since 2008, the highest positive rate has been 0.2 per cent per year.

The Japan Olympic Committee (JOC) and JISS have also been integral in providing anti-doping education for athletes and in checking what drugs/supplements have been taken prior to international tournaments, such as the Olympic or Asian Games. The Japan National Team has never had a doping violation at an Olympics, and this cleanliness is considered to be one of the factors that led to the success of the 2020 Tokyo Olympic bid. In summary, in Japan, the anti-doping activities and measures developed by various organisations in various forms can be said to be effective.

## How did sports medicine services work in any recent major international events held in Japan?

The international multi-sport event most recently to have taken place in Japan was the Nagano Winter Olympics in 1998, World Championships or the World Cup,

have also taken place in various competitions, such as the FIFA soccer World Cup co-sponsored by the Korea Republic in 2002. Within each competition, the medical committee organised as part of the central committee has prepared a venue doctor, an emergency system and hospital arrangements. At the IAAF World Championships in Athletics (Osaka, 2007), care booths for all athletes were installed and paramedical services were provided.

## What kind of medical support do we expect in anticipation of the Tokyo Olympic and Paralympic Games in 2020?

Looking towards the Tokyo Olympic and Paralympic Games in 2020, the medical committee of each sport association and each prefecture unit have commenced medical and scientific support in the form of workshops (topics on injury prevention/medical checks) for athletes. In regards to a nationwide effort, polyclinics are being planned for and the 'Multi-Support House' (newly established since the London Olympic Games in 2012) is planned to be installed for the Tokyo 2020 Games.

The Multi-Support House will be entrusted to the Japan Sports Promotion Center for all planning and management. Specific duties of MSH are to provide information support (video analysis, provision of information strategy or meeting space), or medical support (self-care [stretching or cooling bathing], recovery [meals, contrast baths, or dry CO<sub>2</sub> baths], condition checks, medical/psychological counseling, medical care, and relaxation/refreshment). At the Tokyo Games the MSH is planned to be installed as a strengthening base outside the village for the Japanese team.

## ABOUT THE AUTHORS

**Toru Okuwaki** and **Michiko Dohi** are from the Japan Institute of Sports Sciences. **Takashi Ono** is from Kitasato University.



# SPORT AND EXERCISE MEDICINE IN THE UNITED KINGDOM

THIS IS THE FIRST ARTICLE IN A SERIES TO BE PUBLISHED IN *SPORT HEALTH* WHICH WILL LOOK AT THE STRENGTHS AND WEAKNESSES OF THE SPORT AND EXERCISE MEDICINE (SEM) SYSTEMS IN VARIOUS COUNTRIES, PROVIDING IDEAS AND INSPIRATION FOR ALL COUNTRIES ON HOW TO IMPROVE INFRASTRUCTURE IN THIS EMERGING SPECIALTY. IT IS SOMEWHAT FITTING THAT THE FIRST ARTICLE COMES FROM THE UK, AS AUTHORS DR ANDREW MASSEY AND DR LIAM WEST POINT OUT, AS IT HAS GIVEN THE WORLD ONE OF THE GREAT CULTURAL LEGACIES, IN TERMS OF BEING THE FOUNDER OF THE RULES OF MANY ORGANISED SPORTS.

## WHICH TYPE OF PRACTITIONERS (MEDICAL AND PARAMEDICAL) TYPICALLY LOOKS AFTER ATHLETES AND WHAT TRAINING DO THEY REQUIRE? WHAT PROFESSIONAL ASSOCIATIONS ARE THERE?

The formal specialty of sport and exercise medicine in the UK essentially began in 1986 when a Board of Sports Medicine was established by the three Scottish Royal Colleges. It was this Board that defined the regulations and syllabus for Sports Medicine and their examination (diploma), which was seen by many as the benchmark for a safe standard of practice for doctors who were providing medical expertise within any facet of sport.

'Sport and Exercise Medicine' evolved from the commonly used term 'Sports Medicine' as there was a growing emphasis on the value of exercise and the benefits of physical activity, such as disease prevention, health and well-being, and reduced morbidity. It took another decade for the Intercollegiate Academic Board of Sport and Exercise Medicine (IABSEM) to be established in 1998.

SEM attained formal recognition as a specialty from the Department of Health in 2005, coinciding, and essentially driven by the bid to hold the London 2012 Olympic and Paralympic Games. Parliament amended the Specialist Medical Order in September 2005, thus creating the new medical specialty known as Sport and Exercise Medicine (SEM). With the agreement of the Academy of Medical Royal Colleges, IABSEM subsequently evolved into FSEM(UK) in 2006, and is an intercollegiate faculty of the Royal College of Physicians of London and the Royal College of Surgeons of Edinburgh.

Despite being a relatively new medical specialty, SEM in the UK has already made great progress over the last few years.

The Faculty has worked to develop and promote the benefits of physical activity. They not only set the standards in SEM but also oversee research, training, curriculum and assessment of SEM doctors. They also are responsible for detailing the competencies required in Sport and Exercise Medicine, and facilitate examination, assessments and appraisals. They also take a representative role within the specialty of SEM and work with others in the sector in developing policies, procedures and frameworks. Recently they have also been demonstrating the need for specialists and subspecialists in SEM. Finally they have a guidance role in supporting doctors' progress through a career in SEM.

Many doctors with an interest in SEM also belong to the British Association of Sport and Exercise Medicine (BASEM). BASEM is a member organisation, discrete from the Faculty of Sport and Exercise Medicine focused on the promotion of the specialty and the education of its members. BASEM recognises the need to integrate the whole of the Sport and Exercise Medicine Community from consultants to general practitioners with more than specialist knowledge, to those helping out at the sports club at weekends. They recognise the enormous experience and work which has gone into building the specialty, and wish to build on its success alongside colleagues in physiotherapy, coaching, strength and conditioning, rehabilitation and surgery.

Most Consultant SEM Physicians will be accredited medical specialists who hold the Certificate of Completion of Training (CCT) or the Certificate of Eligibility for Specialist Registration (CESR) in SEM awarded by the Postgraduate Medical Education and Training Board (PMETB) following completion of specialist training. The award of CCT or CESR allows entry onto the specialist register. They will be medically qualified and Fellows of FSEM(UK) and/or FSEM(Royal College of Physicians of Ireland [RCPI] and the Royal College of Surgeons in Ireland [RCSI]). Many consultants will also hold a diploma or higher degree (usually an MSc degree) from a tertiary educational institution and/or FSEM(UK)-accredited Diploma in SEM. Higher specialty training in SEM is undertaken as a Specialist Registrar (pre-August 2007) or Specialty Registrar (post-August 2007) in SEM. SpRs/STRs in SEM will usually have rotated through the specialties of Sport and Exercise Medicine, Emergency Medicine, General Practice, Public Health Medicine,

Orthopaedics, Rheumatology and Rehabilitation Medicine as part of their training.

SEM is classed as a medical discipline and comes under the auspices of the Joint Royal Colleges of Physicians' Training Board (JRCPTB). Higher specialty training in SEM formally commenced in 2007 and comprises a four year run-through training rotation, commencing in ST3, continuing until the end of ST6. Three years are spent within a hospital setting, one year within a community setting.

Entry into Sport and Exercise Medicine training is possible following successful completion of both a foundation program and a core training program. There are three core training programs for Sport and Exercise Medicine training: Core Medical Training (CMT), Acute Care Common Stem (Medicine) ACCS or GP Training.

The organisation and delivery of sport and exercise medicine postgraduate specialist training is the statutory responsibility of the General Medical Council (GMC) which devolves responsibility for the local organisation and delivery of training to the deaneries. Each deanery oversees a 'School of Medicine' which is comprised of the regional Specialty Training Committees (STCs) in each medical specialty. Responsibility for the organisation and delivery of specialty training in Sport and Exercise Medicine in each deanery is, therefore, the remit of the regional Sport and Exercise Medicine STC. Each STC has a Training Program Director who coordinates the training program in the specialty.

## WHAT DOES THE FUTURE LOOK LIKE FOR SEM IN THE UK – IS THERE AN UNDERGRADUATE BODY INTERESTED IN FOLLOWING THIS PATHWAY?

Undoubtedly one of the strengths of SEM in the UK is the pro-activity and enthusiasm shown by a large body of undergraduate medical and physiotherapy students. For the past five years various regional undergraduate SEM societies have set up at different universities across the UK. These societies have been set up and run by students for their peers that are interested in the field. They offer students, both medical and physiotherapy, the chance to attend regular lecture evenings, practical workshops and gain skills in pitchside



trauma management or taping. The most successful of these societies is the Cardiff Sports & Exercise Medicine Society (CSEMS) which was founded in 2010. They host monthly lecture evenings featuring a variety of talks from SEM physicians, physiotherapists, surgeons, sports scientists and researchers with attendances reaching at least 60 students per meeting. They run a full musculoskeletal practical workshop series for their members whilst also facilitating sports strapping courses. To date, they have organised three UK wide SEM conferences that have all attracted over 200+ delegates.

The founder of the CSEMS group, Dr Liam West, then developed a UK wide organisation called the Undergraduate Sports & Exercise Medicine Society (USEMS) that is a non-profit group looking to act as an over-arching undergraduate society across the whole of the UK. They help new societies set up regionally, centralise all relevant and important SEM information so as to allow students the opportunity to become active within the field without having to wait until their postgraduate studies and hold an annual student SEM conference – the most recent being in Birmingham with international renowned speakers such as Adam Meakins, Dr Peter Brukner and Professor Karim Khan. They are working closely with BASEM, the Faculty of Sport and Exercise Medicine (FSEM) and the British Journal of Sports Medicine (BJSM) to ensure there is a bright future for SEM in the UK.

### WHAT ARE THE MAIN SPORTS PLAYED IN THE UK AND WHICH INJURIES ARE MOST COMMON? DOES INABILITY TO HAVE INJURIES MANAGED ACT AS A BARRIER TO PARTICIPATION?

The UK has a rich sporting tradition. It is estimated that over 15 million people would participate in sport at least once a week, with the most popular sports being swimming, athletics, football and cycling. At the elite level, the UK finished third in the Olympics medal table (London 2012). The global spread of sports that had their origins in Britain was central to the development of modern sports in the 18th and 19th centuries and is one of the British Empire's important cultural legacies.

The four publicly funded healthcare systems in the countries of the United Kingdom may be referred to as the National Health Service (NHS).

The systems are primarily funded through central taxation. They provide a comprehensive range of health services, the vast majority of which are free at the point of use for people legally resident in the United Kingdom. The four systems are entirely independent, and operate under different management, rules, and political authority.

Following devolution in the United Kingdom from 1998, control over the non-English services passed to the devolved national governments, with the UK Government retaining control over the NHS in England.

Each system operates independently, and is politically accountable to the relevant government: the Scottish Government, Welsh Government, the Northern Ireland Executive, and the UK Government which is responsible for England's NHS.

Despite their separate funding and administration, there is no discrimination when a resident of one country of the United Kingdom requires treatment in another, although a patient will often be returned to their home area when they are fit to be moved. The financial and administrative consequences are dealt with by the organisations involved and no personal involvement by the patient is required. Each National Health Service is mainly funded ultimately from general taxation.

Private healthcare or private medicine is healthcare and medicine provided by entities other than the government and is available in the UK, enabling those that are willing to pay to see medical practitioners of their choice, often with reduced waiting times compared to the National Health Service. Often these costs are offset by medical insurance policies that are held by a proportion of the population.

### HOW ARE ATHLETE TREATMENT VISITS FUNDED AT THE PROFESSIONAL, UNIVERSITY AND AMATEUR LEVEL? IS AFFORDABILITY AN ISSUE?

Within a professional sports setting in the UK, treatments for sports injuries are often funded by insurance policies held by the clubs for their players. The larger, more affluent professional teams would have a full complement of practitioners, including doctors, physiotherapists, strength and conditioning coaches, sports scientists and nutritionists. There are many clubs who would also

employ the services of psychologists, physiologists, osteopaths, chiropractors and psychiatrists. The further down the professional pyramid of sports teams you go the less money the clubs would have to fund such specialities and the more affordability becomes an issue. Many amateur and semi professional clubs rely on doctors/physiotherapists/sports therapists working voluntarily at clubs and accessing treatments via the health service if needed.

Each of the four home nations have an Institute of Sport. These institutes offer funding and services to selected athletes including: Performance Planning, Sport Medicine, Physiotherapy and Soft Tissue Therapy, Strength and Conditioning, Performance Nutrition, Physiology, Performance Analysis, Talent Identification, Performance Psychology and Performance Lifestyle.

### WHAT DATA/INFRASTRUCTURE IS COLLECTED IN THE UK (REGISTERS, INSURANCE COMPANY RECORDS) AND IS THIS DATA REGULARLY REPORTED ON/PUBLISHED?

In the UK there is no central registry of injuries relating to sport. The UK does not have a national government body taking responsibility for sports injuries. Generally the UK relies on the general health system, sports organising bodies and individuals themselves to manage and prevent sports injuries.

### WHAT ASPECTS OF SPORTS MEDICINE INFRASTRUCTURE NEED IMPROVING IN THE UK AND REALISTICALLY IS THERE A POSSIBILITY THAT THESE CHANGES CAN BE IMPROVED?

Being a relatively new speciality there are still areas that need improvement within the sports medicine infrastructure. The training program for speciality training has a large emphasis on the delivery of exercise medicine, perhaps understandably, as the focus of this program is to produce consultants that will work in clinics within the health service. This is perhaps at the detriment to gaining experience in an elite sporting environment.

The larger question of funding of injuries/illnesses within the UK health service also has an impact on the delivery of sport and exercise medicine. Free healthcare for all often relates to longer waiting lists. This impacts on the optimal management of



certain acute sports injuries that may become chronic by the time the patients are reviewed by SEM specialists or physiotherapists.

The funding of SEM training programs has also been an issue. A number of deaneries have failed to offer training posts citing financial constraints. The NHS have also struggled to provide substantive consultant posts for trainees who have completed their training forcing them to seek unreliable private work or even medical work outside the speciality.

There is also work to be done to encourage the government to follow the examples of countries like New Zealand, who have shown that a completely socialised and universal approach to managing and preventing sports injuries, given that the costs of administering and implementing major nationwide sports injury prevention programs, have been shown in most cases to be far cheaper than the direct and indirect medical costs for the sports injuries prevented.

### ARE ANTI-DOPING MEASURES SEEMINGLY EFFECTIVE IN THE UK, OR DO ROGUE PRACTITIONERS SEEM TO BE ABLE TO WORK WITHOUT SANCTION?

The UK has a highly respected anti-doping initiative. The United Kingdom Anti-Doping (UKAD) is responsible for ensuring sports bodies in the UK are compliant with the World Anti-Doping Code through implementation and

management of the UK's National Anti-Doping Policy.

UKAD functions include a prevention through education program, intelligence-led athlete testing across more than 40 Olympic, Paralympic and professional sports, investigations and exclusive results management authority for the determination of Anti-Doping Rule Violations (ADRVs).

UKAD is a Non-Departmental Public Body (NDPB) which is accountable to Parliament through the Department for Culture, Media and Sport. UKAD was created in December 2009 and follows the World Anti-Doping Code (the Code), working with a variety of stakeholders, including athletes, to protect sport. Under the World Anti-Doping Code, there is a consistency of sanctions issued globally. It is important to remember that, as an athlete, contravening these rules may result in a sanction ranging from a formal warning and reprimand (with no period of ineligibility) to a lifetime ban.

ADRVs do not only apply to individual athletes. Athlete Support Personnel, such as doctors, are also subject to the rules of the World Anti-Doping Code. In the event that a doctor is found to be in breach of the anti-doping rules, the stages relating to the Notice of Charge, hearing and appeal will apply.

If an athlete is involved in a team sport and is found to have committed an ADRV, there could be implications for the entire team, if two or more team

members during an event are found to have committed an ADRV, UKAD can impose an appropriate sanction on the whole team.

### HOW DID SPORTS MEDICINE SERVICES WORK AT THE RECENT 2012 LONDON OLYMPICS?

The recent Olympics brought together many SEM doctors working as part of an overall multi-disciplinary care team, to ensure the optimal health of athletes. SEM doctors also worked within athlete's own teams assisting in maximising performance (within international rules), reducing injury time and minimising co-morbidity associated with elite sporting participation. Prior to the Olympics and Paralympics a large recruitment of suitably trained and qualified SEM doctors was performed. These doctors worked on a voluntary basis, being situated either in the polyclinic within the games village or at the various sites of the sporting events. The organisation of the games and the provision of the sport and exercise medicine services proved to be a success and have contributed to driving forward the careers of many that were fortunate to experience it.

### WHAT ASPECT OF SPORTS MEDICINE IN THE UK WOULD THE REST OF THE WORLD FIND INTERESTING?

In the UK we are lucky to have a number of high profile professional sports teams. There appears to be more and more opportunities for SEM doctors to gain full time employment in an elite sporting environment. The majority of top level football, rugby and cricket teams are now investing more money in the medical care of their players and with the four sports institutes of the home nations, there is a growing pool of SEM doctors who are gaining more experience and knowledge that can be shared throughout the vibrant lecture/continuing professional development circuit within the UK.

#### ABOUT THE AUTHORS

**Dr Andrew Massey** is a Sports Physician for the Liverpool Football Club 1st Team.

**Dr Liam West** is a junior doctor in Oxford and is also a Senior Associate Editor for BJSM.



# SPORT AND EXERCISE MEDICINE IN TURKEY

THIS ARTICLE, WRITTEN BY  
PROF. EMIN ERGEN FORMS  
PART OF A SERIES  
PUBLISHED IN SPORT HEALTH  
TO LOOK AT THE STRENGTHS  
AND WEAKNESSES OF THE  
SPORT AND EXERCISE  
MEDICINE (SEM) SYSTEMS IN  
VARIOUS COUNTRIES,  
PROVIDING IDEAS AND  
INSPIRATION FOR ALL  
COUNTRIES ON HOW TO  
IMPROVE INFRASTRUCTURE  
IN THIS EMERGING  
SPECIALITY

VIEW PAST ARTICLES HERE

VIEW PAST SPORT AND  
EXERCISE MEDICINE  
AROUND THE WORLD  
EDITORIAL HERE

Scientific approach to sport disciplines in Turkey was first introduced by Selim Sirri Tarcan who attended courses and congresses in Sweden (1908), Denmark (1908) and Germany (1910) in the beginning of 20th Century. Following the reforms in the Ottoman Empire, he was appointed as the General Inspector for Physical Education in Governmental Schools. After attending the Summer Olympic games in 1912 held in Stockholm, he founded the National Olympic Committee. Establishment of the National Olympic Committee then led to the institutionalisation of sport.

The founders of the Turkish Directorate of Sport Clubs, Ali Sami Yen and Burhan Felek, had decided to employ a medical doctor for the preparation of the newly founded Turkish Republic's sportsmen before the 1924 Paris Summer Olympic Games. Dr Sirri Alici, a military doctor, had been appointed to take care of the Olympians. Dr. Alici had ordered books and related scientific materials from abroad that did not exist in Turkey just after the

Independence War ended in 1920. Dr. Alici is considered the founder of sports medical activities around the 1930s. He was appointed as the Head of Sports Health Section in General Directorate of Youth and Sport, according to the Law No: 3530. Unfortunately, he was disappointed after not being supported by the authorities. After Dr. Alici, Dr. Razi Serdengeçli was appointed as the Head. Dr Serdengeçli was so effective that he promoted and spread sports medicine activities around the country. Dr Serdengeçli organised the first sports medicine course in 1947. He published two sports medicine books in Turkish, "Physical Education and Sports Physiology" and "Sports Medicine" within the scope of Health Minister educational activities. In fact, several other books have already been translated from German, by Dr Ferit Gursan. During the General Sports Advisory Assembly held in Ankara in 1950, sports medical activities were handled and mentioned by Dr. Serdengeçli in the reports as possessing prime importance issues. However, all suggestions would take a long time to realise.

Dr. Serdengeçli had invited one of his students from the courses, Dr Necati Akgun, a physiologist from Ankara University Medical School, to give lectures in Gazi Education Institution Physical Education Department in Ankara. Dr Akgun started developing an interest in exercise physiology and sports health. In 1954 Dr Akgun wrote a book published by the Ministry of Education, "Sport Physiology and Health Manual". Dr Alici, with his vast experience, published another book to point out the shortcomings in sports medicine services in Turkey, "What is sports medicine, how it should serve and how it should be organized?".

During the 1960s, several local sports medicine service groups were formed. These were organised under the umbrella of Turkish Sports Medicine Association (TSMA) in 1965. In the same year, TSMA was recognised by the International Sports Medicine Federation (FIMS). The Executive Committee of TSMA started publishing a quarterly peer reviewed journal in 1966. TSMA had organised an IOC supported sports medicine course in 1971 just before the Mediterranean Games held in Izmir for the doctors taking part in the events. Dr Akgun convinced the Ministry of Health on the recognition of sports medicine as a medical speciality in 1973 and founded the first chair in Aegean University Medical School. With his efforts for institutionalising the discipline in Turkey, Dr Akgun is considered as the "Father of Sports Medicine".

The 1960s are the years that sports medicine attracted a great interest in other cities too. Dr Ahmet Muir Sarıyener and Dr Selahattin Akel founded a sports medicine unit in Istanbul in a famous stadium in 1969.

In the meantime, the Turkish Medical Association developed an interest to form a sports medicine working group. This group organised team physician courses in order

to educate physicians since the number of sports medicine specialists was not enough to close the gap. Over the period between 1991-1994, some 700 medical doctors attended these basic courses.

Several Universities started establishing sports medicine departments after all these developments in sports and exercise sciences. Presently, eight universities are offering sports medicine as a speciality. The number of sports medicine specialists in Turkey is around 100 and most of them work at University hospitals. Over the past several years, the Ministry of Health employ sports medicine specialists in State Hospitals in order to provide public services. Football clubs also employ sports medicine physicians.

The speciality used to last two years and consisted of 11 courses relevant to sports medicine. Five specialists in sports medicine graduated from this programme between 1973 and 1981. Between 1981 and 1989 only orthopaedic surgeons, physiatrists, and physiologists were allowed to attend a sports medicine training programme. In 1989, the Turkish Ministry of Health accepted sports medicine as a medical speciality and increased the length of training to three years. The number of rotations was reduced to four (cardiology, traumatology, physical medicine and sports medicine). On completion of the three-year course and passing the examination, the graduates were awarded with the title of Specialist in Sports Medicine by the Ministry of Health. Furthermore, the opportunity to subspecialise for one year in sports medicine was given to orthopaedic surgeons and physiologists by this legislation.

The number of sports medicine departments at medical schools has increased to 15 over the last 10 years. However, only eight were entitled to offer speciality and other community services. Only these departments are allowed to give postgraduate education in sports medicine. 10-15 residency places are offered a year. The current curriculum aims to produce graduates who are proficient in the management of common

health problems and rehabilitation and to provide timely emergency interventions for injured athletes. Because of the general dissatisfaction with the curriculum, TSMA and the Coordination Council of Medical Specialty Societies prepared a draft curriculum, in which the training was increased to four years and newer courses relevant to sports medicine were added. The duration of fellowships for orthopaedic surgeons and physiatrists has been increased to two years.

The recent speciality program is as follows;

- 1 month Paediatric cardiology
- 1 month Endocrinology and metabolic diseases
- 4 months Orthopaedics and traumatology
- 2 months Radiology
- 2 months Emergency medicine
- 4 months Physical medicine and rehabilitation
- 1 month Physiology
- 3 months Cardiology
- 30 months at sports medicine clinic/department

TSMA, together with the Turkish National Olympic Committee Sports Health Commission, is organising basic sports and health courses around the country to provide general information with regard to health, exercise and injuries for the benefit of primary care physicians. The number of physicians so far reached is about 1500.

TSMA organised the 6<sup>th</sup> European Sports Medicine Congress in Antalya in 2009 and held the 34<sup>th</sup> FIMS World Congress in 2016 in Istanbul. The 14<sup>th</sup> National Sports Medicine Congress was held in Izmir (14-16 December 2013).

Despite all the efforts put forward to cope with the health-related problems of sports people, there are further issues to be handled in order to spread the services and increase the level of standards.

## ABOUT THE AUTHOR

**Prof. Emin Ergen**, is currently a member of the Sports Sciences Department at Bashkent University School of Health Sciences in Ankara. He is a former President of the Turkish Sports Medicine Association.



# SPORT AND EXERCISE MEDICINE IN ITALY

THIS ARTICLE, WRITTEN BY DR GIANPAOLO PALUMBO FORMS PART OF A SERIES PUBLISHED IN SPORT HEALTH TO LOOK AT THE STRENGTHS AND WEAKNESSES OF THE SPORT AND EXERCISE MEDICINE (SEM) SYSTEMS IN VARIOUS COUNTRIES, PROVIDING IDEAS AND INSPIRATION FOR ALL COUNTRIES ON HOW TO IMPROVE INFRASTRUCTURE IN THIS EMERGING SPECIALITY.

[VIEW PAST ARTICLES HERE](#)

[VIEW PAST SPORT AND EXERCISE MEDICINE AROUND THE WORLD EDITORIAL HERE](#)

**S**port medicine specialization schools are located all over Italy and students are admitted to these schools after passing the state exam and an open written competition. The competition takes place in the university that they have chosen.

The following will be evaluated:

- the written test result;
- the university curriculum, with attention paid to orthopaedics and cardiology exams;
- the dissertation marks of the second-degree course.

The course will last five years.

In Italy, there are 32 specialization schools (there will be 36 scholarships in all, but the winners of these scholarships will not be allowed to accept work in other institutions).

The specialization schools can be found in the following universities: Bari, Brescia, Bologna, Cagliari, Catania, Catanzaro (Magna Graecia University), Chieti, Cosenza (University of Calabria), Firenze, Genova, L'Aquila, Messina, Milan (Niguarda & Bicocca), Napoli (Federico II-Sun), Padua, Palermo, Pavia, Perugia, Pisa, Reggio Calabria (Mediterranea

University of Reggio Calabria), Rome (La Sapienza, Tor Vegata and Catholic University of the Sacred Heart), Sassari, Siena, Turin, Trieste, Udine, Varese (University of Insubria), Verona.

All of them have the same target, that is the prevention and cure of sport diseases. Since the levels of physical activity have continued to drop in the western population, sport schools have implemented their studies of biomechanics involved in the motion activity.

Beside university facilities, many hospitals have organized special departments for sport medicine, where sport doctors, or thopaedist and physiotherapist work together. Here is the list of experienced sport departments:

Benevento, Bergamo, Bologna, Bussolengo, Bari, Firenze, Iglesias, L'Aquila, Messina, Monza, Naples (University of Naples Federico II), Noale, Rome (San Camillo, Sant'Andrea), San Pietro Vernotico, San Severo, Santorso, Sondalo, Verona.

Didactic regulation is composed of three basic activities: physiology, biochemistry and human anatomy, and 17 clinical

activities: pharmacology, clinical psychology, medical genetics, medical oncology, internal medicine, respiratory diseases, cardiovascular diseases, gastroenterology, endocrinology, nephrology, haematology, rheumatology, infection diseases, psychiatry, neurology, paediatrics and hygiene.

Moreover the regulation is made up of nine diagnostics activities (clinical biochemistry & clinical molecular microbiology, medical genetics, medical oncology, microbiology and clinical microbiology, pathological anatomy, diagnostic imaging & radiotherapy, neuroradiology and laboratory medicine), five emergency and first aid activities (internal medicine, general surgery, neurology, biomechanics and anaesthesiology), six specific disciplines (physiology, human anatomy, internal medicine, respiratory diseases, cardiovascular diseases and endocrinology), 10 electives disciplines (physiology, biochemistry, pharmacology, human anatomy, histology, medical genetics, computer sciences, general psychology, physical medicine &

rehabilitation and forensic medicine), four interdisciplinary activities (motor activities, sport activities, rheumatology and physical medicine and rehabilitation) and the legal medicine as integration of human sciences.

Before discussing the thesis of the fifth year, the linguistics, informatics and relationship skills are tested.

The students will earn 60 points each year, with credits given to the following:

- training;
- elective disciplines;
- final thesis.

The university credits were introduced by the E.C. in 1999 to value the competence level of the students.

For the first three years of the first degree, there are 120 credits, for the second-degree course (4th and 5th years) there are 180 credits, for the specialization (five years) there are 300 credits. Per the E.C.T.S (European Credit Transfer System) the credits will be valid even if the student moves from one university to another, both in Italy and in Europe.

“

*Beside university facilities, many hospitals have organized special departments for sport medicine, where sport doctors, orthopaedist and physiotherapist work together.*





# SPORTS MEDICINE IN GERMANY

SPORTS MEDICINE FEDERATION IN GERMANY WAS  
FOUNDED IN 1912 IN OBERHOF/GERMANY AND IN 2012,  
THE 100TH ANNIVERSARY WAS CELEBRATED IN BERLIN.



**T**oday in Germany, there are 30 universities; 25 of them have medicine as a faculty. There are 29 departments or institutes of sports medicine in Germany — some of them without close contact to medical clinics. Only five institutes of sports medicine in Germany are full members of the medical faculty of the university and all other institutes are members of the faculty of sport science or other non-medical faculties.

In Cologne, there is a sports university (Deutsche Sporthochschule Köln) with a special department of sports medicine with two chairs: one for clinical sports medicine and one for molecular sports medicine. Most sports medicine institutes in Germany have a director with full medical education (MD) and education in sports medicine.

Medical education in Germany is about six years in duration (11 semesters),

with a first exam concerning theoretical disciplines (anatomy, biology, physics, physiology and physiological chemistry) which is sat after 5 semesters. However, there is wide variety within the curriculum between the universities as some offer a reformed curriculum with closer contact to clinical medicine even in the early years of the degree.

During the course of the medical degree, there is an option (not mandatory) for students to enrol in one semester of sports medicine. So far, very few medical students (about 10%) undertake sports medicine during their study, with most of these having formerly been active athletes.

Sports medicine as a specialty involves further education after having gained full licence to practise as a physician. There is a strictly defined curriculum (following a so-called "white book") for sports medicine developed by the German Chamber of Physicians and the German

Federation of Sports Medicine which involves 120 hours in sports practice and 120 hours of theoretical sports medicine. This curriculum has to be done alongside practising as a physician — either in hospital or in private practice. A log-book has to be fulfilled showing that the physician has been educated across all different disciplines (sports) and all specialities in sports medicine in accordance with the curriculum. Following this, one has to serve as consulting physician in a larger sports club or rehabilitation club for cardiac patients for at least one year, consulting active athletes or leisure time athletes.

Finally, there is an oral examination at the physician's chamber ("Ärztekammer") before the official certification of "Sports Medicine" can be obtained. However, the final licence in sports medicine (ie. specialist's title) can only be obtained after holding another full speciality in a larger discipline in medicine such as trauma and orthopaedics, pediatrics, internal medicine or medical



practitioner (general medicine). The German Federation of Sports Medicine (DGSP) works on changing this last condition so that physicians working at a sports medicine institute for at least three years, may also be allowed to hold the certification after examination.

So far, sports medicine is a subspecialty. In addition, there is now a further subspecialty of sports medicine referred to as "sports cardiology" in conjunction with, and according to, the common recommendation of the German Society of Cardiology and the DGSP. Furthermore, sports medicine is occupying an increasingly larger role within other medical specialities like psychiatry, diabetes, pneumology, neurology and oncology with work underway to establish action groups on physical activity with joint sessions within respective congresses.

In general, and in the future, education in sports medicine, as well as certification of sports medicine institutes, will move to adopt the European recommendations as suggested by the European Federation of Sports Medicine Associations (EFSMA) and the European Union of Medical Specialists (UEMS). In a recent development, UEMS has agreed to a standardised and uniform curriculum for sports medicine education (4 years in duration) for all European sports medicine associations. This development marks an important final step to sports medicine being officially recognised as a specialty all over Europe.

**Herbert Lollgen, MD, PhD,**  
FACC, FAHA, FFIMS, FUEMS  
Past- and Honorary President,  
German Fed. Sports Med. (DGSP)  
Member of Executive Board of EFSMA







# Sports Medicine in Austria

SPORTS MEDICINE AROUND THE WORLD IS A SERIES PUBLISHED IN SPORT HEALTH, TO LOOK AT THE STRENGTHS AND WEAKNESSES OF THE SPORTS MEDICINE SYSTEM IN VARIOUS COUNTRIES, PROVIDING IDEAS AND INSPIRATION ON HOW TO IMPROVE INFRASTRUCTURE IN THIS EMERGING SPECIALITY. IN THIS ISSUE OF *SPORT HEALTH*, HOFRAT UNIVERSITY PROFESSOR DR. ERNST RAAS HIGHLIGHTS SPORTS MEDICINE IN AUSTRIA.

**T**he Austrian Society for Sports Medicine and Prevention, (Oesterreichische Gesellschaft für Sportmedizin und Prävention – Verband Oesterreichischer Sportärzte/Innen) was founded in 1950 and has 752 members and 742 certified sports doctors. Austria is also a member of the European Federation of Sports Medicine Associations (EPSMA). Whilst there are over 40 medical specialities such as Surgery, Internal Medicine and Paediatrics, at present sports medicine is not a medical specialisation within Austria.

Nevertheless, the Austrian Medical Chamber (Oesterreichische Ärztekammer), which rules the

medical profession, offers all physicians with a recognised medical diploma, the opportunity to undertake specific interdisciplinary training in Sports Medicine, upon completion of which they receive a Diploma in Sports Medicine.

To be eligible for this Diploma, the candidate must complete various medical courses divided into three modules (40 hours each), over three years. The first module involves studying internal medicine, specifically physiology and paediatrics. The second module focuses on orthopaedics and traumatology. Finally, the third module is reserved for specialised topics of the candidates own selection.

In addition to the theory modules, the candidate is also required to undertake 60 hours of practical learning, including 40 hours in seminar form and 20 hours of active, supervised practice.

Furthermore, it is expected that during the final six months of training, the candidate is active as a team doctor. Once these requirements have been satisfied, the diploma is then awarded without examination. Currently, there are approximately 1,420 Doctors in possession of the Diploma of Sports Medicine which represents 4.2% of the total Austrian Medical Population.

For specialists in the fields of Training Physiology, Paediatrics,

## About the Author



**Hofrat University Professor Dr. Ernst Raas** can be considered one of the pioneers of Austrian Sports

Medicine. As a trained Cardiologist, he founded the Landesinstitut für Sport- und Kreislaufmedizin (State Institute for Sports and Circulatory Medicine) at the University of Innsbruck at the time of the Winter Olympic Games of 1964 held in Tyrolian City. He was the chief medical officer of these games. Very involved in Winter Sports, Raas was a long acting Chair of the Medical Committee of the International Ski Federation, of which he is a honorary member. He participated in 8 Olympic Games and 12 Ski World Championships. He was also very active in the International Federation of Sports Medicine (FIMS) and became an honorary member of this Organisation. He has written more than 300 scientific papers and held over 600 lectures about Sports Medicine, Cardiology or Internal Medicine.

Internal Medicine, Accidentology, Orthopaedics and Physiatry, an official complementary title in Sports Medicine, called *Zusatzfach Sportmedizin* is also available. To obtain this title the candidate must complete three years of Sports Medicine practice within the department of their aforementioned speciality, under the supervision of an accredited supervisor who will grant the accreditation.

Today, approximately 550 medical doctors are in possession of this title (346 Surgeons and Traumatologists, 104 Orthopaedic Surgeons, 27 Internal Medicine Specialists, 13 from the field of Physiatry and 6 Exercise Physiologists).



# Sport and Exercise Medicine in Israel

**Atzmon (Atzi) Tsur MD**

Regional rehabilitation physician in Meuhedet Mutual Service  
Counsellor of Israel Ministry of Health regarding sport medicine clinics  
Former director of rehabilitation department, Galilee Medical Center  
Former senior lecturer in the faculty of medicine of Bar-Ilan University at Safed.

IN ISRAEL, THERE ARE SIX SCHOOLS OF MEDICINE: THE OLDER ONE IN JERUSALEM, AND THE OTHERS, IN TEL-AVIV, IN HAIFA, IN BEER-SHEBA, AT SAFED AND AT ARIEL. THE LAST TWO ARE NEW MEDICAL SCHOOLS AND THEY ACCEPT STUDENTS ONLY FROM THE FOURTH YEAR OF STUDIES.



**T**he medical studies in Israel take six years and after that, every student is obliged to do one year of practice in different hospitals' departments in order to obtain the licence as a general practitioner in medicine. Sport medicine is not included in the ordinary six years of studies, but in some medical schools the students receive lectures about this theme. Currently, sport medicine is not recognised as a medical speciality in Israel, but a licentiate medical doctor, you have the possibility to do three academic years (six semesters) of postgraduate studies at either the Sackler school of medicine at Tel-Aviv University or at the Technion medical school in Haifa in order to obtain a diploma in sport medicine.

The academic program includes exercise physiology, kinesiology and biomechanics, traumatology and rehabilitation, cardiology, pulmonology, paediatrics, disability, gynecology, psychology, and nutrition, all of them are sports related. The frequency of the sport medicine studies is once a week, for total of 360 hours. At the end of every academic year, there is a final examination. After three years of theoretical studies, the physician has to do a practical activity in a sports medicine centre recognised by our Ministry of Health during 350 (for specialists in other medical branch) or 700 hours (for general practitioners) in order to obtain the official certification in sport medicine, and to be able to do pre-participation examinations (PPEs) for sportsmen. During this period

of education, all the physicians who study sport medicine are requested to practice many PPEs, orthopaedic clinics, physiotherapy, cardiology, nutrition and psychology. The sport medicine courses include part of practice in the third year of the theoretical studies, in order to abbreviate the period of education. These sport doctors are not considered as specialists in sport medicine, but they are the only who have the authorisation from the Israeli Ministry of Health to do the PPEs.

Currently, every physician, with or without a diploma in sport medicine, is authorised to provide medical care for all level of athletes, competitive and others, but not to give them medical certification for participation in sports activities.

When the physician obtains the diploma in sport medicine and has a specialisation in other medical branch, since 1998 there was a possibility (suspended at this moment) to make one year of "fellowship" in sport medicine in different departments of general hospital (as orthopaedics surgery, physical and rehabilitation medicine, cardiology, and others). Since 2013 exist a "fellowship" also in orthopaedic sport medicine, destined only for physician specialists in orthopaedic surgery. Actually, "fellow" is the supreme title to obtain in the domain of sport medicine in Israel.

More than 80 clinics of sport medicine are located all over the state of Israel. Most of them are in private hands and the others, in general hospitals

“  
**More than 80 clinics of  
sport medicine are located  
all over the state of Israel**

or in public institutes. All the clinics have a physician with full education in sport medicine, but only few of these clinics have the authorisation to train future sports' doctors.

The Israel Society of Sport Medicine (ISSM) renewed her activity in 1985. The ISSM organises congresses and scientific conferences every year, but those do not contribute to the academic status of the participants.

Since 1988 exist in Israel sports' law that among the other subjects, includes also a chapter regarding the domain of sport medicine. According this law, every athlete is obliged to do a periodical PPE in an authorised sport medicine clinic, generally before the beginning of the season.

In order to supervise the current activity of the sports' clinics and doctors, and in this way, to keep high level of the PPEs, the Israeli Ministry of Health established a committee of physicians, some of them are qualified in sport medicine. Beside them, acts the sports' doctor counsellor from the Ministry of Health who visits the sport medicine clinics, check their equipment and examine the medical records in each of them.



# Sports Medicine in Tunisia

Zakia Bartegi, MD

SPORTS MEDICINE WAS BORN IN THE COUNTRY OF TUNISIA DURING THE ORGANISATION OF THE MEDITERRANEAN GAMES IN 1967 IN THE CITY OF TUNIS. A SPORTS MEDICINE UNIT WAS CREATED AT THE SPORTS CENTRE FOR THIS OCCASION.

In 1970, this unit was transformed into a National Sports Medicine Centre. Several doctors of different specialities and with a University Diploma for Specialised Studies (DUES) or a Certificate for Specialised Studies (CES) obtained in Europe, worked there under convention, from two to three hours per week.

They worked alongside cooperating doctors from the

former Eastern countries, mainly practising a curative medicine.

In 1980, the first full-time doctor began working at the centre, with a qualification in sports medicine obtained in France.

The 1980s saw the development of sports medicine from curative medicine to preventive and curative medicine, with the introduction of exercise tests both in laboratory and in the field.

Between 1984 and 2000, eight regional sports medicine centres, in eight governorates of the country, were created.

There was also the creation of a University Diploma: a DUES over two years in three faculties of medicine: Tunis, Sousse and Sfax.

The curriculum of this diploma is similar to that of the French one. The curriculum is given at a rate of four hours per week (one afternoon per week) by professors of the faculty, each in his/her speciality. French professor colleagues (especially at the beginning and according to the bilateral cooperation programs between the Tunisian and French faculties) and doctors from the sports medical centre for practical sessions specific to sport such as: the fight against doping, exercise tests, and so on.

The topics covered are aptitude for sport and contraindications, traumatology and orthopaedic surgery, cardiorespiratory physiology during exercise, the specificities of certain diseases in athletes such as asthma, diabetes, sport and children.

Over the two years, one yearly month of practical programme is spent in a sports medicine centre.

At the end of the two years, and to obtain the diploma, a dissertation must be written.

This diploma is not a speciality; it is just a skill that will give doctors the opportunity to practise sports medicine.

There are four medical faculties in Tunisia: Tunis, the first medical faculty in the country, which started in 1966; Sousse 150 kilometres away from Tunis; Sfax in the South, 300 kilometres from Tunis; and Monastir, also in the centre (20 kilometres from Sousse), the latest one created.

As already mentioned, only three of them award a Sports Medicine Diploma: Tunis, Sousse and Sfax.

Medical studies in Tunisian faculties last five years at the faculty, plus three years of family medicine at university hospitals, ending with the presentation of a dissertation to obtain the Doctorate in Medicine. The specialities last four years of residency, ending with a speciality examination.

Any general practitioner or resident in a speciality can register for this Sports Medicine Diploma, as well as residents of certain specialities such as cardiology, traumatology and so on.

With the evolution of university studies in Tunisia, the DUES have turned into a Professional Master of Medicine applied to sport of only one year with a PFE (end of study project; example of a dissertation) and four weeks of an internship in a sports medicine centre. Classes are taught only by professors from each faculty, and the topics covered are the same.

Each year about 60 doctors finish their speciality and go working in sports medicine centres or in clubs, full-time or part-time.

Another scientific activity in sports medicine is a Tunisian Sports Medicine Society, created in 1980 by the Manager of the National Sports Medicine Centre. This society has been very active, being member of FIMS, member of the Latin-Mediterranean Grouping, and of the Arab Union of Sports Medicine.

It organises annual training days for sports doctors, and scientific conferences with the presence of eminent foreign specialists.

In 2001, the Tunisian Sports Medicine Society left the centre to become independent, its activity shrank to only a yearly two-day congress.

The National Sports Medicine Centre has created its scientific and training activity: The centre organises a yearly Sports Medicine Convention, a scientific congress; in addition to its participation to the societies congress.

In addition to this, the centre in collaboration with its international sports or scientific partners (international sports federations, especially European sports medicine centres) organises postgraduate training courses in cutting-edge areas of sports medicine or specific to a sport. These courses are for sports medicine centres, sports clubs and federations' doctors.

With the organisation for the second time of the Mediterranean Games in Tunisia in 2001, sports medicine experienced a considerable boom with the creation of a new national sports medicine centre in a new, modern, large and well-equipped room.

From curative medicine in 1967, sports medicine evolved to curative, preventive and predictive medicine. The centre is now called the National Centre for Medicine and Sports Sciences, with three laboratories: physiology, biology and biomechanics, a well-equipped

physical medicine service and a consultation service with many means of exploration such as medical imaging.

The regional centres have developed into sectoral centres with functional exploration equipment at each centre and modern rehabilitation equipment.

At least two full-time sports doctors work in each centre with the help of different part-time specialists.

An anti-doping laboratory was accredited by the IOC in 2001.

An anti-doping unit was created at the centre to deal with the national program. In 2008, it was transformed into the National Anti-Doping Agency (ANAD) and left the centre.

About 40 full-time doctors work in Tunisian Sports Medicine Centres, around 40 also work in clubs, especially football, and several Tunisian sports doctors work in the Gulf countries.

For military sports medicine, a sports medicine unit was created in 1965 by a French doctor. This unit has developed into a military sports medicine centre which takes care of military athletes.

## Biography



Dr. Z. Bartegi is a retired M.D with extensive experience as a sports physician in her country at the National Sports

Medicine Center from which she became General Manager. She has also acted as the General Medical Inspector of Public Health. At an international level, she was particularly active in Anti-Doping activities in TUE committees of the International Sport Federation.



# Sports Medicine in Spain

ALTHOUGH IN MANY COUNTRIES SPORTS MEDICINE IS AN ADDITIONAL COMPETENCE, IN SPAIN IT IS A PARTICULAR TRAINING THAT INCLUDES GENERAL AND SPECIFIC FORMATION WITH ALL FIELDS OF SPORTS MEDICINE (EXERCISE PHYSIOLOGY, ERGOMETRY, ORTHOPEDICS AND TRAUMATOLOGY, BIOMECHANICS, ANTHROPOMETRY, RESPIRATORY CONTROL, CARDIOLOGY, SPORT NUTRITION, PHYSICAL ACTIVITY FOR HEALTH, SPORTS PERFORMANCE, SPORTS PSYCHOLOGY, MOUNTAIN MEDICINE, EMERGENCY MEDICINE, UNDERSEA AND HYPOBARIC MEDICINE AND ANTI-DOPING).

After six years of medical education, similar to rest of EEC, whose training includes a subject on exercise physiology or physical exercise and health (30-60 hours) in most Spanish Universities, specialised training starts, including sports medicine. At this regard, sports medicine started as a regulated training in 1987 and the official program is a three-year university training. In Spain there are four sports medicine schools located in the following universities: Oviedo, Madrid, Barcelona, Granada and Cádiz. The students are admitted in these schools once they pass the state exam (medical internal resident: MIR). The academic program has a theoretical and a practical part; the latter is carried out both in the university and in the regional hospitals.

The practical training includes a clinical rotation through the related specialties throughout the three years: Emergency Medicine, Orthopedics & Traumatology, Rehabilitation, Sports Cardiology, Pneumology, Sports Nutrition & Dietetics, Internal Medicine, Pediatrics, General surgery, Primary health care, Obstetrics and Gynecology.

In addition, specific practices are

carried out in the facilities of the School of Sports Medicine: General Sports Medicine, Sports Medical Examinations, Kineanthropometry, Exercise Physiology, Orthopedics & Traumatology, Rehabilitation, Toxicology, Exercise Testing, Power Testing, Holter tests, etc. Knowledge assessment is continuous and there is also a final assessment of each subject.

Nowadays, in our country, the regulations related to medical specialisation have changed and all medical training must be received in the hospital. This has caused a temporal stoppage in the training of this specialty and the MIR positions are not called for sports medicine.

Sports medicine is a medical specialty that deals with the prevention, diagnosis and treatment of pathologies related to physical exercise and sports training; sports medicine is actually not only available to top athletes but also to anyone interested in sports and health.

The sports medicine physician plays a very important role in the prevention of cardiovascular, metabolic, musculoskeletal,

respiratory, psychiatric and other diseases through the prescription of regular physical exercise. The main focus of these professionals is the promotion of regular physical activity, as a coadjutant method for disease prevention, weight management, reduction of morbidity, better health and well-being of the population. To develop all these functions in a satisfactory way we must have a solid training in the various medical fields related to physical exercise, health and sports performance, among others.

By the end of training, the sports medicine specialist should have the knowledge and competencies on how to manage a wide range of exercise-related functional parameters, apply on them the therapeutic use of exercise, and provide medical support to athletes at all levels of participation.

The practice of sports medicine in Spain is, basically, private; although there are public institutions at the national, regional and municipal levels that are in charge of the control of federated and elite athletes. Today, many sports





medicine physicians work more on the prescription of physical exercise for health than on sports performance. Sports medicine is not only available to top athletes but also to anyone interested in sport and health. Currently in our country there are about 1000 sports medicine physicians and most of them are working in the specialty.

The learning of medicine never ends and in particular sports medicine continuous training can be carried out by joining the Spanish Association of Sports Medicine (SEMED) and attending national congresses and annual meetings. Definitely, SEMED watches over the interest of sports medicine in our country.

The Spanish Society of Sports Medicine has edited the journal "Archivos de Medicina del Deporte" since 1984, which for a few years has been open, free and published in English (<http://archivosdemedicinadesports.com/>).

The Spanish Society of Sports Medicine is currently a member of The European Federation of Sports Medicine Associations (EFSMA) and The International Federation of Sports Medicine (FIMS).

*Dr. Miguel del Valle*  
Editor of Archivos de Medicina del Deporte  
Member Governing Board of SEMED

**Sports medicine is not only available to top athletes but also to anyone interested in sport and health.**

## About the Author



**Miguel del Valle MD, PhD** is a University Professor on the Faculty of Medicine of Oviedo University. He is a Sports Medicine Physician (1992), Head of School of Sports Medicine,

member of the Spanish Society of Sports Medicine. He has directed 30 doctoral theses (" tesis") and six have earned the rating of Extraordinary Award. Scientific existence: He has more than 180 publications, of which six are included in the Science Citation Index and he is Editor of the Archives Journals of Sports Medicine, chairman of the Organising Committee of the Second European Congress of Medicine Sport, and Chairman of the scientific committee FIMS World Congress of Sports Medicine.

# Sports Trainer Spotlight Marty Fry

## How did you get involved at SMA?

Like so many Sports Trainers, I have come from a sporting background having played Australian Rules Football for many years. During that time, I gained the utmost respect for the Sports Trainers at the clubs. I was involved with and became familiar with Sports Medicine Australia. Fast forward a few years and I studied a Diploma of Remedial Massage and started my own clinic. I started to gain a lot of clients who were actively involved in sport and started to become contracted to professional sports teams as a remedial therapist. I decided that adding a Level 1 Sports Trainers qualification would be an ideal complement to my skills.

## How long have you been an SMA Sports Trainer?

In 2011 I attended my first Level 1 Sports Trainers Course and since then I have attended many SMA courses and I am now a Level 2 Sports Trainer. In 2017 I became a member of the SMA Tasmania State Council which has been a fantastic opportunity to broaden my network of peers whilst also being able to be involved in the planning of educational opportunities for members and the promotion of SMA. In 2017 I was given the opportunity to become a course presenter and since then I have had the privilege to meet so many experienced Sports Trainers and people starting out on their journey, as a Sports Trainer.



## What do you love most about being a Sports Trainer?

I love the fact that it's such a varied role that often has its challenges. I love helping athletes in so many different ways: initial treatment, taping, massaging, warming up, hydrating to cooling down and recovery. The interaction with players, coaches and other health professionals really makes for a great team environment. It's the varied nature of the role that has also motivated me personally to learn more so I have also added the FIFA Diploma of Football Medicine, ASADA Anti-Doping courses and I am currently completing a Certificate Four in Fitness to my existing qualifications.

## What has been the highlight of your journey as a Sports Trainer so far?

Some highlights so far as a Sports Trainer have included: being a member of the Tasmania State Council, presenting on the topic of Sports Massage at a Sports Trainers Conference and having the opportunity to present courses has definitely been a highlight. Having been a course presenter now for a few years, it has been a great opportunity to not only share knowledge but also learn so much from other Sports Trainers that have attended courses. I believe the network of Sports Trainers out there is such a great bunch of people all wanting to achieve the same outcome for their athletes and teams and I have been fortunate to make some great friendships with like-minded people.



A highlight is also having the opportunity to be a Sports Trainer and Massage Therapist at National events including the Australian Badminton Championships and with professional sports teams. I hope to be able to continue these opportunities in the future.

## What tips/advice do you have for any new Sports Trainers who are just starting out?

Always be accepting to learn more and improve your skills. Find a mentor and never be afraid to ask and learn from others.

I was fortunate enough to have a mentor who is also a course presenter and Sports Trainer with over 30 years of experience. He is a Tassie legend in the Sports Trainers field and I have been able to learn so much from him and his experiences (which is something I will always be grateful for).

Always stay current with your accreditation. Being an SMA member is a great way to be involved with such a diverse range of professionals that not only helps your own development as a Sports Trainer but builds a valuable network of professionals that can also assist in your athletes or team's health, performance and wellbeing.



# Sports Medicine in Spain

ALTHOUGH IN MANY COUNTRIES SPORTS MEDICINE IS AN ADDITIONAL COMPETENCE, IN SPAIN IT IS A PARTICULAR TRAINING THAT INCLUDES GENERAL AND SPECIFIC FORMATION WITH ALL FIELDS OF SPORTS MEDICINE (EXERCISE PHYSIOLOGY, ERGOMETRY, ORTHOPEDICS AND TRAUMATOLOGY, BIOMECHANICS, ANTHROPOMETRY, RESPIRATORY CONTROL, CARDIOLOGY, SPORT NUTRITION, PHYSICAL ACTIVITY FOR HEALTH, SPORTS PERFORMANCE, SPORTS PSYCHOLOGY, MOUNTAIN MEDICINE, EMERGENCY MEDICINE, UNDERSEA AND HYPOBARIC MEDICINE AND ANTI-DOPING).





After six years of medical education, similar to rest of EEC, whose training includes a subject on exercise physiology or physical exercise and health (30-60 hours) in most Spanish Universities, specialised training starts, including sports medicine. At this regard, sports medicine started as a regulated training in 1987 and the official program is a three-year university training. In Spain there are four sports medicine schools located in the following universities: Oviedo, Madrid, Barcelona, Granada and Cádiz. The students are admitted in these schools once they pass the state exam (medical internal resident: MIR). The academic program has a theoretical and a practical part, the latter is carried out both in the university and in the regional hospitals.

The practical training includes a clinical rotation through the related specialties throughout the three years: Emergency Medicine, Orthopedics & Traumatology, Rehabilitation, Sports Cardiology, Pneumology, Sports Nutrition & Dietetics, Internal Medicine, Pediatrics, General surgery, Primary health care, Obstetrics and Gynecology.

In addition, specific practices are

carried out in the facilities of the School of Sports Medicine: General Sports Medicine, Sports Medical Examinations, Kineanthropometry, Exercise Physiology, Orthopedics & Traumatology, Rehabilitation, Toxicology, Exercise Testing, Power Testing, Holter tests, etc. Knowledge assessment is continuous and there is also a final assessment of each subject.

Nowadays, in our country, the regulations related to medical specialisation have changed and all medical training must be received in the hospital. This has caused a temporal stoppage in the training of this specialty and the MIR positions are not called for sports medicine

Sports medicine is a medical specialty that deals with the prevention, diagnosis and treatment of pathologies related to physical exercise and sports training. sports medicine is actually not only available to top athletes but also to anyone interested in sports and health.

The sports medicine physician plays a very important role in the prevention of cardiovascular, metabolic, musculoskeletal,

respiratory, psychiatric and other diseases through the prescription of regular physical exercise. The main focus of these professionals is the promotion of regular physical activity, as a coadjuvant method for disease prevention, weight management, reduction of morbidity, better health and well-being of the population. To develop all these functions in a satisfactory way we must have a solid training in the various medical fields related to physical exercise, health and sports performance, among others.

By the end of training, the sports medicine specialist should have the knowledge and competencies on how to manage a wide range of exercise-related functional parameters, advise on the therapeutic use of exercise, and provide medical support to athletes at all levels of participation.

The practice of sports medicine in Spain is, basically, private, although there are public institutions at the national, regional and municipal levels that are in charge of the control of federated and elite athletes. Today, many sports





medicine physicians work more on the prescription of physical exercise for health than on sports performance. Sports medicine is not only available to top athletes but also to anyone interested in sport and health. Currently in our country there are about 1000 sports medicine physicians and most of them are working in the specialty.

The learning of medicine never ends and in particular sports medicine continuous training can be carried out by joining the Spanish Association of Sports Medicine (SEMED) and attending national congresses and annual meetings. Definitely, SEMED watches over the interest of sports medicine in our country.

The Spanish Society of Sports Medicine has edited the journal "Archivos de Medicina del Deporte" since 1984, which for a few years has been open, free and published in English (<http://archivosdemedicinadeldeporte.com/>).

The Spanish Society of Sports Medicine is currently a member of The European Federation of Sports Medicine Associations (EFSMA) and The International Federation of Sports Medicine (FIMS).

*Dr. Miguel del Valle*  
*Editor of Archivos de Medicina del Deporte*  
*Member Governing Board of SEMED*



**Sports medicine is not only available to top athletes but also to anyone interested in sport and health.**

## About the Author



**Miguel del Valle MD, PhD** is a University Professor on the Faculty of Medicine of Oviedo University. He is a Sports Medicine Physician (1992), Head of School of Sports Medicine, member of the Spanish Society of Sports Medicine. He has directed 30 doctoral theses ("cum laude" and six have earned the rating of Extraordinary Award). Scientific experience: He has more than 180 publications, of which 68 are included in the Science Citation Index and he is Editor of the Archives Journals of Sports Medicine, Chairman of the Organising Committee of the Second European Congress of Medicine Sport, and Chairman of the Scientific Committee FIMS World Congress of Sports Medicine.







# Sports Medicine and physical activity in *Norway*

MEDICINE IS TAUGHT IN FOUR MEDICAL SCHOOLS ACROSS THE COUNTRY – OSLO, BERGEN, TRONDHEIM AND TROMSØ.





**At the end of 2020, there were 153 specialists recorded in sports medicine in Norway.**

**M**edical school in Norway is a six year education. After that follows a 12 month internship at a hospital, before six months in general practice. A licence to practice is given after completing an 18 month internship. Sports and exercise medicine are not major topics during medical school in Norway. However, there are different courses with sports medicine and physical activity as a part of the curriculum.

Sports and physical activity medicine is a sub-speciality, so in order to be a specialist in sports medicine in Norway you need to obtain a main speciality. In Norway, the most common speciality is orthopaedic surgery, physical medicine and rehabilitation and family medicine. The training for

these specialities can only take place in accredited hospitals and clinics, and an internship in a university clinic is mandatory. The average time to obtain one of these specialties is five years.

As sports medicine is a “sub-speciality”, it is the Norwegian Society for Sports Medicine and Physical activity that governs the training towards a final authorisation also issued by the society. In order to obtain this authorisation, the following requirements have to be met.

1. Obtain a specialisation approved by the Norwegian Medical Association
2. Participate and pass exam in the following courses: sports medicine level 1 and sports medicine level 2 (40 hours courses each)

3. Obtain 150 hours of other courses in sports medicine, including at least three Norwegian Sports Medicine congresses

4. Participate and pass the Anti-doping course (16 hours), and participate as an observer on a doping control.

5. Work as a team doctor or in a sport medical clinic, sports federation or club. (over 200 hours)

There is no renewal of the sports medicine license. At the end of 2020, there were 153 specialists recorded in sports medicine in Norway.



# Sports Medicine





# e in *Hungary*

MEDICINE IS EDUCATED IN FOUR MEDICAL SCHOOLS IN HUNGARY: BUDAPEST, SZEGED, DEBRECEN AND PÉCS. THE LANGUAGE IS NATURALLY HUNGARIAN, BUT THERE IS EDUCATION AVAILABLE IN ENGLISH AND GERMAN LANGUAGES FOR FOREIGN STUDENTS.

**A**t each Medical University (Budapest, Szeged, etc.), Sports Medicine departments have been established.

In medical education, Hungary does not follow the Bologna principles – it has no bachelor or master levels. Normally, medical studies last six years and the last year is clinical practice. The 12 months are divided into one to three-month periods of internal medicine, surgery, paediatrics, neurology and psychiatry. At the end of the studies, students must present a diploma work and give a state examination, with the help of which, they will be General Practitioners without any specifications, and they are authorised to use the 'Dr' title. Usually, all physicians use it. After this, they can start their medical career and work in the field of their chosen medical specification. There is a system to be a resident in some medical specifications, helping to reach the qualification.

From the 2020-21 academic year at the Semmelweis University, Budapest, a one week Sports Medicine practical curriculum was introduced as a mandatory course, with final exams, for fifth year medical students, including foreign language (German and English) students.

Sports Medicine has been a sub-specialty in Hungary since 1999. Before this date, sports medicine was an independent specialty with four years of education (for about 40 years) but you had the opportunity to complete it in two years as well, in case you had a specialty like orthopedic surgeon or something similar.

The current requirements of the two year preparation are as follows:

- Any kind of primary medical specialisation (GP, paediatrician, etc.)
- Internal Medicine: two months
- Cardiology or Emergency Cardiology: six weeks
- Orthopaedic Surgery, Traumatology or Sports Surgery: two months
- Rehabilitation and Physiotherapy: six weeks
- Exercise Physiology: two months

The abovementioned practices could be fulfilled only at accredited departments of hospitals or university institutions.

- Sports Medicine practice: 12 months in any outpatient department of Sports Physician Network, which is under the responsibility of the Hungarian Institute for Sports Medicine, Budapest. The other possibility is to work with an elite national team as a Team Physician.
- Mandatory courses: two week basic sports medicine course organised



# Sports Medicine in *Hungary*

by the Hungarian Institute of Sports Medicine or Sports Medicine Department of Universities.

- Oxyology: one week
- Mandatory consultation in the Hungarian Institute of Sports Medicine: 4x2 weeks
- Administrative issues: Once you decide to become a sports physician, you have to prepare a two year plan for different practices (where, when, etc). An Official Board should approve and you will get a mentor. If you fulfill all the mandatory practices (you need written documentation) you can enter for the final examination. The certificates of your practices and courses must be accepted by the Official Board.

The exam includes a one day practical and a one day theoretical led by a Board of Examination. Generally, the Board includes an Exercise Physiologist, an Orthopaedic Surgeon, an Internist, and the Chair. All of them are Sports Physicians.

**In Hungary, there are approximately 200 medical doctors with sports-specific qualifications and nearly 150-160 of them are actually working in the network of the Hungarian Sports Physician Network (sports medical consulting rooms, doctors of sports clubs or of the national teams).**

Sports medical doctors are authorised to work in any level of sports. A usual practice is that physicians of the national teams and top-level sports clubs should be specified sports doctors. This principle cannot always be followed perfectly as we do not have enough sports medical doctors.

In Hungary, there are approximately 200 medical doctors with sports-specific qualifications and nearly 150-160 of them are actually working in the network of the Hungarian Sports Physician Network (sports medical

consulting rooms, doctors of sports clubs or of the national teams).

As usual, in Hungary, qualifications are valid for five years. During this period, it is necessary to collect some credits from special courses, scientific congresses and publications.

September 2021, Budapest

## **Prof. Dr. Éva Martos**

Past President of the Hungarian Society for Sports Medicine

## Author Bio



**Professor Éva Martos M.D. PhD**, is the professional Head of the Center of Sports Nutrition Science at the University of Physical Education in Budapest, Hungary.

She is a specialist in Clinical Laboratory and in Sports Medicine as well. She spent 25 years at the National Institute for Sports Medicine, then she led the National Institute for Food and Nutrition Science for 10 years. She was the team physician of the national female gymnastic team and also of the swimming team. She participated at three Olympic Games, being the Chief Medical Officer in the Sydney 2000 Summer Olympic Games. She was a member of the Executive Committee of the European Society of Sports Medicine (1997-2005), the Chair of the Scientific Committee of FIMS (1997-2002), the WHO Nutrition Counterpart for Hungary (2005-2016) and the EU DG Sanco High Level Group on Diet and Physical Activity (2007-2016).

Professor Martos has got extensive teaching experience in different subjects. She has been contributing to the Hungarian Review of Sports Medicine as the chairwomen of the Editorial Board. She was the president of the the Hungarian Society for Sports Medicine between 2015-2018.

Professor Martos organised several national and international congresses (for example, the XXVII FIMS World Congress in 2002, and Hungarian EU Presidency Conference "Action for prevention" in 2011). She is now the president responsible for organising the EFSMA 2022 Congress which is going to be held in Budapest, Hungary.





Photo: Bogdan Lazar / gettyimages

# Specialist Sport and Exercise Medicine in *The Netherlands*





**S**port and Exercise Medicine (SEM) in the Netherlands has its roots in social medicine. Sports physicians have been trained in the Netherlands since 1976, but it took until 1986 before Sports Medicine was recognised as an official branch of social medicine by the Dutch College of Social Medicine (CSG). In 2014, after a long struggle, the Ministry of Health, Science and Sport recognised Sports Medicine as a Medical Specialty and since then the sports physician is allowed to call himself a Specialist Sport and Exercise Medicine. The title Sports Physician is also a protected title in the Netherlands.

#### **Sports Physician expert**

Sports medicine in the Netherlands is the medical specialty that focuses on restoring, safeguarding, and promoting the health of people who (want to) play sports or exercise. It also focuses on restoring and promoting the health of people with chronic conditions using sport/exercise as an intervention. In both facets, the specific load and loading-capacity of the patient is explicitly considered. The sports physician is the expert regarding the balance between load and loading-capacity in relation to sport/exercise. The sports physician is also an expert in analysing sport and exercise related

problems, thereby considering their multifactorial etiology. In cases of a musculoskeletal injury, it is good practice that abnormalities in the entire kinetic chain are assessed. This implies that therapeutic interventions can be aimed at several areas. The analysis and management of the health problem also includes advice about equipment, environmental conditions as well as psychological, social and cognitive factors.

#### **Complementary to other specialties**

Sports physicians have a complementary and synergistic role in relation to other medical specialists



# Specialist Sport and Exercise Medicine in The Netherlands



such as orthopedic surgeons, cardiologists, pulmonologists, physicians for rehabilitation medicine, surgeons, doctors for internal medicine, and general practitioners.

For example, there is collaboration with orthopedic surgeons for maximising conservative treatment of sports injuries and for optimising recovery and return to performance after surgical interventions of the musculoskeletal system, and the use of sports and exercise by patients with chronic musculoskeletal disease, e.g., osteoarthritis.

In several hospitals cardiologists and sports physicians work together in the rehabilitation of cardiac patients. Sports physicians have specific expertise in physiological aspects of training (heart failure, angina pectoris). They often use cardiopulmonary exercise testing to design an effective personalised training intervention. They also cooperate in the diagnostic work-up and management of more complex exercise-related symptoms (e.g., unexplained fatigue).



## **Specialists at the training hospitals teach and train the resident in Sports Medicine to become a sports physician based on the National Training Plan, translated into regional and local training plans.**

Sports physicians work together with pulmonologists, by athletes and patients with sports/exercise related lung problems. Sports physicians perform elaborate lung function tests themselves in the context of preventive sports medical examinations, however they often refer athletes with exercise-induced asthma or other lung-related symptoms to a pulmonologist.

Sports physicians, with their specific knowledge in exercise physiology and cardiopulmonary exercise testing, can design and prescribe personalised training programs for specific target groups in the rehabilitation setting. Especially patients who are deconditioned because of their (chronic) disease or treatment. Exercise testing is used to determine the individual loading-capacity and excluding cardiopulmonary pathology. These diagnostic findings are used to develop training programs that aim to increase the load capacity of the patient/athlete in question. The knowledge and expertise of the sports physician is also increasingly used in the field of pre-operative training, also known as preconditioning/prehabilitation.

Sports physicians also collaborate with internal medicine doctors in prevention and management of diabetes mellitus, oncological rehabilitation, and exercise prescriptions for people with all forms of chronic diseases. General practitioners refer to the sports





Photo: Sean Pavone/gettyimages

physician for sports medical problems that cannot be solved in primary care as well as for clinical diagnostics and conservative treatment of sports-related injuries and secondary prevention.

### **Exercise is Medicine**

Exercise is used worldwide as a 'medicine' for primary and secondary prevention of chronic disease.

The Dutch government has also recognised the importance of lifestyle factors including physical activity in the prevention of chronic disease.

The Netherlands Association for Sports Medicine (VSG, the scientific association) has the ambition that the sports physician will be the medical specialist in the field of 'exercise is medicine'. How this translates to the daily practice of sports physicians will become clearer in the coming years.

In relation to the sports medicine specialist training this means that the resident learns the principles of how to prescribe exercise to patients with various chronic

conditions. Exercise prescriptions are given during consultations as well as during preventive sports medical examinations.

### **The specialist training of Sports Physicians**

An independent organisation The Foundation for Professional Training for Sports Physicians (SBOS) specifically designated for this purpose by the Ministry of Health, Welfare and Sport: is responsible for the education and training of the sports physicians. This is different from other specialties in the Netherlands, whereby the teaching hospitals are responsible. The SBOS financially supports and facilitates the sports medicine specialist training as well as fulfilling the role of employer.

Sports Medicine residents are employed by the SBOS and are trained at accredited teaching hospitals based on a distribution plan established by the government. The Netherlands Association for Sports Medicine (VSG) is responsible for developing and regularly updating the National Training Plan (LOP).

Sports medicine specialist training consists of compulsory residencies / teaching on the job in relevant disciplines (Sports Medicine, Cardiology, Pulmonary Medicine, Orthopedics and General Practice) in combination with national and local (cross-discipline) education including courses on various topics both within and outside Sports Medicine.

### **Declarations of Competency**

The sports medicine specialist training program has been described in the form of Entrusted Professional Activities (EPAs). In the nine EPAs, the competencies are operationalised in observable behavior. EPAs fit in well with the daily work of the sports

physician resident in practice. The order in which the resident learns these EPAs has not strictly been determined, as this can differ per training region. By issuing phased declarations of competence, residents in Sports Medicine are gradually growing towards professional independence and responsibility. After their training they can work in several places. In addition to the normal training program, in-depth specialist training can be included in the final year of the training.

The training plan pays explicit attention to several current social and organisational themes to properly prepare the Sports Medicine resident for the various roles that the sports physicians fulfill in addition to their clinical activities.

### **Competency-orientated**

The nominal duration of the training is four years and since 1 July 2014 it is possible to personalise the duration of the training for the individual resident. The aim of this regulation is to make it possible for the resident to be trained for as long as necessary and as short as responsible. This makes it possible to create a tailor-made competency-based training. As a result, the duration of the training is determined by what the resident has developed in terms of competences prior to and during the training. To properly prepare residents in Sports Medicine for the various roles that sports physicians fulfill in daily work in addition to clinical activities, the Sports Medicine program pays explicit attention to several current social and/or organisational themes such as medical leadership, patient safety, efficiency, vulnerable elderly people, chronic ailments, scientific research and education as well as communication, collaboration, management and health advocacy.



# Sports Medicine in China





China sports medicine at present has two national academic organizations, Chinese Association of Sports Medicine (CASM) and Chinese Society of Sports Medicine

(CSSM), which includes the following professional subcommittees: sports trauma, medical supervision, sports rehabilitation, sports nutrition, traditional Chinese medicine and sports science, etc. CASM was founded in 1978, then became the national association membership of the International Federation of Sports Medicine (FIMS) representing the interests of Sports Medicine in China. CASM was recognized by Chinese Olympic Committee (COC) and played an important role in ensuring the progress of competitive sports. CSSM was founded in 2007 which was one of the specialty society of Chinese Medical Association (CMA). The member of CSSM includes orthopedic doctors and sports medicine physicians, who devote themselves preserving and improving the health of mankind through exercise and sports participation. Both CASM and CSSM were structured and well-organized national association or society, strongly committed to the promotion and development of Sports Medicine throughout China.

Most sports medicine staff in China such as surgeons and physicians graduate from medical colleges or universities. There are 146 public medical colleges and universities in China, which supply five years' clinical medicine education for medical undergraduates. Medical students graduating from clinical medicine department could be awarded bachelor degree, which is an essential prerequisite for being a sports



“

There are 146 public medical colleges and universities in China, which supply five years' clinical medicine education for medical undergraduates.

Photo: onlyyouqi/gettyimages

medicine doctor. Specifically, medical students need study pre-clinical and clinical medicine theories in first four years, then would be designated to different hospitals as interns in the fifth year. Currently, more and more medical students would like pursue the chance of further education, such as studying for master and doctoral degrees of sports medicine after graduation. After graduation, medical students could apply medical license after passing the exam organized by National Ministry of Health. They also need the clinical residency practice training at least 2-3 years in certified university hospitals. After a series of professional clinical training and practice, the residents become professional sports medicine specialists once they are

qualified in the National Assessment of Attending Doctors. The number of sports medicine doctors has been increasing rapidly in past 15 years, and the number of doctors engaged in sports medicine in China has increased from approximately 200 in 2007 to over 10,000 in 2021. Currently, excellent sports medicine doctors who did lots of research and had great skill in surgery proliferated over the country. Indeed, the number of articles published by Chinese sports medicine doctors ranked second in the world so far.

Most Physical Therapists (PTs) and Athletic Trainers (ATs) graduate from 54 public sports colleges or universities in China. Once being qualified by the National Qualification





Examination of PTs or ATs, they could supply medical service in prevention, treatment and rehabilitation of sports injuries for professional athletes in sports team. Some PTs or ATs work for professional sports teams, the others work in public hospitals, private hospitals and rehabilitation clinics, to provide rehabilitation services for the public fitness and health.

Additionally, there are 15 public traditional Chinese medicine (TCM) colleges or universities in China. The students in the department of

acupuncture and manipulation are awarded bachelor degree after a five- year study. Many TCM doctors achieve good therapeutic efficacy in sports injuries by conservative treatment, such as acupuncture and manipulation. Indeed, the treatment by TCM doctors for sports injury has played a role in sports team especially for athletes' medical care during sports competitions.

All the sports medicine staff including physicians, PTs and ATs are required compulsory continuing education

every year. Their medical practice certificates would be renewed only after completing required credits of continuing education.

The Chinese Journal of Sports Medicine (CJSM) is the only special journal for sports medicine in China. CJSM was founded in 1982, which is the official publication of the CASM. It contains original articles addressed to sports medicine doctors, researchers, team physicians, athletic trainers, and physical therapists focusing on clinical and basic studies in sports medicine.

## Author Bio

**Prof. Guoping Li, MD**

**China National Institute of Sports Medicine, Beijing 100061, China**



Prof. Li is the Former Director of the China National Institute of Sports Medicine and the Former President of Beijing Sports Medicine Hospital. He is the Founding President for Chinese Society of Sports medicine (CSSM), the President for Chinese Association of Sports Medicine (CASM), the Past President, Asian Federation of Sports Medicine (AFSM), the Vice President for the International Federation of Sports Medicine (FIMS), the Member of IOC Medical and Scientific Commission Games Group (IOC-MSC-GG), and the Honorary Chief Editor, Chinese Journal of Sports Medicine (CJSM).

Prof. Li graduated from the Beijing Medical University in 1978. He studied and worked at the Mayo Clinic and other key medical institutions in USA for 7 years. He has been engaged in clinical, scientific research, teaching, management and service of sports medicine for 44 years. He has presided over a number of national science and technology support programs and other major research projects. He has published more than 150 Chinese and English papers in core journals and academic conferences and won many awards at home and abroad.

In terms of Olympic medical services, professor Li participated in 10 Olympic Games from the Sydney 2000 Summer Olympic Games to the Beijing 2022 Winter Olympic Games, in charge of the medical services for all participating athletes and coaches. He served as Chief Medical Officer (CMO) of the Chinese Olympic Committee from 2000 to 2012. From 2013 to 2022, he served as the member of IOC Medical and Scientific Commission Games Group.

Prof. Li has vigorously carried out discipline construction, education and training, academic exchanges, Olympic Games and other major events for a long time. He has made outstanding contributions to leading the rapid development and overall progress of sports medicine in China, which has a wide range of social impact.





# Sports Medicine In Poland

## Polish Society Of Sports Medicine (PSSM)

PROF. ANNA JEGIER MD, PHD

Head of Department of Sports Medicine

Medical University of Lodz, Poland

President of Polish Society of Sports Medicine(PSSM) 2005-2013

Vice President of European Federation of Sports Medicine Associations (2017- )

**P**olish Society Of Sports Medicine Is A Scientific And Didactic Society Of Doctors And Other Specialists With Higher Education, Who Are Interested In The Activities undertaken by the Society.

Polish Society of Sports Medicine was founded 86 years ago in 1936 at the 1st Congress of Polish Sports Medicine Physicians in Worochta (now Ukraine), however, it is noteworthy that Polish structures which provided sport and health counselling as well as education for sports medicine doctors had

already been formed in 1928-1929. Polish representatives participated in the Congress of Association International Medico-Sportive (AIMS) held at the Winter Olympics in St. Moritz in 1928.

Dr W. Dybowski was elected a board member of FIMS and held this position till 1939. In 1929- 1937 Polish physicians participated regularly in FIMS activities and were as regularly invited to present their papers at FIMS congresses. After World War II, in 1947, the Polish Society of Sports Medicine Physician was reactivated and nowadays PSSM had 8 regional divisions. Currently, PSSM

has approximately 800 members and several Committees for: Science, Education, Legislation, Foreign Affairs and International Relations.

Major mission of PSSM is to be engaged in the activities which lead to health status improvement via increased physical activity. PSSM objective is to provide inspiration for scientific research, to promote knowledge of sports medicine, to cooperate in upgrading occupational skills of doctors, physical therapists, dietitians and other health professionals. PSSM



provides assistance and supports its members in their scientific, occupational and educational activities.

The society's prime interest concentrates on a physically active human at all stages of life, both in good and poor health. The Society activities focuses on the understanding of the physiological and pathological processes that are related to physical activity and its lack, as well as health promotion, chronic disease prevention (primary and secondary) and treatment of exercise-induced pathologies.

Every two years, PSSM organize International Scientific Congresses where general Assembly of PSSM Members is held. The Society Executive Bodies: President, Executive Board, Audit Committee and Arbitration Committee are elected every 4 years. Symposia and Scientific Conferences (annual) are organized in between the Congresses and about 600-700 people participate in these events.

PSSM Education Committee deals with the organisation of ABC of Sports Medicine courses which are intended for physicians with specialities other than sports medicine. The courses are provided by Polish expert in sports medicine.

Polish Society of Sports Medicine is a member of International Federation of Sports Medicine (FIMS), European Federation of Sports Medicine Associations (EFSMA) and cooperates with other scientific societies by participation and lecturing at conferences and congresses, by preparing opinions and standpoints on current and significant issues of sports medicine among others: *Recommendations of the PSSM on age criteria while qualifying children and youth for participation in various sports (Kostka T. et al: Br J Sports Med 2012); Type 1 Diabetes Patients Qualification for Sport; Stress test application in sports medicine; Anthropometric measurements in sports medicine, Athletes nutrition and many others.*



### **Official journal PSSM from 1985 is Polish Journal of Sports Medicine** (Polish J Sport Med)

The Polish Journal of Sports Medicine is a peer-reviewed medical journal publishing original scientific papers based on authorial research, as well as review and opinion articles and case studies involving the broadly conceived interdisciplinary specialty of sports medicine. The Advisory Board includes specialists from many countries around the world, representing various medical specialties, a guarantee of the high scientific quality of the papers published. Polish J Sport Med is published quarterly and is also available in electronic form at <http://medycynasportowa.edu.pl> Polish J Sport Med is indexed in Index Copernicus, Central and Eastern European Academic Source, PSJD, EBSCO, Google Scholar, EMBASE Collection, EuroPub and Polish Medical Bibliography (GBL). Papers are published in English and Polish

Since 2013 the position of President of Polish Society of Sports Medicine has been held by Andrzej Bugajski MD, PhD,

who was preceded by prof. Anna Jegier MD, PhD (2005- 2013), who is currently Vice President of EFSMA (since 2017).

### **Education in Sports Medicine for medical doctors in Poland**

Sports Medicine in Poland is taught for medical doctors as pre-graduate and post-graduate education.

#### **Pre- graduate education in sports medicine**

There are 12 Universities in Poland with faculty of Medicine. At several of them Sports Medicine is taught as the pre-graduate education. For example at Medical University of Lodz sports medicine course is compulsory for all the students of the faculty of Medicine and currently it composed of 14 hours of didactic classes, seminars and lectures. Additionally, students may choose of 40 hours of elective courses.

#### **Post-graduate education in sports medicine**

The post-graduate level of education in Poland is coordinated by the Ministry of Health and lead by The Medical Centre of Postgraduate Education (CMKP) and Polish Society of Sports Medicine.



# Sports Medicine In Poland

## Specialization in sports medicine in Poland- Consultants in Sports Medicine

Since 2013 speciality in sports medicine in Poland has the full speciality status with the minimum duration of training of 5 years. For consultants in paediatric surgery, general surgery, internal medicine, general medicine, family medicine, orthopedics and traumatology, pediatrics and medical rehabilitation a required training period in sports medicine is on average 2,5-years, depending on the basic specialization. All the above consultants must be recognized by Polish Ministry of Health.

Sports Medicine requires of training on the basis of sports medicine speciality programme core curriculum to approved by the Minister of Health and ends with the state examination (written test and oral exam). The National Consultant -who is appointed by the Minister of Health- is responsible for the exam in sports medicine in Poland;

## Polish Society of Sports Medicine (PSSM) Certificate

Doctors who are interested in sports medicine can also apply for Polish Society of Sports Medicine Certificate. Polish Society of Sports Medicine certifies the completion of introductory Sports Medicine Speciality Training Course. PSSM Certificates can be obtained by doctors of medicine who:

- 1) have specialization in at least one of the following: internal medicine, pediatrics, general surgery, pediatric surgery, orthopedics and traumatology, medical rehabilitation and family medicine;
  - 2) have completed the ABC of Sports Medicine course- "Introduction to sports medicine speciality", on the basis of Sports Medicine Speciality Training Program and in accordance with speciality course scheme or professional advanced course scheme which are approved annually by the Medical Centre of Postgraduate Education (CMKP)
  - 3) have passed the ABC of Sports Medicine exam (written test)
  - 4) have received a positive opinion from a regional sports medicine consultant
  - 5) are professionally involved in a group or individual medical practice, registered in the sports medicine health care facility;
  - 6) are authorized to practice medicine by a valid medical license;
2. Orthopaedics, traumatology and sports rehabilitation.
  3. Basic issues of internal medicine and cardiology in sports medicine.
  4. Doping and enhancement of human physical capacity.

Each set of courses is completed with an exam on the basis of which the physicits obtain certificates that entitle them to provide medical examination and qualification for particular sports for children, adolescents and athletes of up to 23 years of age, except for national sports team representatives, Olympic games athletes and athletes with disabilities.

The PSSM certificate is valid for 2 years and can be renewed provided that some specific conditions are met. Each year the courses are attended by 40-120 physicians. So far PSSM has issued over 1100 certificates and currently about 600 medical specialists are entitled to qualify children, adolescents and athletes of up to 23 years of age for sport and exercise.

More details on sports medicine in Poland are available on:  
Polish Society of Sports Medicine  
<http://en.ptms.org.pl>  
and <https://cmkp.edu.pl/wp-content/uploads/pdf/0751-program-1-2018-D.pdf> (in polish)  
<https://medycynasportowa.edu.pl>

The courses are provided by Polish expert in sports medicine (4 x 10-hour meetings) on the following subjects:

1. The history of sports medicine.  
The organisation of medical qualification for sport and exercise.  
Introduction to exercise physiology.





# Sports Medicine In Greece

DR. A. DELIGIANNIS, MD. CARDIOLOGIST, EM.PROFESSOR OF SPORTS  
MEDICINE OF ARISTOTLE UNIVERSITY OF THESSALONIKI

**F**rom ancient times, even in Greece, the home of the Olympic Games, there are many references to the relationship between sports and health. Plato, Hippocrates, Aristotle, and Isocrates are classic-era authors who refer to the role of physical exercise and nutrition in enhancing health. The first scientific report of the sudden death of an athlete has its source in Herodotus, who describes the death of Pheidippides, who, shortly before the Battle of Marathon (490 BC), ran a distance of more than 200 kilometers in two days.

#### **University Studies In Sports And Exercise Medicine**

Today Medicine is taught in seven medical schools across the country: Athens, Thessaloniki, Alexandroupoli,

Ioannina, Larissa, Patras, and Iraklion. The structure of the studies is similar in the seven schools. The Physiology course is taught in all of them, with references to Occupational Physiology and Orthopedics, which includes training in sports injuries at the undergraduate level. Nevertheless, the Sports Medicine course is mandatory proposed at a pre-graduate level in the Departments of Physical Education and Sport Sciences of the Aristotle University of Thessaloniki and the Athens University. Additionally, there is the opportunity to follow Ph.D. studies in Sports Medicine in all Universities. Furthermore, for Master's studies and Master's thesis, a postgraduate program in Sports & Health (two cognitive directions: · Sports Medicine · Exercise and Physical Health) will be available in Thessaloniki by 2015 in

cooperation with the Medical School and the Department of Physical Education and Sport Sciences of Aristotle University of Thessaloniki. Also, the School of Medicine of the University of Athens has been running a postgraduate program in Exercise and Health since 2000. Finally, postgraduate study programs in 'exercise and health' can be attended by students in the Departments of Physical Education and Sport Sciences of Thrace and Thessaly Universities.

#### **Sports Medicine Associations**

Additionally, there are scientific sports medicine Associations in the country with a significant scientific and educational contribution to the involvement of Sports Medicine in Greece, such as the Sports Medicine Association of Greece from 2000. The



Sports Medicine Society of Greece was initially founded in 1982, with its headquarters in Athens. Later, the Sports Medicine Association of Northern Greece was founded in Thessaloniki in 1990, and in 2000 it replaced the original Sports Medicine Society. In addition, the Hellenic College of Sports Medicine was founded in 2007. Finally, in 2018, a scientific association was created in Greece, the National Center “Exercise is Medicine-Greece.”

### Sports Medicine Journals

The most prominent scientific journals in the field of Sports Medicine are “Sports Medicine,” published by the Sports Medicine Association of Greece, and “Kinesiology” by the Department of Physical Education and Sport Science of the University of Athens. In many other medical journals, papers on the subject of Sports Medicine are published. Also, several books on Sports Medicine, Sports Cardiology, and Sports Injuries have been published in Greek.

### Sports Medicine Congresses

Every year major international Congresses of Sports Medicine and Conferences are organized in Greece. The biggest ones are managed by the Sports Medicine Laboratory in Thessaloniki and by the Sports Medicine Association of Greece in various cities of Greece. In addition, the FIMS World Sports Medicine Congress was organized in Athens in 2022.

### Sports Medicine Studies And Research Centers

In Greece, there is no specialty in Sports Medicine. There is the specialty of a physiatrist and orthopedist who treat sports injuries. Also, several cardiologists have extensive experience managing athletes with heart disease. Physiotherapists, physical therapists, and specialist trainers deal with physical rehabilitation. In Athens, there is the National Sports Research Center, a developed Sports Medicine Center in Athens Olympic Sports Center, “Spyros Louis.” Also, the Laboratory of Exercise Physiology in the Department of Physical Education and Sport Sciences of Athens conducts some research in the field of Sports



Medicine in collaboration with hospitals in Athens. In the Department of Physical Education and Sport Sciences of Thrace University, there is a scientific center for the rehabilitation of sports injuries. Also, in Trikala, at the University of Thessaly, the Institute of Applied Physiology & Exercise in Medicine was founded in 2004 and operates with research activity in sports and health. In Thessaloniki, the Laboratory of Sports Medicine in the Department of Physical Education and Sport Sciences of Aristotle University (AUTH) of Thessaloniki was officially established in 1993. The Laboratory of Sports Medicine of AUTH is Greece’s largest Sports Medicine center (ISO 9001:2008 certified). It includes five professors and eight researchers, including sports cardiologists, exercise physiologists, and sports nutrition and cardiac rehabilitation experts. It is fully equipped for non-invasive cardiac screening of trained individuals. The research interests of the Sports Medicine Lab include: 1) Exercise rehabilitation programs in patients with chronic diseases, 2) athlete’s cardiovascular pre-participation screening, 3) biomedical side effects of doping, 4) sudden cardiac death in athletes, 5) exercise-induced cardiovascular adaptations in athletes, 6) telehealth-applications in sports cardiology. The Lab collaborates with many hospitals, medical care units, sports clubs and leagues, and European scientific centers and participates in many European Programs. Since



1993, the Sports Medicine Lab has been a pioneer in Greece in the field of therapeutic exercise, developing exercise rehabilitation programs for patients with chronic kidney disease, coronary artery disease, chronic heart failure, diabetes mellitus, and other chronic diseases, which are still unique in Greece. For the last twenty years, the Lab has coordinated rehabilitation programs for patients with chronic diseases in Municipal Gyms in collaboration with the Municipalities of Thessaloniki. More than 200 patients are exercised each year in these programs. It has also organized many International Congresses of Sports Medicine and educational conferences in Sports Cardiology and Sports Medicine. Moreover, the Laboratory organized an annual postgraduate teleconference course in Sports Medicine between Greece and Cyprus. Much research, Master’s and Ph.D. theses have been completed in the lab facilities.

### Sports Medical Support For Teams

All federations and sports clubs have high-level scientific support from well-trained orthopedists, physiotherapists, masseurs, and dietitians. Furthermore, all athletes are required to undergo a cardiological examination every year to sign their health cards. Also, many Hospitals have special centers for sports injuries. In addition, CPR management teams and automated smart defibrillators are available at many venues.



# Sports Medicine In Greece

## Useful links:

Sports Medicine Lab of AUTH: <http://spmedlab.phed.auth.gr>

Sports Medicine Association of Greece: <http://www.sportsmedicinegreece.com>

<https://www.oaka.com.gr>

## Author Bio



**Asterios Deligiannis** is a Cardiologist and served as a Professor of Sports Medicine at Aristotle University (AUTH) of Thessaloniki (1992-2018). Now is an Emeritus Professor of the same University (2018-today). From 1992 until 2018, he was the Director of the

Sports Medicine Laboratory at the Department of Physical Education and Sport Sciences (TEFAA) AUTH, which developed into one of Greece's largest Sports Medicine centers. He has established a pioneering cardiovascular pre-participation screening program for athletes. He has exceptional research experience on the effects of exercise training on cardiac morphology and function. A pioneering and essential activity of the Sports Medicine Laboratory under Professor Deligiannis is the establishment 1995 of therapeutic exercise programs for patients with chronic diseases, such as kidney patients on dialysis, patients with heart diseases, obesity, diabetes, etc. The work of Professor Deligiannis in the fight against doping in sports is essential. He has offered a lot to this sector through cooperation in European Programs, in educational material for young student-athletes, and from the Vice-President of the Greek National Anti-Doping Council (2005-07). He was the scientific manager or member of many research projects. Professor Deligiannis was President of the TEFAA of AUTH, Director of the Department of Sports Medicine at TEFAA, member of the Senate of AUTH, member of

the Board of the Research Committee of AUTH, Member of the Health Committee of AUTH, a founding member and President of the European Society for "Physical Rehabilitation of Patients with Chronic Renal Failure." He was a nuclear member of the Sports Cardiology Section of ESC (2004-10) and Treasurer of EURORECKD (2000-today). He is also a member of many scientific societies. He was a founding member and President of the Sports Medicine Association of Greece (1992-2002), a founding member and President of the Hellenic College of Sports Medicine (2004-2016), and a member of the Administration Council of the Medical Society of Thessaloniki (2000-2008). He also served as Municipal Councilor and Deputy Mayor for Social Policy of the Municipality of Thessaloniki (2006-2010). He was the Chairman of the Organizing Committee of many Congresses and conferences in Sports Medicine. He has more than 500 publications in scientific journals. He has presented more than 300 studies in the area of Sports Medicine at National and International Congresses. He has been invited as a lecturer at many Sports Medicine Congresses and was Chairman (or co-chairman) at more than 60 scientific round tables. He was the primary supervisor in many master's and Ph.D. theses. He has been awarded many times for his research. Citations (in Scopus) : 3226 (h-index 21). For his scientific and social efforts, he has been honored many times by sports and social organizations.



# Sports Medicine in Romania



**S**port today is more than meets the eye. We need experts in order to achieve high performance as a professional athlete or as an individual who wants to stay healthy. Nowadays, Sports Medicine is a well-defined specialty that brings lots of benefits to the scientific support of great sporting performances. Sports Medicine has a preventive character, and gives the ability to prevent injuries and traumas under the influence of the natural environment.

Athletes should get back on the sports field as quickly and as efficiently as possible after rehabilitation, and Sports Medicine has made some impressive progress in helping them

recover faster. Sports Medicine has a crucial role in the so-called athlete, coach, and medical staff triangle.

Sports medicine has a long history in Romania dating back almost 100 years. A description of the first forms of activity in this specialty can be found in the 1923 paper written by Professor Dr Ion Pavel. It wasn't long until in 1932, when Iuliu Hateganu, Florin Ulmeanu, Adrian Ionescu, and Miron Georgescu founded in Cluj-Napoca the Physical Education Medicine Society/The Medical Society of Physical Education that shared the same objectives as FIMS.

The Romanian government decided on 6th December 1949 to establish the

Network of Physical Culture Medicine, which later changed its name to Sports Medicine in 1985. This movement aimed to provide medical assistance during training and competitions. The Society of Physical Culture Medicine was founded in 1951, which later became The Sports Medicine Society, affiliated to FIMS in 1990.

In December 1962, The Sports Medicine Centre was created. Being a unit of national interest for medical control and assistance for Olympic and National teams, the unit represents the methodological forum of the sports medicine network. It was in 1991, at the request of the Ministry of Sports and Youth, that the Sports Medicine Center was converted into the National >





Institute of Sports Medicine, which operates to this day. In addition to the clinical centers affiliated with public hospitals that are part of the national sports medicine network, there are sports medicine facilities as part of sports clubs (over 300 in Romania) and medical centers at National and Olympic sports bases.

Since its beginnings, the Sports Medicine Network's achievements have been recognized and rewarded for exceptional results obtained at the Olympic Games, World Cups and many other competitions. Scientific contributions are well-known and appreciated by international forums, in particular for medical-biological selection in sport, recovery, training and competitions at medium altitude and patents of pharmaceutical compounds (ergogenic and recovery aids).

In 1967, The University of Medicine and Pharmacy "Carol Davila", Bucharest introduced a specialized degree in

Sports Medicine, which continues to thrive to this day. The Romanian Medical Residency Program requires EEA students (such as Romanians) to sit for an entrance examination. Medical students who achieve a passing score on the state exam can choose the Sports Medicine Residency Program. As part of the curriculum, 200 didactic hours (courses, seminars, case presentations) are provided per year of university study for the topic presented, along with 40-50 hours of individual study. The Sports Medicine Residency Program takes 4 years to be completed. Of the time allocated to training, 20-30% are didactic, with the remaining 70-80% being dedicated to practical activities and individual study.

The curriculum includes the following basic modules: effort physiology, biomechanics, anthropometry, sports traumatology, sports cardiology, internal medicine, sports specific diseases, sports nutrition, recovery, sports medication, emergency

situations, pitch side care, doping and anti-doping regulations. At the end of each training module, a stage evaluation is conducted in the training unit by the program coordinator. A log-book tracks the entire training activity, including stage evaluations in credits, participation in research programs, and participation in conferences and continuing educational events. It is worth mentioning the fact that every year we have foreign doctors that start the Sports Medicine Residency Program in Romania. Besides the aforementioned program, the Sports Medicine Discipline within The University of Medicine and Pharmacy "Carol Davila", holds several lectures during the academic university year on the physiology and physiopathology of physical exercise.

The Romanian Society of Sports Medicine ([www.sroms.ro](http://www.sroms.ro)) represents professionals in sports medicine. It promotes quality education in sports medicine and sports science



in Romania and beyond. Our members represent and embody the multidisciplinary spirit that is the key to the specialty. Our integrated community includes doctors, physiotherapists, sports nutritionists, sports physiologists, sports scientists, and sports psychologists. In addition to the annual national congress, The Romanian Society of Sports Medicine is a reliable partner when organizing international events such as the past Balkan Sports Medicine Congresses (1997 and 2008- Bucharest) and the future EFSMA Congress of Sports Medicine in 2025, Bucharest.

Sports Medicine in Romania has travelled in these directions in the past several decades. In a time when movement and sport are everyday realities, we must accept that the only medical specialty that has the ability to understand the biopsychosocial strain on the body of physical exercise and to use exercise as a health factor wisely is Sports Medicine.

## Author Bio



**Prof Anca Ionescu**

Professor, Head of the Sports Medicine Department at the University of Medicine and Pharmacy "Carol Davila" and Senior Physician Specialist in Sports Medicine at the National Institute of Sports Medicine, Bucharest, Romania

- European trainer for Sports Medicine (UEMS-MJC)
- Honorary President of the Romanian Society of Sports Medicine and past President
- Secretary General of EFSMA, Member Executive Committee FIMS
- President of Medical Commission – Romanian Olympic and Sport Committee

I am focusing my activity on sports physiology and physiopathology, sports nutrition and sports cardiology in order to optimize sports performance and promote health.

# Building Confidence. Together.

## Exclusive insurance partner to SMA

SMA members can access a comprehensive Gallagher insurance protection package tailored to their needs.

Gallagher is a world leader in sports insurance broking, with over 30 years' experience supporting Australian sport. We are proud to be an endorsed provider and sponsorship supporter of SMA.



Proud insurance partner



If you would like more info on our range of insurance products and services call us today or visit our website.

▶ [AJG.com/au](https://www.ajg.com.au)

▶ **1800 222 012**

Arthur J. Gallagher & Co (Aus) Limited. AFSL 238812. Cover is subject to the Policy terms and conditions. You should consider if the insurance is suitable for you and read the relevant PDS/Policy Wording and our FSG before making your decision to acquire insurance. These are available on request or at [AJG.com/au](https://www.ajg.com.au)