

# Sports Medicine in our four neighbour countries

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It is indeed quite a challenge to define sports medicine in a way that suits the greatest number. The reason is that the speciality involves a wide scope of different healthcare measures for a very broad population, from professional athletes to recreative active individuals. It contains diagnostic, curative, rehabilitative and preventive medical measures, on the field, in the clinic and the medical office or even in the physiology laboratory. And this heterogeneity also concerns the physicians practicing – or pretending it! – sports medicine. It is therefore not surprising that differences exist in the concrete expression of this exciting field of expertise.

Nevertheless, let's try to see how sports medicine is organized and structured in our 4 neighbor countries.

Ce n'est effectivement pas une mince affaire de définir la médecine du sport la satisfaction du plus grand nombre. Les raisons en sont multiples : la spécialité recoupe un nombre important de mesures médicales des plus diverses, elle se consacre à une population très large, allant de l'athlète professionnel aux individus actifs à titre récréatif, elle a un champ d'action allant du diagnostic au traitement, en passant par la réhabilitation ou la prévention, elle se pratique en clinique ou dans le cabinet privé, voire dans le laboratoire de recherche. Et cette hétérogénéité concerne également les médecins pratiquant – ou prétendant le faire ! – la médecine du sport. Pour toutes ces raisons et d'autres encore, il n'est pas surprenant que des différences notoires s'observent concernant la forme d'expression concrète de ce passionnant domaine d'activité.

Excellentes raisons donc pour essayer de comprendre comment la médecine du sport est organisée et structurée dans les 4 pays qui nous entourent.

## Austria

In Austria, at time, Sports Medicine is not a medical specialisation as 45 other speciality such as Surgery, Internal Medicine, Paediatrics to name only few as example.

Nevertheless, the Austrian Medical Chamber (Österreichische Ärztekammer), which rules the medical profession, offers all physicians from any main speciality with a recognised medical diploma the opportunity of following a specif-

ic interdisciplinary training in Sports Medicine giving right to receive a Diploma in this field.

To access to this Diploma, the candidate has to take part during 3 years at the longest in different courses divided in 3 blocks of 40 hours each; the first block concerns internal medicine – physiology and paediatrics, the second one principally orthopaedics and traumatology and the third is reserved for special topics.

Next to these 120 hours of theory, the candidate will also have to spend 60 hours in a practical activity, 40 of them in seminar form and 20 in active practice under supervision of a trainer.

It is also expected that at least during the last half year of the training, the candidate is active as team doctor.

The diploma is then accorded without examination.

At time, roughly 1420 doctors are in possession of the diploma, what make's out 4,2% of the total Austrian medical population.

Probably quite a unique situation, for specialists in Training physiology, Paediatrics, Internal Medicine, Traumatology, Orthopaedics and Physical Medicine, an official complementary title in Sports Medicine, called "Zusatzfach Sportmedizin" is available. The conditions to obtain this title is a 3 years practice in sports medicine in a department of the mentioned speciality, under the supervision of an accredited leader who will also be the one to sign the necessary certification. Today, roughly 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 physical medicine and 6 exercise physiologists).

Further, Sports Medicine also found place in different official institution, and we will name 3 university institutes in Vienna, Innsbruck and Salzburg, 6 Institutes located in the states (Länderinstitute), 7 Olympic centres and an Institute for Medical and Sports Sciences (Institut für medizinische und sportwissenschaftliche Beratung), located in the eastern part of the country (Maria Enzersdorf). IMSB Austria was founded in 1982 to ensure comprehensive, scientifically sound support for all Austrian athletes. The main focus was to offer optimal training and competition conditions. Step by step, new fields of activity were added: sports medicine, anthropometry, anti-doping, nutrition, physiotherapy and biomechanics. The institute is actually not only

available to top athletes but also to anyone interested in sport and health.

As in most countries, sports medicine is globally created by a scientific society, in this case the Austrian Society of Sports Medicine, originally called Oesterreichische Gesellschaft für Sportmedizin und Prävention – Verband Österreichischer Sportärzte/Innen. This association, founded in 1950, counts roughly 750 members. It takes influence on all the aspects of the specialty in the country, organizes an annual national congress, runs different training courses and has a journal “sport- und präventiv medizin”, that exists since nearly 45 years now. It publishes 4 issues per year, the articles appear in German, with abstract in German and English. The review is not quoted. Since 2 years, it has become a e-journal that can be read under <http://www.spm-online.at/fileadmin> It is the official Journal of the Austrian Society of Sports & Preventive Medicine.

## France

In France, approximately 8,000 physicians have a practice solely dedicated to or partly focusing on sports medicine. Sports medicine is not a specialty like cardiology or neurology for instance. In fact, it is an additional competence recognized 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’Etudes Spécialisées), 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 practicing physician license, i.e. at the end of medical studies and thesis validation.

Medical education in France (the country has 37 schools of medicine) spans nine to ten years depending on the specialty, with six ‘common’ years followed by either a three-year internship (specialization in general medicine) or four-year internship (other specialties). 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 selected 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, orthopedics, cardiology, physical activity for health, doping).

Forty half days of practical education in accredited hospitals, clinics or medical centers 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 specialized path than SMBC has been created. It is called Specialized Complementary Study Di-

ploma, i.e. in French, DESC (Diplôme d’Etudes 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 orthopedic department. After the thesis, the physicians performs another practical year, called post-internship, in accredited departments of hospitals, clinics or medical centers 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 training 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 affections. 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.

## Germany

In Germany, there are 30 universities, 25 of them have medicine as 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 sport medicine in Germany are full members of the medical faculty of the university, all other institutes are members of the faculty of sport science or other non- medical faculties.

In Cologne, there is a Sports University with special department of sports medicine with two chairs, one for clinical sports medicine and one for molecular sports medicine.



Like in Austria, a scientific association looks after the interest of sports medicine in our western neighbor country also, the French Society of Sports Medicine with its official name "Société Française de Médecine de l'Exercice et du Sport" SFMES. The first similar structure was founded in 1921 and has simply changed its name several times. At time, it counts roughly 400 members. The SFMES organizes yearly congresses in cooperation with another sport medical group for sports traumatology, the Société Française de Traumatologie du Sport SFTS. Since 10 years now, these two association hold their annual meeting together.

It is said that one of the first sports medicine journal in the world was published in France around 1922.

It certainly was not the same as the actual one, Science & Sports which became the official Journal of the French Society of Sports Medicine. It is issued 4 times per year, it is

Peer reviewed and contains articles in French with abstracts in English. It is not quoted.

It is published since 1986.

The Journal de Traumatologie du Sport exists since 33 years.

And presents similar characteristics to Science & Sport: 4 issues per year, peer reviewed, not quoted, articles in French and English abstract. The actual Impact Factor is 0,51.

All institutes in Germany except one, have a director with full medical education (MD) and education in sports medicine.

Medical education in Germany is about six years (11 semesters) with a first examination concerning "theoretical" disciplines ( anatomy, biology, physics, physiology and physiological chemistry) after 5 semesters. However, there is wide variety of the curricula between the universities as some offer a reformed curriculum with closer contact to clinical medicine even in the first years.

Studying medicine in Germany, there is an offer (optional, not mandatory) for one semester of sports medicine. (optional course). So far, only few medical students (about 10%) get in contact with sports medicine science and teaching during their study. Most of them have formerly been active athletes.

Sport medicine is an additional education after having the full license for practicing as a physician. There is a strictly defined curriculum (following a so-called white book) for sports medicine developed by the German Chamber of Physician and the German Federation of Sports Medicine with 120 hours in sports practice and 120 hours of theoretical sports medicine. This curriculum has to be done besides practicing as a physician either in hospital or in private practice. A log-book has to be fulfilled showing that all different disciplines (sports) and all specialties in sports medicine have been educated strictly according to the curriculum. Thereafter and in addition, 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.

At the end of sports medicine education, there is an oral examination at the physician's chamber ("Ärztchamber") before the official certification "sports medicine" can be obtained. However, the final license in sports medicine (specialist's title) can only be obtained after finishing and together with a full specialty in larger disciplines in medicine such as trauma and orthopedics, pediatrics, internal medicine or medical practitioner (general medicine). The German Fed. of Sports Medicine (DGSP) works on changing this last condition so that physicians, working at a sports medicine institute since at least three years, may also be allowed to lead the certification after examination.

So far, sports medicine is an subspecialty, and there are intentions to develop an additional subspecialty (of sports medicine) that is sports cardiology according to the recommendation of the European society of cardiology in cooperation with the German society of cardiology, the German society of pediatric cardiology and the German chamber of physicians at Berlin.

In general and in the future, education in sports medicine as well as certification of sports medicine institutes in Germany will adopt the European recommendations as suggested by EFSMA und UEMS.

The scientific organization which cares for the development of the specialty in our Northern neighbor country is the German Association of Sports Medicine, the "Deutsche Ge-

sellschaft für Sportmedizin und Prävention" DGSP considered as the oldest organization of the sort, founded in 1912 already. It counts over 9000 members and is one of the biggest scientific and medical organization in the country. The DGSP organizes a national congress every second year, many training courses, and runs an official journal, "die Deutsche Zeitschrift für Sportmedizin", published since 1950.

It is the official Journal of the German Society of Sports Medicine, it is peer reviewed, has 10 issues per year with articles in German and abstracts in English

It is quoted in Science Citation Index Expanded, Research Alert, Focus On Sports Science & Medicine, Journal Citation Reports (Science Edition), SciVerse Scopus, CrossRef, EBSCO SPORTDiscus, Google Scholar. The Scientific Journal Ranking SJR is actually 0,14.

It must be added that Germany hosts with Austria and Switzerland a second major organisation in sports medicine, the so called GOTS (for Gesellschaft für Orthopädie und Traumatologie im Sport, the second biggest sports medicine association in the world. As the name says, it is in first line an organisation coping with orthopaedics and traumatology. It was founded in 1986. It edits a peer-reviewed journal, with 4 issues per year, containing articles in German with abstracts in English.

## Italy

Italy was the first country in the world to introduce sports medicine as an academic medical specialty in 1958 already. Sport medicine specialization schools are located all over Italy and students are admitted in these schools after passing the state exam and an open written competition. The competition takes place in the chosen university.

Following criteria will be evaluated:

- a) the written test result;
- b) the university curriculum, with particular attention to orthopaedics and cardiology exams;
- c) 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 scholarship in all, but the winners of these scholarship will not be allowed to except work in other institution).

The specialization schools are located in the following universities:

Bari, Brescia, Bologna, Cagliari, Catania, Catanzaro, Chieti, Cosenza, Firenze, Genova, L'Aquila, Messina, Milano, Napoli, Padova, Palermo, Pavia, Perugia, Pisa, Reggio Calabria, Roma, Sassari, Siena, Torino, Trieste, Udine, Varese and Verona.

All of them have the same target, that is prevention and cure of sport diseases. Since the western "civilized" population started to make less and less physical activity, 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, orthopaedist and physiatrist work together. Here is the list of sport departments which have been working successfully for a long time:

Benevento, Bergamo, Bologna, Bussolengo, Bari, Firenze, Iglesias, L'Aquila, Messina, Monza, Napoli, Noale, Roma, 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 9 diagnostics activities (clinical biochemistry and clinical molecular microbiology, medical genetics, medical oncology, microbiology and clin-



ical microbiology, pathological anatomy, diagnostic imaging and radiotherapy, neuroradiology, laboratory medicine), 5 emergency and first aid activities (internal medicine, general surgery, neurology, biomechanics and anaesthesiology), 6 specific disciplines (physiology, human anatomy, internal medicine, respiratory diseases, cardiovascular diseases and endocrinology), 10 elective disciplines (physiology, biochemistry, pharmacology, human anatomy, histology, medical genetics, computer sciences, general psychology, physical medicine and rehabilitation, forensic medicine), 4 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 5th year the linguistics, informatics and relationship skills are tested.

The students will gate 60 points for each year, the credits will be given to the following:

- a) training;
- b) elective disciplines;
- c) final thesis.

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

For the first three years of the first degree course 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. According to the E.C.T.S (European Credit

## Conclusion

In conclusion, this brief overview underlines the similarities and at same time the differences of the way sports medicine is organised, structured and practised in the 4 countries surrounding Switzerland, depending on history, culture, organisation of the sport movement and many other factors. One the base of a long-lasting personal experience made of many contacts and visits of national events, we can only warmly recommend every reader to make the effort and go and see the different websites mentioned below, an easy way to get convinced of the richness of such intercultural exchanges, and a perfect start to visit our neighbours directly "in situ"!

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*The author declares no conflict of interest, aside the fact that he personally knows many people from the mentioned organisations, has been or still is honorary member of some of them!*

Transfer System) the credits will be valid even if the student moves from one university to another both in Italy and in Europe.

Already in the 1930's, the Italian Olympic Committee required from all sport organizations to have a sports medical service, what stimulated the early creation of the Federazione Medico Sportiva Italiana, the FMSI, a important association over nearly 4500 members. This very active structure has the particularity of being a full member of the national Olympic Committee CONI, with the corresponding logistical support. This is a unique and obviously quite positive situation. Classically, FMSI runs courses, organizes congresses and training opportunities, but also manages the great number of sports medicine institutes around the whole country.

FMSI also edits a Journal since 1947, called *Medicina dello Sport*, published since a few years in Italian and English (each article appears integrally in both languages), issued 4 times a year in a brochure of over 150 pages each time. It is quoted in Focus One, Sports Sciences & Medicine, SPORT Database, SPORT Discus-BIOSIS and named in Journal Citation reports (ISI). The actual Impact Factor is 0,163.

All four national sports medicine association ÖSMV, SFMES, DGSM and FMSI are (active) member of EFSMA, the European Federation, and of FIMS, the World Association.

You can find interesting information on following sites:

*For Austria*

<http://www.sportmedizingesellschaft.at/>  
<http://www.spm-online.at/>

*For France*

<http://www.sfm.es.org/>  
<http://www.journals.elsevier.com/science-and-sports/>

*For Germany*

<http://www.dgsp.de/>  
<http://www.zeitschrift-sportmedizin.de/>

*For Italy*

<http://www.fmsi.it/>  
<http://www.minervamedica.it/it/riviste/medicina-dello-sport/>

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