

Swiss Federal Institute of Sport Magglingen SFISM

2017 Annual Report



SFISM

Swiss Federal
Institute
of Sport
Magglingen





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«Over the past year we have seen the further development of both students and teaching staff. In striving for excellence, SFISM also learned a lot along the way. This process of continuous development is fascinating. I therefore consider it a privilege to work for the school. » Urs Mäder, Rector of SFISM

«Panta rhei – all things are in flux. People change, and with them the institutions in which they work. SFISM is constantly evolving in a historical continuum in order to meet the needs of the times and a new generation of students. » Walter Mengisen, Co-rector of SFISM and Deputy Director of FOSPO

Summary

Gearing up for the future

2017 saw the Swiss Federal Institute of Sport Magglingen SFISM gear up to meet future challenges: following a review of its operations, it took steps to adapt its structures where necessary, in particular with the forthcoming accreditation as a university in mind. The year was thus characterized by a process of opening up, developing links and reorganization.

As well as student and lecturer exchanges with other universities, staging national and international conferences at Magglingen also brought many visitors from near and far, all sharing a strong interest in and close relationship with sport.

Students from Beijing, Deggendorf and Vancouver sampled the wide range of sports on offer and the exemplary interdisciplinary exchange between sports sciences as part of Magglingen's Summer Schools. During the Magglingen university weeks, students from SFISM and from other Swiss universities and teacher training institutions benefited from ideal conditions for both land- and water-based sports. Around 800 internal and external students took part overall.

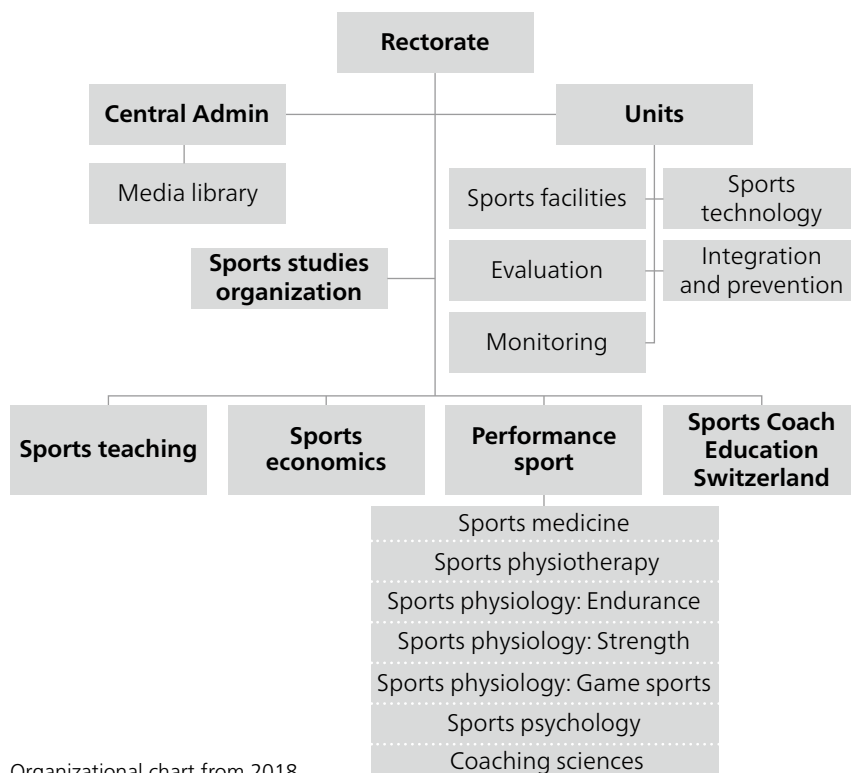
Cooperative ventures in research and teaching, including with the Bern University of Applied Sciences BFH and other Swiss and foreign tertiary institutions, were initiated, maintained or further expanded. A review of the current services offered was undertaken and these were then optimized to better meet the needs of service users. Together with their athletes, numerous national governing bodies and the sport in the armed forces unit benefited from tailored offerings.

SFISM in the national and international spotlight

This year's conference organized by the Sports facilities unit focused on ground-breaking planning projects for sports facilities. The regeneration-themed Magglingen Coaching Conference attracted some 380 participants. Among other speakers, attendees were treated to a presentation by world champion triathlete Daniela Ryf. The annual hepa.ch network meeting presented videos on exercise recommendations and examined the role of prevention in healthcare provision. Jointly with the University of Bern, the Sport and Society section (renamed Sports Economics from 2018) organized the 25th EASM Conference (European Association for Sport Management) in Magglingen and Bern, propelling SFISM into the international spotlight in the field of sports economics. With Hans Ulrich Gumbrecht from Stanford University (USA) attending, even the graduation ceremony reflected international cooperation.

Under new management

Internal reorganization also brought a changeover in the Rectorate – previous Rector Walter Mengisen handed over management of SFISM's day-to-day operations to his former deputy Urs Mäder. Walter Mengisen will remain as Deputy Director of FOSPO and will serve SFISM as Co-rector in future. The various sections and units were reviewed and restructured. In order to lay the groundwork for successful accreditation, SFISM's existing quality management system was analysed and priority measures were then actioned. The development of internal and external communications also helped to improve the public's perception of SFISM.



Organizational chart from 2018

The Swiss Federal Institute of Sport Magglingen SFISM underwent reorganization during 2017 in order to meet future challenges – including preparing for accreditation as a university under the new Federal Act on Funding and Coordination of the Swiss Higher Education Sector. This resulted in various organizational and personnel changes.

The most important of these took place in the Rectorate: Dr. Urs Mäder, previously Prorector, took over operational management of SFISM as Rector from 1 September 2017. In order to facilitate succession planning, Prof. Walter Mengisen – the former Rector – stayed on as Co-rector of SFISM and Deputy Director of FOSPO. Among other things, he is responsible for development projects, acquiring funds from third parties, and international affairs. Within SFISM, he also acts as head of the specialist units and the sports studies organization. Following some merging and regrouping, Dr. Thomas Wyss is now in overall charge of the units. The Sports studies organization, which is responsible for ensuring the smooth delivery of teaching, is now headed by Urs Rüdisühli. Succeeding Dr. Urs Mäder as head of the Performance sport section is Dr. habil. Silvio Lorenzetti. He took over the reins on 1 February 2018.

The Sections experienced the greatest restructuring. From 2018, SFISM will have four of these: Sports Teaching, Sports Economics, Performance Sport and Coach Education.

The media library was brought under the mantle of Central Administration, while the learning media centre was transferred across to the education area of the Youth+Sport organization. As a corollary, the Integration and Prevention competence centre was transferred across from Youth+Sport to become one of SFISM's units.



Magglingen 875 m above sea level

Main building 880 m above sea level

Lärchenplatz track 933 m above sea level

End of the World Hall 961 m above sea level



Magglingen approx. 228 days of sunshine



Social Media SFISM



Teaching

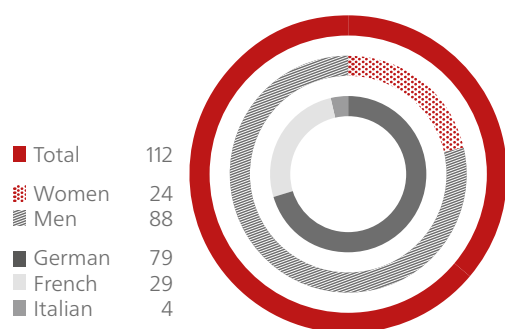
Courses

Bachelor of Science EHSM in Sports

32 students successfully completed a Bachelor's degree following the structure established in 2010.

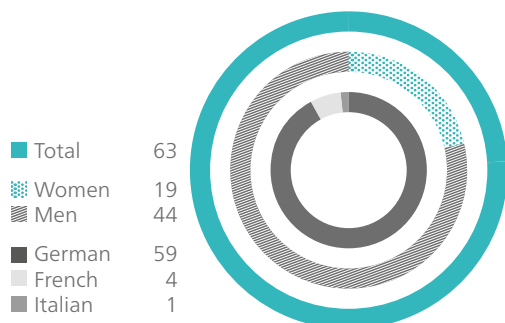
The 2017 Bachelor programme saw the piloting of a new concept first launched in the autumn of 2016. Semesters 1 and 2 plus examination sessions I, II and III took place in the new form for the first time. The semester programmes and running the "block weeks" in between semesters have proved advantageous. The sports teaching and sports management specializations were now taught at the start of the third semester. The module handbook was made available to students and lecturers in digital form for the first time.

The new concept for the aptitude assessment has been drawn up and will be incorporated in the SFISM Ordinance. Implementation of the new incarnation is scheduled for the summer of 2018.



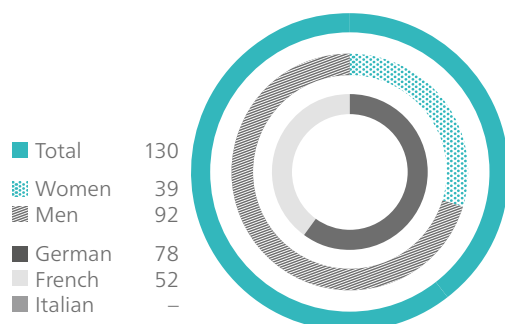
Master of Science in Sports with Specialization in Elite Sports

The Master's degree in elite sports is designed to be run every second year; the current programme commenced in the 2016 autumn semester. The 7th cycle will begin in autumn 2018. The curriculum is structured in such a way that the content covered in the first year is practically applied in a three-month full-time internship in one of two chosen fields of specialization (coaching science and sports management), with students then going on to explore the theoretical aspects in greater depth in the Master's thesis.



Master of Science in Sports Sciences

As they complement each other perfectly, SFISM's cooperation with the University of Fribourg is proving highly successful. Firstly, the number of students has grown and stabilized. Secondly, for students intending to pursue a career as a sports teacher in baccalaureate schools, this degree is the ideal follow-on from the Magglingen Bachelor of Science in Sports. The Master's degree enables students to complete their studies at three different teacher training institutions to obtain the qualification required to teach sport in baccalaureate schools.





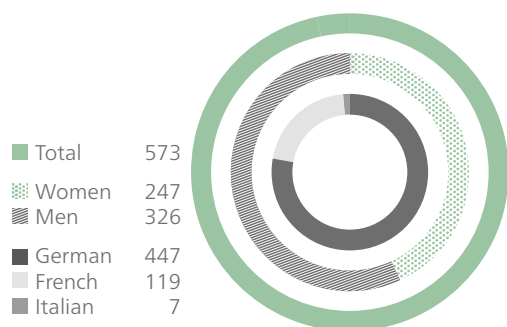
Further education courses

Students from other universities attending SFISM modules

Creating a winning formula is no easy feat, but maintaining a successful track record is even more difficult. However, the Magglingen university weeks (MHW) have succeeded in doing just that. Following the success of the 2016 programme, everyone involved in organizing the 2017 weeks once more stepped up to the plate with extraordinary commitment. Both the university's own staff and guest lecturers brought in to teach on some courses focused on the learning progress of the students during these weeks. Communicating the positive, practice-centred sports experience across Magglingen as the centre for Swiss sport was always placed central stage.

From early July to mid-September, a total of 650 people participated in courses incorporating Y+S youth sport leader certificates for voluntary school sports or challenging introductory and advanced courses in various watersports. German, French and even bilingual courses were offered. Besides getting to know Magglingen, participants also gained the opportunity to network with fellow undergraduates at other Swiss universities – along with SFISM's own students, 2017's participants included sports students from the universities of Bern, Basel, Lausanne, Neuchâtel, Fribourg, the Swiss Federal Institute of Technology (ETH) in Zurich as well as the FHNW and Lucerne Schools of Education.

Preparations for the 2018 university weeks are already well underway, this time under new management: after four years in charge, Patrik Grolimund is passing on the baton to Patricia Steinmann.



Inspiring further education courses

Along with teaching the foundations of sports sciences, SFISM also offers further education courses. All the individual courses on offer and the latest information can be found on SFISM's website (www.ehsm.admin.ch) and in the course finder on the Continuing Education web page of the Bern University of Applied Sciences (www.bfh.ch/weiterbildung/weiterbildungsangebot.html).

A glance at these links shows that SFISM has been positioning itself over many years with tried-and-tested further education offerings ranging from sports management, sports facilities construction and sports journalism through to sports teaching at vocational schools. One event in particular stood out last year: March 2017 saw the retirement of Martin Schwendimann, long-serving head of the CAS Sports Facilities course. Standing down officially at the highly convivial graduation ceremony, he also presented a wide range of high-quality dissertations. The next CAS Sports Facilities course is due to start in autumn 2018 and will now be led by Niklaus Schwarz.

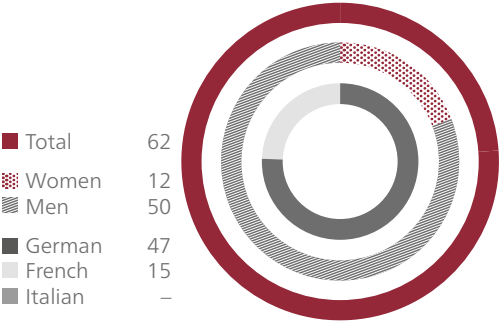
As well as its own courses and teaching programmes, SFISM also took the opportunity to cooperate in a number of joint ventures, either through commissioning activities (e.g. swissuniversities, Bern University of Applied Sciences BFH) or by helping to design further education courses. One example of this is the newly established CAS Sports Nutrition offered in conjunction with the Health Professions Department of BFH. This Certificate of Advanced Studies course commenced in November 2017 with a large intake. Most modules took place in Magglingen and were also taught by SFISM staff in some cases.



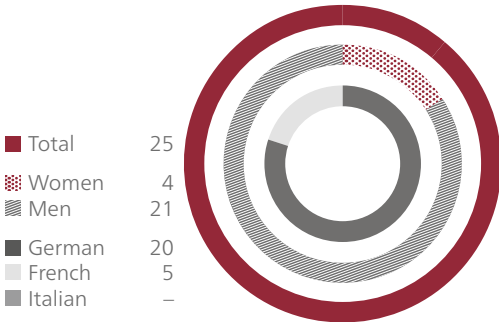
Further education courses

- CAS EHSM Sports Facilities
- CAS/DAS/MAS Sports Management
- eLearning Sports Management
- Quality and competency in vocational school sports

Professional coach training



Diploma coach training



Sports Coach Education Switzerland

In 2014, Sports Coach Education Switzerland was asked by the Federal Office of Sport and Swiss Olympic to evaluate the current range of education and training courses. It came to the conclusion that minor changes to the education and training structure would not produce the desired outcomes. As a result, the parties took the decision to completely rethink the concept for training sports coaches in Switzerland. This development project had a major impact on the work of Sports Coach Education Switzerland in 2017.

- Its activities centred primarily on the following subprojects:
- Linking all education, training and consulting offerings
 - Enabling individualized educational paths (specific to a particular discipline and coach)
 - Developing and producing a digital education planner
 - Coordinating coaching activities and education
 - Greater focus on the personality of the coach
 - Creating practice-centred educational content
 - Introducing new learning media and teaching methods
 - Categorizing qualifications within the National Qualifications Framework (NQF)

The national governing bodies, coaches and internal and external partners of Sports Coach Education Switzerland were regularly updated on the development process, in particular at the Swiss Olympic Forum held in Interlaken in May and at the Magglingen Coaching Conference in October 2017. An overview of the new education and training structure at Sports Coach Education Switzerland can be found at ausbildungsplaner.ch.

The new education and training structure will be launched at the beginning of 2018, and will be subject to ongoing evaluation. The findings from the introductory phase (2018/2019) will then flow into the further development of the services offered. Successful management of the interface with Youth+Sport will also contribute to the success of the new concept.

As well as developing the new education and training structure, a particular focus of the day-to-day work of Sports Coach Education Switzerland was planning and running the 2017 Magglingen Coaching Conference. Headlined “Regeneration – rest is the wellspring of strength”, the Magglingen Coaching Conference was attended by some 380 participants, making it a significant highlight for the Federal Office of Sport FOSPO.



Sports Coach Education Switzerland also performed its customary activities in the field of performance and elite sport during 2017. These included developing and running 39 courses (106 course days), 110 individual consulting sessions and 28 group case supervisions, training 30 coach developers, devising and holding professional examinations, plus delivering a wide range of teaching activities for the Youth+Sport organization and SFISM, also in conjunction with sports associations.

In terms of personnel, Monika Kurath joined Sports Coach Education Switzerland at the beginning of the year with responsibility for elite sport, along with Iwan Schuwey, who is in charge of French-medium coach education. In addition, since the summer of 2017, Patrik Howald (student placement) and William Krebs (business trainee) have reinforced the team at Sports Coach Education Switzerland. Anke Gehlhaar transferred to Swiss Olympic at the end of August.

Sports Coach Education Switzerland is set to become a separate section within SFISM from January 2018. This change is intended to further strengthen the education and training of performance and elite sport coaches.

Cooperation with Swiss Olympic, the umbrella organization for governing bodies, and swiss coach, the professional association of high-performance and elite sports coaches, has been very fruitful. From the end of the year, an advisory board will support the development of Sports Coach Education Switzerland and help further boost the impact of joint projects.

Research and services

Activities for the benefit of the promotion of sports

All activities at the Swiss Federal Institute of Sport Magglingen SFISM centre on advancing sport in Switzerland. SFISM undertakes research and development and provides services for the benefit of and on behalf of sports governing bodies, the cantons and the Confederation. Close cooperation with these stakeholders means that research and development projects are practice-centred and based on the needs of users. For instance, research activities include recording, analysing and optimizing sport and exercise behaviour, for example through the use of sensor systems, electronic training diaries or tests developed in-house. Further examples include studies on the economization of elite sport or the development of tools for training sports teachers and for improving the quality of physical education in schools. Research and development is conducted as part of national and international cooperation projects.

The resulting services therefore reflect the latest findings. As well as providing testing and measurement services for the benefit of athletes, SFISM also considers the societal impact of sport.



R&D projects 25



International and national conferences 8



Cooperations with national sports federations

- Swiss Ice Hockey Federation
- Swiss Football Association
- Swiss Swimming
- Swiss Cycling
- Swiss Ski
- Swiss Triathlon
- Swiss Gymnastics Association
- Swiss Athletics
- Swiss Shooting
- Swiss Handball Association
- International Ice Hockey Federation

Sports economics

In 2017, the Sports Economics section was heavily involved in organizing and participating in the 25th EASM Conference (European Association for Sport Management). Staff were engaged in organizing various aspects, including the Management Game for 50 students, various workshops with 20 PhD students, and the SPLISS Consortium with 20 members. They also arranged symposia covering a range of topics along with presentations from five representatives of international sports organizations. Members of staff also contributed to the development of research in sports management. As well as submitting a number of academic articles, including five abstracts and three oral presentations, they led two symposia with representatives of national and international sports organizations.

Sports teaching

The aim of the research and development activities of the Sports teaching section, alongside its education and training arms, is to provide scientifically underpinned quality assurance and development of compulsory physical education classes. The section focusses on the development of teaching materials (including choreographing teaching and learning; communicating a multi-perspective approach to the teaching of sport), and trialling them as part of SFISM's teaching. Starting from a competence-based physical education model, the section is developing basic tools for measuring the attainment of standards-oriented educational goals, for example in an international cooperation project for the model-based development of technically and linguistically valid test items.

Sports facilities unit

This year the work of the unit focused on education and training. The 5th CAS Sports Facilities certificate of advanced studies course was completed in the spring with Rector Walter Mengisen handing out certificates to 11 graduates. Around 100 participants visited the Buchholz sports facility in Uster. The new swimming centre, boasting an Olympic-size pool, the Griffig climbing wall and squash hall plus the temporary triple sports hall, all attracted considerable interest.

In the autumn, the unit held a conference in Magglingen on "The future of sports facilities – challenges and possible solutions", with expert speakers from both Switzerland and abroad. 150 participants from local authorities, sports associations, architectural practices, facility operators and construction companies attended.

The unit's most important published guidelines will also be made available in Italian in future. The "Planning basics 201 – sports halls" guide is the first in the series now available from the online shop (www.basposhop.ch).

Strength/endurance/game sports

Along with its usual activities, in 2017 research and development in sports sciences and the services provided by the Sports physiology groups for strength, endurance and game sports focussed on providing support for governing bodies during their preparations for major competitions. Athletes and coaches from 20 different disciplines were able to benefit from such scientific support ahead of, for example, the 2018 Winter Olympics in Pyeongchang and the 2018 FIFA World Cup in Russia. Important milestones were also reached for the 2020 Summer Olympics in Tokyo, including a “heat & humidity” laboratory, initial research projects and measures to support individuals.

Sports psychology

Two major research projects (financed by third-party funds) on women’s soccer and on the effectiveness of mindfulness-based interventions in sport were completed. A further focus of the unit’s work was on shortening the questionnaires used to gather data on performance-relevant mental factors more efficiently. The services offered to governing bodies were consolidated and expanded (e.g. to include the U21 national football team and women’s gymnastics). Also, a Master’s dissertation (meta-analysis of the effectiveness of mindfulness-based interventions in sport) was accepted as a peer-reviewed article in an academic journal.

Sports physiotherapy and massage

The main activities of the Sports Physiotherapy section lie in the provision of services, primarily the delivery of physiotherapy and rehabilitation measures for athletes. The team comprising a total of five physiotherapists treated athletes from the National Training Centre as well as those from training camps run by governing bodies, the armed forces and others. The team also provided physiotherapy and massage services to students and staff. The number of athletes attending rehabilitation clinics over several weeks has risen sharply in recent years. Along with expert physiotherapy interventions, such athletes are also able to benefit from the training infrastructure present in the all-round sporting environment at Magglingen.

Among other things, massage therapy is also instrumental in regeneration. Two practitioners and one trainee ensured optimum recovery outcomes and offered various muscle treatment methods.

With respect to teaching, staff lectured on the Bachelor/Master’s degree programmes and coach education courses. Across various interdisciplinary and applied research and development projects, sports physiotherapy forms the basis for evidence-based, sport-specific physiotherapy and rehabilitative interventions.



Performance diagnostics

Strength 482 athletes

Endurance 357 athletes

Game sports 586 athletes



Sports psychology consultations 545

Physiotherapy treatments 4062

Massages 2629

Medical consultations 1193

Sports medicine

As well as providing advice about prevention and other issues of interest to elite sports, this organizational unit aided top athletes from a wide variety of sports associations and elite sport army recruit schools on a daily basis when they experienced acute or long-term injury and illness. Sports medicine also collaborated in various projects – for example, projects exploring the relationship between health and fitness in rhythmic gymnastics or the impact of heat on performance at major sporting events such as cycling, light athletics and football tournaments (not least with an eye to Tokyo 2020). In their capacity as medical support personnel, some members of staff were able to witness the success of gymnasts up close at major competitions.

Sports technology

In the service of Swiss performance sport, the BFH Centre for Technologies in Sports and Medicine conducts interdisciplinary research and development in microtechnology – a field at the forefront of the economy. It aims to develop innovative solutions in collaboration with industrial partners. The Centre draws together the research and development activities of various institutes, specifically the Institute for Human Centered Engineering HuCE, the Institute for Rehabilitation and Performance Technology IRPT, and the Health Professions Department of the Bern University of Applied Sciences with the Swiss Federal Institute of Sport Magglingen SFISM. Establishing the Sports Technology unit further strengthened the position of SFISM in the Centre.

Monitoring and evaluation

Research and services provided by this unit focus on three main areas: the monitoring of fitness and physical exertion in the armed forces, the development and validation of measurement methods, and the evaluation of Y+S. For instance, in addition to evaluating 865 Y+S visits, the unit evaluated the Swiss Armed Forces' new sports concept and the "bike control" project at Swiss Cycling, tested the precision, comfort and resource efficiency of new instruments for measuring the physical exertion of soldiers, and developed an observation tool for assessing the quality of Y+S coaching. Finally, the group was represented in two international research bodies, NATO HFM260 (Enhancing Warfighter Effectiveness with Wearable Bio Sensors and Physiological Models) and the CISM Sport Science Commission.



Learning media

As SFISM enters the world of digital and social media, the need for pictorial and multi-media materials is constantly rising. Besides traditional teaching and learning materials, the Learning media unit also designed and produced photographic documentation and videos of SFISM's activities for the Learning Management System, including live streaming of presentations and conferences. Mediamatics students Julian Käser and Samuel Gmür played an important role here this year. Media skills also featured on the teaching side: the newly designed "ICT/Media" Bachelor module was successfully run over one semester and one block week.

Students and staff made extensive use of the infrastructure and support offered by the media lab for their own media projects in their studies and research.

Media library

The media library offers SFISM students and staff and the general public access to media covering all aspects of sport.

In 2017 it provided research support for a variety of projects (e.g. SFISM's examinations and the Magglingen Coaching Conference) and extended its offering to include advice and guidance on bibliographic assistance tools (EndNote and Zotero, introduced during the 2017 autumn semester). The book scanner acquired at the end of 2016 was much used by students, lecturers and FOSPO staff. The media library was closely involved with developing information literacy. For instance, one member of staff was appointed to the working group on information literacy established at the beginning of 2017 by the BFH libraries special interest group, while another lectured on the "Scientific reading" Bachelor course.

The people pictured represent the various sections and organizational units of SFISM: Paul Friedli, Fabian Lüthy, Dominique Fankhauser, Ariane Weber, Romano Carrara (page 9), Philippe Schütz, Monika Kurath, Iwan Schuwey, Corinne Widmer, Karl William Krebs (page 13), Louis Heyer, Stephan Horvath, Christoph Schärer, Anna Hauser, Marisa Wunderlin (page 19), Andreas Weber, Alain Dössegger, Fatima Weber, Florence Pillet (page 21)



Selected publications

All SFISM's publications are listed on www.ehsm.admin.ch

Reliability of the virtual elevation method to evaluate rolling resistance of different mountain bike cross-country tyres

Thomas Maier, Beat Müller, Lucas Schmid, Thomas Steiner and Jon Peter Wehrlin
Swiss Federal Institute of Sport, Section for Elite Sport, Magglingen, Switzerland

Abstract: Although a low rolling resistance is advantageous in mountain bike cross-country racing, no studies have used the virtual elevation method to compare tyres from different manufacturers as used in international competitions so far. The aims of this study were to assess the reliability of this method, to compare the off-road rolling resistance between tyres and to calculate the influence on off-road speed. Nine 29-in. mountain bike cross-country tyres were tested on a course representing typical ground surface conditions 5 or 6 times. The coefficient of rolling resistance was estimated with the virtual elevation method by 3 investigators and corresponding off-road speeds were calculated.

The virtual elevation method was highly reliable (typical error = 0.0006, 2.8%; limits of agreement <0.0005 , $r \geq 0.98$). The mean coefficient of rolling resistance was 0.0219 and differed from 0.0205 to 0.0237 ($P < 0.001$) between tyres. The calculated differences in off-road speed amounted to 2.9–3.2% (0% slope) and 2.3–2.4% (10% slope) between the slowest and the fastest tyre.

The reliability of the method and the differences in rolling resistance between the tyres illustrate the value of testing tyres for important competitions on a representative ground surface using the virtual elevation method.

Development of a model for evaluating the impact of the Youth and Sport programme

Dössegger Alain, Weibel David, Frei Klaus Michael, Wissmath Barth, Hense Jan.
Zeitschrift für Evaluation

Abstract: Program models have become an increasingly used evaluation instrument in theory-based evaluation approaches. However, many questions concerning adequate procedures for developing and using program models in evaluation remain open. In part, this problem could be due to a lack of sufficiently detailed descriptions of specific case examples. After a short overview of the role of program models in the evaluation literature, the development of a program model of the Swiss 'youth and sports' program is described in detail. The development was simultaneously based on literature review and stakeholder input. The experiences made during this procedure are reflected from three perspectives: commissioners, model developers, and evaluation theory. A particular focus concerns three often-mentioned challenges in using program models in evaluation: Are program models blind for unintended outcomes? Should program models reflect stakeholders' views or theories? Is the effort developing a model warrantable?

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