SFISM
Swiss Federal
Institute
of Sport
Magglingen

2020 Annual Report

Swiss Federal Institute of Sport Magglingen SFISM

FOSPO
2532 Magglingen

Schweizerische Eidgenossenschaft
Confédération suisse
Confederazione Svizzera
Confederaziun svizra

Federal Office of Sport FOSPO

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Cover photo: Bachelor's students perform apparatus gymnastics while observing the coronavirus protection concept for teaching

Preface

2020 will go down in history as the year of the pandemic. Like the entire Federal Office of Sport, the Swiss Federal Institute of Sport Magglingen started January with a new structure and the new year with a freshly printed strategy for the period up to 2024. After a few months, the strategic objectives suddenly fell by the wayside: their priority had to give way to that of the protection concepts to minimise the risk of infection. While a few measures to achieve the strategic objectives were actually fuelled by the situation, others were put on hold or lost momentum. The way of collaborating between the FOSPO departments and between colleagues changed drastically. The distance hampered informal exchanges and spontaneous encounters.

On the other hand, the situation ushered in the introduction of the long-awaited video conference at previously unthinkable speed. This helped with the strategic objective of pushing forward the digitisation of teaching, for which the SFISM organised a retreat. The event allowed us as speakers and participants to gain initial, intensive experiences with this medium. Unfortunately, with the second wave and the upcoming autumn semester, the focus moved away from further developments in the area of digital teaching. But these approaches and projects will come to the fore again after the pandemic.

As such, we are looking forward to starting the new year together with you, despite the ongoing uncertainty.

Yours sincerely

Dr Urs Mäder
Rector of SFISM

Dr Thomas Wyss
Deputy Rector of SFISM

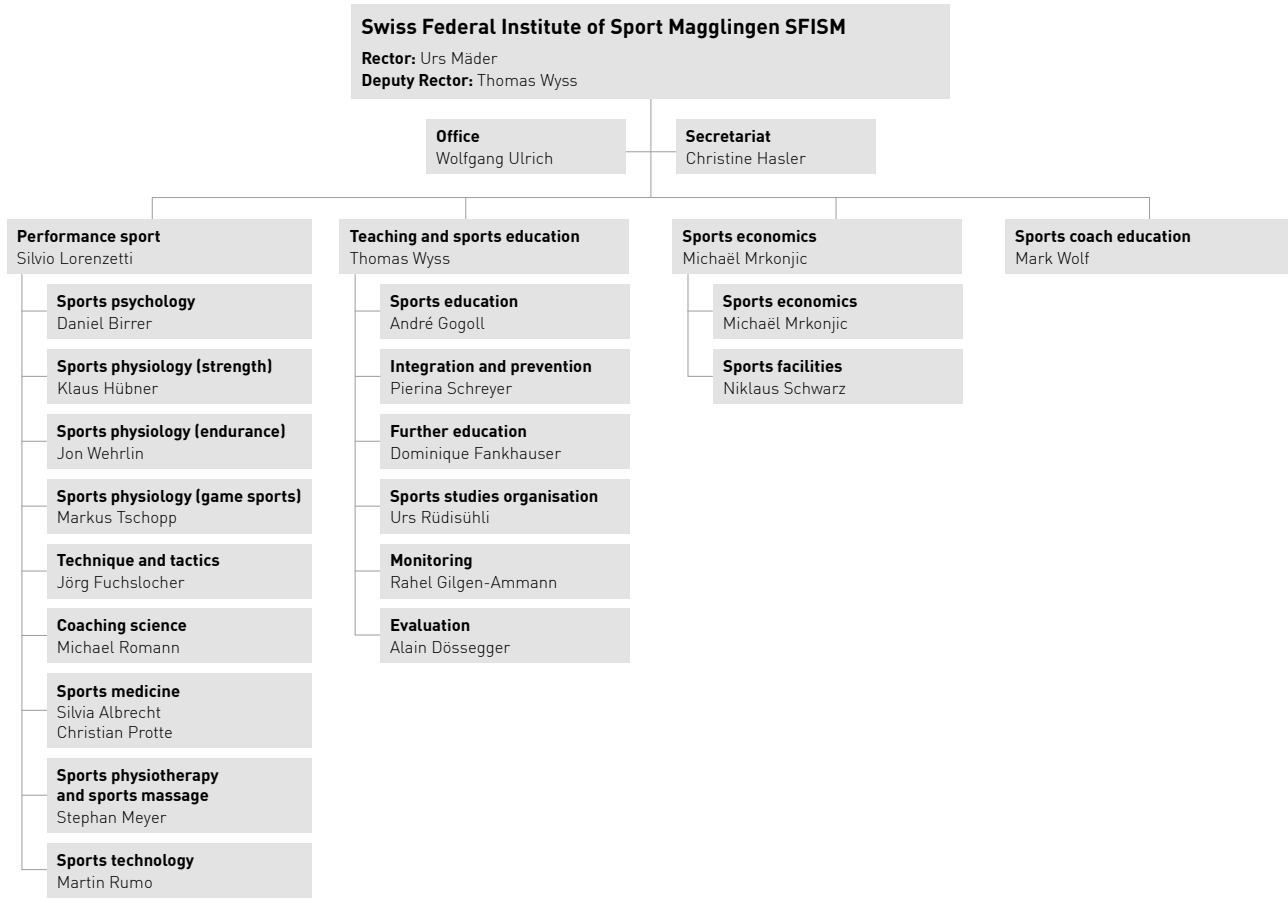
Rectors Dr Urs Mäder and Dr Thomas Wyss talking about quality assurance at SFISM

Further development in terms of quality assurance

The year under review left its mark on the Federal Institute of Sport Magglingen SFISM in many ways, including the organisational chart, employees and infrastructure. The top priority is to maintain and improve quality.

The reorganisation of the Federal Office of Sport FOSPO also resulted in structural and staff changes at the SFISM. The specialist units, which previously formed one separate unit, were transferred into the four existing departments. The SFISM Office now operates in two organisational units: Central Services and Services. There was also a change in SFISM's management, as co-rector Walter Mengisen retired and was replaced by Dr Thomas Wyss as Deputy Rector.

The new organisational structure is intended to bring people together, form new teams and consolidate new processes. The Covid-19 pandemic came to the fore during the structural renovation and construction phase in March. Employees increasingly switched to working from home, which required flexibility and improvisation skills. Personal contact became more rare and was finally replaced entirely by online meetings and events.



SFISM organisational chart, 2020.

New building for Hochschule Lärchenplatz

At the same time, work got under way for the replacement building for Hochschule Lärchenplatz. The building housing the Swiss Olympic Medical Center, the performance diagnostics rooms and the offices was outdated. Performance diagnostics and recovery in particular require specific infrastructure and more space to meet today's demands. The demolition of the old building on Alpenstrasse resulted in all operations at Hochschule Lärchenplatz being temporarily moved and maintained at various locations. This required meticulous preparation and a perfectly-timed relocation of offices and equipment. The temporary arrangements were put into operation in April, and construction began on 1 May. The new building is set to open in 2023.

Continuation of the conceptual basis for institutional accreditation

In spring 2021, SFISM will start the process of institutional accreditation. With this in mind, some important preparatory work was undertaken in the year under review. Together with the FOSPO Legal Department, it was possible to initiate the revision of the Sports Promotion and SFISM Ordinances and draft organizational regulations for the SFISM. In collaboration with the HR department, the preparatory work for the promotion of young scientists has made further progress. Together with Finance and Controlling, important questions regarding budgeting and the use of third-party funds by SFISM were discussed. At SFISM level, the degree programme evaluation project began. In terms of teaching in particular, the new organisational structure is also helping to ensure the quality of teaching in the long term, and develop it further.

Reorganisation of the Office

The Office performs key tasks within the SFISM and provides a link to both the other FOSPO departments as well as Bern University of Applied Sciences (BFH). It supports the Rectorate and creates the best possible conditions to enable the SFISM's Teaching, Research and Services departments to concentrate on their core activities. The Office was reorganised in the year under review: university-specific support services were condensed into the "Central Services" organisational unit, and interface roles into the "Services" unit. Merging these different activities forms the basis for the successful management of SFISM as a whole institution within FOSPO and in close partnership with BFH.

SLSP, arbor and operations in the sports media library despite Covid-19

The sports media library in Magglingen maintained operations despite the pandemic lockdown and the subsequent restrictions. The home delivery of books ordered by students and lecturers was an essential measure.

Full-time equivalents: **99**

Employees **123**

SFISM Social Media

R+D projects published 36

Cooperation with sports associations

- Swiss Olympic
- Swiss Ski
- Swiss Ice Hockey Federation
- Swiss Athetics
- Swiss Gymnastics Association
- Swiss Cycling
- Swiss Aquatics
- Swiss Triathlon
- Swiss Shooting
- Swiss Football Association
- Swiss Handball Association

Partner universities

International mobility
- 17 in Europe
- 3 worldwide
- 6 with BFH umbrella contracts

Student mobility

Outgoing students: 8
(as part of the immersion semester)
Work placements: 1

Magglingen 875 m above sea level

High School main building 880 m above sea level

Lärchenplatz 933 m above sea level

End der Welt Hall 961 m above sea level

The media library in Magglingen was previously part of the Basel-Bern library network. At the beginning of 2021, this was broken up and the libraries migrated to the Swiss Library Service Platform (SLSP). This comprises around 500 scientific libraries in Switzerland, meaning students, lecturers and other users of the media library in Magglingen can access an even more extensive range of materials in future. In addition, it will be possible to order titles from the media library's stock via the inter-library courier service from SLSP in future. The switch to this new platform required various preparatory work in the year under review, which the library team took care of. Furthermore, the first research publications from the SFISM were published in the Applied Research Bern Open Repository (arbor) with the support of library employees, and thus made accessible to the public.

Wanted: creative solutions in university sport

The BFH-wide university day, "the games", has been held in Magglingen for over 20 years. In the year under review, this event, like many other university sports events, fell victim to the measures taken to combat the Covid-19 pandemic. The university sports network reacted quickly and flexibly to the changing situation and prepared alternative offerings that took the protection concepts into account. Sports lectures were streamed via Webex and tips to keep moving while in the office were published in the BFH employee magazine.

Handling the Covid-19 crisis as an international challenge

The international scale of the Covid-19 pandemic was especially noticeable in the area of student mobility: a quarter of semesters abroad could not be realised as planned, even though the SFISM, students and partner universities did their utmost to find feasible solutions. However, it is gratifying to note that the Bachelor's "block week" with Deggendorf am Attersee (Austria) and the Deggendorf students' visit to Magglingen were able to go ahead. Equally encouraging is the commitment from Movetia to provide financial support for the international Summer School, which the SFISM will not hold until 2022.

Establishing a national standard for admission to university sports courses

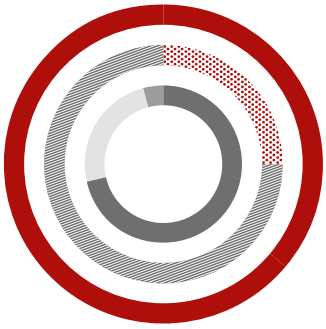
The Swiss Higher Education Council, one of the three joint bodies of the federal government and cantons for managing the Swiss university landscape, revised the admission requirements for universities in 2020. FOSPO, together with the SFISM the only institution in the university environment offering courses in sports studies, took advantage of this opportunity to have the specialist area of sport included in the new ordinance. This accomplishes two things: sports courses are now no longer outliers in the Swiss university landscape but are governed in the same way as all other specialist subjects. Including sports in the ordinance also ensures that in future the same admission requirements will apply to new sports courses at university level as at the SFISM.

Where would the SFISM be without its employees? It was our employees who successfully maintained our teaching, research and development, as well as university services this year, even in strange and sometimes difficult situations that frequently required additional effort. As such, they – as representatives of their departments – are the photographic subjects in this year's annual report.

Lea Eugster, Office, works from home with cat Vitus

Education and training

Teaching was characterised by change in the year under review. On the one hand, the Covid-19 pandemic quickly turned teaching on its head at the SFISM, meaning that lecturers gained a wealth of experience in digitisation issues. On the other hand, the organisation of the education and training courses at the SFISM was restructured. SFISM management is now given a more central role. The position of Vice Rector of Teaching and the "Quality and Development of Teaching" working group were created to provide guaranteed support.



Bachelor of Science
127 students

Women	32
Men	95
German-speaking	91
French-speaking	31
Italian-speaking	5

Bachelor of Science in Sports

The transition to remote learning was a huge challenge for everyone – for students and lecturers, but also for the secretariat, study managers and IT specialists. When it came to practical sports studies, lecturers came up with some very creative and elaborate solutions in order to keep the courses running.

The aptitude assessment had to be postponed due to the closure of facilities in August. Owing to the uncertain situation and the delay, some candidates opted out until the assessment could actually be held. In the end, 81 sports enthusiasts (18 women and 63 men) took part in the aptitude assessment, which was adapted to the protective measures. In September, 40 qualified students began their studies (11 women and 29 men, including 4 female elite athletes and 4 male elite athletes).

The graduation ceremony in October also had to be adapted, becoming a celebration for the students – with masks, social distancing and no companions. Relatives had the opportunity to follow a live stream of the ceremony, which took place in the usual, dignified way. Guest speaker Dennis Lück, 2017 Advertiser of the Year, gave a motivating speech, providing students with plenty to think about with regard to creativity on their future path. 30 Bachelor's students received their degree certificates. In addition, awards went to the Bachelor's dissertations by Caterina Barloggio (1st place), Tobias Kaufmann (2nd place) and Thomas Decerf (3rd place).

Master of Science in Sports with Specialisation in Elite Sports

In autumn, 39 students started the Master's programme in elite sports in the new academic year. Of these, 11 are training to become sports managers and 28 coaching scientists.

Thanks to the SFISM's protection concept for teaching, lessons could be held face-to-face for the first seven weeks of the autumn semester. Many students were grateful to be able to take up this offer following the lockdown in the spring semester. The interaction between theory and practice – and between lecturers and students – was excellent. At the same time, the majority of lectures were live-streamed and the teaching materials were completed digitally. A milestone for the Master's programme in elite sports.

The second half of the autumn semester was conducted entirely via remote learning as specified by the Federal Council. The course organisers and their teams of lecturers were well prepared for this and were committed to holding the planned lecture content online.

23 students received their degree certificates at the graduation ceremony. Joris Kuger (coaching science) and Alessio Petra (sports management) received awards for the best Master's dissertations in their respective specialisations. At the graduation ceremony, Mara Gander, another graduate, reported via video message on her experiences as a sports scientist with Swiss Ski. It is gratifying to see that many graduates are already working in the field of elite sports.

Master of Science in Elite Sports
62 students

Women	22
Men	40
German-speaking	53
French-speaking	8
Italian-speaking	1

Master of Science in Sports Sciences

The number of students on the Master's course conducted jointly with the University of Fribourg fell slightly compared with the past few years. In the autumn semester, 32 students began their Master's degree, 12 of whom were SFISM graduates. This study programme is very attractive for them: it not only allows them to teach at secondary level II (baccalaureate schools and vocational schools), it also provides access to a PhD. The Master's programme is at the crossroads between the systematic consolidation of sports scientific knowledge following on from a Bachelor's degree and the methodical and didactic expectations of the majority of students who intend to work as sports teachers. The Master's degree enables students to complete their sports teacher studies at various teacher training institutions to obtain the qualification required to teach sport in baccalaureate schools and vocational schools.

Master of Science in Sports Sciences
125 students

Women	40
Men	85
German-speaking	73
French-speaking	52
Italian-speaking	0

9 external students
70 SFISM students
79 students

Women	16
Men	63
German-speaking	73
French-speaking	6
Italian-speaking	0

Further education courses

- CAS SFISM Sports Facilities
- CAS SFISM SLGOV

Magglingen university weeks (MHW)

Students from other universities attending SFISM modules
Owing to the Covid-19 pandemic, it was only possible to provide a reduced offering in the year under review, with a total of 85 students taking part. The usual Magglingen university weeks (MHW) were cancelled.

70 SFISM students and 9 students from external universities who required mandatory attendance at the MHW to be able to complete their studies were able to take advantage of the reduced offering under strict Covid protection measures.

The students took part in either the "MHW school sport" course week, in which they were taught practical content relating to voluntary school sport on site and received a Y+S school sport leader certificate, or in "MHW sport", where they could choose from watersports such as dinghy, windsurfing and whitewater canoeing. Yacht sailing was not possible owing to the distancing rules. The theoretical content was taught digitally in online courses.

Further education courses

For a few years now, the SFISM has been offering further education courses by itself or in collaboration with its partners (e.g. as part of the Swiss Sport Management Center). They reflect the SFISM's desire to contribute to a comprehensive range of further education courses, based on its specific skills. The creation of a "Further Training" organisational unit within the Teaching and Sports Education department, which will assist the departments in the development of appropriate further education products, is especially worthy of note.

CAS SFISM Sports Facilities
CAS SFISM Sports Facilities began in November 2018 with 30 participants. The written dissertations were submitted at the end of 2019. At the beginning of September 2020, 24 graduates received their certificates. The various dissertations can be viewed at www.fachstelle-sportanlagen.ch.

CAS SFISM in Strategy, Leadership and Governance in Sports Organisations
By exploiting the synergies with Bern University of Applied Sciences (BFH) Department of Economics, the Executive Master of Business Administration (EMBA) Excellence in Sport Management became a reality. The CAS SFISM in Strategy, Leadership and Governance in Sports Organisations provides an important basis within this EMBA. The new course was completely designed and advertised in the year under review, and will start at the end of 2021.

Practical lesson on the Bachelor's course: apparatus gymnastics with Jsabelle Scheurer

Caterina Barloggio: Einfluss eines pliometrischen Trainings auf die Sprungkraftleistung im Kunstturnen bei Mädchen zwischen 10 und 16 Jahren.
Referent: Dr. Klaus Hübner, Ko-Referent: Alberto Tolomini.

Einleitung: Für eine international gute Bewertung im Kunstturnen sind ein hoher Schwierigkeitsgrad der Übungen, die korrekte technische Ausführung und eine grosse Bewegungsamplitude in den Elementen notwendig. Physische Voraussetzung dafür ist ein ausgezeichnetes Niveau der Explosiv- und der Reaktivkraft. Dieses kann durch ein pliometrisches Training verbessert werden.
Methode: Der Zweck dieser Interventionsstudie war zu untersuchen, ob ein gezieltes pliometrisches Training im Nachwuchs- bzw. Juniorenkader einen positiven Einfluss auf die Explosiv- und Reaktivkraft hat. So wurde über fünf Wochen mit 11 Kunstturnerinnen zwischen 10 und 16 Jahren (alle Kaderathletinnen) zwei Mal wöchentlich ein pliometrisches Trainingsprogramm, bestehend aus fünf Übungen, durchgeführt. Vorher und hinterher wurden auf Kraftmessplatten die Explosivkraft (beidbeinige elasto- und statodynamische Sprünge, einbeinige elastodynamische Sprünge) und die Reaktivkraft (Niedersprünge aus 20 cm, 40 cm und 60 cm Höhe) gemessen. Zusätzlich wurde die Sprunghöhe beim Salto rückwärts gestreckt am Boden ermittelt.
Resultate: Die Leistungen aller Turnerinnen (n = 4) haben sich beim Explosivkrafttest im Vergleich zur ersten Messung verbessert, allerdings nicht signifikant (p = 0.068). Bei der Reaktivkraft stagnierten oder verschlechterten sich die Leistungen (ebenfalls nicht signifikant). Die Analyse der Ergebnisse der Höhen des Saltos rückwärts gestreckt ist wegen der hohen Ausfallquote (nur n = 2) nicht möglich.
Diskussion und Konklusion: Die hohe Ausfallquote aufgrund der generell hohen Trainingsbelastung (daher die kleine Anzahl an Teilnehmerinnen am zweiten Test), das hohe Trainingsgrundniveau der Turnerinnen und die eventuell zu kurze Interventionszeit ermöglichten (noch) keine grossen (signifikanten) beobachtbaren Trainingsanpassungen. Allerdings haben sich alle Turnerinnen in der Explosivkraft verbessert. Ausserdem stellten sowohl die Trainer als auch die Athletinnen subjektiv einen positiven Einfluss auf die Dynamik der sportartspezifischen Bewegungen fest.
So scheint ein sorgfältig und individuell angepasstes pliometrisches Training für die Entwicklung der Schnellkraft dennoch empfehlenswert. Dies gilt insbesondere für jüngere Athletinnen (10 bis 13 Jahren), die im Vergleich zu älteren (13 bis 16 Jahre), noch kein Maximalkrafttraining durchführen können. Weitere Studien in diesem Leistungssportbereich sind sicher sinnvoll.

Tobias Kaufmann: Nutzung der Bewegungsräume «im Freien» und der «freien Natur» während des Sportunterrichts im Fachbereich Bewegung und Sport an den Kantonsschulen und Gymnasien der Deutschschweiz.
Referent: Prof. Dr. André Gogoll.

Einleitung: Ein Sportunterricht im Freien mit der Nutzung von vielfältigen Bewegungsräumen ausserhalb der Sporthalle – diese Art von Sportunterricht und die persönliche Inspiration durch «Friluftsliv» bilden die Basis dieser Arbeit. Das skandinavische Kulturgut «Friluftsliv» (wörtlich übersetzt «Freiluftleben») hat sich der intensiv gelebten Beziehung zur Natur und den Aktivitäten im Freien verschrieben und liefert damit beispielhaft wichtige Strukturen zu Outdoor-Aktivitäten. Die von Friluftsliv beschriebenen Bewegungsräume «im Freien» und «freie Natur» regen zur kreativen Nutzung für Sport-Aktivitäten im Rahmen des Sportunterrichts und der Sportpädagogik an. Die Aktivitäten in diesen Bewegungsräumen versprechen eine erlebnisreiche Zeit und fördern nebst den technischen Fähigkeiten auch soziale, persönliche und intellektuelle Kompetenzen. Die Lehrpläne der Deutschschweizer Kantonsschulen und Gymnasien geben für das Fach «Bewegung und Sport» Fachbereiche vor und definieren deren Inhalte und Kompetenzen. Die Umsetzung obliegt den Fachlehrpersonen, was dazu führt, dass die Indoor- und Outdoor-Bewegungsräume sehr unterschiedlich eingesetzt bzw. genützt werden. Die vorliegende Bachelorarbeit hatte zum Ziel, die Praktizierung von Outdoor-Aktivitäten und Sport im Freien während des Unterrichts im Fach «Bewegung und Sport» an den Kantonsschulen und Gymnasien der Deutschschweiz zu untersuchen. Dabei lag der Fokus auf dem Gewinn einer Übersicht von Fertigkeiten und Kompetenzen, die entweder im Bewegungsraum «im Freien» oder im Bewegungsraum «freie Natur» erworben wurden. Gleichzeitig sollte eine Sammlung von praktizierten Outdoor-Sportarten erstellt werden. Da Outdoor-Sport ein sehr weit gefasster Begriff ist, wurden zur besseren Eingrenzung die Begriffe «Outdoor-Sport» und «Outdoor-Natursport» hergeleitet und verwendet.
Methode: 105 Kantonsschulen oder Gymnasien der Deutschschweiz wurden mittels Online-Fragebogen, der an die Lehrpersonen der Fachschaft Sport gerichtet war, befragt. Die Antworten lieferten Zahlen und Merkmale – geordnet nach Fachbereichen – zur Nutzung von Bewegungsräumen «im Freien» bzw. «freie Natur» und zu dort erlernten Kompetenzen und Fertigkeiten. Gleichzeitig konnte eine Vielzahl von Outdoor-Sportarten für eine explorative Übersicht der Themenfelder gesammelt werden.
Resultate: Sämtliche Fachbereiche wurden mit einer gewissen Anzahl an Lektionen in der freien Natur unterrichtet. Die Untersuchung der einzelnen Fachbereiche lieferte einen vielfältigen Überblick über die Bewegungsformen und Sportarten und damit auch über die entsprechend erworbenen Fertigkeiten und Kompetenzen. Die Fachbereiche «Laufen, Springen, Werfen» und «Spielen» wurden am häufigsten in der freien Natur praktiziert. Es konnte kein kantonaler Unterschied zwischen der Nutzung der verschiedenen Bewegungsräume festgestellt werden. Die Bewegungsräume «Sportplatz» und «Ra-

senplatz» waren die hoch signifikant meistgenutzten Räume. In der Sammlung an Outdoor-Sportarten hoben sich die «klassischen Ballsportarten» und der «Laufsport» von den anderen Bewegungsformen-Kategorien ab.

Diskussion und Konklusion: Mit der Untersuchung konnte eine Vielfalt an Bewegungsformen und Sportarten samt deren Nutzung der Bewegungsräume in der freien Natur dargestellt werden. Die dominierenden Fachbereiche «Laufen, Springen, Werfen» und «Spielen» sowie die Bewegungsräume «Sportplatz» und «Rasenplatz» können dem «Outdoor-Sport im Freien» und dessen Merkmalen zugeschrieben werden. Die Sammlung an Outdoor-Sportarten lieferte ein vergleichbares Bild zu diesen Fachbereichen und Bewegungsräumen. Diese ausgeprägte Praktizierung von «Outdoor-Sport im Freien» gegenüber dem «Outdoor-Sport in der freien Natur» kann mit der Abhängigkeit vom limitierenden Faktor Zeit diskutiert werden. Das weit gefasste Verständnis von «Outdoor-Sport», der Nutzungsunterschied der Bewegungsräume und deren Einsatz in der Praxis führten zu Erkenntnissen, die nach weiteren Untersuchungen in diesem Themenbereich verlangen. Die Bachelorarbeit liefert dazu eine wertvolle Basis.

Thomas Decerf: La Carrière «duale» dans le sport d'élite en suisse. Analyse des possibilités de formations au niveau universitaire et des hautes écoles pour les sportifs d'élites suisses.

Conseillère: Florence Pillet.

Introduction: Ce travail porte sur les aménagements offerts aux sportifs d'élites en Suisse dans les hautes écoles et les universités. Lors de cette recherche, nous allons analyser les possibilités d'études proposées actuellement aux sportifs d'élite en Suisse au sein des différents établissements universitaires et hautes écoles en fonction des disciplines sportives exercées et les opportunités de formations qui pourraient être mises en place dans le système éducatif suisse pour améliorer la carrière duale des athlètes d'élite suisses.

Méthode: La recherche de données quantitative a été effectuée avec les 117 institutions en collaboration avec Swiss Olympic dans le but d'offrir des aménagements aux sportifs d'élites. Pour les données quantitatives, trois interviews avec trois experts, venant des différents niveaux du sport en Suisse, ont répondu à un questionnaire. Par la suite nous avons analysé et combiné ces données. Pour finalement présenter les résultats selon la matrice SWOT.

Résultats: Force**:** Nombres d'institutions proposant des aménagements. Les différents types d'aménagements pour les sportifs d'élites. Le système de coordinateurs, comme point de contact pour les athlètes. Aucune différence de critères entre les sports.

Faiblesse: Nombre d'institutions ne proposant rien. Critères pour obtenir ces aménagements sont élevés et réservés à l'élite. Le manque de coordination entre les universités et les clubs, associations et entre les sportifs et leur club. Critères favorisaient certains sports.

Opportunités: Uniformiser le système juridique en lien avec le sport et les études. S'inspirer des systèmes des autres pays. Améliorer la collaboration entre les clubs et les athlètes et les universités. Les cours en ligne pour les sportifs d'élites.

Menaces: La mentalité dans les clubs liés aux sportifs d'élites faisant une formation. La mentalité dans la société liée à la carrière duale.

Discussion et conclusion: En ce qui concerne la première question de recherche, il existe beaucoup d'aménagements différents mis en place pour les sportifs d'élites. Mais aucune institution offrait toutes ces possibilités. Les critères, quant à eux, sont uniformes pour toutes les disciplines sportives. Il serait intéressant lors d'un prochain travail de recherche de mettre en place ces aménagements dans une université ou haute école pour observer les changements du côté des sportifs d'élite.

Concernant la deuxième question de recherche, nous avons remarqué que certaines possibilités peuvent être mis en place pour améliorer la carrière duale en Suisse. Pour cela, il faut modifier la structure de base en se penchant sur un sport étude dont le cadre est avant tout le sport. De plus, nous avons remarqué que la mentalité de la société doit être modifiée et se renforcer envers la carrière duale. Une étude liée à la promotion de la carrière duale au sein de la société serait donc intéressante pour observer le ressenti des personnes.

Joris Kuger: Reliability of Upper Limbs Explosive Strength. Assessment for Combat Sports (Vertiefung Trainingswissenschaft).
Referent: Micah Gross; Ko-Referentin: Monika Kurath.

Introduction: Upper body strength and power play an important role in judo and wrestling for attacking and defending. Commonly in routine testing, national sport federations assess dynamic strength in the upper body by using a one repetition maximum (1 RM) for a pushing and a pulling exercise. Yet, there is a lack of testing for muscular power. Lately, the assessment of the force-velocity (*f-v*) profile gained popularity in assessing force, velocity and power at different loads. It pictures well an athlete's explosive strength abilities and can be used to see their development over time. Thus, the goal of this study was to test the *f-v* parameters of a newly developed assessment on intra- and intertest reliability.
Method: The tested subjects (n = 19, age = 21.74 ± 2.20 y, body mass = 79.02 ± 11.66 kg) were male national to international level wrestlers and judoka. After 1 RM testing and familiarization, athletes carried out two sessions separated by at least 48 hours and maximum 15 days. In the sessions, subjects were tested at five different loads (10-90% 1 RM) and at 50% 1 RM under an eccentric preloaded condition in cable bench pull (CBP) and inclined bench press (IBP). Mean velocity (v_{mean}), mean force (F_{mean}), mean power (P_{mean}) and peak power (P_{peak}) for each loading condition were analysed. Therefrom, hypothesized maximum force (F_0), hypothesized maximum velocity (v_0) and maximum power (P_{max}) were calculated. Additionally, the preload to no preload ratio, the disbalances between the two exercises ($P_{max\ IBP/CBP}$) and lateral disbalances (LD) were tested. The reliability was assessed with a students t-test or Wilcoxon-test, Cohen's ***d*** effect size, the typical error (TE) and the coefficient of variation (CV).
Results: When comparing two sessions of the CBP exercise, CV values of power, force and velocity parameters ranged from 1.5-7.5%, except P_{mean} load 1 (10.4%). LD had a TE of 1.5-4.2%. IBP intertest reliability was slightly better than in the CBP exercise. The CV values of power, force and velocity parameters ranged from 0.7-7.4% except v_{mean} load 5 (12.7%), P_{mean} load 5 (12.9%) and the ratio of preload to no preload condition in P_{mean} (10.1%).
Intratest reliability was good in CBP (CV = 1.5-6.5%) and IBP (CV = 1.8-6.5%), except at load 1 and load 5 in CBP (CV = 2.7-7.5%) and IBP (CV = 0.6-13.7%).
Discussion and Conclusion: The results show, that the inter- and intratest reliability of both exercises is good between load two and load four. Load one seems to be influenced by learning effects and could be avoided by adding repetitions to stabilize the value. The low reliability at loads > 70% 1 RM can't be explained and should be avoided in future testing. The reliability of F_0 and v_0 could have been influenced by the poor reliability of load 1 and 5. It seems that LD can be detected reliably with this test. For a good reliability of the preloading condition, the reliability of the control parameters must be improved. P_{max} and $P_{max\ IBP/CBP}$ are highly reliable.

Alessio Pietra: Vergleich der Sportfreundlichkeit von Kantonen im Jahr 2019. Wissenschaftliche Entwicklung eines Kriterienrasters für die Messung der Sportfreundlichkeit von Kantonen (Vertiefung Sportmanagement).
Referent: Dr. Andreas C. Weber, Ko-Referent: Roger Schnegg.

Einleitung: Laut Schnegg & Egli (2019) wird der Sport in jedem Kanton auf unterschiedliche Art und Weise unterstützt und gefördert. Sportförderung wird auf kantonaler Ebene konzipiert und fällt daher unterschiedlich aus. Ein Vergleich der Leistungen der verschiedenen Kantone in der Sportförderung ist nur anhand von objektiven Kriterien und Indikatoren möglich. Die bestehende Literatur weist hinsichtlich dieser Thematik Forschungslücken auf. Ziel dieser Arbeit ist es, ein Kriterienraster zu entwickeln, mit welchem die Sportfreundlichkeit der Kantone evaluiert und verglichen werden kann.
Methode: Durch 16 Experteninterviews wurden Indikatoren gesammelt, die eine Evaluation der Sportfreundlichkeit der Kantone ermöglichen. Die gesammelten Indikatoren wurden durch eine Onlineumfrage von 35 Expertinnen und Experten bewertet und haben eine Note zwischen 1 und 5 bekommen. Anhand dieser Noten wurden die Indikatoren reduziert. Die Anwendbarkeit dieser Indikatoren wurde durch die Datenerhebung einer Stichprobe von acht Kantonen geprüft. Die nicht anwendbaren Indikatoren wurden anschliessend aus dem Kriterienraster entfernt. Für jeden Indikator wurden danach Punkte verteilt.
Resultate: Als Resultat dieser Arbeit wurde ein Kriterienraster mit 45 Indikatoren entwickelt, die den sechs Kriterien Breitensport, Sportpolitik, Sportinfrastruktur, Sport und Bildung, Leistungs- und Spitzensport sowie Sportevents untergeordnet wurden. Von den Kantonen, die als Stichprobe untersucht wurden, hat Luzern das beste Ergebnis erreicht.
Diskussion und Konklusion: Die Ergebnisse dieser Studie zeigen, dass ein objektiver Vergleich der Sportfreundlichkeit der Kantone möglich ist und dass sich mit dem entwickelten Kriterienraster verschiedene Anwendungsmöglichkeiten ergeben. Daher werden vier Anwendungsmöglichkeiten vorgeschlagen: ein einzelnes Label, ein Label mit den Einstufungen Gold, Silber und Bronze, eine Rangliste der Kantone und ein Selbstevaluationsinstrument.

Teaching and sports education

The department was formed in March when six existing organisational units were merged. It develops and disseminates nationally and internationally recognised knowledge and methodologies in the fields of monitoring, evaluation, sports education as well as integration and prevention in sports. The current research and development activities are characterised by a large variety of topics and methods. Together with the "Sports studies organisation", the "Student secretariat" and the "Further training" organisational units, the department also contributes a great deal to the organisation and implementation of the education and training courses offered by SFISM.

Monitoring

The focus in research and services was on the further development and improvement as well as the impact evaluation of the training app "ready". The special-interet group also carried out scientific validation studies for external customers.

The app has been very well received and has been downloaded around 100,000 times in the meantime. The development is progressing further, while the impact evaluation has been delayed owing to the Covid-19 pandemic – because of different exercise regimes and thus limited comparability. The employees in the special-interest group were also working on the development of an early warning system, which is intended to help prevent serious physiological and psychological incidents (e.g. heat stroke) in the special units. This is being conducted using wearable sensors such as accelerometers, heart rate monitors and eye-tracking glasses. Findings from the research areas mentioned were published in several peer-reviewed journals.

In the year under review, in the area of teaching, employees taught the "Quantitative Research I" subject, gave presentations as guest speakers, and supervised Bachelor's and Master's dissertations both internally and also with other universities of applied science or universities in Switzerland. In addition, the Monitoring SIG is represented in the research and development working group of the SFISM, in the co-management team of the BFH Centre for Health Technologies, and is a member of the NATO panel "Human Factors and Medicine", thus maintaining a large (inter)national network.

Evaluation

In the year under review, the Evaluation SIG worked on a number of scientific research and development projects in the area of fitness testing, evaluated sports promotion projects and developed the concept for the course evaluation system EVAS.

The activities in the first subject area comprised quality assurance and advising the Armed Forces on the army fitness test (FTA), developing recruitment tests in the area of physical fitness for other physically demanding jobs, and evaluating the "sports motricity inventory" made by the Sports Department of the City of Zurich. The accompanying evaluations focused on the Y+S Evaluation, the "Power to win" project from the Performance Sport section, the evaluation of the Kids Tennis programme from Swiss Tennis, as well as advising other SFISM departments for evaluation concepts and projects. The concept phase of the evaluation of the study programmes was given strong support by the clients.

In addition, unit staff were involved in various teaching events and supervised Bachelor's dissertations in the fields indicated.

Sports education

The Sports education SIG develops and disseminates knowledge to promote the educational quality of sports offerings. In two research projects, it focused on the modelling and measurement of skills. A Rasch-scaled student performance test was developed and pre-piloted in the "Professional skills required of physical education teachers and their impact on teaching and student performance" project of the Swiss National Science Foundation (SNSF). For her dissertation, one employee developed a test to measure the professional skills of sports coaches for technique and tactics training in volleyball. In the year under review, she began developing the model-based test items.

Furthermore, the Sports education SIG is involved in several projects, including the development of learning tasks to promote basic motor skills, and developing a digital professional learning community for lecturers in sports sciences. The digital learning community is being set up and evaluated as part of a collaborative project led by the Swiss Federal Institute of Technology Lausanne (EPFL) and financed by swissuniversities.

In the area of teaching, the special-interest group set new priorities in digitalisation. For the first time, a course was held to convey digital teaching and learning media for physical education in the Master's course in sports science conducted jointly with the University of Fribourg. Furthermore, SIG employees tried out new digital teaching and learning media with the students in the few face-to-face events that were held, and tested these for their didactic content. Last but not least, the lecturers themselves were able to train in dealing with digital teaching and learning media in remote teaching.

Integration and prevention

In the year under review, unit staff were able to contribute their skills to various publications and projects. At the start of the year, they carried out a cross-sectoral workshop on the subject of encouraging girls in sport together with key internal individuals. As a result, the report "Encouraging girls and young women in sport – current status and need for action" was finalised. Furthermore, the unit was involved in the release of a publication on the subject of the social integration of members in European sports clubs in the "Sociology of Sport Journal".

As of 1 July 2020, Article 49 of the DDPS Ordinance on Sport Promotion Programmes and Projects was adjusted. The contributions for Youth+Sport organisations that integrate children and young people with disabilities was increased and the conditions simplified. Together with the sports policy and Youth+Sport (Y+S) departments, the unit drew up the required basis to enable this adjustment to be made. Moreover, all of the content in the Y+S professional development modules in the areas of integration and prevention was further developed. To do this, the unit gave experts space to develop new content, discuss current issues and network. Thanks to the unit's commitment, specific practical tips relating to the subjects of integration and prevention have been established in the "Encouraging" card set of Y+S.

In the area of teaching, unit staff increased awareness among SFISM students of their subjects again this year – largely through remote learning. In this context, they were able to gain initial exciting experiences in implementing an attractive virtual internship.

André Gogoll

Kompetenzorientierter Sportunterricht 2030 – Grundlagen für eine vernunftgetragene Selbstgestaltung des lebenslangen Sporttreibens. Leipziger Sportwissenschaftliche Beiträge, 61(1), 51–67.

Der Beitrag skizziert und begründet Inhalte und Vermittlungsformen eines kompetenzorientierten Sportunterrichts und skizziert Anknüpfungspunkte für eine darauf bezogene Aus- und Weiterbildung von Sportlehrpersonen. Kompetenzorientierter Sportunterricht begründet sich nach Meinung des Autors zuvorderst aus der pädagogischen Aufgabe des Schulfachs Sport, Schülerinnen und Schülern eine Orientierung für ihr Tun in der Sport- und Bewegungskultur zu vermitteln. Dazu sollten Schülerinnen und Schüler mittels Bewegungs- und Lernaufgaben drei Kategorien von Kompetenzen erwerben und weiterentwickeln: spezifische sportliche Bewegungshandlungskompetenz, allgemeine sportbezogene Bewegungshandlungskompetenzen und sport- und bewegungskulturelle Kompetenz. Die Aus- und Weiterbildung von Sportlehrpersonen zielt auf pädagogische sowie fachdidaktische Kompetenzen.

Rahel Gilgen-Ammann, Therese Schweizer, Thomas Wyss

Accuracy of Distance Recordings in Eight Positioning-Enabled Sport Watches: Instrument Validation Study.

JMIR Mhealth Uhealth;8(6):e17118
URL: http://mhealth.jmir.org/2020/6/e17118/
doi: 10.2196/17118

Background: Elite athletes and recreational runners rely on the accuracy of global navigation satellite system (GNSS)–enabled sport watches to monitor and regulate training activities. However, there is a lack of scientific evidence regarding the accuracy of such sport watches. Objective: The aim was to investigate the accuracy of the recorded distances obtained by eight commercially available sport watches by Apple, Coros, Garmin, Polar, and Suunto when assessed in different areas and at different speeds. Furthermore, potential parameters that affect the measurement quality were evaluated.
Methods: Altogether, 3 × 12 measurements in urban, forest, and track and field areas were obtained while walking, running, and cycling under various outdoor conditions.
Results: The selected reference distances ranged from 404.0 m to 4296.9 m. Forall the measurement areas combined, the recorded systematic errors (±limits of agreements) ranged between 3.7 (±195.6) m and −101.0 (±231.3) m, and the mean absolute percentage errors ranged from 3.2% to 6.1%. Only the GNSS receivers from Polar showed overall errors <5%. Generally, the recorded distances were significantly underestimated (all P values <.04) and less accurate in the urban and forest areas, whereas they were overestimated but with good accuracy in 75% (6/8) of the sport watches in the track and field area. Furthermore, the data assessed during running showed significantly higher error rates in most devices compared with the walking and cycling activities.
Conclusion: The recorded distances might be underestimated by up to 9%. However, the use of all investigated sport watches can be recommended, especially for distance recordings in open areas.

Dr Vincent Hagin, Teaching and Sports Education department, is involved in the digital transformation of teaching

Performance sport

The new-build for Hochschule Lärchenplatz resulted in employees of the Performance Sport department having their offices relocated to temporary containers for the next three years as planned. The laboratories were also decentralised. This was an advantage for service activities, which were concentrated into just a few months owing to the Covid-19 pandemic. Employees – most working from home – were able to dedicate even more time to research. The department began to work more intensively on the subjects of "digitisation" and "women in elite sport". The new "Ethics Symposium" series got off to a successful start with the topic "Doping and the use of medication in sport".

Medical consultations: 610

Sports medicine

During the year under review, sports medicine continued to deal with prevention, in addition to the daily care of elite and young sports practitioners for acute or overuse injuries. More than 120 sports medical examinations of athletes from 18 sporting disciplines were conducted this year. This is just marginally less than in the previous year, before the Covid-19 pandemic. In general, the Covid-19 pandemic involved many new issues and tasks for sports medicine such as drafting protection concepts for resuming sports activities and the Elite Sport Training School after lockdown, but also with regard to sports activities during lockdown or after quarantine. Other subjects included resuming sporting activities after having had Covid-19 for athletes, and various individual questions in connection with sport and Covid-19.

Teaching was successfully digitised in the courses that were still held.

Number of athletes: 350
Number of tests: 610

Sports physiology (strength)

For the sports physiology (strength) team, the move to temporary accommodation meant setting up performance diagnostics in the Sport Toto Hall and in the Zeughaus in Biel, and implementing the protection concept triggered by the Covid-19 pandemic.

The Services team supervised athletes from 15 different sporting disciplines (two more than in the previous year, excluding national teams). In the case of the most complex of the tests carried out – the muscular performance diagnostic test – the team achieved a new record, despite the difficult operating environment. It was also deployed once to support youth athletes at the Swiss Olympic talent meet in Tenero (3T). The strength training experts, who conduct training directly with athletes and/or advise coaches as required, have had their field of activity expanded.

The Research and Development team also produced some impressive output with the publication of three original articles, three editorials and a poster. The dissertation by Christoph Schärer was named best of the year by the BFH.

Sports physiology (strength) staff organised teaching events equivalent to 29 ECTS credits and were actively involved in various coach education courses offered by Y+S and sports governing bodies. They also supervised various theses, from which the best Bachelor's and Master's theses were chosen.

Sports physiology (endurance)

In the year under review, the Sports physiology (endurance) team provided extensive sports scientific support to the national teams of the governing bodies Swiss Ski (cross-country skiing, biathlon), Swiss Cycling (mountain biking, track cycling), Swiss Triathlon and Swiss Athletics (middle-distance and marathon). Alongside professional support for the national team, the greatest challenges were presented by the concentration of the laboratories in the Nordic pavilion owing to the move to temporary accommodation, and the restrictions while conducting laboratory tests. In addition to conducting traditional performance tests, new field test formats were also developed (e.g. Swiss Cycling "Engine Check"). With regard to the Summer Olympic Games 2020, which have been postponed by one year to 2021, the team supported Swiss Olympic and the sports governing bodies with the "Beat the Tokyo Heat" project. Work was also already under way for the task force set up by Swiss Olympic in preparation for the 2022 Winter Olympic Games in Beijing. In the field of research and development, two major projects were conducted despite Covid-19. It was possible to provide teaching activities in the Bachelor's and Master's courses, as well as coach education, under difficult conditions.

Number of athletes: 328

Number of tests: 1053

Sports physiology (game sports)

The Covid-19 pandemic presented the sports physiology (game sports) team with a turbulent year, as team sports were hit particularly hard by its effects. In service activities, many performance tests in disciplines such as football, ice hockey and handball had to be postponed, rescheduled at short notice or even cancelled entirely in spring and late autumn. However, positive progress was made in research and development projects. With regard to the use of positional data in game sports, the multi-year dissertation project in football titled "Measuring changes in running speed in soccer players" was successfully completed. In ice hockey, new approaches to analysing training and game stresses were developed. Fortunately, in the "Power to Win" project, all measurements to determine neuromuscular capabilities in the highest young talent category in the disciplines of football, ice hockey, handball and floorball could take place as planned. The comprehensive training analysis through a coach survey as part of the same project provided numerous findings (including periodisation and method selection) to optimise the neuromuscular capabilities in young athletes. Initial recommendations are already being incorporated into educational products from Youth and adult sports.

Number of athletes: 502

Number of tests: 2544

Coaching science

The coaching science specialist group had two principal remits: to identify, scout and promote talent, and to provide scientific support to the governing bodies.

A great deal of headway was made in the year under review, including providing the governing bodies and Swiss Olympic with scientifically validated practical tools to enable an improved, more reliable selection of emerging talents. Furthermore, five employees are working within the governing bodies to implement applied research projects and provide scientific support to coaches in performance sport.

In addition, two innovative, potentially pioneering projects were launched in collaboration with the Swiss Football Association and the Technique and tactics group. This year, the coaching science specialist group started the "Bio-banding" project, which investigates the effects of categorising M13-M14 players according to biological rather than chronological age. Running parallel to this, the "Play more football" project is exploring the impact of a new game variant (4 against 4 in addition to the usual 7 against 7 format) in children's football (9-10 years). The aim is for children to engage in a significantly higher number of game actions and thus have more learning opportunities.

In addition, at the beginning of 2020, another project in the area of youth sport was launched in collaboration with Swiss Olympic: "Adjustments to the competition systems in youth sport". The aim is to exploit the potential of the competition systems in phases F3 to T of the FTEM with respect to long-term athlete development.

The experience and findings gained will then be passed onto Bachelor's and Master's students, as well as coaching course participants.

Physiotherapy treatments: 1704

Massages: 1313

Sports physiotherapy

The Covid-19 pandemic greatly affected sports physiotherapy services and the massage department in the year under review. Athletes' uncertainty regarding their opportunities to train and compete had a major impact on their well-being during rehabilitation and regeneration. The physiotherapy team took this into account, providing even closer and more intense support. It was possible to achieve the goal of comprehensive, athlete-oriented treatment through the commitment of all those involved.

The research and development team focused on the area of "women and elite sports". In collaboration with Swiss Olympic, it developed an infographic on the topic of pelvic floor dysfunction, which is available to athletes online. Furthermore, new software for evaluating strength, "NordBord", was realised as part of an interdisciplinary collaboration in the department, and this has proven itself in practical applications.

With considerable additional effort, the team was able to fulfil the teaching mandate for the Bachelor's and Master's courses, as well as coach education. The digitisation of classes was a technical and didactic challenge for everyone.

Dr Klaus Hübner, Performance Sport department, monitors an athlete's maximum strength test

Sports psychology

When the sports psychology specialist area decided at the end of 2019 to develop a project focusing on the mental health of elite athletes in the year under review, it was not yet possible to foresee how relevant the topic would become owing to the overwhelming nature of the Covid-19 pandemic. The sports psychology team also had to display a great deal of flexibility, as some tests were cancelled, competition attendance fell victim to competition cancellations, and planned research projects with on-site interventions did not take place. Despite temporarily working from home, reduced on-site activities and the challenge of switching to remote learning, over 430 consultation hours were undertaken.

The self-compassion in coaches and athletes project – funded by the Swiss National Science Foundation (SNSF) – continued unhindered. The work on the psychological part of the training philosophy of the Swiss Football Association also continued as planned. In the course of the Covid-19 pandemic, the team drew up various recommendations for dealing with uncertainty. This content was presented on different channels. Finally, findings from the lockdown caused by Covid-19 were incorporated into the first online offering from Sports Coach Education Switzerland, the TBS Week. It became apparent from various international studies that the mental health of elite athletes was severely affected during this period, and that the issue itself is a hot topic. A corresponding research project entitled "Understanding and promoting mental health of competitive athletes – six empirical studies" was submitted to the SNSF and received a positive assessment. Sports psychologists will work intensively on this subject for the next few years.

Sports technology

Together with Lucerne University of Applied Sciences and Arts (HSLU), the sports technology specialist group at SFISM took on the thematic leadership in the area of "Sports Data Analytics". This collaboration is making it possible to support the governing bodies in terms of data science. Various governing bodies have already successfully made use of this support in the form of Master's dissertations and mandates.

There was also a major step forward in "real-time analyses". A real-time analysis environment developed with the University of Basel was optimised in such a way that data scientists are able to develop functional modules on the platform. Initial linked data projects were launched and some have already been concluded.

The Master's lecture on "Measuring technologies and data analyses in elite sport" at the SFISM and the Master's module "Sports Data Analytics" at the HSLU are contributing to the development of computer science in sport in Switzerland.

Dennis-Peter Born, Ishbel Lomax, Michael Romann
Variation in competition performance, number of races, and age: Long-term athlete development in elite female swimmers
https://doi.org/10.1371/journal.pone.0242442

Background: While talent development and the contributing factors to success are hardly discussed among the experts in the field, the aim of the study was to investigate annual variation in competition performance (AVCP), number of races per year, and age, as potential success factors for international swimming competitions.
Methods: Data from 40'277 long-course races, performed by all individual female starters (n = 253) at the 2018 European Swimming Championships (2018EC) for all 10 years prior to these championships, were analyzed. Relationships between 2018EC ranking and potential success factors, i.e., AVCP, number of races per year, and age, were determined using Pearson's correlation coefficient and multiple linear regression analysis.
Results: While AVCP was not related to ranking, higher ranked swimmers at the 2018EC swam more races during each of the ten years prior to the championships ($P < 0.001$). Additionally, older athletes were more successful ($r = -0.42$, $P < 0.001$). The regression model explained highly significant proportions ($P < 0.001$) and 43%, 34%, 35%, 49% of total variance in the 2018EC ranking for 50m, 100m, 200m, and 400m races, respectively. As number of races per year ($\beta = -0.29 – -0.40$) had a significant effect on ranking of 50-400m races, and age ($\beta = -0.40 – -0.61$) showed a significant effect on ranking over all race distances, number of races per year and age may serve as success factors for international swimming competitions.
Conclusion: The larger number of races swum by higher ranked female swimmers may have aided long-term athlete development regarding technical, physiological, and mental skill acquisitions. As older athletes were more successful, female swimmers under the age of peak performance, who did not reach semi-finals or finals, may increase their chances of success in following championships with increased experience.

Philipp Röthlin, Stephan Horvath, Severin Trösch, Martin grosse Holtforth & Daniel Birrer
Differential and shared effects of psychological skills training and mindfulness training on performance-relevant psychological factors in sport: a randomized controlled trial
https://doi.org/10.1186/s40359-020-00449-7

Background: Mental training intends to support athletes in mastering challenges in sport. The aim of our study was to investigate the differential and shared effects of psychological skills training and mindfulness training on psychological variables relevant to athletic performance (e.g., handling emotions or attention control). We assumed that each approach has its own strengths (e.g., mindfulness has a differential effect on the acceptance of emotions), but for some goals (e.g., attention control), both training forms are expected to be equally successful (i.e., shared effects).
Methods: A total of 95 athletes ($M_{age} = 24.43$, $SD_{age} = 5.15$; 49% female) were randomly assigned into three groups: psychological skills training intervention (PST), mindfulness training intervention (MT), and wait-list control group (WL). Participants completed a questionnaire battery before and after the training (pretest and posttest). We assessed mindfulness, use of mental strategies, handling of emotions, attention in training and competition, as well as the dealing with failure. The two intervention programs each consisted of four 90-min group workshops conducted over a period of 4 weeks.
Results: Both interventions passed the manipulation check, that is, PST led to more mental strategies being used (probabilities > 95%), and MT led to an increase in two of three aspects of mindfulness (probabilities > 98%) when compared to WL. Compared to WL, both interventions equally improved in the ability to not let emotions interfere with performance (probabilities > 99%) and in controlling attention in training and competition (probabilities > 89%). To a lesser extend, both interventions showed shared improvements in dealing with failure indicated by more action orientation (probabilities > 82%). We found a differential effect of MT on decreased experiential avoidance: MT decreased compared to WL and PST (probabilities > 92%), whereas PST did not differ from WL.
Conclusion: We conclude that both forms of mental training lead to improvements in performance-relevant psychological factors, especially concerning the handling of emotions and attention control. The results of our study suggest that different paths may lead to the desired outcomes, and accordingly, both forms of mental training seem justified.

Sports economics

2020 was a special year for the Sports Economics department. The department was not only given new management, but also had an existing unit specialising in the construction and management of sports facilities incorporated into it. The department had to rethink a few of its products to adapt to the crisis. But it also provided a valuable contribution to a better understanding of the economic consequences of the crisis for Swiss sport.

Research and development

The Swiss sports system consists of a number of different stakeholders that interact on the basis of differentiated objectives. A better understanding of its logic and challenges is required to guarantee its performance in the long term. With this in mind, two comprehensive research projects in collaboration with several partners of the SFISM constituted the core of the department's activities in the year under review.

The "Elite sport in Switzerland 2019" study aims to use a catalogue of criteria to identify the factors that influence a nation's sporting success. The study, which began in 2017, can now draw on a large pool of primary and secondary data from interviews, surveys, analyses of official documents and interim reports. With support from Swiss Olympic and Vrije Universiteit Brussel in particular, the study is now in the process of evaluating the findings and drawing up the final report. It is due to be published in 2021.

The "Skills in the professional field of sports management in Switzerland" study aims, among other things, to identify the key skills required to take on a function in a sports organisation in the field of sports management. Structured in two main parts, notably in collaboration with Chur University of Applied Sciences and the University of Lausanne's Institute of Sports Science, the study has completed the process of collecting data from employers, students and graduates at the most significant basic training institutions in the field of sports management in Switzerland.

Employees in the department presented some of the findings of this study at international specialist conferences, including the Digital Conference of the European Association for Sport Management (EASM). The department also conducted in-depth analyses. The study was characterised by a key analysis of the opportunities and challenges of the Covid-19 crisis for sport in Switzerland. This was mainly based on numerous interviews with experts and the joint organisation of a "Future Day" with various sports stakeholders, as well as by methodical support in the publication of the "Sport and Economy in Switzerland" report.

Florence Pillet, Sports Economics department, records a lecture on sport management in the improvised video studio

Publication series relating to the planning, construction and operation of sports facilities

· 25 (German/French)
· 3 (German/French/Italian)
Total: 28

The documents can be ordered as a printed version or downloaded as a free PDF from www.basposhop.ch.

Teaching

The year under review was marked by the launch of the sixth edition of the "Master of Science in Sports with Specialisation in Elite Sports", which consists of numerous courses in the areas of sports management and sports economics for which the department is responsible, as well as the third edition of the "Minor in Sports and Event Management" for students at Bern University of Applied Sciences (BFH). To comply with the restrictions put in place as a result of the Covid-19 pandemic and to meet students' expectations, the course content and traditional "block weeks" on certain topics were reconsidered and adapted. National and international cooperation, e.g. with the University of Bayreuth, continued. The many practical experts who regularly take part in the course as lecturers were present on site in Magglingen.

Unfortunately, it was not possible to go ahead with the Sports Facilities unit's annual visit to selected sports facilities in spring. As such, customers appreciated the professional conference in Magglingen all the more. With more than 100 participants, it was met with great interest once again in the year under review. When it comes to sports facilities, construction and operation costs are becoming a recurring topic. The interesting conference contributions can be downloaded from www.fachstelle-sportanlagen.ch.

Specialist knowledge and the fundamentals of sports facility planning, construction and operation were imparted through various education and training formats in the year under review: Bachelor's students at SFISM received instruction on sports facility construction. Over three days, trainee sports coordinators were introduced to the topic of sports facilities. The lively discussions with and among participants testify to the fact that key specialist know-how, solid inputs and thought-provoking pointers were passed on via all training formats.

Services

Particular highlights for the Sports Economics department included several assessment mandates or strategic audits, in which it was able to advise and support several Swiss and international sports players in achieving their goals, especially in the fields of organising sustainable sporting events, constructing quality sports facilities and managing innovative performance centres. Over 200 enquiries made by telephone and e-mail to the Sports Facilities unit show that there is a demand for specific project consulting services. These consulting activities are an important contribution to good sports infrastructure in Switzerland.

Andreas Ch. Weber, Marco Stopper, Corinne Zurmühle & Bruno Bosshard

The Importance Of Geographical Regions In Financing Elite Sports In Federal States: Evidence From Swiss Cantons.

Aim and Research Questions

De Bosscher, Shibli, Westerbeek, and Van Bottenburg (2015) show that there is an ongoing "Sporting Arms Race" between nations by comparing the increase of nations' investments into elite sports. Some attention has been brought to the importance of the financial support of regions for elite sports (e.g., De Bosscher et al., 2015, Digel, Fahrner & Burk, 2006; Houlihan, 2013). Suggesting that this might be particularly relevant for nations politically constituted as federal states, Switzerland is used as a case study to investigate the financial support of the regional levels (i.e. Cantons).

Research Design, Methodology and Data Analysis

This study analyses the financing of Swiss (elite) sports by comparing the sport and elite sport expense of the Federal office of Sport (FOSPO), Swiss Olympic and the national lottery gains disbursed by the 26 cantons. Firstly, the total operating expenses of the FOSPO and Swiss Olympic in 2018 and 2011 are compared to the cantonal disbursement of lottery money as a proxy to compare the importance of the national level funding of sports and elite sports to the regional level. Secondly, a descriptive analysis of 9,900 pay-outs made by the German and Italian speaking cantons and 2,000 pay-outs by the French speaking cantons are analysed in 2018. The pay-outs are assigned to the following accounts: talent and elite sports (incl. support for athletes, clubs, events), sport for all (municipalities, clubs, events) and infrastructure (fix and moveable).

Results/Findings and Discussion

The operating expense for sports by the FOSPO increased from 167.8 M CHF in 2011 to 247.6 M CHF in 2018 (+ 48%), while in the same period, the operating expenses of Swiss Olympic increased from 44.0 M CHF to 78.0 M CHF (+77%). Additionally, the disbursements of the Swisslos increased from 96.0 to 132.0 M CHF (+38%), while the disbursements of the LoRo increased from 33.1 M CHF to 38.9 M CHF (+18%) respectively. While some lottery money was distributed at national level in 2018, 106.6 M CHF of lottery money has been directly disbursed by the 26 cantons, according to their individual regional legislation and practices.

In 2018, the 20 Cantons representing the lottery area of Swisslos disbursed directly CHF 92.0 M CHF of lottery money to sport, while the respective number in the six Cantons of the LoRo was 24.6 M CHF. The 20 Swisslos-Cantons appointed 13.0 M CHF to talent and elite sports (14%), of which 2.2 M CHF directly to elite athletes. 32.7 M CHF were appointed to sport for all (36%) and 45.0 M CHF to infrastructure (49%). 1.3 M CHF could not be accounted for (1%). The six LoRo-Cantons appointed 6.1 M CHF to talent and elite sports (25%), of which 1.8 M CHF to athletes. 12.7 M CHF was disbursed to sport for all (52%) and 5.8 M CHF to infrastructure (24%). The amount of funding for sport and elite sport in 2018 and its growth compared to 2011 underline the importance of the Cantons' financial support for the national (elite) sport system. Meanwhile, important differences in funding priorities are identified: the Swisslos-Cantons support infrastructure, the LoRo-Cantons support sport for all (clubs and events) and talents & athletes.

Conclusion, Contribution and Implication

This study contributes with evidence to the discussion on the importance of regional support for sports and elite sports in particular (e.g., De Bosscher et al., 2015, Digel et al., 2006; Houlihan, 2013). Meanwhile, the results point at the challenges to align and coordinate vertically the financial support of sports and elite sports through lottery and/or tax money in a federal state, consisting of multiple players at the regional level. These findings might be of a particular importance when comparing the funding of other sports nations that are federal states such as Canada, Germany, or Australia.

Sports Coach Education Switzerland

In the year under review, the Sports Coach Education department focused on the development of digital teaching and learning formats. The restrictions associated with the Covid-19 pandemic accelerated the implementation of new teaching concepts. In spring and autumn/winter, face-to-face courses had to move online without exception. The experience gathered will now be used to develop further products.

Professional coach training
79 students

Women	10
Men	69
German-speaking	59
French-speaking	20
Italian-speaking	0

Focus on digital teaching and learning formats

After completion of the introductory phase of the new education and training structure, in the year under review the focus shifted heavily to the topic of digitisation in teaching. Sports Coach Education Switzerland views the integration of new technologies and the principal of location-independent learning as an opportunity – regardless of the developments surrounding the Covid-19 pandemic. Thanks to the move from face-to-face teaching to online lessons, a broad range of new experiences were gained in spring – to some extent out of necessity – within a very short amount of time. Webinars, blog articles, special newsletters, the expansion of social media and the newly created TBS Week 2020 all gave rise to important innovative products. By expanding its product range, the Sports Coach Education department was also able to promote the development of sports coach communities as the basis for social learning.

TBS Week 2020: new online format

As a replacement product for the Magglingen coaches conference which, for obvious reasons, had to be cancelled in 2020, the Sports Coach Education department launched a new online format with TBS Week 2020. Under the slogan "On top form thanks to lockdown – what Covid-19 has taught us", a total of 130 sports coaches, officials, sports scientists and invited guests took part in the live events over five days. 26 national and international speakers, including top athletes Giulia Steingruber, Jeannine Gmelin, Alina Pätz and Timo Meier, talked about their experiences during the lockdown in spring. The perspectives were diverse: from the personal responsibility of athletes, to the implementation of a crisis management plan, to potential long-term changes to competition formats and the structure of training sessions, a wide range of subjects were covered.

Manuela Müller directs a bilingual online course for Sports Coach Education Switzerland

Coach in Competitive Sports, Federal Diploma of Higher Education
Participants: 55 passed: 39

Coaches counseling
- 28 without case supervision
- 372 with case supervision

Coach Developer
Participants: 29

Training courses
Participants: 512

More than 2,500 participant days in 2020
In total, Sports Coach Education Switzerland generated more than 2,500 course participant days in the year under review in the fields of sports psychology, coaching theory for conditioning, technique/tactics, sports coaching, sports medicine and leadership. More than 80 assessments, four professional coach courses with 79 coaches overall and one certified coach training with eight participants took place. In November, 59 graduates took the federal-level examinations (Federal PET diploma: 55, Advanced federal PET diploma: 4) under a strict protection concept. Sports Coach Education in Switzerland also certified 29 coach developers in 2020. A total of 28 sports coaches took advantage of coach counselling in 2020.

Learning from experience
Employing a meaningful mix of analogue and digital learning settings, Sports Coach Education Switzerland strives to develop innovative learning formats even after the Covid-19 pandemic. At the same time, the courses offered by Sports Coach Education Switzerland should always be in a respectful, stimulating environment that is conducive to learning. The experience gained from the current online lessons is to be incorporated into a comprehensive digitisation strategy from 2021 onwards. The Magglingen training model will be used as a basis. In collaboration with Youth+Sport, the Performance Sports department, Swiss Olympic and the sports governing bodies, the Sports Coach Education department is striving to create a hybrid learning environment that will satisfy the needs and demands of sports coaches in Swiss performance and elite sport in future, too.

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