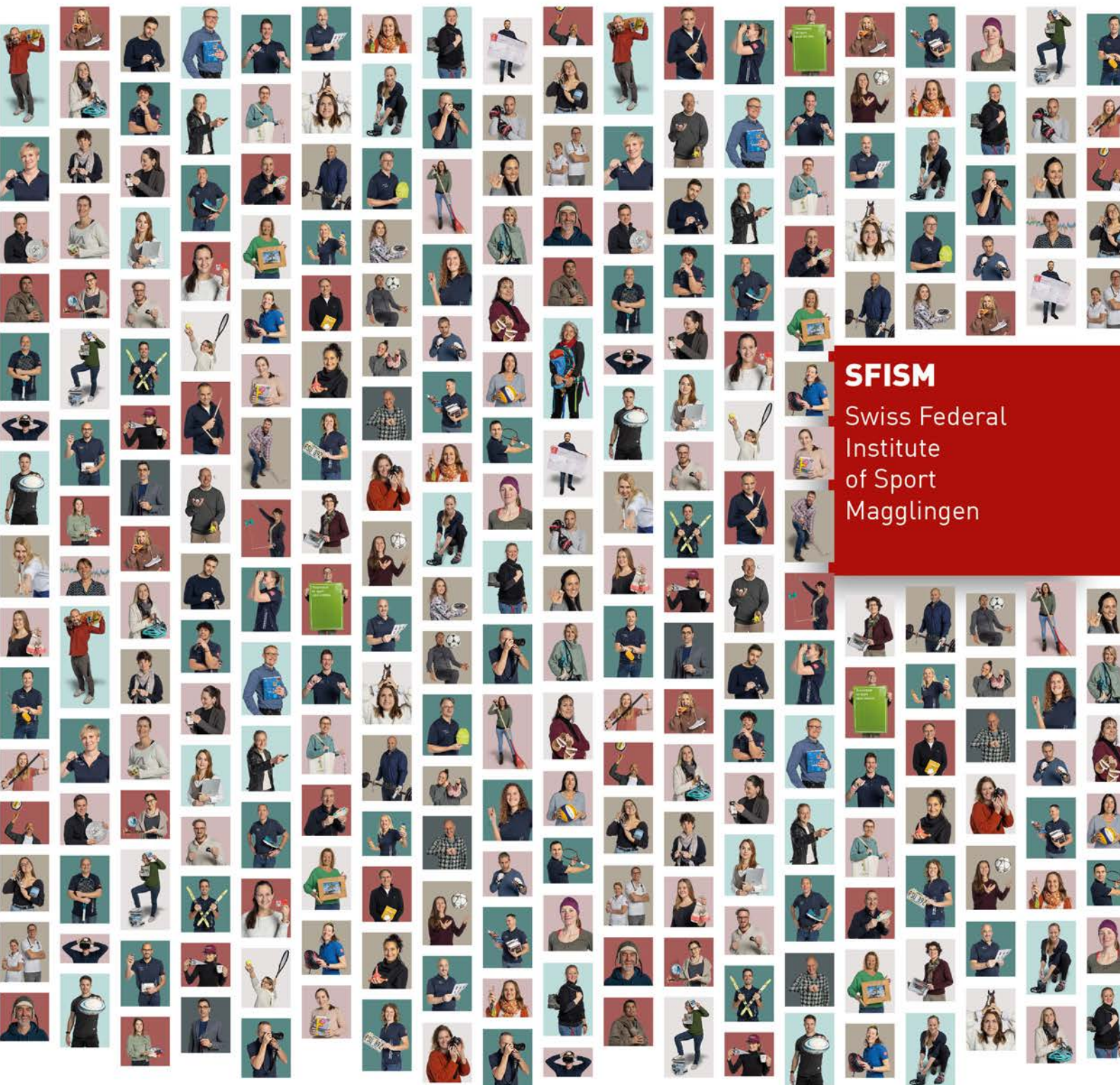




2022 Annual Report

Swiss Federal Institute of Sport Magglingen SFISM



SFISM

Swiss Federal
Institute
of Sport
Magglingen



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Foreword

The Swiss Federal Institute of Sport Magglingen SFISM embarked on the process to become an accredited university of applied sciences some years ago. That goal was achieved in 2022. This success came as a relief for those involved and was widely celebrated. But a number of challenges remain. The experts who conducted the evaluation put forward six conditions regarding the SFISM organisation, which the Swiss Accreditation Council submitted to us to work on.

We are tackling this task with greater self-confidence as sparring in a large team during the self-evaluation process honed our understanding of the institution. With an awareness of our strengths and weaknesses, we are shaping the SFISM to become a more agile and well-structured organisation and we are seeking to improve quality even further through a number of development projects.

The quality of teaching, further education, research and services was recognised. We continue to invest a large part of our resources in the latter, which is unusual compared with other higher education institutions. The SFISM is part of the Federal Office of Sport FOSPO and therefore plays a tangible and practical part in the federal government's task of promoting sport and physical activity. Meanwhile, our employees see services as a source of inspiration. We work closely with stakeholder groups and recognise the relevant challenges in the sport system. The services therefore influence and guide our practical research, teaching and further education.

We also recognised a need for improvement in our higher education-specific activities, which is why we already started working on the weaknesses highlighted in the self-evaluation report, as well as on the conditions, in 2022.

We invite you to join us to celebrate this success and to gain an insight into the SFISM through this Annual Report.

Wishing you an interesting and informative read.

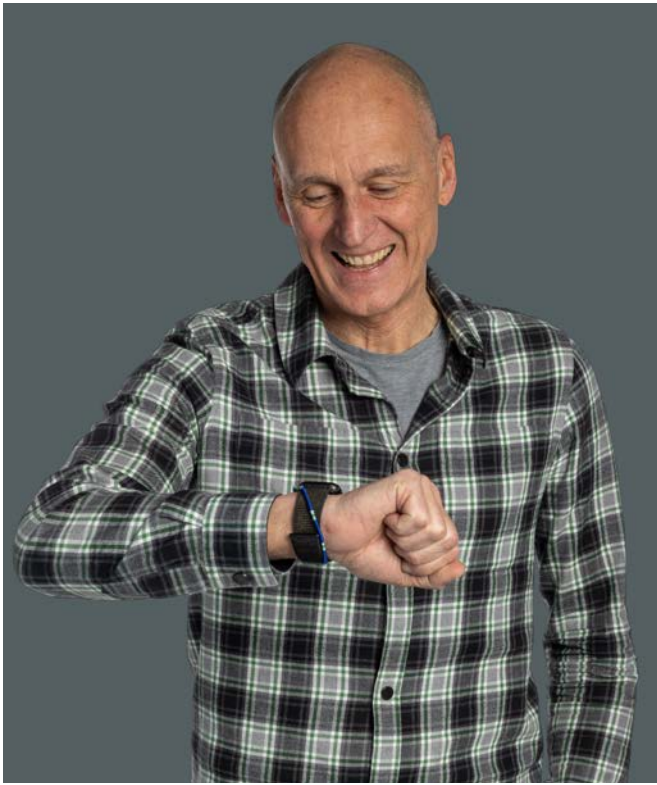
Yours sincerely



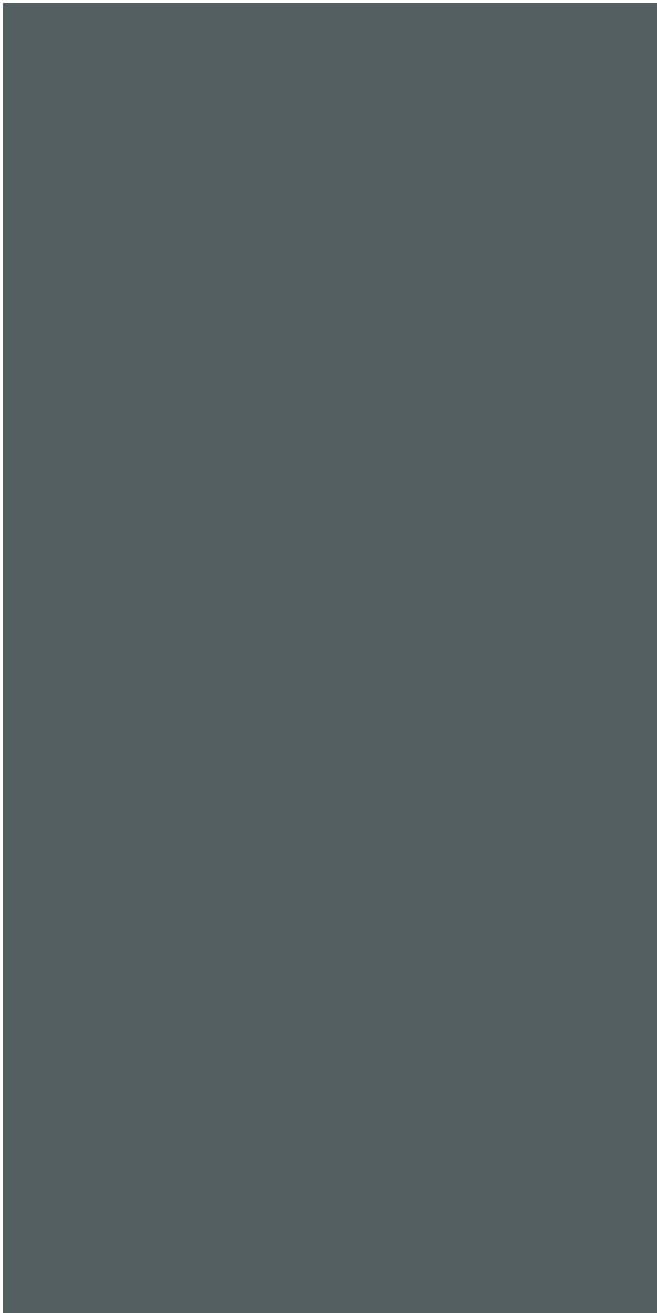
Dr Urs Mäder
Rector of SFISM



Dr Thomas Wyss
Assistant Rector of SFISM



Dr Urs Mäder, Rector of SFISM



Dr Thomas Wyss, Assistant Rector of SFISM

The Swiss Federal Institute of Sport Magglingen SFISM continues to evolve

The SFISM reached a milestone in 2022 with its institutional accreditation as a university of applied sciences. The successful accreditation is proof that the SFISM ensures long-term quality assurance and development and will therefore continue to evolve. The close collaboration between the SFISM and Bern University of Applied Sciences BFH manifested itself in the signing of a joint association agreement. The site in Magglingen features some new buildings: the new training hall was successfully opened, while the new Hochschule Lärchenplatz building is taking shape. Work on the ethics in sport project continued.



Full-time equivalents **107**
Employees **135**



SFISM Social Media



R+D projects published 36

The SFISM is institutionally accredited

The SFISM achieved institutional accreditation as a university of applied sciences on 23 September 2022. Institutional accreditation under the Federal Act on the Funding and Coordination of the Higher Education Sector HEdA proves that the SFISM as a monodisciplinary university of applied sciences in sports science delivers high-quality teaching, research and services. The Swiss Accreditation Council concluded that the SFISM is structured and managed efficiently, and that it ensures and develops quality in a manner that takes account of sustainability, equality of opportunity and participation.

The basis for the positive accreditation decision from the Swiss Accreditation Council was the SFISM's self-evaluation report drawn up in 2021, and the evaluation by external experts based on that and on group interviews, which was carried out in 2022. Throughout the accreditation process, participation was key: the project organisation comprised over 90 employees of the Federal Office of Sport FOSPO, including the SFISM and student representatives, partners and customers.

As part of the accreditation process, six conditions were set out which the SFISM has to meet by 2025. These include further developing the participation opportunities of students and staff and extending the institution's scope for action with regard to resources.

The experts described the SFISM as an organisation that is seeing dynamic development and is characterised by openness, reflection, and a forward-looking and digitally-oriented approach.

Association agreement with Bern University of Applied Sciences BFH signed and sealed

The BFH and SFISM renewed their strategic partnership and signed a corresponding association agreement. They are therefore continuing their long-standing close relationship. The partnership with the BFH goes beyond the scope of conventional collaborations between higher education institutions and besides arrangements for joint study programmes and research projects, it also comprises extensive participation in mutual bodies and university services. The agreement entered into force on 1.1.2022.

New training hall operational

Following two-and-a-half years of building work, the Federal Office of Sport FOSPO held an official ceremony to inaugurate the new training hall in Magglingen. The building offers ideal conditions for SFISM's training activities. It has a technically well-equipped sports hall that can be divided into three sections, a wrestling area and a climbing wall.

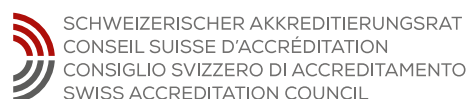
Meanwhile, the new Hochschule Lärchenplatz building is taking shape. The façade is complete and the interior fitting is well under way. It will be occupied from the end of 2023.

Efforts to promote ethics in sport are being continued

The ethics in sport project aims to initiate and support a cultural shift in Swiss sport. In an initial step, it intends to expand on the ethics charter and to bring about a common understanding of the desired cultural change. This first phase of the project was completed at the end of 2022. The project involves various stakeholders, including experts from the SFISM.

SFISM staff support ahead of and at major events

Two major sporting events involving Swiss teams took place in 2022: the UEFA Women's EURO in England and the Men's FIFA World Cup in Qatar. Staff at the SFISM supported the Swiss squad in preparing for the competitions, for example by carrying out performance diagnostic tests, and travelled to Qatar to look after and coach the men's team.



Institution accredited pursuant to HEdA for 2022 - 2029



Training hall

- Longest beam in facade: 29 m × 2.50 m
- Wrestling hall: 210 m³ of sawdust
- 2 acoustically insulated partition walls of 15 tonnes each
- 2,100 m³ of concrete > 5250 tonnes > 260 truck trips
- 35 km of electric and 12 km of IT cable

Hochschule Lärchenplatz

- Longest beam in roof: 20 m × 1.30 m
- Indoor sprint tunnel: 90 m
- 356 wooden facade slats, 10.65 long
- 5900 m³ of concrete > 14 750 tonnes > 730 truck trips
- 600 tonnes of steel



Cooperation with sports associations

- Swiss Olympic
- Swiss Ski
- Swiss Ice Hockey Federation
- Swiss Athletics
- Swiss Cycling
- Swiss Aquatics
- Swiss Triathlon
- Swiss Shooting
- Swiss Football Association
- Swiss Handball Association
- Schweizerischer Turnverband



Student mobility

Outgoing students: 14

(as part of the immersion semester)

Outgoing interns: 1

Incoming students: 4

Incoming interns: 1

Employee mobility

Outgoing: 2

Incoming: 6



Partner universities

International mobility

- 21 in Europe
- 7 with BFH umbrella contracts
- 2 worldwide



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

Mobility of students and staff increased

The SFISM works with numerous partner universities. Mobility figures have increased sharply since the end of the COVID-19 pandemic. Fortunately, the SFISM was also able to welcome more incoming students in 2022, both on the Bachelor's and on the Master's degree programmes.

The SFISM ran a very successful two-week international summer school with 32 students from partner universities in Canada, Germany and the SFISM in August. The focus was on sport as a way of promoting intercultural awareness and learning. Lecturers from partner universities and the SFISM gave theoretical and practical sessions on country-specific sport promotion and sport disciplines such as wrestling, lacrosse and others, and on intercultural learning in various sport and physical activity settings.

Success in university sport

The Games, organised for students of Bern University of Applied Sciences BFH with the support of students from Magglingen among others, finally took place again in Magglingen after two years of pandemic-related disruption and virtual solutions. The event brought together 527 people – 450 participants and 77 volunteers.

Students from SFISM won the Fair Play award at the European Universities Games (EUG 2022) in Lodz (Poland), and finished in 14th place.

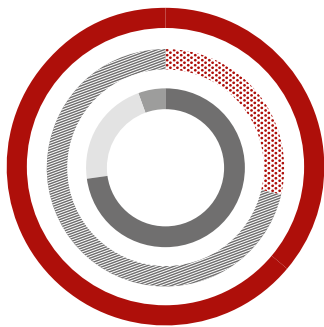
Students from Magglingen also won the silver medal at the Swiss Universities Futsal Championships in Basel (men's category).

University sports training was resumed on site at the beginning of the 2022 autumn semester.



Education and training

For those in charge of education and training at the SFISM, the focus in 2022 was on developing teaching on the basis of the unique system for evaluating degree programmes and courses. The SFISM aims to respond to the new teaching possibilities and the changed expectations of students and teachers as derived from the broad-based results of the evaluation, and to take education and training into the future. The opening of the new training hall represents a milestone in practical sports teaching and is now the centrepiece of sports teaching at the SFISM.



Bachelor of Science	Women*	37
129 students	Men*	92
	German-speaking	94
	French-speaking	28
	Italian-speaking	7

*The data recorded shows the number of men and women. The SFISM is aware that diversity includes other categories.

Bachelor of Science in Sports

On the Bachelor's degree programme, the return to on-site teaching over the course of the year – and therefore to collective practice and experience following initial COVID-19 restrictions – was well received.

The aptitude assessment was held as planned, with a total of 100 candidates (31 women and 69 men) attending the sports motricity entrance examination. In September, 40 new students began their studies, including four female and three male elite athletes.

The information event on the Bachelor's degree programme at the end of November was only offered virtually and attracted a high level of interest. Pre-produced segments, statements and moderated inputs from students contributed to a varied, informative and modern event format.



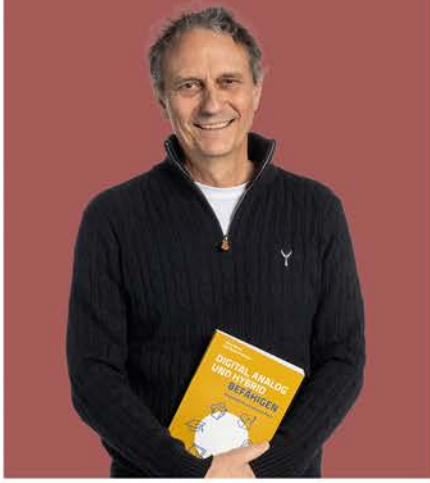
Master of Science in Elite Sports	Women	23
63 students	Men	40
	German-speaking	48
	French-speaking	13
	Italian-speaking	1

Master of Science in Sports with Specialisation in Elite Sports

In autumn 2022, 44 students started the Master's degree programme in elite sports, of whom 12 are specialising in sports management and 32 in coaching science. Three athletes are combining elite sport and study.

The autumn semester was conducted entirely in person in Magglingen. The interaction between theory and practice was an asset for students and lecturers. There is a great sense of cohesion and solidarity among students, which is shown among other things by the way in which students help each other catch up on missed work due to absence.

The intensive block week in the middle of the semester was a highlight for all. Students visited the Swiss Broadcasting Corporation's television studios and watched the pre-production stage of the *Sportpanorama*. They then travelled to Ticino, where they took part in a two-day team building and sports management event. When they returned to Magglingen, they worked on topics such as youth elite sport and technical training.



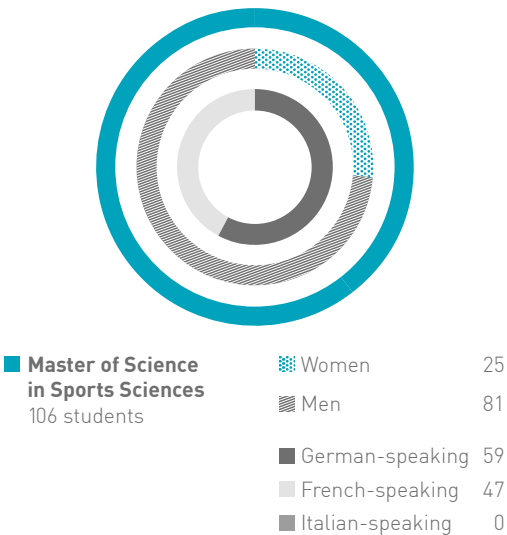
Joint graduation

Thirty Bachelor's and 24 Master's students from SFISM graduated in October. Professor emeritus Bengt Kayser spoke about the relationship between the individual and the collective in his keynote address at the graduation ceremony. The event also included award-winning dissertations, funny contributions from students, the award of the prize for social engagement by the SFISM alumni, the James Gruntz duo, and the student dance troupe Art Performance. The awards for the best Bachelor's dissertations went to Barbara Rentrop, Simon Uhlmann and Mischa Liesch.

Eva Hofmann (coaching science) and David Lukas Thürlimann (sports management) received the prize for the best Master's thesis in their respective specialisations. It is gratifying to see that a number of graduates are already working in the field of elite sport.

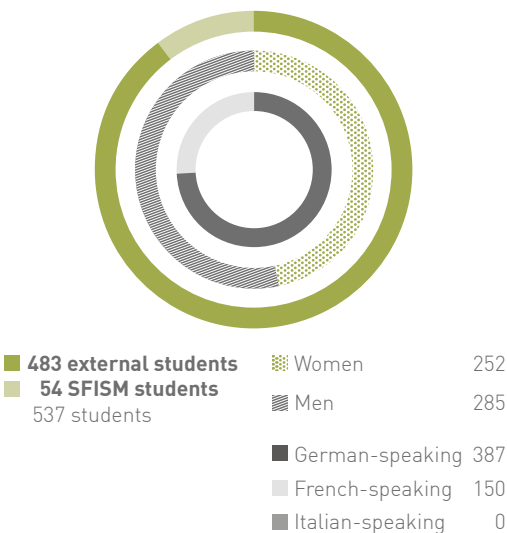
Master of Science in Sports Sciences

In the autumn semester, 25 students began their Master's degree, 10 of whom were SFISM graduates. This study programme is very attractive for them as it not only allows them to teach at upper-secondary level (baccalaureate schools and vocational schools), but also paves the way for a PhD. The Master's programme is at the crossroads between the systematic consolidation of sports science knowledge following on from a Bachelor's degree and the methodological and educational 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 universities of teacher education to obtain the qualification required to teach sports in baccalaureate schools and vocational schools.



Magglingen university weeks

A total of 537 participants from nine Swiss universities enjoyed excellent infrastructure and weather conditions at the Magglingen university weeks (MHW). The 23 week-long courses went smoothly. There was a great atmosphere and students were delighted to be able to meet again in person and practise sport together.



Further education courses

The sports facilities unit at the SFISM ran the **CAS in Sports Facilities** for the seventh time and 24 students received their certificates following completion of the two-year course. The dissertations reflect the broad spectrum and thematic diversity of the course content in the areas of planning, construction and operation of sports facilities. The CAS in Sports Facilities, which is spread over two years, is a highly practical and hands-on course. In two compulsory modules and a minimum of four elective modules, students look at requirements planning and spatial planning on the one hand, and study the concrete planning and execution of sports halls, outdoor facilities, swimming pools, ice rinks, sports centres and leisure facilities on the other.



Further education courses

- CAS SFISM Sports Facilities
- Sport coordinator training programme
- CAS Strategy, Leadership and Governance in Sports Organisations

Meanwhile, the first edition of the **CAS Strategy, Leadership and Governance in Sports Organisations (SLGOV)** was resumed in the autumn of 2021 following disruption caused by the COVID-19 pandemic. A number of students submitted their case studies on time. They were therefore able to benefit from the outstanding collaboration with the EPFL through a visit to 'The Spot' in June 2022, a new structure that was designed for students as a place of support and dialogue with a focus on creativity. The first certificates were awarded at an end-of-term dinner. The second edition of the CAS SLGOV will start in September 2023 and is a further step towards acquiring the EMBA Excellence in Sports Management in partnership with the Bern University of Applied Sciences.

The **sport coordinator training programme**, which had fallen under the remit of Youth and Adult Sport since 2009, moved to the further education unit at the SFISM in 2022. The training programme consists of five modules which prepare participants to set up and successfully coordinate a local exercise and sports network in communes, schools or clubs. Seventeen German-speaking participants successfully completed the certified training programme.

Graduates of the sports coordinator course meet once a year for a continuing education event – the networking day – which in 2022 was held in Magglingen on the theme of promoting physical activity in older adults and was attended by around 60 people.

Barbara Rentrop: Promotion de l'activité physique adaptée en Suisse pour les personnes transplantées d'un organe: obstacles et potentiels. Point de vue des personnes suisses transplantées.

Conseillère: Florence Brunner

Introduction: Une augmentation du nombre de transplantations d'organes en Suisse est observée depuis plusieurs années. Une transplantation est caractérisée par une période d'inactivité et du suivi d'un traitement immunosuppresseur. Ces éléments et leurs effets secondaires sont un facteur de risques de maladies cardiovasculaires (MCV). Les MCV peuvent être diminuées en bougeant régulièrement. Les bénéfices d'une activité physique régulière sont multiples et peuvent être observés au niveau physique, psychique et social.

But et question de recherche: Le but de ce travail est d'identifier les obstacles et les potentiels et d'analyser les aspects physiques et physiologiques, psychiques et sociaux actuels de l'activité physique adaptée (APA) en Suisse pour les personnes transplantées d'un organe. L'objectif est d'apporter une base générale à la promotion suisse de l'APA pour ce groupe cible.

Méthode: Cette recherche empirique se basait sur des données qualitatives. Trois interviews individuels étaient effectués avec des personnes transplantées d'un organe (deux transplantations cardiaques et une transplantation hépatique). Une documentation préalable apportait une base scientifique au travail. Le logiciel MAXQDA2020 était utilisé pour la transcription et l'analyse des interviews. Le contenu des interviews était catégorisé par un système de codage.

Résultats: Les participants et participantes mentionnaient avoir des effets secondaires liés aux médicaments immunosuppresseurs. Les recommandations médicales reçues en matière d'APA étaient de bouger au moins trente minutes et effectuer 10 000 pas par jour et étaient jugées incomplètes. Un participant n'a reçu aucune directive. Toutefois, les personnes présentaient un comportement favorable à pratiquer une APA régulière. Tous et toutes atteignaient les recommandations de l'OFSPPO sur une base volontaire et personnelle et avaient pu ressentir des améliorations de leur état de santé général. L'APA était perçue comme étant bénéfique pour une évolution positive de leur état de santé physique et mentale et de leurs contacts sociaux. Les obstacles et potentiels avaient pu être identifiés.

Discussion: L'APA amène du bien-être et de la satisfaction après un effort. Elle facilitait les contacts sociaux, permettait de développer de nouvelles compétences et de retrouver confiance en soi et en ses capacités. L'APA permettait aussi un retour à la vie normale et de reprendre le travail et les activités de tous les jours. L'environnement social substituait le manque de recommandations médicales, si elles étaient claires et définies, la peur de mettre en danger l'organe transplanté durant une APA serait diminuée. L'importance de prendre soin de l'organe transplanté et de leur santé afin d'éviter des complications liées à la transplantation était une des principales raisons qui les engage à bouger.

Conclusion: La mise en place d'un programme permettrait de promouvoir l'APA en Suisse pour les personnes transplantées. La qualification du personnel encadrant les APA tiendrait un rôle primordial. Un soutien nutritionnel pourrait être une plus-value au programme. Les facteurs mentionnés à prendre en compte étaient le lieu, la durée d'une séance et les coûts relatifs à l'APA. La suite de ce travail serait de mettre en place concrètement un programme qui tiendrait compte des besoins et des contraintes spécifiques à chaque type de transplantation.

Simon Uhlmann: Verbessert therapeutisches Klettertraining die Handlungsplanung von Kindern mit ADHS? Eine explorative Pilotstudie mit Einzelfallcharakter.

Betreuer: Dr. Daniel Birrer

Einleitung: Die Arbeit untersucht eine mögliche Therapieform für Kinder mit einer Aufmerksamkeitsdefizit-/Hyperaktivitätsstörung (ADHS). ADHS kann bei Kindern zu einem Leidensdruck führen (Veser, Bady, & Wiesner 2009). In verschiedenen Studien wurde ein positiver Effekt von Bewegung und Sport (ähnlich wie bei medikamentöser Behandlung) auf die Betroffenen festgestellt. Von diesem Effekt wird beim therapeutischen Klettern Gebrauch gemacht. Den Kindern werden während der Therapie Methoden zu Konzentration und Problemlösung vermittelt, die sie später auch in Alltag und Schule unterstützen kann (Veser et al. 2009).

Ziel und konkrete Fragestellung: Ziel der Arbeit ist es, das Potential von therapeutischem Klettertraining auf Kinder mit ADHS zu untersuchen. Bis anhin gibt es kaum Untersuchungen zur Thematik ADHS mit Interventionen von therapeutischem Klettern. Die Studie soll mögliche Anreize für eine grössere Untersuchung in diesem Themenfeld schaffen. Fragestellung 1: «Verbessert therapeutisches Klettertraining die Handlungsplanung von Kindern mit ADHS?» Fragestellung 2: «Verbessert therapeutisches Klettertraining die subjektive Selbstwahrnehmung im Kontext der Schule von Kindern mit ADHS?»

Methode: Die Untersuchungsgruppe bestand aus einer Kontroll- und einer Versuchsgruppe. Die Kontrollgruppe beinhaltete zwei, die Versuchsgruppe fünf Kinder. Alle Kinder hatten eine durch einen Spezialisten erstellte ADHS Diagnose. Das Durchschnittsalter betrug 9.7 Jahre mit einer Spanne von 7-12. Es wurde eine Studie im Einzelfalldesign durchgeführt. Die Versuchsgruppe hat eine Intervention von acht zweistündigen therapeutischen Klettereinheiten, geleitet von einer Psychomotoriktherapeutin, besucht. Es wurde jeweils vor- und nach den acht Interventionen ein Test zur Handlungsplanung (Turm von London Version TL-D) durchgeführt und ein Fragebogen mit fünf Fragen zur Selbstwahrnehmung der Kinder im Umfeld Schule und im Privaten abgegeben. Die Daten wurden in Microsoft Excel gesammelt, ausgewertet und visualisiert.

Resultate: Im Durchschnitt aller Kinder hat sich die erreichte Gesamtpunktezah (max. 20) im Handlungsplanungstest von der ersten zur zweiten Datenerhebung um 0.86 verbessert. Der Prozentrang ist dadurch um 8.57 gestiegen. Bei der Kontrollgruppe ergab sich eine mittlere Steigerung von 15.5. Bei der Versuchsgruppe liegt der Mittelwert der Prozentränge bei 5.8. Lena (Kontrollgruppe) hat sich mit 31 Punkten im Prozentrang verbessert. Im Fragebogen ergab sich eine durchschnittliche Steigerung von 0.49 Punkten auf einer Skala von 1-10 über alle fünf Fragen hinweg. Dabei lag die durchschnittliche Steigerung der Kontrollgruppe bei 0.5 und die der Versuchsgruppe bei 0.48. Die Versuchsgruppe hat sich in der Selbsteinschätzung der Erfolgserlebnisse um 1.6 Punkte gesteigert.

Diskussion: Beim Handlungsplanungstest gab es bei der Versuchsgruppe eine kleinere Veränderung als bei der Kontrollgruppe. Das lag vermutlich daran, dass alle Kinder bereits mindestens ein halbes Jahr vor der Intervention das therapeutische Klettern besuchten und somit der Effekt der zusätzlichen acht Einheiten verringert wurde. Beim Fragebogen zur subjektiven Selbstwahrnehmung gab es im Mittelwert über die fünf Fragen kaum eine Veränderung zwischen den Gruppen. Bei der Selbsteinschätzung der Erfolgserlebnisse haben die Teilnehmer der Versuchsgruppe allerdings grössere Fortschritte gemacht. Dieser Effekt könnte dem therapeutischen Klettern zugeschrieben werden.

Konklusion: Die Arbeit kann aufzeigen, wie eine zukünftige Fragestellung und eine Studie aufgebaut sein müssten. Wichtig wäre, dass die Kinder zuvor noch keine ähnliche Intervention gemacht haben und dass die Studie eine grössere Gesamtstichprobe (100 Teilnehmende) enthalten sollte.

Mischa Liesch: Forschungsgestützte Entwicklung von Lernaufgaben im Bereich Wagnis.

Betreuer: Prof. Dr. André Gogoll

Einleitung: Sportunterricht steht seit dem PISA-Schock 2002 mitten in der empirischen Wende im Bildungswesen (Pfitzner, 2018). Seither wird auch für den Sportunterricht eine Orientierung an Kompetenzen diskutiert. Für den Sportunterricht am weitesten fortgeschritten ist die Entwicklung kompetenzfördernder Lernaufgaben (Gogoll, 2022). Ein Modell, welches sich möglichst nahe an der gesamten aktuellen Kompetenzdiskussion orientiert, ist das Modell der Sport- und bewegungskulturellen Kompetenz von Gogoll (2011, 2014). Weitere Impulse für die Erarbeitung kompetenzfördernder Lernaufgaben gibt die EKSpO-Lernzieltaxonomie (Töpfer, Hapke, Liebl & Sygusch, 2022), eine Weiterentwicklung des Modells von Gogoll.

Ziel und konkrete Fragestellung: Das Ziel dieser Arbeit ist die Entwicklung von kompetenzfördernden Lernaufgaben nach der EKSpO-Taxonomie, welche die Perspektive Wagnis nach mehrperspektivischem Sportunterricht als Fokus haben.

Methode: Diese Arbeit wurde als forschungsgestützte Entwicklungsarbeit verfasst. Dabei wird ein Produkt für den sportpraktischen Anwendungsbereich entwickelt, realisiert und evaluiert. In einem ersten Schritt erfolgte eine theoretische Einordnung des Themas. Auf der Basis der Erkenntnisse des Forschungsstandes wurde das wissenschaftliche Modell ausgewählt und die Lernaufgaben entwickelt.

Resultate: Die Lernaufgaben lassen sich nach den sechs Aktivitäten des EKSpO-Modells kurz zusammenfassen. In den ersten Aktivitäten „Wissen erwerben: Aufnehmen und Vernetzen“ wird mit den Lernaufgaben angestrebt, dass sich die Schülerinnen und Schüler mit Wagnis auseinandersetzen und neues Wissen zu Wagnis gewinnen sowie dieses neue Wissen zu Wagnis mit der Anforderungssituation Handstütz-Überschlag verknüpfen. In den Aktivitäten „Wissen nutzen: Planen, Umsetzen und Auswerten“ wird das aktive Handeln mit einem Handlungsplan vorbereitet, und der Handlungsplan wird im Wagnis Handstütz-Überschlag an verschiedenen Stationen umgesetzt. Das aktive Handeln wird beurteilt, und es werden die richtigen Schlüsse daraus gezogen. In der Aktivität „Wissen schaffen: Innovieren“ wird beabsichtigt, dass sich Schülerinnen und Schüler mit der Auswirkung des Wagens auf ihre Person und der Erstellung eines systematischen Vorgehens zur Bewältigung einer anderen Wagnissituation befassen.

Diskussion und Konklusion: Wenn die entwickelten Lernaufgaben praktisch erprobt werden und nach einer Evaluation weiterentwickelt werden, sind sie eine Möglichkeit, die Perspektive Wagnis in der Unterrichtspraxis zu vermitteln. Da die Perspektive im Unterricht vielfach eine untergeordnete Rolle einnimmt (Böttcher, 2017), würden die Lernaufgaben dazu dienen, diese Perspektive stärker in den Unterricht zu integrieren.

Vertiefung Trainingswissenschaft

Betreuer: Dr. med. Christian Protte und Dr. Christoph Schärer

Eva Hofmann: Comparison of Heart Rate Variability and Countermovement Jump with a Psychometric Questionnaire and the possible Relation to Illness and Injury in High-Performance Female Gymnasts. A Prospective and Explorative Study.

Introduction: Overtraining and overreaching are still mostly undefined phenomena. Heart rate variability (HRV), countermovement jump height (CMJ) and psychological tools to assess such problems are controversially discussed. Therefore, next to validation and checking reliability of vertical jump height of the new Polar wristwatch, these markers and their relation to illness and injury were examined in this descriptive and explorative study.

Methods: Twelve artistic gymnasts participated in observation over nine weeks (age = $17.2 \text{ y} \pm 2.5 \text{ y}$, body height = $160.0 \text{ kg} \pm 6.4 \text{ kg}$, body mass = $57.9 \text{ kg} \pm 5.5 \text{ kg}$) and were handed over the Polar Vantage V2. They answered a questionnaire, completed CMJ and HRV measures every Tuesday and Friday. Within one week of familiarisation, a baseline measurement took place, where athletes jumped on the force plate additionally to wristwatch protocol. Illness and injury data were collected by the gymnasts' sports doctor.

Results: Significant differences between jump heights on force plate and V2 could be corrected with regression model of Hopkins. CV was 4.89% and $r^2 = .78$. Reliability was very high (first day: TE = 1.33 cm; interclass reliability $r = .95$; ICC = .88) respectively high (whole familiarisation week: TE = 1.52 cm; ICC = .81). Interday and Intraday CVs were almost every $< 10\%$. No significant correlation between different markers of fatigue and no relation towards injuries and illness could be determined ($p > .05$).

Discussion and Conclusion: The Polar Vantage V2 is a great tool to combine different variables in the daily routines of athletes with partly reliable and validated outcomes. The small sample size and some data gaps, due to real life field study setting, are reasons for a non-significant relation between fatigue markers and illness/injury data. Referring to the visual trends, there is a need for further investigation in this field of sport and sport medicine.

Vertiefung Sportmanagement

Betreuer: Dr. Andreas Christoph Weber und Florian Peiry

David Lukas Thürlimann: Zusammenhänge von olympischem Marktpotenzial für Wintersportdisziplinen, Investitionen und olympischen Erfolge. Eine empirische Analyse von sechs Nationen zwischen 2002–2022.

Einleitung: In der Vergangenheit nahmen die Anzahl Medail- lenentscheidungen sowie auch die teilnehmenden Nationen an den olympischen Winterspielen kontinuierlich zu. Dabei profitierten nicht alle olympischen Wintersportdisziplinen gleichermaßen von diesem Wachstum (Kempf et al., 2021). Vor diesem Hintergrund bestanden für sportpolitische Entscheidungsträger nur beschränkte empirische Grundlagen, um vorhandene Ressourcen bestmöglich einzusetzen und dadurch olympische Erfolge zu maximieren. Mit dem olympischen Marktpotenzial für Wintersportdisziplinen (MPos) konnte ein empirisches Konzept entwickelt werden, um die Marktentwicklung von olympischen Disziplinen aufzuzeigen (Weber et al., 2019). In dieser Arbeit wurde das MPos mit der Praxis verknüpft, in dem die Zusammenhänge zu Investitionen und olympischen Erfolgen von sechs Nationen untersucht wurden.

Methode: Anhand der Formel von Weber et al. (2019) wurde das MPos für alle olympischen Wintersportdisziplinen von 2002–2022 berechnet. Weiter wurde die Entwicklung der Investitionen und der olympischen Erfolge der sechs untersuchten Nationen (Australien, Kanada, Norwegen, Schweden, Schweiz, Grossbritannien) aufgezeigt. Anschliessend wurde anhand einer Rangkorrelationsanalyse nach Spearman (UZH, 2018) die Zusammenhänge zwischen dem MPos und den Investitionen, sowie auch den olympischen Erfolgen für jede Nation berechnet.

Resultate: Das höchste MPos war in den neuen entscheidungsreichen Disziplinen Ski Freestyle und Snowboard zu erkennen. Das MPos für entscheidungsärmere Disziplinen war während dem gesamten Untersuchungszeitraum auf einem relativ tiefen Niveau. Über den Untersuchungszeitraum war für alle untersuchten Nationen ein Anstieg der Investitionen zu erkennen. Australien und Kanada investierten mehr in Disziplinen mit einem hohen MPos und waren in diesen auch erfolgreicher. Norwegen, Schweden und die Schweiz investierten weder signifikant mehr noch weniger in Disziplinen mit hohen MPos. Wobei Norwegen und die Schweiz in den Disziplinen mit hohen MPos erfolgreicher waren. Grossbritannien investierte mehr in Disziplinen mit einem tiefen MPos und war in diesen auch erfolgreicher.

Diskussion und Konklusion: Das MPos zeigte sich speziell für entscheidungsreiche Disziplinen als guter Indikator der Marktentwicklung und kann zukünftig von sportpolitischen Entscheidungsträgern für die Ressourcenverteilung im Spitzensport mitbeachtet werden. Die Arbeit war hauptsächlich aufgrund von mangelnden Investitionsdaten limitiert. Mit den vorhandenen Daten konnte keine eindeutige Aussage getroffen werden, ob mehr Investitionen in Disziplinen mit hohem MPos eine Voraussetzung für olympischen Erfolg sind. Allerdings wurde erkennbar, dass in Disziplinen mit hohem MPos tendenziell mehr Erfolge erzielt wurden.

Teaching and sports education

The department focused specifically on three topic areas with societal relevance that were defined the previous year: sport and prevention in the armed forces, professional skills in teaching sport and ethics and diversity in sport. Under the leadership of the Vice Rectorate for teaching, the department is also making a major contribution to the organisation, management and quality assurance of the SFISM's education and training courses in addition to teaching, research and services.

Monitoring and evaluation

In research and development, the unit focused on two projects in the area of sport and prevention in the armed forces. For the 'Fit on Duty' project, a real-time monitoring and early warning system is being developed for serious illnesses and conditions. The team's work involved collecting data during endurance exercises and marches, analysing the data, clarifying ethical and moral aspects, and developing the legal framework.

Another project aims to develop an evidence-based selection of special forces on the basis of physiological and biochemical test data. The focus in 2022 was on the preparatory work for recruitment of the target group and pilot testing of data collection. As part of these projects, the unit supervised several Bachelor's dissertations and Master's theses.

The project to develop a degree programme evaluation tool EVAS was concluded in the year under review and went live as part of the regular programme with the launch of the online platform Confluence. Employees were also actively involved in the SFISM's organisational development projects.

Sports education

To further explore the topic of professional skills in teaching sport, three R&D projects are currently being conducted in the sports education unit. For the first project, the unit is working with the universities of teacher education in Zurich and Schwyz to develop competency-based learning exercises for sport and physical activity lessons in preschool. An initial publication is already complete. The project ProTrain measures the coaching science and didactic competencies of volleyball coaches. The data collection and processing phases were completed in the year under review, and will be analysed and interpreted in 2023. In a third project, the unit is developing a wiki to support the effective use of digital media in sports teaching. Digital educational media for sports teaching were tested with students from the Master's programme specialising in teaching, and were prepared for further use in training. The establishment of new R&D networks with international experts was a particular highlight of the year under review. This will allow joint research and development projects to be devised and carried out in future in the areas of pedagogical research on coaching and coach training, sport and general learning promotion, and video feedback in sports teaching.



Integration and prevention

The unit engaged with the topic of ethics and diversity in sport. The subject of ethics is now more present in Swiss sport than ever. FOSPO launched the 'ethics in Swiss sport' project together with Swiss Olympic in 2022. In an initial phase, the ethics topics that feature in the Sport Promotion Ordinance that is currently being revised were expanded on and a shared understanding in the form of principles for action was developed (e.g. on various forms of violence, discrimination and addiction). The integration and prevention unit helped shape this work and provided a great deal of support in the form of expertise.

To mark the 50th anniversary of Youth+Sport (Y+S), the unit wrote articles on three priority issues (diversity, addiction prevention and encouraging girls to do sport). Staff from the Y+S unit also helped design and implement the inclusive anniversary summer camp in Tenero. The unit worked to ensure that children and young people with and without disabilities could take part.

In addition, more training documents in the fields of integration and prevention were updated or drawn up for the first time in 2022. In collaboration with disability sports associations, new learning modules were developed (e.g. on including children and young people with disabilities) as well as a checklist for inclusive Y+S activities.

Regina Oeschger, Lilian Roos, Thomas Wyss, Mark J. Buller, Bertil J. Veenstra, Rahel Gilgen-Ammann

Influence of Soldiers' Cardiorespiratory Fitness on Physiological Responses and Dropouts During a Loaded Long-distance March.

Military Medicine, Januar 2022.

doi: [10.1093/milmed/usab540](https://doi.org/10.1093/milmed/usab540).

Introduction: In military service, marching is an important, common, and physically demanding task. Minimizing dropouts, maintaining operational readiness during the march, and achieving a fast recovery are desirable because the soldiers have to be ready for duty, sometimes shortly after an exhausting task. The present field study investigated the influence of the soldiers' cardiorespiratory fitness on physiological responses during a long-lasting and challenging 34 km march.

Materials and Methods: Heart rate (HR), body core temperature (BCT), total energy expenditure (TEE), energy intake, motivation, and pain sensation were investigated in 44 soldiers (20.3 ± 1.3 years, 178.5 ± 7.0 cm, 74.8 ± 9.8 kg, body mass index: 23.4 ± 2.7 kg $\times$ m $^{-2}$, peak oxygen uptake ($\dot{V}O_2^{\text{peak}}$): 54.2 ± 7.9 mL $\times$ kg $^{-1}$ $\times$ min $^{-1}$) during almost 8 hours of marching. All soldiers were equipped with a portable electrocardiogram to record HR and an accelerometer on the hip, all swallowed a telemetry pill to record BCT, and all filled out a pre- and post-march questionnaire. The influence of aerobic capacity on the physiological responses during the march was examined by dividing the soldiers into three fitness groups according to their $\dot{V}O_2^{\text{peak}}$.

Results: The group with the lowest aerobic capacity ($\dot{V}O_2^{\text{peak}}$: 44.9 ± 4.8 mL $\times$ kg $^{-1}$ $\times$ min $^{-1}$) compared to the group with the highest aerobic capacity ($\dot{V}O_2^{\text{peak}}$: 61.7 ± 2.2 mL $\times$ kg $^{-1}$ $\times$ min $^{-1}$) showed a significantly higher ($P < .05$) mean HR (133 ± 9 bpm and 125 ± 8 bpm, respectively) as well as peak BCT (38.6 ± 0.3 and 38.4 ± 0.2 °C, respectively) during the march. In terms of recovery ability during the break, no significant differences could be identified between the three groups in either HR or BCT. The energy deficit during the march was remarkably high, as the soldiers could only replace 22%, 26%, and 36% of the total energy expenditure in the lower, middle, and higher fitness group, respectively. The cardiorespiratory fittest soldiers showed a significantly higher motivation to perform when compared to the least cardiorespiratory fit soldiers ($P = .002$; scale from 1 [not at all] to 10 [extremely]; scale difference of 2.3). A total of nine soldiers (16%) had to end marching early: four soldiers (21%) in the group with the lowest aerobic capacity, five (28%) in the middle group, and none in the highest group.

Conclusion: Soldiers with a high $\dot{V}O_2^{\text{peak}}$ showed a lower mean HR and peak BCT throughout the long-distance march, as well as higher performance motivation, no dropouts, and lower energy deficit. All soldiers showed an enormous energy deficit; therefore, corresponding nutritional strategies are recommended.

Gogoll, A. (2022)

Kompetenzorientierung im Sportunterricht – konzeptuelle Grundlagen und didaktische Innovationen.

In R. Sygusch, J. Hapke, S. Liebl & C. Töpfer, C. (Hrsg.) Kompetenzorientierung im Sport. Grundlagen, Modellentwurf und Anwendungsbeispiele (S. 19-34). Hofman: Schorndorf.

Der vorliegende Beitrag gibt einen strukturierten Überblick über ausgewählte sportdidaktische Kompetenzkonzepte und stellt exemplarisch einige der daraus hervorgegangenen Innovationen für die Entwicklung einer kompetenzfördernden Sportvermittlung in der Schweiz vor. Die Zusammenstellung folgt den Diskussionslinien der bildungswissenschaftlichen Kompetenzforschung (Kap. 1) und versucht die Bezüge der sportdidaktischen Konzepte und Innovationen zu den wesentlichen Eigenarten der dort erarbeiteten konzeptuellen Vorstellungen aufzuzeigen (Kap. 2). Sportdidaktische Kompetenzkonzepte erweisen sich als ausgesprochen nützlich für die Entwicklung von Curricula und anderen Innovationen für die Planung, Durchführung und Auswertung einer kompetenzfördernden Sportvermittlung (Kap. 3). Dies wird erstens an der Entwicklung des aktuell gültigen kompetenzorientierten Lehrplans für den Sportunterricht in der Berufsfachschule verdeutlicht. Zweitens wird gezeigt, inwiefern die Erarbeitung von kompetenzfördernden Lernaufgaben von der Anwendung des Modells sport- und bewegungskultureller Kompetenz profitieren kann.

Performance sport

Preparations for the move in to the new Hochschule Lärchenplatz building continued apace. The department used the opportunity to review how cooperation could be made even more efficient. A working group was set up with the aim of developing a concept to establish and improve interprofessional cooperation. In addition, some of the new measuring systems underwent testing, and new tests and services were developed. As in the previous year, performance diagnostics and scientific services had a high volume of work and are highly valued by the sports governing bodies. New communication methods helped ensure even more effective dissemination of research findings. The department also assisted Youth+Sport in drawing up new training documents.



Medical consultations: 1066

Sports medicine

Once again in 2022, the sports medicine team looked after elite and young athletes on a daily basis, treating acute illnesses and injuries and overexertion, and carrying out prevention work. A total of 120 pre-participation medical screenings were conducted, 61% of which on athletes. The number of French- and Italian-speaking athletes looked after increased slightly, accounting for just under 30%.

Sports medicine stepped up its teaching activities and supervised more medical students during internships. The sports medicine unit was involved in various research and other projects, including on subjects such as biological age and the menstrual cycle and sport.

A great deal of work continued to be done on the COVID-19 pandemic as the test centre remained operational. New questions kept cropping up in relation to sport – both in performance sport and in sporting activities in classes, teaching, and in the military in elite sport training for recruits and refresher courses.



Sports psychology counselling: 355

Sports psychology

The project on self-compassion in coaches and athletes funded by the Swiss National Science Foundation (SNSF) was concluded in the year under review, and work started on the research project, also financed by the SNSF, 'Understanding and promoting the mental health of competitive athletes – six empirical studies'. The results of one of the sub-projects – surveying the prevalence of mental health disorders in performance sport – are already in: 52% of the women and 30% of the men surveyed exceeded the cut-off criteria on at least one of the disorders studied. To tackle this important subject, a podcast series on mental health in performance sport was launched.

The sports psychology team ran two four-day training sessions at the Swiss Olympic talent meet in Tenero (3T) and organised an ethics symposium. They also taught modules on the SFISM Bachelor's and Master's programmes and on the coach education course. Particularly worthy of mention is the successful realisation of a week-long module as part of the European Elite Strength and Conditioning Course (ESC2) on





Number of athletes: 430

Number of tests: 1150

the topic of self- and team management, in partnership with Sports Coach Education Switzerland. Externally, staff were involved in teaching at the University of Applied Sciences and Arts Northwestern Switzerland and in further training courses at the University of Bern and Zurich University of Applied Sciences. Important services were provided, among others for athletes at the Elite Sport Training School for Recruits, for Swiss Shooting, Swiss Handball, the Swiss Gymnastics Federation SGF and the Swiss Football Association.

Sports physiology (strength)

For the sports physiology (strength) team, the year under review once again represented a record in performance diagnostics, despite the protective measures in place due to COVID-19. The services team supervised athletes from 16 different sporting disciplines (national teams only). In the case of the most complex of the tests carried out – the muscular performance diagnostic test – 83% of Swiss Olympians competing in Beijing 2022 were tested and advised. In addition, the specific strength training course for athletes at the Elite Sport Training School for Recruits was maintained.

The team was also deployed twice to support youth athletes at the Swiss Olympic talent meet in Tenero (3T). The team published three original articles and two posters which reached the final round of the Swiss Olympic Science Awards. Sports physiology (strength) staff organised courses equivalent to 28 ECTS credits and were actively involved in various coach education courses offered by Y+S and sports governing bodies. They also supervised various theses and dissertations (including eight completed Master's theses).



Number of athletes: 587

Number of tests: 1497

Sports physiology (endurance)

In 2022, the sports physiology (endurance) team provided support to the national teams of the governing bodies Swiss Ski (cross-country skiing, biathlon) Swiss Cycling (mountain biking, track cycling, road cycling), Swiss Triathlon and Swiss Athletics (middle-distance and marathon) with sports science services and applied research projects. The highlight of the year for winter sports was the Winter Olympics in Beijing, while athletes in summer sports competed successfully in various European and world championships.

Staff carried out extensive preparatory work for the sports physiology laboratories in the new Lärchenplatz building (e.g. evaluating the new large treadmill). They published two applied research projects in peer-reviewed journals. Meanwhile, teaching for the various Bachelor's and Master's degree programmes went ahead, and Master's thesis defences in elite sport were conducted.



Number of athletes: 771

Number of tests: 5710

Sports physiology (game sports)

The sports physiology (game sports) team carried out performance diagnostic tests primarily for national youth teams for the three biggest Swiss sports governing bodies in football, ice hockey and handball, and gave every athlete tested a set of bespoke training recommendations. Findings and observations from these tests were then examined and discussed critically with coaches from the governing bodies and in some cases from clubs.

In the spring and autumn, the team carried out performance tests at the Swiss Olympic talent meet in Tenero (3T) for upcoming youngsters, and introduced them to sports science.

The first year of the three-year interdisciplinary research project on improving performance and injury prevention in women's youth football involving around 20 players was successful.

The multi-year, cross-governing body project 'Power to Win' reached a milestone with the publication of learning module 1 at foundation level (in the FTEM Switzerland framework concept on sport and athlete development). The main goal of this project is to help more talented Swiss athletes in game sports meet the physical requirements to be able to compete at international level.

The team published two posters, which made it to the final round of the Swiss Olympic Science Awards and were presented at an international congress.

Staff from the games sport unit are course leaders on the Bachelor's and Master's degree programmes and taught students in a level-appropriate way about scientific findings specific to game sports in various coach education programmes and courses.

Coaching science

The coaching science team 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 2022, 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. The majority of the research activity was published in international peer-reviewed journals.

The team also implemented and provided scientific support to three innovative, pioneering projects in collaboration with the Swiss Football Association and the technique and tactics unit. The 'player labelling' project was launched with the aim of providing coaches with additional information about players digitally by video at selection games. This leads to more nuanced selections as additional information (e.g. on players' biological age) is factored into coaches' decisions.

The 'Transitions' project analyses development stage crossovers into football on the basis of the FTEM Switzerland framework concept for sport and athlete development. Potential measures range from breaking down obstacles when entering the sport and better support for children's football through to improvements in selection and talent development. The aim is to offer all children equal access to support opportunities, use the existing resources efficiently and structure talent development in a successful and sustainable way. The 'Smart Competitions' project, launched in collaboration with Swiss Olympic, aims to adapt competition systems in youth elite sport so they better support athlete development at the relevant phase of the FTEM Switzerland framework concept.

Technique and tactics

In the technique and tactics unit, activities in 2022 centred around the development of technical and tactical skills in youth elite sport. The services team was able to process the increasing number of enquiries from sports governing bodies on this topic, mostly in the form of consultations and workshops. For example, series of tests in the field and laboratory were scientifically supported by innovative technologies and diagnostic tools to record technical and tactical skills. In another innovative project, the technique and tactics team also assisted Swiss Unihockey in optimising talent selection and, in particular, designing perceptual-cognitive test procedures.



Physiotherapy treatments: 1746

Massages: 1873

Moreover, various service projects for Swiss Olympic continued successfully, including one in cooperation with the coaching science team in the area of talent development and identification. The technique and tactics unit also assisted Youth+Sport in drawing up new training documents, in particular to develop technical and tactical skills at early stages of development and in recreational sport.

Within the framework of the doctoral position in research and development, the first measurements to record eye movement behaviour (visual exploration) in female youth footballers were carried out. Additionally, third-party funds were secured for a project to record game intelligence in football players. The first step involves drawing up a concept to operationalise, assess and develop game intelligence.

The technique and tactics unit is responsible for numerous courses at all educational levels of the SFISM and was able to advance the digitalisation of teaching materials and further development of teaching processes in particular. By supervising various scientific works, important findings were gained in the area of analysing technical and tactical performance parameters in training and competition in game sports.

Sports physiotherapy and sports massage

The expansion of the Armed Forces' programme for competitive athletes led to a further increase in demand for sports physiotherapy services. Considerably more athletes from Armed Forces units were looked after than before. Treatments following injuries or overexertion, as well as rehabilitation following surgery were most frequently used. More athletes completed their whole rehabilitation in Magglingen, in order to make the most of the optimal support and available training opportunities to be ideally prepared for their return to sport.

The sports governing bodies continued to step up their investment in injury prevention. Recognising physical deficits in the musculoskeletal system and how they are treated has a significant influence on frequency of injury. As a result, the sports physiotherapy team carried out a record number of preventive examinations of the musculoskeletal system in 2022. The results were discussed individually with athletes and were incorporated into an adapted training programme.

Once again, a large number of sports massages were carried out. Sports massage is an important part of regeneration for athletes and a key factor in injury prophylaxis.

Teaching activities for study programmes and coach education took place within the usual framework. Integrating them in the daily service business remains a challenge.

The planned facilities for sports physiotherapy in the new Hochschule Lärchenplatz building were realised and are under development.

Ackeret, N., Röthlin, P., Allemann, M., Krieger, T., Berger, T., Znoj, H., Kenttä, G., Birrer, D., & Horvath, S. (2022).

Six-month stability of individual differences in sports coaches' burnout, self-compassion and social support.

Psychology of Sport and Exercise, 102207.

doi: <https://doi.org/10.1016/j.psychsport.2022.102207>.

Abstract

Using a three-wave prospective cross-lagged panel design, the study examined six-month stability of burnout, self-compassion and social support among sports coaches in terms of measurement invariance, mean-level change, rank-order stability, and structural stability. The participating coaches ($N = 422$; $M_{age} = 44.48$, $SD = 11.03$) completed an online questionnaire measuring self-compassion, social support, coach burnout and demographics at baseline and two follow-ups at three months and six months. The various forms of stability were assessed using structural equation modeling. There was no significant mean-level change in burnout, self-compassion, or social support, and all three constructs exhibited measurement invariance. Rank-order stability remained relatively high, ranging from 0.78 to 0.94 across the three time points. For all three constructs, covariances between latent factors were invariant over time, indicating high structural stability. While self-compassion and social support were positively related, both were negatively related to coach burnout. These results confirm the importance of preventing and addressing symptoms of burnout, low self-compassion and poor social support in sports settings.

Blokker, T., Bucher, E., Steiner, T., Wehrlin, J.P.

Effect of cold ambient temperature on heat flux, skin temperature, and thermal sensation at different body parts in elite biathletes.

Front Sports Act Living. 2022 Nov 2;4:966203.

doi: [10.3389/fspor.2022.966203](https://doi.org/10.3389/fspor.2022.966203).

Introduction: When exercising in the cold, optimizing thermoregulation is essential to maintain performance. However, no study has investigated thermal parameters with wearable-based measurements in a field setting among elite Nordic skiers. Therefore, this study aimed to assess the thermal response and sensation measured at different body parts during exercise in a cold environment in biathletes.

Methods: Thirteen Swiss national team biathletes (6 females, 7 males) performed two skiing bouts in the skating technique on two consecutive days (ambient temperature: -3.74 ± 2.32 °C) at $78 \pm 4\%$ of maximal heart rate. Heat flux (HF), core (T_{core}) and skin (T_{skin}) temperature were measured with sensors placed on the thigh, back, anterior and lateral thorax. Thermal sensation (TS) was assessed three times for different body parts: in protective winter clothing, in a race suit before (PRE) and after exercise (POST).

Results: HF demonstrated differences ($p < 0.001$) between sensor locations, with the thigh showing the highest heat loss (344 ± 37 kJ/m²), followed by the back (269 ± 6 kJ/m²), the lateral thorax (220 ± 47 kJ/m²), and the anterior thorax (192 ± 37 kJ/m²). T_{core} increased ($p < 0.001$). T_{skin} decreased for all body parts ($p < 0.001$). Thigh T_{skin} decreased more than for other body parts ($p < 0.001$). From PRE to POST, TS of the hands decreased ($p < 0.01$).

Conclusion: Biathletes skiing in a race suit at moderate intensity experience significant heat loss and a large drop in T_{skin} , particularly at the quadriceps muscle. To support the optimal functioning of working muscles, body-part dependent differences in the thermal response should be considered for clothing strategy and for race suit design.

Sports economics

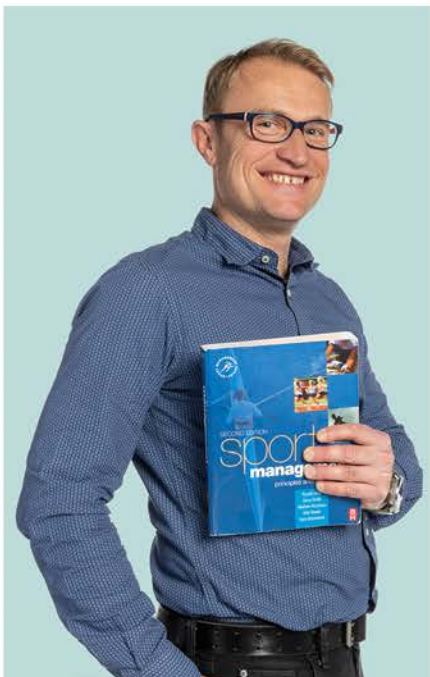
2022 was a particularly busy year for the sports economics department.

Through its three organisation units, it successfully implemented a wide range of projects in the fields of research, services and teaching together with Swiss Olympic and the Swiss Armed Forces. Switzerland's first research network for sports management was initiated and implemented with three academic partners – the Institute of Sport Science at the University of Bern, the Institute of Sports Sciences of the University of Lausanne (ISSUL) and the University of Applied Sciences of Graubünden.

Research and development

The topics of governance in sport and the role of women in sport took centre stage in 2022.

The department worked with the organisational development unit on the first part of the 'ethics in Swiss sport' project and reviewed the key factors of 'good governance' in sport with two academic partners. This work resulted in the publication of a chapter in the reference book 'Good Governance in Sport. Critical Reflections' published by Routledge, and the publication of a number of scientific articles in various journals. The sport systems unit led a research project on the role and development of women in Swiss sports promotion bodies. As part of a sports policy mandate from the Federal Office of Sport and Swiss Olympic, it carried out a study on the impact of the COVID-19 pandemic on sport and the stabilisation measures introduced to tackle it. The results were presented at the Magglingen Day event in November 2022. The sport system unit also conducted many reviews in the area of sports economics and sports management for specialist journals. In collaboration with the Institute for the Environment and Process Engineering (UMTEC) at the University of Applied Sciences of Eastern Switzerland (OST), the sports facilities unit conducted practical assessments of seepage water from synthetic turf facilities as part of a project funded by the Federal Office for the Environment (FOEN). It is intended to deliver viable recommendations for good drainage planning and sustainable operation of synthetic turf sports facilities.



**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

In terms of teaching, the focus in 2022 was on developing further education offerings (see the chapter on education and training). The staff in the department also showed great commitment to teaching within the framework of Bachelor's and Master's programmes in sports, the supervision of Master's theses and the BFH portfolio in sports and events management.

Services

The focus in services was on advising on the construction of sports facilities and assessment mandates for sports governing bodies, Swiss Olympic and the Swiss Armed Forces as part of the career management project.

The annual sports facility visit, organised by the sports facilities unit, saw over 100 representatives of communes, sports offices, professional associations and other interested parties travel to Glarus Nord. The group visited the 'lintharena' and the 'Kerenzerberg sports centre' – two modern sports facilities that meet the latest requirements and that have undergone complete refurbishment, renovation and expansion in recent years.

The sport systems unit carried out two winter sports projects in 2022. In the field of Nordic/freestyle, it worked with Swiss Ski to develop concepts for the establishment of a system at national and regional performance centres. For the 'IBU Biathlon-WC 2025 Lenzerheide' association, a workshop on the sustainable development of biathlon as a sport was organised and evaluated. It also provided content-related and conceptual assistance to Swiss Olympic on the 'Swiss Olympic Park' project. Additionally, it provided training for the University of Applied Sciences of Graubünden.

The organisational development unit represented the SFISM in 2022 in the development of a project led by Bern University of Applied Sciences regarding its 'enterprising university' initiative. The project seeks to review approaches and measures in order to better cater to the expectations of industry and various actors. It also continued to expand the career management programme and optimised it for a growing number of students. Finally, the specially developed lesson format 'Magglingen*Thinkathlon*' was integrated in the organisation of the World University Championship Orienteering.

Mrkonjic, M. (2022).

Good governance in sport strategies: Reforming organisations by adapting management competencies to governance functions

In A. Geeraert & F. van Eekeren (Eds). *Good Governance in Sport. Critical Reflections*. London & New York: Routledge.

This contribution draws attention to the emergence of multiple newly associated functions within the sports system as a result of the implementation of good governance principles. He demonstrates that they can be executive or managerial and strategic or operational and can be integrated into different organisational units. Effectively performing these functions requires specific and general, technical or social competencies. By outlining types of governance structures and functions as well as the associated management competencies, the author takes the first step towards developing a skills-based approach to good governance in sport that benefits scholars as well as practitioners.

Mrkonjic, M., Pillet, F., Weber, A., Burk, W., Dinner, K., Lang, M., Mendes Fonseca, D., & Bayle, E. (2022).

Emplois et compétences en management du sport en Suisse.
Macolin: Office fédéral du sport OFSPO.

La présente étude est de nature exploratoire basée sur un design de méthodes mixtes qui a pour objectif de mieux comprendre les emplois en management du sport en Suisse par une analyse des compétences. À ces fins, elle segmente les emplois en management du sport en huit secteurs d'activités incluant un ensemble d'organisations, notamment les associations sportives à but non lucratif, les installations sportives ou les entreprises de production de services sportifs et près de 20 sous-secteurs plus détaillés. Près de 600 personnes, parmi lesquelles des employeurs, des étudiant-e-s et des diplômé-e-s en management du sport provenant de trois hautes écoles suisses (Haute école fédérale de sport de Macolin, Haute école spécialisée des Grisons et Université de Lausanne), ont été interrogées sur l'importance de 42 compétences issues de la littérature pour exercer un emploi ainsi que sur leurs attentes mutuelles.

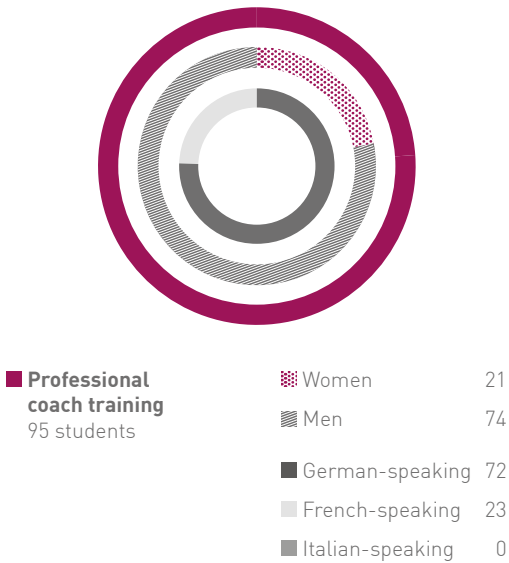
Les employeurs mettent en évidence que la communication, la capacité de travailler en équipe et la volonté de réussir/d'atteindre ses objectifs sont les trois compétences clés à posséder pour y exercer un emploi. Ils remettent cependant en question le postulat de l'importance de l'expérience d'une pratique sportive tant au niveau du sport d'élite que du sport de masse, sans pourtant nier celle de la passion et de l'engagement pour le sport. Les étudiant-e-s semblent avoir également saisi le rôle clé de la communication, mais accordent une importance plus élevée à l'organisation et à la planification et au management de projet que les employeurs. Cela est aussi vrai pour les diplômé-e-s.

Parmi les attentes que les employeurs ont formulées envers les étudiant-e-s et les diplômé-e-s, nous trouvons des qualités telles qu'un fort engagement dans leurs tâches, l'intelligence émotionnelle ou le sens critique, mais aussi des connaissances spécialisées acquises au cours des études ou encore une expérience pratique. Les étudiant-e-s et les diplômé-e-s attendent pour leur part de leur employeur qu'il leur offre de bonnes conditions de travail se caractérisant notamment par un bon climat de travail, un bon équilibre entre vie privée et vie professionnelle, de la flexibilité, du respect et qu'il promeuve des valeurs telles que la confiance, le soutien mutuel et le respect. Les étudiant-e-s et diplômé-e-s attendent des institutions de formation un lien à la pratique marqué, une bonne préparation au monde professionnel et aux besoins du marché de l'emploi. Ceci souligne le besoin d'adapter les curriculums des institutions de formation de façon à ce que les contenus soient alignés avec la réalité de la pratique.

Plusieurs recommandations ont été formulées à l'intention des étudiant-e-s et diplômé-e-s dont celle de saisir chaque occasion pour améliorer leur compétence de communication et de gestion de projet. L'importance des stages a également été soulignée tout comme la nécessité de se créer un réseau. Il est recommandé aux employeurs de mettre en place une communication claire et transparente, un climat de travail agréable et de la flexibilité, afin qu'un bon équilibre entre la vie privée et le travail soit possible. Une des recommandations clés à l'égard des institutions de formation consiste ainsi à créer les conditions de responsabilisation des étudiant-e-s qui leur permettraient d'assumer des décisions parfois complexes.

Sports Coach Education Switzerland

In 2022, the sports coach education department focused on four development areas: drafting the Training Concept 2.0, improving its partner management, further developing the area of 'Coach Developer' and expanding the Master Coach Programme. This resulted in slight changes to the internal organisational chart.



Building on the existing philosophy

Sports Coach Education Switzerland's 2018 training concept has proven effective. Nevertheless, the insights from the last five years are to be used to gradually enhance existing processes and content. The focus was on the following priority areas: improving the (subject matter) expertise of coaches, ensuring a clearer and simpler training overview, improving the compatibility of training and coaching activity, reducing the drop-out rate, and improving the positioning and recognition of qualifications. Initial results from the Training Concept 2.0 will become apparent in the coming year, such as shifting in-person days to asynchronous programmes, optimised planning possibilities, clearer profiling of the elite sport training level and a more readily understandable training structure.

Developing lessons as a 'core business'

The sports coach education department sees developing lessons – both in face-to-face and online format – as a central element of the Training Concept 2.0. To this end, staff exchanged ideas at least twice a month in the Sports Coach Education Switzerland's 'lab', with no limits on creativity and inventiveness at the initial stage. This process gave rise to two concrete products: a handbook on social learning and guidance on transfer efficiency. Both focus areas are to be tested in training courses in 2023 and (if they are successful), integrated in the programmes.

Improving partner management

In partner management, the sports coach education department optimised its structures in the year under review: on the one hand, the sub-area 'support' is to continue to exist and deliver the same level of quality, while on the other, a new operational focus was introduced in the sub-area 'development'. Working closely with the national sports governing bodies, the following goals are to be achieved in the medium term: closer networking, broader needs assessment, enhanced participation and improved knowledge transfer. The sports coach education department organised a joint partner meeting to this effect for the first time in Magglingen in 2022.





Coach in Competitive Sports, Federal Diploma of Higher Education

Participants: 70 passed: 52



Coaches counseling

- 29 without case supervision
- 401 with case supervision

Coach Developer

Participants: 28

Training courses

Participants: 618

Integrating coaches from abroad

Action was also needed in the year under review in the area of foreign coaches in Switzerland. In collaboration with Youth+Sport, Sports Coach Education Switzerland and the national sports governing bodies, a project was launched on 'Integrating foreign coaches into the Swiss sports system' (EACH). Staff at the sports coach education department helped develop the new induction course for foreign coaches, a modern approval procedure and updated transitional arrangements for Y+S in Sports Coach Education Switzerland. These improvements are particularly important against the backdrop of the current ethics discussions in Swiss sport.

Further advancing the Coach Developer

Supporting coaches in performance and elite sport is becoming more important due to the ever more complex requirements of the sporting world. The sports coach education department worked hard on developing this area through the 'Coach Developer 2.0' in 2022. The insights and measures have been implemented gradually since the beginning of 2023, for example a newly-designed training concept for Coach Developer, the decoupling of consulting and evaluation functions, and better networking of the groups involved.

Launch of Paris 2024 Olympic Coach Programme

Twenty-two potential Olympic coaches from eleven different sporting disciplines embarked on the Paris 2024 Olympic Coach Programme at the end of November. Under the motto 'Our athletes deserve the best coaches in the world', the Olympic Coach Programme aims to support coaches on their journey to the Olympic Games through bespoke support programmes, targeted networking and regular dialogue. The programme comprises a tailored mix of face-to-face sessions, case supervisions, webinars, personal consultations and coaching and optional training courses from Sports Coach Education Switzerland.

Striking the right balance between pushing and supporting

At the Magglingen Coaching Conference in 2022 'Aiming for success – but at what price?' participants dealt with the question of what sets successful coaches apart and how to strike the right balance between pushing and supporting in day-to-day work. Athletes, coaches and experts discussed the cost of success in Swiss sport in terms of interpersonal relationships. As usual, the Swiss Olympic Coach Awards, the Swiss Olympic Science Awards and the award ceremony for graduates of the new diploma coaching course were successfully integrated in the Magglingen Coaching Conference.

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