

ICSESP

INTERNATIONAL CONFEDERATION
OF SPORT & EXERCISE SCIENCE PRACTICE

International Sport Science Professional Standards

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Preface

The International Confederation of Sport and Exercise Science Practice (ICSESP) was established in 2020 as a not-for-profit company with the vision to positively impact individuals, communities and countries by advancing the international practice of the sport and exercise sciences. Foundation member organisations of the ICSESP included the American College of Medicine (ACSM), The Chartered Association of Sport and Exercise Sciences (CASES, formerly known as the British Association of Sport and Exercise Science), Canadian Society for Exercise Physiology (CSEP), Exercise & Sports Science Australia (ESSA) and Sport and Exercise Science New Zealand (SESNZ). The Irish Sport and Exercise Sciences Association (ISESA) and Norwegian Association of Exercise Physiologists have joined ICSESP in recent years. Interested parties can visit the ICSESP website to learn more about the work of the confederation (<https://icsesp.global/>) and review the article 'Introducing the International Confederation of Sport and Exercise Science Practice (ICSESP)' (Reeves et.al 2022) published in the British Journal of Sports Medicine (<https://doi.org/10.1136/bjsports-2022-106014>).

Pursuant to one of the ICSESP strategic imperatives, 'establish and promote the adoption of an international set of standards for the professional practice of the sport and exercise sciences,' the ICSESP initiated a systematic audit of the Sport Science standards for the five countries identified as having existing national certification systems. The audit process (Stage 1) was conducted using a modified scoping review protocol based on the documentation identified from the National Strength and Conditioning Association (USA), CASES, CSEP, ESSA and SESNZ. The findings of the audit were used to set the scene for the International Sport Science Professional Standards project (Stage 2). Interested parties can learn more about the audit process and findings by reviewing the International Sports Science Professional Standards Project Stage 1: Audit Results (<https://icsesp.global/about/standards-and-guidelines/>).

Equipped with the audit findings of existing country and region-based Sport Science standards, the ICSESP commissioned the project to develop a set of International Sport Science Professional Standards. The ICSESP envisages that a set of international sport science professional standards could be used to set minimum requirements for ICSESP membership for current and aspiring member organisations. Additionally, it is forecast that these standards will provide the architecture for developing the profession of sport science in jurisdictions where it is yet to be established.

The professional standards describe the minimum standards of practice and extend upon the standards addressed in the prerequisite training in a Bachelor level degree in Exercise and Sport or equivalent. The professional standards are comprised of five standard domains: Professional and Ethical Practice; Foundational Knowledge; Performance Assessment; Program Design and Delivery; and Data Analysis, Research and Technology. The standard domains are further detailed in the underlying elements that describe expected practice behaviour (core elements) and highly desirable practice behaviour (non-core elements) through measurable statements. The professional standards focus on the application and transfer of knowledge and skills, and it is expected that the knowledge and skills defined throughout the elements of each standard domain will be integrated and applied across sport science practice.

The advanced practice of sport science includes a variety of specialisations that focus on optimising human performance and health in athletic and exercise contexts. Specialisations can include exercise physiology, biomechanics, sports psychology, nutrition, strength and conditioning, performance analysis, rehabilitation, coaching, etc. The International Sport Science Professional Standards are not designed to include the practice behaviours of the numerous specialisations that exist in the advanced practice of sport science, but rather entry level practice standards.

The International Sport Science Professional Standards principally address the underpinning aspects of practice applying the science of exercise to developing interventions that improve sport performance. In some countries and regions around the world however, sport scientists are practicing in occupational settings where they are delivering interventions to workers in vocations that have extremely high physical demands. These might include the emergency services (Police, Fire, Ambulance, etc.) and military (Army, Navy, Air Force, etc.). It is expected that the contribution sport science practitioners provide in this area will continue to grow. As such the International Sport Science Professional Standards have been developed to consider the skills and competencies necessary for entry level sport science practitioners to practice in these areas.



Project Governance and Methodology

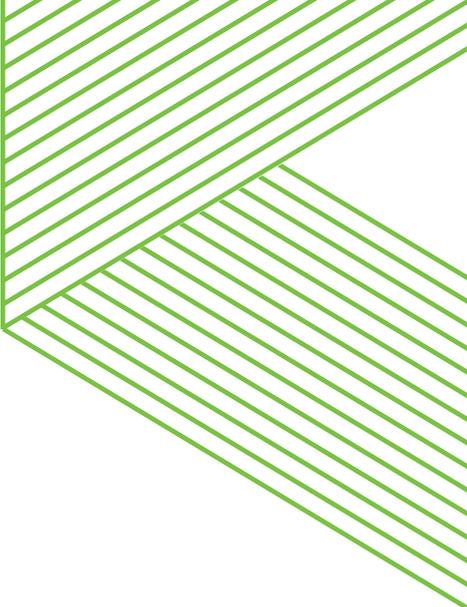
The project to develop a set of International Sport Science Professional Standards commenced in May 2024 with the establishment of a Project Steering Committee. The Project Steering Committee membership consists of five ICSESP Directors and two external members, all with sport science experience in practice, academic, research and/or standards development/review domains in their respective countries. The committee has been responsible for: conducting an audit of existing country/region specific sport science practice standards; identifying a list of working group inclusion criteria and candidates; determining the consensus methodology used on the project; and setting project key deliverables and timelines. The Project Steering Committee were ultimately responsible for realising the project aim of developing a set of International Sport Science Professional Standards and presenting them to the ICSESP Board for approval.

Under the guidance of the two Co-Project Leads, working group expressions of interest were sought from individuals in: countries with existing national sport science professional standards; countries where sport science professional standards are an active aspiration; and countries/regions where there is an existing sport science workforce.

The Project Working Group was created in January 2025 and is comprised of 22 members from 16 countries (maximum of two representatives from any individual country). Each working group member satisfies the criteria as set by the Project Steering Committee for being an 'expert' in the field of sport science professional standards.

Using the complete list of Sport Science Professional Standards identified in the systematic audit as a starting point, the Project Working Group members participated in several online surveys and focus groups. A modified Delphi model was used to systematically reach consensus: on what elements from the original audit list should be included in the standards; to identify any additional elements that were not part of the original audit list and determine if they would be included in the standards; and to recognise if each of the elements should be core (expected practice behaviour) or non-core (highly desirable practice behaviour) components across the five standard domains.

The Project Leads have actively supported and guided the Project Working Group through each phase of their deliberations. The Steering Committee has convened meetings at each of the project milestones to monitor progress, ensure compliance with the project methodology, and to provide guidance and direction to the Project Leads.



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International Sport Science Professional Standards

General Principles of the Standards

1. Describes the professional standards required for effective practice in sport science, while excluding behaviours that relate specifically to research conduct.
2. Describes the minimum practice standards in sport science that extend beyond those covered in prerequisite training at the Bachelor level in Sport and Exercise Science (or equivalent). *
3. Are not designed to include the practice behaviours of the numerous specialisations that exist in the advanced practice of sport science.
4. Describes the practice behaviours of sport scientists practicing across a range of levels from beginner to elite.
5. Includes the practice behaviours of sport scientists practicing in occupational settings where interventions are delivered to workers in vocations that have extremely high physical demands.

Notes:

* At the time the International Sport Science Professional Standards were released the ICSESP Foundation Level Sport and Exercise Science Professional Standards had not been developed. Once these standards are developed, they will form the standards upon which the International Sport Science Professional Standards are built.

Definitions

- AI** Artificial intelligence
- EDI** Equity, diversity and inclusion (and encompass cultural competence and diverse populations).
- Exercise** A subcategory of physical activity that is planned and structured, in which muscle contractions are performed with the explicit intent of ultimately improving or maintaining one or more components of physical fitness (e.g., aerobic capacity, muscle strength, power, and endurance, body composition, balance, coordination, or flexibility) and/or achieving a specific health benefit.
- Service User** An individual or entity that receives or accesses the services of a Sport Science practitioner.
- Sport** A sub-category of physical activity; it involves gross motor movement that is rule governed, structured, and competitive.

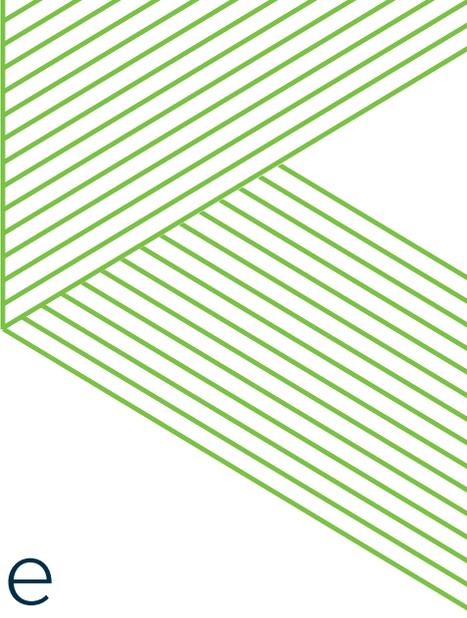


Standard Domain 1:

Professional and Ethical Practice

Elements

- 1.1 Practice within Scope of Practice, ethical boundaries, EDI practice, duty of care and the prioritisation of the service user interests in sport.
- 1.2 Practice effectively as part of an integrated multidisciplinary high-performance team, collaborating with all relevant stakeholders to enhance sport performance.
- 1.3 Apply effective communication techniques in interactions with service users, colleagues and other professionals.
- 1.4 Practice in accordance with legislated health and safety requirements in sport laboratory and field settings.
- 1.5 Accurately perform testing and calibration procedures, and basic equipment maintenance in sport.
- 1.6 Practice inclusively, considering the range of socio-economic, cultural, structural, political, technological and environmental factors that influence sport participation.
- 1.7 Empower service users to make informed decisions in sport.
- 1.8 Demonstrate competency in problem solving and impact evaluation in sport.
- 1.9 Apply confidentiality and privacy legislation with service user information in sport.
- 1.10 Understand the use of ergogenic aids including: rules as they apply to local and international anti-doping programs; practitioner and athlete rights, responsibilities and penalties; and side effects of doping.
- 1.11 Perform self-evaluation and undertake professional development in sport.



Standard Domain 2:

Foundational Knowledge

Elements

- 2.1 Apply knowledge of human physiology, exercise physiology, human anatomy, functional anatomy and biomechanical principles to movement across the lifespan and to the equipment used in sport.
- 2.2 Apply knowledge of skill acquisition across motor control, learning and development to movement and the equipment used in sport.
- 2.3 Apply knowledge of the principles underpinning program design.
- 2.4 Demonstrate knowledge of psychological and sociocultural influencers, and strategies pertaining to individuals and their impact on sport performance.
- 2.5 Demonstrate knowledge of applied sport nutrition within scope of practice.
- 2.6 Demonstrate knowledge of injury prevention, identification and management in sport within scope of practice.
- 2.7 Demonstrate knowledge of hydration strategies and their impact on performance, thermoregulation and recovery in sport.
- 2.8 Evaluate how physical, biomechanical and psychological stressors can impact on and contribute to performance, recovery and injury risk in sport.
- 2.9 *Apply knowledge of environmental considerations in sport.

Notes:

* This element represents a non-core but highly desirable practice behaviour of a Sport Scientist. Many, but not all, countries/regions will include this element in their professional standards. Environmental considerations may include amongst others: temperature and humidity; altitude and depth; wind; air and water quality; surface type; and extreme weather events.



Standard Domain 3:

Performance Assessment

Elements

- 3.1 Apply knowledge to select, conduct and evaluate validated sport-specific field and laboratory testing protocols.
- 3.2 Analyse the demands of sport and the capabilities of the individual, and perform a needs analysis to guide an assessment and training plan.
- 3.3 Apply knowledge of athlete monitoring including training loads (i.e. internal and external), response measures, and training adaptations relative to sport.
- 3.4 Interpret assessment findings in the context of normative data, existing research and field standards in sport.
- 3.5 *Understand the assessment and interpretation of body composition for individuals relative to sport.

Notes:

* This element represents a non-core but highly desirable practice behaviour of a Sport Scientist. Many, but not all, countries/regions will include this element in their professional standards.

Standard Domain 4:

Program Design and Delivery

Elements

- 4.1 Apply knowledge of training principles in sport as they apply throughout the lifespan and to individuals across sex, physical and psychological capabilities.
- 4.2 Create a training program for various components related to sporting performance and to sport specific technique and skills.
- 4.3 Develop and deliver a training program for a performance-based individual that is evidence-based and founded on the demands of sport.
- 4.4 Deliver or recommend evidence-based interventions to achieve performance goals in sport.
- 4.5 Critically evaluate the efficacy of implemented interventions in sport.



Standard Domain 5: Data Analysis, Research and Technology

Elements

- 5.1 Apply knowledge of statistical analysis for performance gains, longitudinal tracking methods, test sensitivity, validity and reliability in sport.
- 5.2 Understand and critically evaluate the reliability, validity, and practical application of new and emerging technologies and data when making evidence-informed decisions in sport.
- 5.3 Demonstrate digital and computer literacy, and understand and critically evaluate the emerging role of AI in sport.
- 5.4 Understand the importance of data integrity, ethical management and visualisation.

References

Reeves, N., Draper, N., Lane, K. N., Neric, F., Tolfrey, K., & Davison, K. (2022). Introducing the international confederation of sport and exercise science practice (ICSESP). *British Journal of Sports Medicine*, 56(20), 1146-1147.

