INTERNATIONAL CONFEDERATION
OF SPORT AND EXERCISE SCIENCE PRACTICE

International Sports Science Professional Standards Project

Stage 1: Audit Results

Feb 2025

PREFACE

The International Confederation of Sport and Exercise Science Practice (ICSESP) is committed to positively impacting individuals, communities and countries by advancing the international practice of the sport and exercise sciences. Member organisations of the ICSESP include:

Full Members	American College of Sports Medicine (ACSM)
	British Association of Sport and Exercise Science (BASES)
	Canadian Society for Exercise Physiology (CSEP)
	Exercise & Sports Science Australia (ESSA)
	Sport and Exercise Science New Zealand (SESNZ)
Associate Members	Irish Sport and Exercise Science Association (ISESA)
	Norwegian Association for Health and Exercise Physiologists (NFHT)

Membership of the ICSESP continues to grow each year. 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 has completed a systematic audit of the Sports Science standards (Stage 1) for the five countries identified via an environmental scan as having existing national certification systems. The audit process was conducted using a modified scoping review protocol based on the documentation provided by the British Association of Sport and Exercise Science (BASES), Canadian Society of Exercise Physiology (CSEP), Exercise & Sports Science Australia (ESSA), National Strength and Conditioning Association (NSCA), and Sport and Exercise Science New Zealand (SESNZ). The findings of the audit will be used to set the scene for the ICSESP Sports Science Professional Standards project (Stage 2).

The ICSESP envisages that a set of International Sports Science Professional Standards will 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 sports science in jurisdictions where it is yet to be established.

NOTES

The steering committee note that the five sets of sports science standards audited in stage 1 of this project were the only standards derived from a global environmental scan completed during June and July 2024. There may have been other sets of sports science standards that existed at this time but these were not identified.

During the audit it was noted that some sport science standards existed as stand-alone documents, with some standards (e.g. ESSA and NSCA) scaffolded upon a foundational set of exercise science standards. As such this has contributed to the audit results showing the element being partially and/or not addressing the element.

ACKNOWLEDGEMENTS

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Steering Committee	Dr Hannah Connon, Canada Associate Professor Kade Davison, Australia Professor Nicholas Gant, New Zealand Professor Kate Pumpa, Ireland Dr Andy Scott, United Kingdom
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AUDIT LEGEND

✓	Means the element is fully addressed
✓/x	Means the element is partially addressed
X	Means the element is not addressed

STANDARD DOMAINS

Standard 1	Element	CSEP	ESSA	SESNZ	NSCA	BASES
Sport and Occupational Biomechanics, Physiology and Performance Psychology	Demonstrate knowledge of sport and occupational physiology including: metabolic demands; rate and capacity of the three energy systems; determinants of VO2max; anaerobic threshold and how it can be used to guide exercise prescription; steps associated with muscular contraction; causes of fatigue; and physiological changes following training.	✓	x	✓/x	x	✓/x
	Demonstrate knowledge of sport and occupational performance biomechanics including basic biomechanical principles applied to human movement.	✓	x	✓	✓/x	✓/x
	Demonstrate knowledge of environmental physiological considerations including: response in extreme conditions; heat; cold; altitude; and responses of occupational workers to PPE.	✓	x	x	✓/x	x
	Demonstrate knowledge of unique psychological issues/strategies pertaining to athletes or exercising individuals and the impact on health and performance.	✓	x	✓	✓/x	✓/x
	Knowledge of the basic factors that can impact sport and occupational performance, such as sleep and stress on performance and injury risk.	✓	✓/x	✓	✓/x	x

Standard 2	Element	CSEP	ESSA	SESNZ	NSCA	BASES
Sport and Occupational Performance Assessment	Demonstrate knowledge of components of, and when to apply, frequently used sport and occupational specific testing protocols for: agility; speed; flexibility; aerobic; muscular strength, power and endurance; anaerobic power and capacity; and occupational fitness testing.	✓	✓/x	✓/x	✓/x	✓/x
	Demonstrate knowledge of how to perform a 'gap analysis' to guide an individual training plan.	✓	✓/x	✓/x	✓/x	✓/x
	Demonstrate knowledge of monitoring of internal and external loads, and heart rate and power output training zones relevant to sport or occupational performance.	✓	✓/x	✓/x	✓	✓/x
	Demonstrate knowledge of body composition for exercising individuals relevant to sport or occupational performance.	✓	x	x	✓/x	x
	Analyses the demands of the sport and the capabilities of the athlete.	✓/x	✓	✓	✓	✓/x
	Ability to relate own findings to the wider field and previous research to aid with interpretation of assessments.	✓	✓	✓	✓	✓/x

Standard 3	Element	CSEP	ESSA	SESNZ	NSCA	BASES
Sport and Occupational Performance Exercise Design & Delivery	Demonstrate knowledge of training principles including: progressive overload; specificity; variety and periodization; individualization; rest and recovery; and reversibility.	✓	✓/x	✓/x	✓/x	x
	Demonstrate knowledge of advanced periodization and prescription across the lifespan including: volume and intensity; linear, undulating and block; polarized training; integrated multifactorial approach; annual training plan; and quadennial plan.	✓	✓/x	✓/x	✓/x	x
	Demonstrate knowledge of training for aerobic fitness, resistance, flexibility, anaerobic fitness, and agility and speed.	✓	x	✓/x	✓/x	x
	Demonstrate knowledge of development and administration of training program for a performance-based individual including: evidence-based guidelines for warm up and cool downs; high intensity interval training for anaerobic and aerobic adaptations; plyometric progressions; work:rest ratios; resistance training; aerobic training; flexibility programs; implications of concurrent training; training tapering; recovery; and long-term athlete development.	✓	✓/x	✓/x	✓	✓/x
	Evaluates critically the efficacy of implemented interventions.	x	✓	✓	✓	✓
	Translates applicable investigation and research information to stakeholders.	x	✓	✓/x	✓	x
	Delivers or recommends evidence-based interventions to achieve the performance goals of service users in sports settings.	✓/x	✓	✓	✓	✓

Standard 4	Element	CSEP	ESSA	SESNZ	NSCA	BASES
Energy Intake for Sport and Occupational Performance	Demonstrate knowledge of applied sport and exercise nutrition including: basic nutrition for individuals engaged in exercise; nutritional requirements for performance during training and competition; common supplements; and the role of energy availability and the implications of relative energy deficiency.	✓	x	✓	✓/x	x
	Ability to identify the need for behaviour change and nutritional education.	x	x	✓	x	x
	Ability to communicate with athlete's and general population to increase their understanding of nutrition and well-being.	x	x	✓	✓/x	x

Standard 5	Element	CSEP	ESSA	SESNZ	NSCA	BASES
Professional and Ethical Practice	Development and administration of a training program for a high performance group/team.	✓	x	✓	x	x
	Basic knowledge of space requirements and facility design and layout.	✓	x	x	x	x
	Knowledge that an integrated high-performance team involves many professionals (multidisciplinary) working together with the goal to enhance athletic performance.	✓	✓	✓	✓	✓/x
	Understand usefulness and limitations of new and emerging technology and data including: reliability, validity and practically.	✓	✓	✓	x	✓
	Understand illegal 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.	✓	✓/x	x	x	x
	Understand monitoring of athlete performance and training including: knowledge of acute:chronic load and injury risk; knowledge of the concepts of general adaptation syndrome, overtraining, overreaching and function overreaching; knowledge of common injuries in exercising individuals; and the importance of having an emergency action plan.	✓	✓/x	✓/x	x	x
	Demonstrate an understanding of the ethical boundaries of the Sports Science profession and exhibits duty of care towards, and prioritisation of the interests of, service users in	✓/x	✓	✓	x	✓/x

	the delivery of Sports Science services.					
	Demonstrate the use of testing procedures, calibration procedures and basic equipment maintenance in sports settings.	x	✓	✓	✓/x	x
	Demonstrate and understands the use of legislated health and safety requirements in both laboratory and field settings.	✓	✓	✓	x	✓/x
	Applies appropriate communication techniques in interactions with service users, colleagues and other health professionals.	✓	✓	✓	✓	✓
	Practises as a Sports Scientist in a culturally sensitive, inclusive and non-discriminatory manner.	✓	✓	✓	x	✓
	Proposes information to support service users to make informed decisions.	✓	✓	✓	✓	✓
	Applies confidentiality and privacy legislation to information of service users.	✓	✓	x	x	✓/x
	Mentors new graduates and emerging sports scientists in the subfields of sports science.	✓	x	✓	x	x
	Self evaluation and professional development	✓	x	x	x	✓
	Problem solving and impact including: Be able to demonstrate a logical and systematic approach to problem solving; Exercise sound judgement and understand principles of uncertainty in complex and unpredictable situations; Be able to monitor and review the ongoing effectiveness of planned activity and modify it accordingly; Be able to initiate resolution of problems and be able to exercise personal	x	✓/x	x	x	✓

	initiative; Be able to apply problem solving and scientific reasoning to assessment findings to plan and prioritise appropriate expertise specific interventions; Recognise the value of case conferences and other methods of review; Be able to make reasoned decisions to initiate, continue, modify or cease treatment or the use of techniques or procedures and record the decisions and reasoning appropriately					