WIN+ WELL

Inspiring Australians

AUSTRALIA'S 2032+ HIGH PERFORMANCE SPORT STRATEGY

Australia's National Science and Research Priorities for High Performance Sport

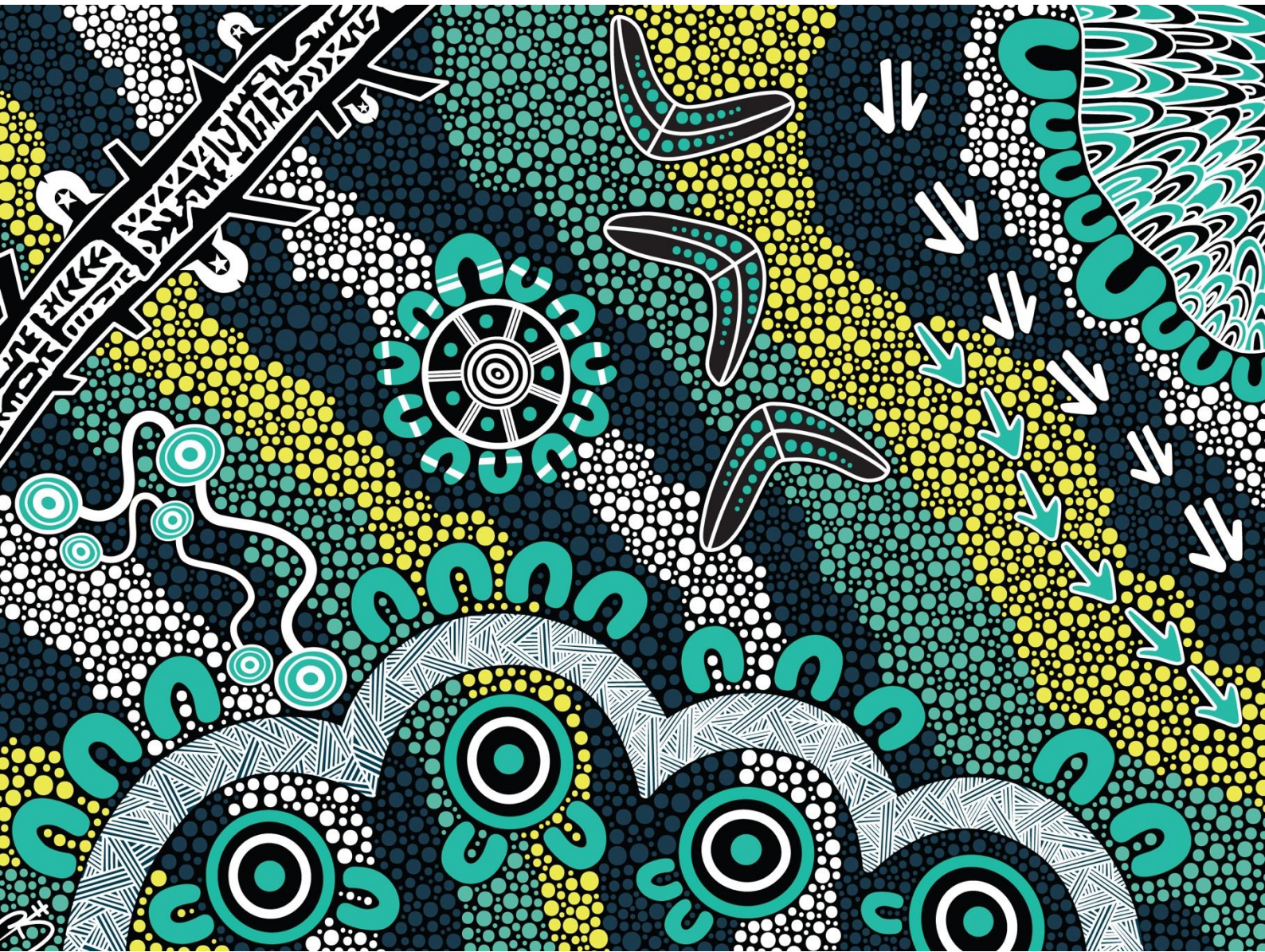
March 2025

Australian Sports Commission Acknowledgement of Country

The Australian Sports Commission (ASC) acknowledges the Traditional Custodians of the lands where its offices are located, the Ngunnawal people and recognise any other people or families with connection to the lands of the ACT and region, the Wurundjeri Woi-wurrung people of the Kulin Nation, the people of the Yugambeh Nation and the Gadigal people of the Eora Nation.

The ASC extends this acknowledgment to all Traditional Custodians of the lands, seas, skies and waters, and First Nations Peoples throughout Australia and would like to pay respects to their Elders past and present

The ASC recognises the outstanding contribution that Aboriginal and Torres Strait Islander peoples make to society and sport in Australia and celebrates the power of sport to promote reconciliation and reduce inequality.



INTRODUCTION

The revitalised National Science and Research Priorities for High Performance Sport (the Priorities) outline areas of strategic relevance to the Australian national high performance (HP) sport system. The aim of the Science and Research Priorities is to promote scientific endeavours, applied research, and innovation initiatives that support Australian athletes to Win Well and allow the HP sport system to achieve the overarching measures of success established in the HP2032+ Sport Strategy.

The Priorities were initially developed as part of the National High Performance Sport Research Agenda, March 2022, and subsequently updated in March 2025 in consultation with Australian athletes, coaches, performance support practitioners, high performance directors, researchers, and industry partners.

Over time, the implementation of the Priorities is expected to result in an increased proportion of resources being strategically allocated to science, research and innovation in a manner that aligns with HP sport needs. The priorities provide focal points for researchers and innovators to collaboratively address some of Australia's most significant HP sport challenges and opportunities over the next decade, toward the Brisbane 2032 Olympic and Paralympic Games and beyond.

"*These Science and Research Priorities will drive innovation in science and research for the Australian HP sport system. By strategically focusing on athletes' and sports' needs, we are increasing our chances to Win Well and achieve excellence*."

Matti Clements, Australian Sports Commission Executive General Manager of AIS Performance

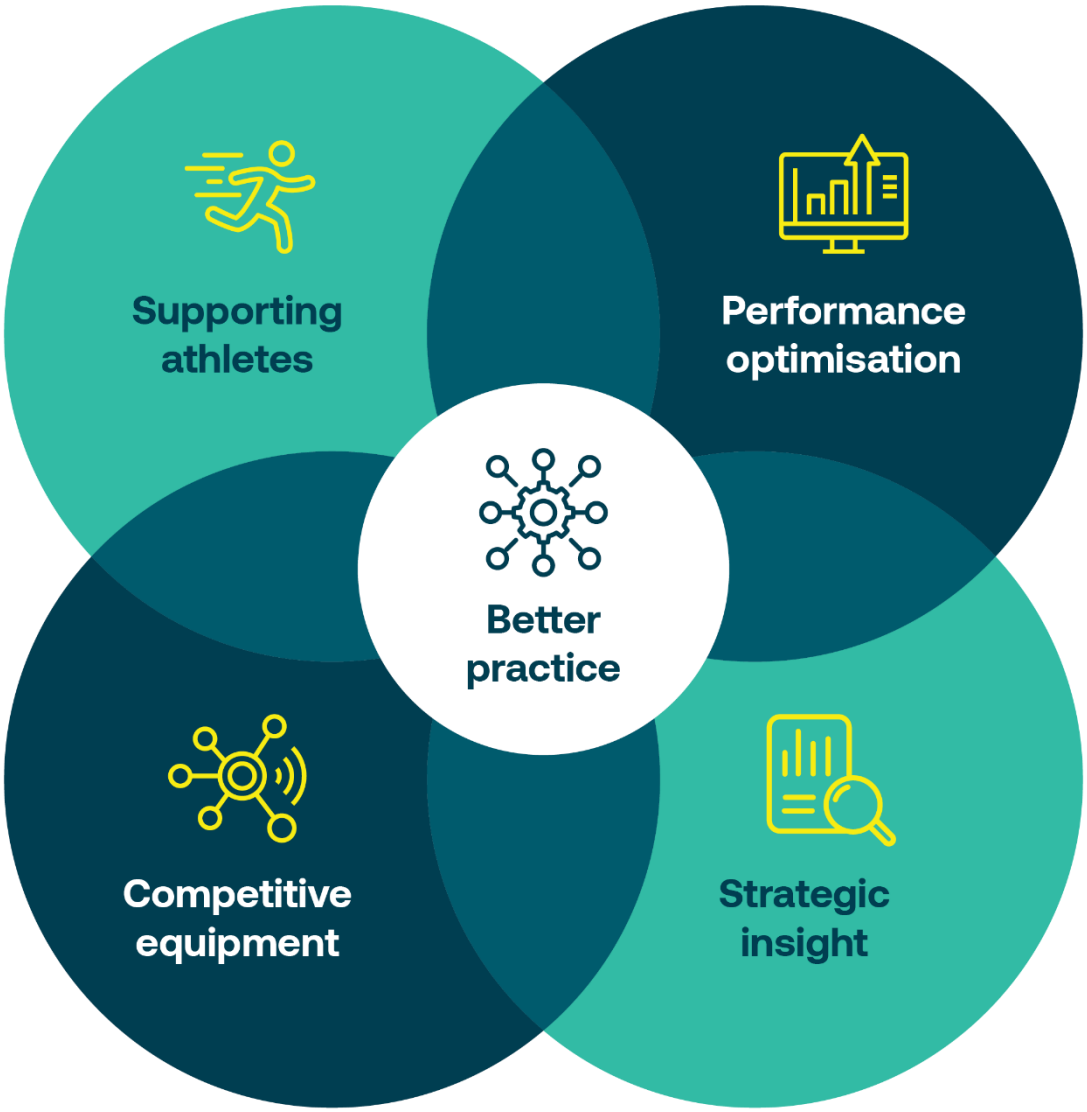
"The National Science and Research Priorities for High Performance Sport underscore our commitment to world-leading knowledge and practice. By fostering high-quality research and scientific endeavours, we support Australian athletes and teams for sustained success on the global stage."

Paolo Menaspà, AIS Chief Science Officer, Australian Sports Commission

THE PRIORITIES

The National Science and Research Priorities for High Performance Sport are:

- Supporting athletes
- Performance optimisation
- Strategic insight
- Competitive equipment
- Better practice



Supporting athletes

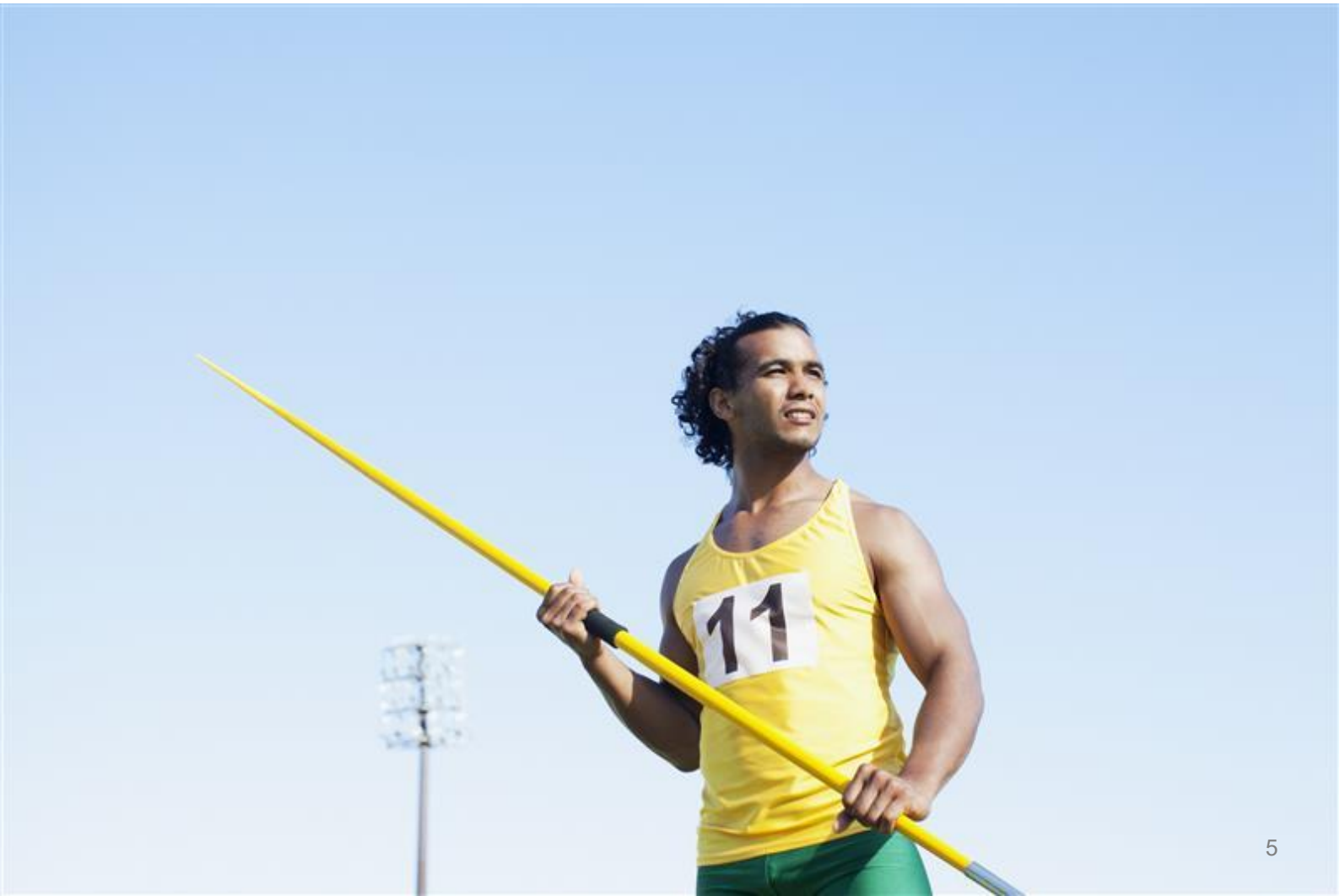
Context

Athletes are the building blocks of Australia's HP sport ambitions. To achieve sustained success, understanding and optimising athlete identification and development pathways and practices is critical. Athletes need tailored support at various stages of their journeys. Athletes' health and wellbeing are paramount to achieving their full potential. Athlete identification and development practices will be critical to underpin future podium success. Equity, diversity, and inclusion principles are fundamental to ensuring HP athletes are supported, thereby increasing the chances of achieving sporting goals on all fronts.

Science and research

Organisations should give priority to scientific initiatives, research and innovations that address:

- Advancements in athlete identification and development, including the ways in which the physical growth and maturation and psycho-social development of young people impacts involvement and progression in HP pathways.
- Athlete physical, mental, emotional and social wellbeing to support sustained, successful sport performances.
- The needs of a diverse athlete population, with a particular focus on areas with identified knowledge gaps.



Performance optimisation

Context

Performance optimisation is constantly evolving, with new sports entering the Games' programs and new knowledge and technology fostering continuous performance advancements. Science, research, and innovation activities should support evidence-informed decision-making regarding training practices, competition conditions, and challenging environments (e.g., heat, bushfire smoke, pollution). Interdisciplinary teams can help tailor performance solutions to individual athletes and teams' needs, in light of the complexity of competition schedules and environments.

Science and research

Organisations should give priority to scientific initiatives, research and innovations that address:

- Optimising training, based on athlete needs and on the specific requirements and complexity of sport competitions.
- Monitoring and management of training load and fatigue to improve competition performance.
- Performing in challenging environmental conditions.
- Interdisciplinary approaches to providing tailored solutions to sport-specific challenges.
- Deep dives into discipline-specific solutions, supporting specific areas of performance.

Strategic insight

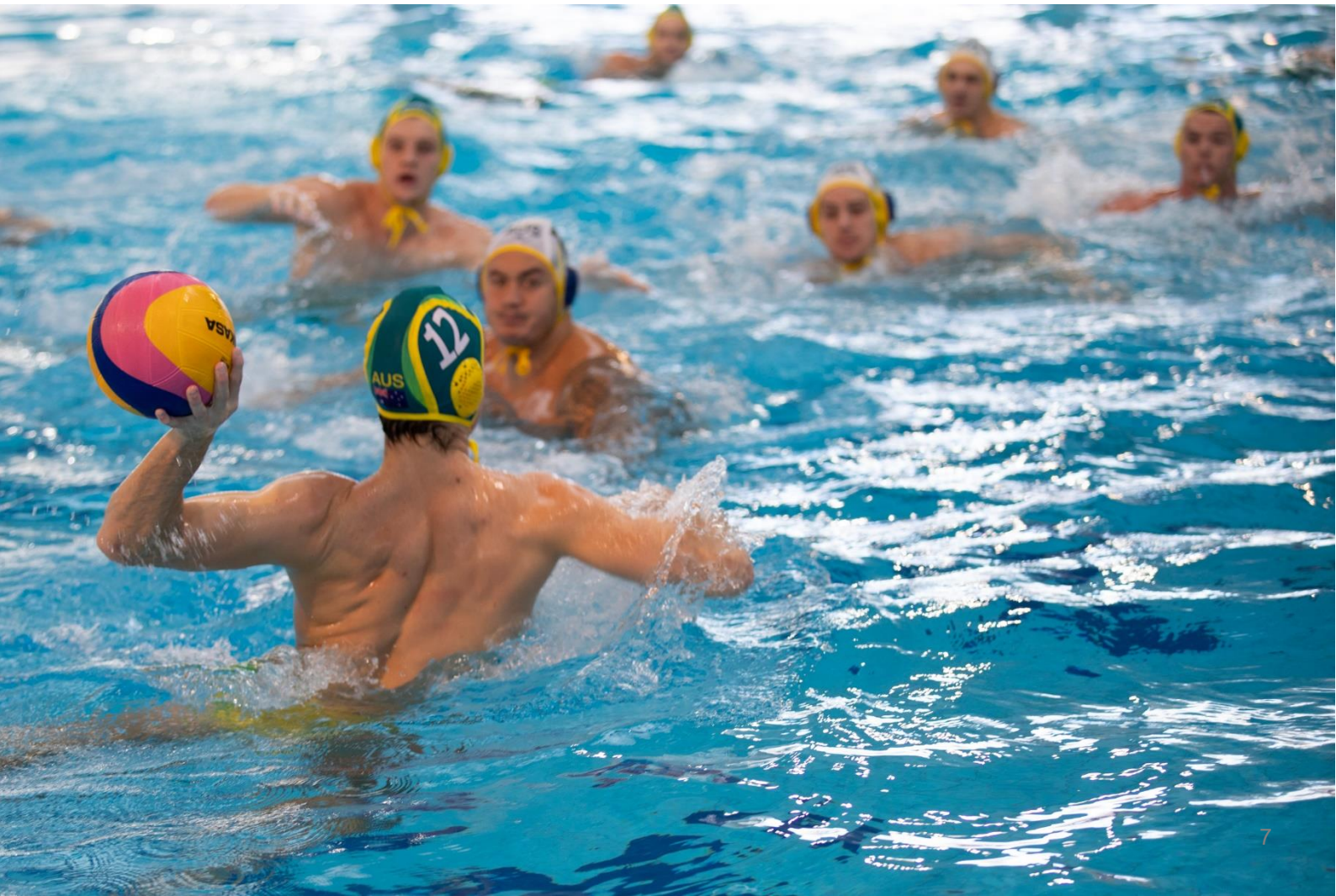
Context

As the level of competition continues to rise, athletes and teams are constantly seeking ways to gain an edge. The growing availability of technology and digital support allows more in-depth performance analysis and data-driven decision-making, both in training and (where allowed) during competitions. Knowing the competition environment, opposition, and the conditions 'on the day' can significantly impact performance. Additionally, the importance of using accurate, reliable technology and validated methodological approaches cannot be overstated. These elements ensure that the data and insights derived are trustworthy and actionable, enabling athletes to make informed decisions and perform at their best.

Science and research

Organisations should give priority to scientific initiatives, research and innovations that address:

- Determinants of successful competition performance, performance predictors, performance modelling.
- Real time and strategic analysis of training and competition, including: data-informed technical and tactical decision-making during competitions; data-informed design of future training and practice; performance analysis and strategic insight.
- Ethical and lawful opponent analysis, including during competition and long-term performance trends.
- Competition environment intelligence, including understanding and predicting competition environment and potential conditions on race day (e.g., climate, venue layout, course profile, travel to and from, altitude, wind, water conditions, crowd).



Competitive equipment

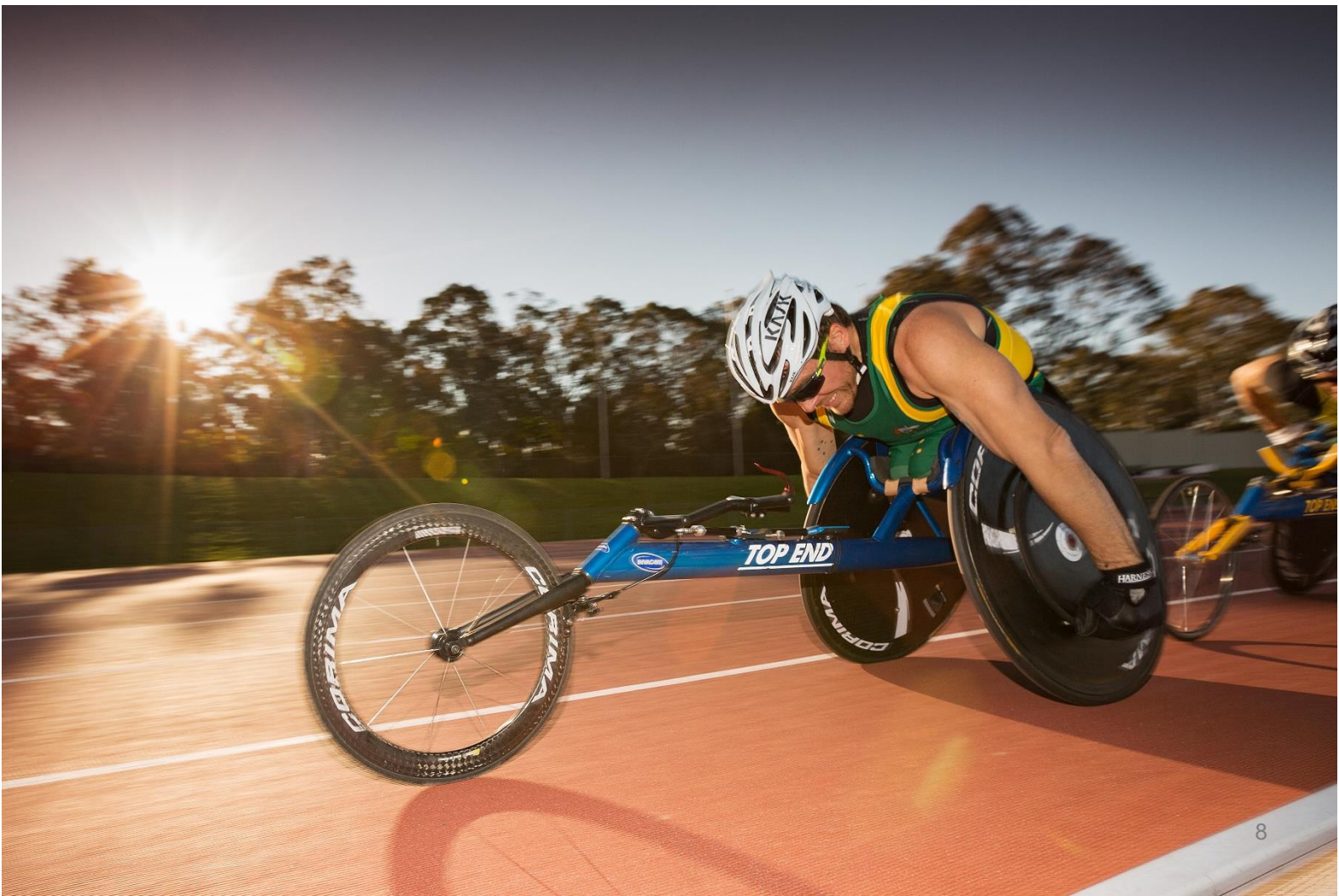
Context

Competitive equipment is essential for success in HP sport. Over the last century, advancements in equipment have constantly challenged the status quo, driving significant and sometimes sudden performance improvements. Future science, research and innovation initiatives should focus on developing innovative technologies that optimize HP equipment while considering manufacturing constraints and sport-specific regulatory requirements. This includes human equipment interaction and ensures athletes can compete at their highest potential, fully expressing their human capabilities.

Science and research

Organisations should give priority to scientific initiatives, research and innovations that address:

- Equipment design and optimisation, balancing innovation robustness, manufacturing and regulatory requirements. Considerations include aerodynamics, materials, travel requirements, etc.
- Sport-specific components, such as pedals, footpegs, handles, wheels, rackets, bats, etc.
- Custom-built equipment, tailored to the individual athlete. Considerations include effective and rapid manufacturing.
- Competitive garments, for training and competitions. Considerations include, but are not limited to, aerodynamics, sustainable materials, cooling properties.
- Technology integration, incorporating advanced technologies, such as sensors and smart materials, into sports equipment, for accurate and valid measurement of relevant variables.



Better practice

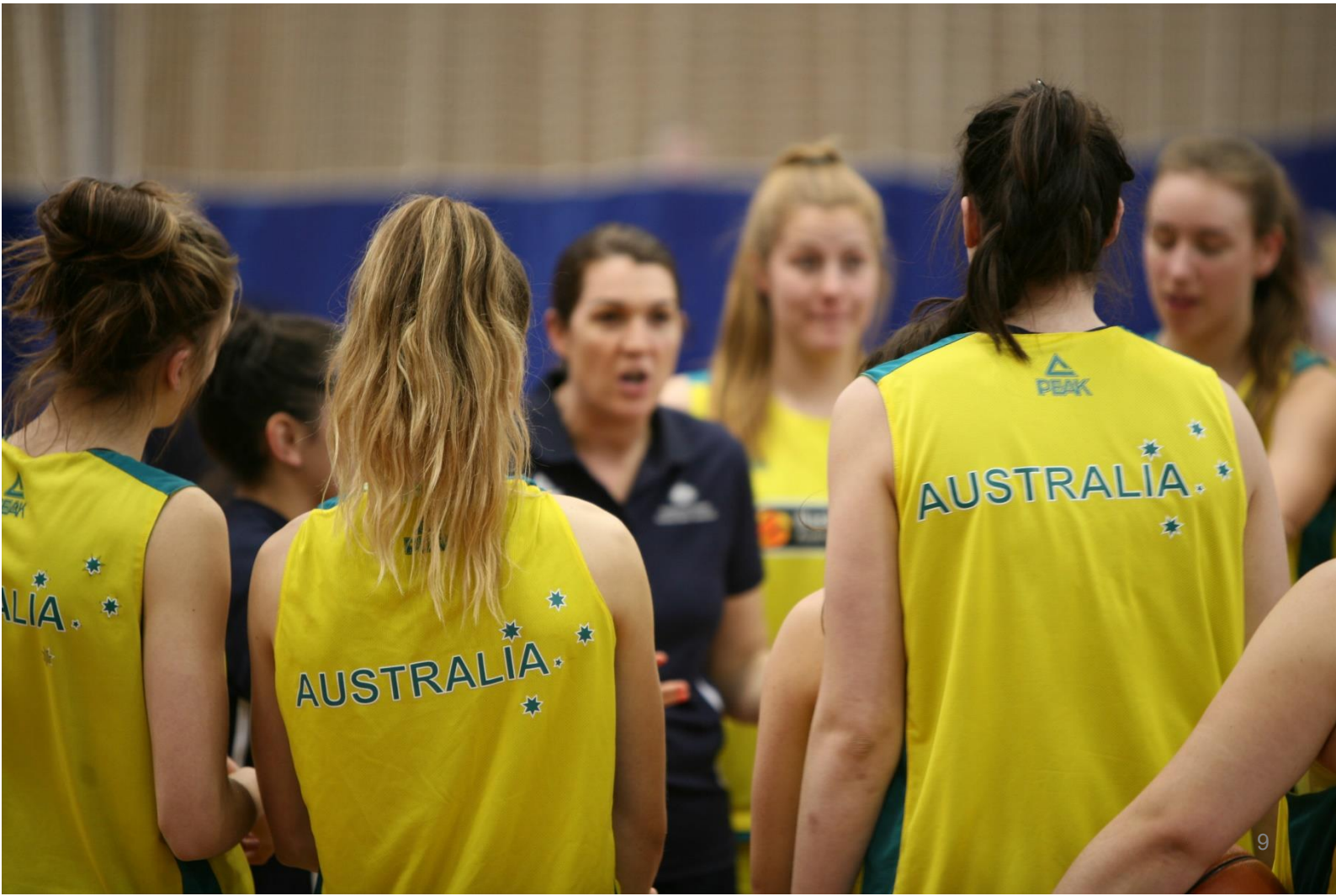
Context

While striving for world-leading knowledge, science rarely yields unequivocal facts. Instead, science and research allow us to make the best possible decisions based on the best available evidence. Science and research can assist with identifying areas for improvement, including research itself, coaching, performance support, leadership and more. The science and research system should evolve to elevate Aboriginal and Torres Strait Islander knowledge systems. By fostering a culture of continuous improvement, we can ensure that practices evolve and adapt to new findings, ultimately supporting sustained success in HP sport. Implementation science can promote the uptake of evidence-based practices and support behavioural change.

Science and research

Organisations should give priority to scientific initiatives, research and innovations that address:

- Coach development and coaching science, including a focus on the coaching profession, women in HP coaching, and enhancing learning design.
- Dissemination, translation and implementation of trustworthy research results into practice.
- Appropriate program evaluation practices, including impact assessment.



GUIDING PRINCIPLES

The National Science and Research Priorities for High Performance Sport were developed through an evidence-based process, based on the framework outlined by the NSW Health Centre for Epidemiology and Evidence (1) and documented following the REPRISE guidelines (2). This approach was endorsed by the National Institute Network Research Group, and the National Sport Research Agenda Advisory Group.

The priorities were informed by HP sport sector input, expert advice, and existing HP Sport System priorities. They are part of the National Sport Research Agenda.

The priorities highlight areas where science, research and innovation can increase knowledge and improve practice. They overlap and extend across various disciplines, sectors, and knowledge systems. They are neither exclusive, nor are they exhaustive.

A review of the Priorities will occur every four years to monitor progress, to ensure they remain relevant, and to harness new opportunities. The next update will occur after the Los Angeles 2028 Olympic and Paralympic Games.

(1) Centre for Epidemiology and Evidence. *Setting Research Priorities: A Guide*. NSW Ministry of Health; 2023.

(2) Tong et al. *Reporting guideline for priority setting of health research (REPRISE)*. BMC Med Res Methodol 19, 243 (2019).

APPENDIX 1

STRATEGIC ALIGNMENT

The matrix below outlines the intersection of Australia's Win Well HP32+ Sport Strategy's four priority areas (*Italic*, left column) and the five National Science and Research priorities for HP Sport (bold, top row).

	Supporting athletes	**Performance optimisation**	**Strategic insight**	**Competitive equipment**	**Better practice**
Performance Delivery		✓	✓	✓	
Athlete performance pathways	✓				
World-leading knowledge + practice	✓	✓	✓	✓	✓
Outstanding people + organisations					✓

APPENDIX 2

GOVERNANCE PRINCIPLES

The implementation of these priorities should consider the governance principles for research and innovation developed under the World-Leading Knowledge & Practice priority area (Horizon 1 initiative) of the Win Well HP32+ Sport Strategy.

Governance Principles for Research and Innovation

Relevant to the HP sport system

Research and innovation activities should align to the HP32+ Sport Strategy, including Core Values and Priority Areas.

Athlete Focused

Research and Innovation activities should consider the needs and wellbeing of athletes holistically.

Performance Driven & Impactful

Research and Innovation activities, driven by the performance team (i.e. the coach, athletes, and performance support personnel) needs, should assess and demonstrate their measurable impact on athletes, stakeholders and sports.

Advocacy for Best Practices

Research and Innovation activities should foster a culture of excellence and continuous improvement among researchers, innovators, and other stakeholders.

Efficiency & Accountability

Research and Innovation should strive for the optimal utilization of resources to achieve desired outcomes, while maintaining accountability to stakeholders for the responsible allocation of these resources.

Adherence to Lawful & Ethical Standards

Research and Innovation activities should comply with the relevant laws and regulations, and respect the dignity, rights, and interests of all those involved, avoiding or minimizing any harm or risk to them, to the environment, or risk to the integrity of sport, as part of ethical conduct.

Commitment to Sustainability

Research and Innovation activities should take into account their enduring effects on the sports system and environment, striving to reduce any adverse impacts and enhance any beneficial ones.

Additional Principles for Research

Transparent & Purposefully Collaborative

Research activities should aim for openness and transparency. This should be coupled with activities that foster meaningful collaboration (including with academia, government agencies, international entities or subject matter experts when needed) to achieve world-class outcomes.

Inclusive & Fair

Research activities should consider diversity, equity, and inclusion in all aspects of the design, implementation, and dissemination.

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Australia's 2032+ High Performance Sport Strategy is a sector wide initiative supported by the Australian Institute of Sport.