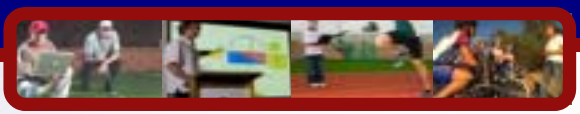
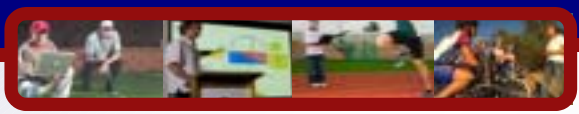


Improving sport performance through multidisciplinary sport science research at the Queensland Academy of Sport

Sue Hooper

Queensland Academy of Sport
Queensland Government



Overview

- Background
- Initiatives
- Key Achievements
- The Future

Queensland Academy of Sport
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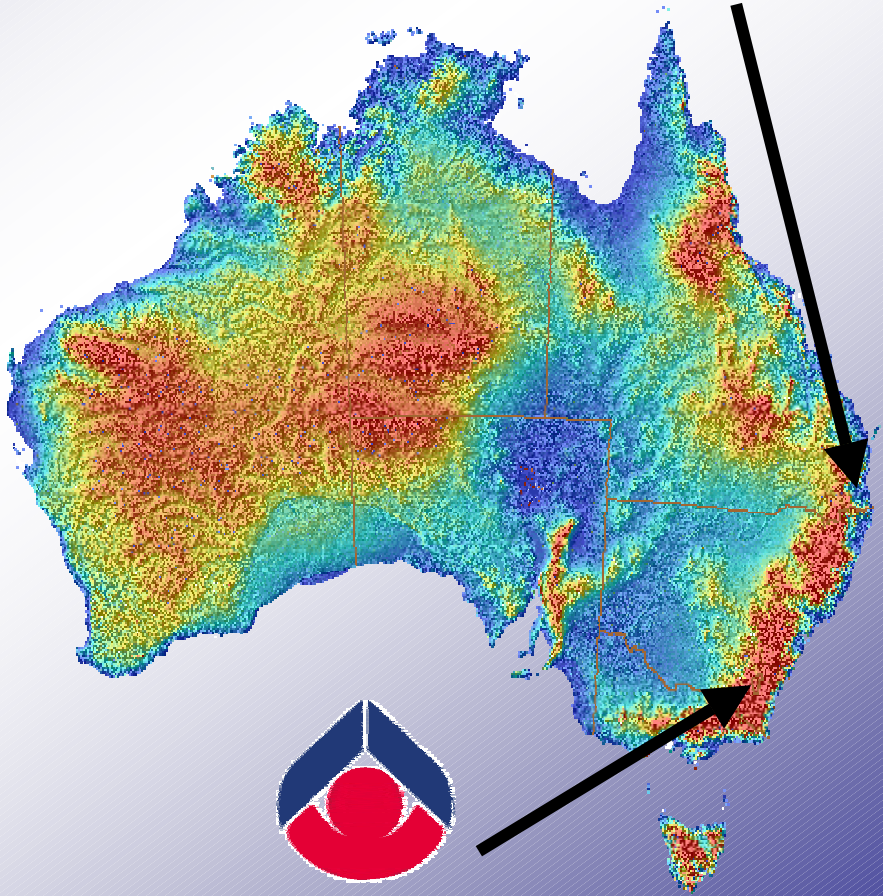
Background

Queensland Academy of Sport

- Specialist training centres for elite athletes at AIS in 1981 and QAS in 1991
- Sport Science units always an integral part of these centres



AUSTRALIAN INSTITUTE OF SPORT

Queensland Academy of Sport
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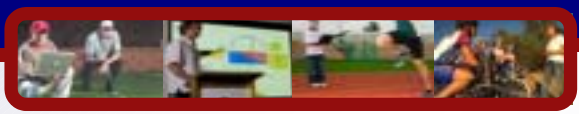


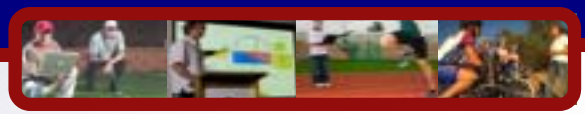
Queensland Academy of Sport

- Supports 650 athletes across 20 sports
- Employs 24 full-time coaches and accesses over 30 part-time coaches

Queensland Academy of Sport
Queensland Government

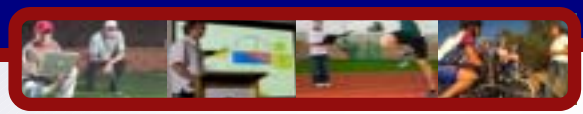
QAS Sports

Baseball	Golf	Softball (women)
Basketball	Artistic Gymnastics	Swimming
Canoeing	Hockey	Tennis
Cricket	Netball (women)	Triathlon
Cycling	Rowing	Volleyball
Diving	Rugby League (men)	Water Polo
Football	Rugby Union (men)	Individual scholarships



QAS performance at 2006 Commonwealth Games

Rank By Gold	Country	Gold	Silver	Bronze	Total
1	Australia	84	69	68	221
2	England	36	40	34	110
3	Canada	26	29	31	86
	QAS	**38**	**12**	**12**	**62**
4	India	22	17	11	50
5	South Africa	12	13	13	38
6	New Zealand	6	12	13	31



QAS Goals

- Identify, support and maximise the development of elite sporting talent
- Create a quality environment through innovative high performance programs
- Promote athletes' successes through public recognition as sporting ambassadors for Queensland and Australia

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Queensland Government

Sport science systems in Australia

- **Applied System based in specialist sport science units in facilities supporting elite athletes**

- **Education and Research System based in universities**

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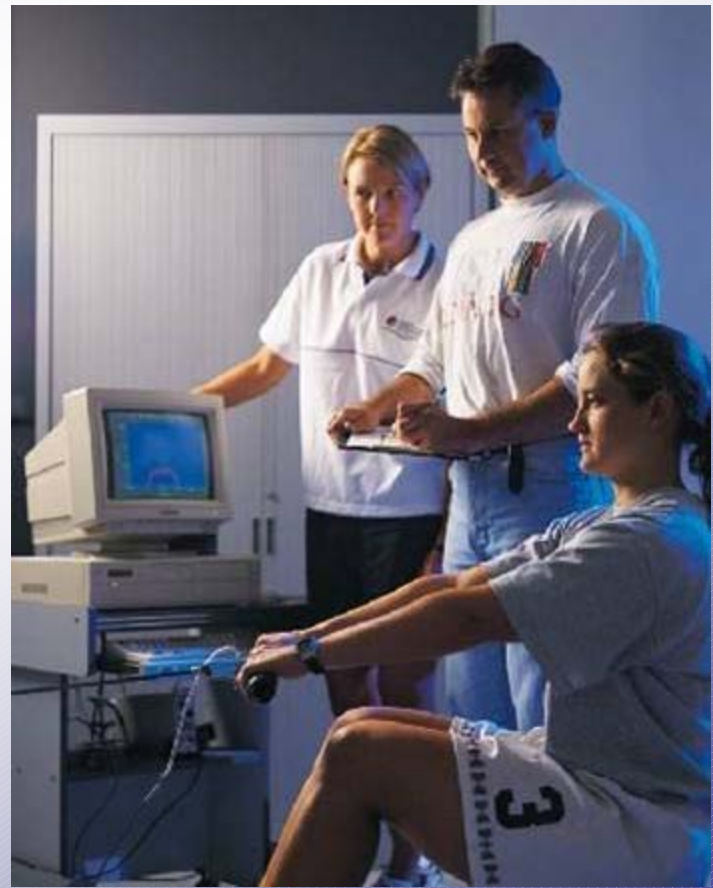
Sport scientists' role in the applied system

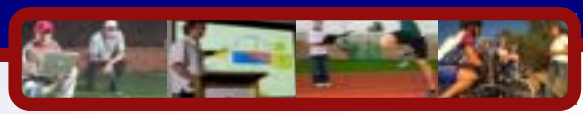
- **Provide services to coaches and athletes through application of existing scientific knowledge, interpretation of new research findings and recognition of implications for training and performance**
- **Conduct research to develop new methods and equipment**
- **Educate coaches/athletes/others**

Queensland Academy of Sport Queensland Government

Problems with the applied sport system

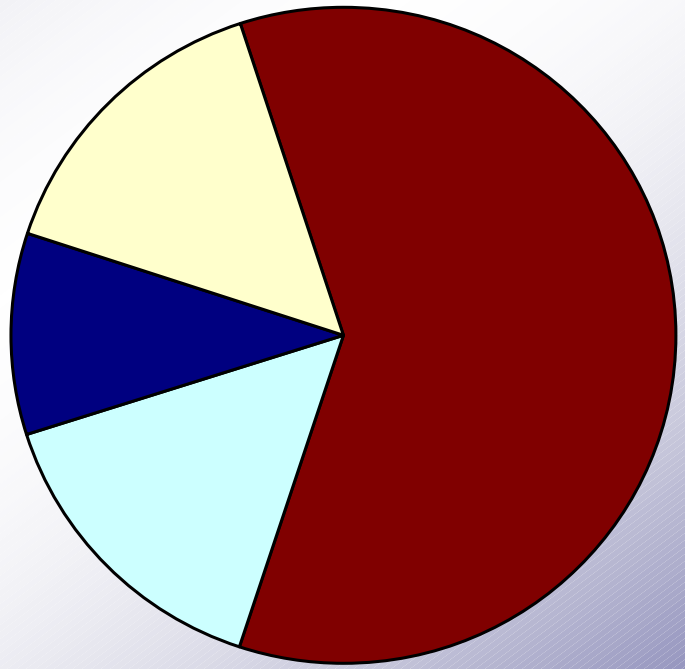
- Service provision to athletes/coaches uses most of work time leaving little opportunity for research
- Reduction in innovation / application of new research
- Reported research already years old, not applicable to specific elite context, and cutting edge advantage lost

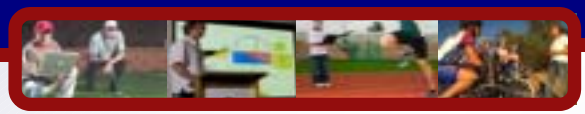




How sport scientists use their time

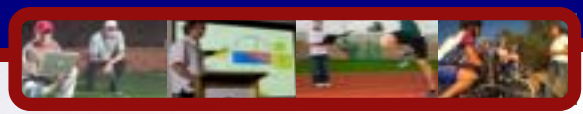
- Servicing
- Research
- Education
- Administration





Problems with education and research system

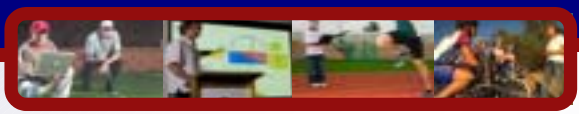
- Academics moved away from applied sport science research to exercise science due to changed emphasis in teaching and lack of research funding
- In combination the problems in the Australian Sport Science System led to a decline in applied sport science research



Response

QAS leadership and Queensland Government support for R&D initiatives resulted in the first research centre in Australia to offer

- **Research opportunities for sports scientists to devote time to applied research in elite sport settings**
- **Competitive funding for applied research projects**
- **Professional interaction for researchers from universities and other agencies**



Centre of Excellence for Applied Sport Science Research

- **Mission - the generation of new knowledge and tools by supporting world-class research with an emphasis on collaboration, research quality, and providing an environment conducive to productive inter-disciplinary teams**

- **Operates as a strategic alliance between the QAS and Queensland universities, other institutes and academies of sport, and partners from industry and business**

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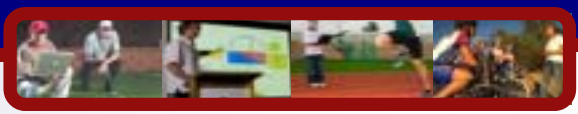

Aims

- Establish and support collaborative groups to conduct research
- Support postgraduate scholars and post-doctoral fellows in conducting research
- Facilitate development of specialised equipment for assessment of athletes

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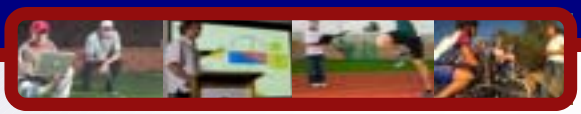

Advantages

Mutual gain for QAS and universities through joint

- **postgraduate scholarships**
- **collaborative research projects**
- **hosting visiting academics on study leave**

Outcomes achieved in short time-frames because researchers can concentrate solely on research

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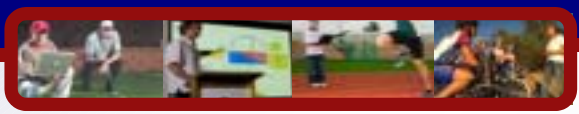
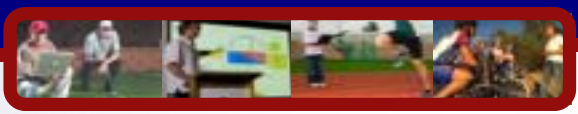


Advantages for researchers

Athletes and coaches are

- **interested in testing research questions**
- **generally willing to participate as subjects in research likely to help improve performance**
- **able to identify areas for study**
- **motivated to apply research results**
- **helpful in cross-fertilisation of ideas**



Summary

A focused research centre was needed to

- **support government commitment to R&D**
- **link two previously distinct entities for mutual benefit (QAS and universities)**
- **address the lack of funding for applied sport science research since 1995 and the resulting decline in research programs**

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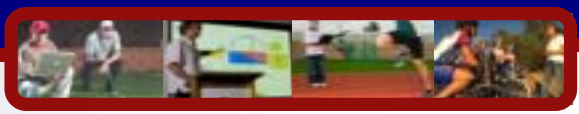
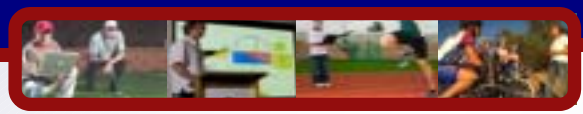


The Focus

Use of research for better performance of elite athletes, teams and coaches through

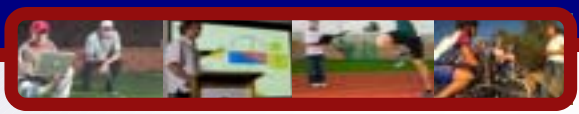
- **facilitation and management of applied sport science research**
- **training of applied sport science researchers primarily through joint support of postgraduate students with universities**
- **development of specialised equipment for assessing elite athletes**



Facilitation of research

Two primary strategies

- **scholarships and fellowships in conjunction with universities and industry partners**
- **project support to universities for collaborative research**



Scholarships

- Scholarships are provided in conjunction with universities (each contributes student supervision and funds to a tax-free stipend)
- Students are based primarily at QAS
- PhD and Honours students work full-time
- Masters students work full or part-time

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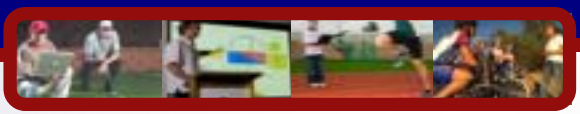

Fellowships

- Research fellows are supported jointly by QAS, AIS, National Sport Organisations and universities
- Commenced as a post-doctoral initiative to keep talented researchers in Australia
- Progressed to include experienced researchers on short-term contracts

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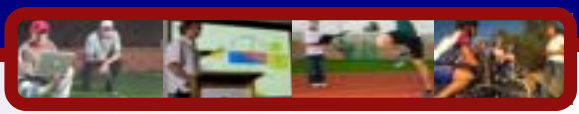

Research Fellows

Scott Gardner

(18 months)

QAS, AIS, Cycling Australia, University of the Sunshine Coast (full-time)

Gary Slater

(4 months)

and then

Michael Leveritt

(18 months)

QAS, AIS,

Canoeing Australia,

Surf Lifesaving Australia

(3 days per week)

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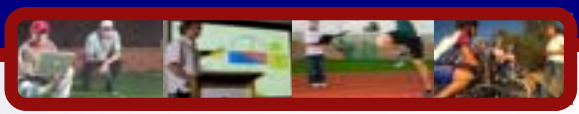

Research Fellows

Peter Terry

(9 months)

QAS, University of Southern Queensland

(one day per week)

Scott Wearing

(12 months)

QAS, Queensland University of Technology

(half-time)

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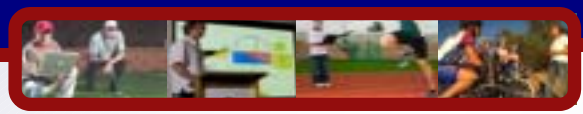
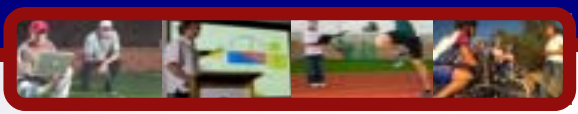


Project Support

Project support including funding and access to QAS athletes, staff and resources is offered twice yearly.

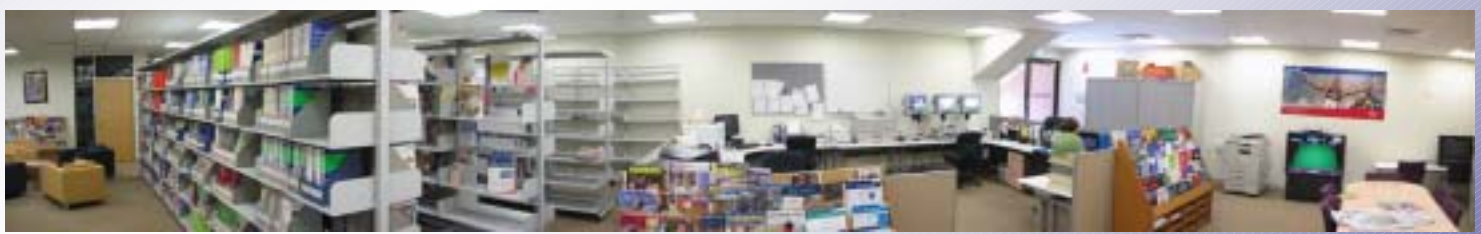
Criteria for ranking proposals

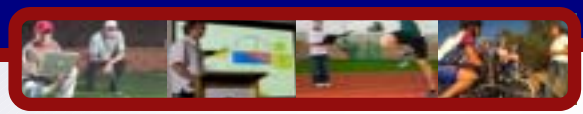
- **Link to QAS research areas and priorities**
- **Benefits to sport (in improving performance)**
- **Scientific merit**
- **Viability (financing and practical applications)**
- **Researchers' history**



Research Areas

- The coach and the coaching process
- Prevention and management of injuries
- Metabolic requirements of the elite athlete
- Technology development

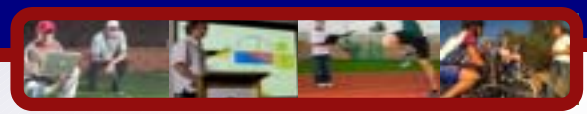




Key Performance Indicators

To assess success in line with the mission and expectations for economic, social, and cultural benefits to Queensland

- **Up-skilled Queenslanders**
- **New knowledge**
- **Increased research in applied sports science**
- **New technologies developed**
- **Improved assistance to QAS athletes / coaches**



Key Performance Indicators 2004-07

Up-skilled Queenslanders

- **6 PhD degrees**
  (7 commenced)

- **6 Honours/Masters degrees**
  (2 completed, 3 commenced)

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Key Performance Indicators 2004-07

New Knowledge

- 30 manuscripts submitted to scientific journals
  (7 submitted)
- 8 presentations at international conferences
  (6 completed)
- 24 presentations at state and national conferences
  (18 completed)

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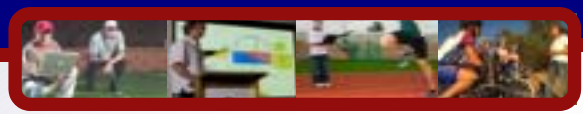

Key Performance Indicators 2004-07

Increased research in applied sport science

- 12 researchers on scholarships
  (10 commenced)
- 2 researchers on fellowships
  (1 completed, 3 commenced)
- 4 researchers on study leave
  (1 completed)

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Key Performance Indicators 2004-07

New technologies developed

- **1 CRC involvement**
  (completed)
- **2 new technology applications**
  (4 commenced)

Improved assistance for QAS athletes, teams and coaches

- **18 skilled providers supporting QAS**
  (2 completed, 14 commenced)

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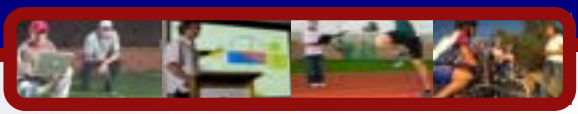

Scholarships
Coaching

Steven Rynne

(PhD)

Workplace Learning: High Performance Sport Coaching

University of Queensland

Erin O'Keeffe

(Masters)

Talent Identification and Development for Coaches

University of Queensland

Elizabeth Hepple

(Masters)

Optimisation of Elite Coaches' Performance in Transition to International Positions

Griffith University

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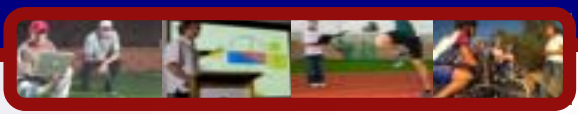

Scholarships

Injury Prevention and Management

Sandor Galambos

(PhD)

Effects of psychological intervention on injuries among elite athletes

University of Southern Queensland

Andrew Cruickshank

(PhD)

Site-specific musculoskeletal adaptation in response to training load

Queensland University of Technology

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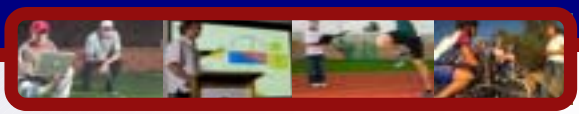

Scholarships
Metabolism

Anthony Barnett

(PhD)

Predicting the level of fatigue and recovery in elite athletes

Central Queensland University

Tanya King

(Honours)

Effect of dietary sodium intake on urinary indices of hydration status in elite athletes

University of the Sunshine Coast

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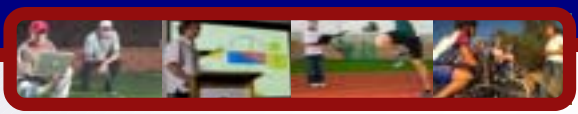

Scholarships

Technology Development

Justin Channells
(PhD)

Remote sensing of sprint running
Griffith University

Neil Davey
(PhD)

Applications of technology for swimming
Griffith University

Amin Ahmadi
(PhD)

Remote sensing of swinging performance
Griffith University

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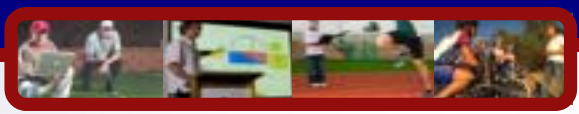

Projects

Ollie Dudfield

(QAS Coach)

Challenges for emerging junior athletes

University of Queensland

Simon Locke

(QAS Medical Coordinator)

Health and injury prevention in QAS athletes: Controversies and questions

University of Queensland

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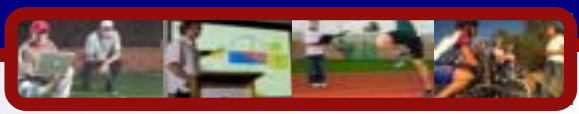

Projects

Jan Jasiewicz et al.
(Queensland University of Technology)

Investigation of measurement and feedback strategies for control of pelvic orientation during exercise

Ben Dascombe et al.
(Central Queensland University)

The effect of wearing compression garments on physiological responses during one hour time trial in high performance cyclists

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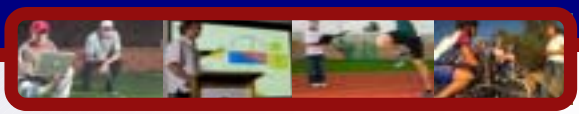
Queensland Government



Projects

Jared West

(Masters)

The effects of cognitive behavioural intervention on stress, recovery and performance readiness

University of Queensland

Melina Simjanovic

(Masters)

Use and perceived effectiveness of recovery techniques at the QAS

University of Queensland

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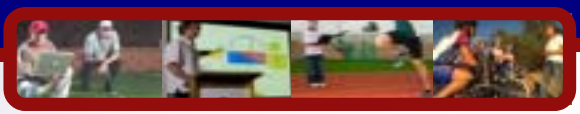

Australian Research Council Linkage Grants

Pat Thomas, David Neumann, Sue Hooper

Optimising performance under pressure: Testing and developing athletes' attentional focus strategies

$511,000 AUD

Griffith University

Chris Auld, Graham Cuskelly, Sue Hooper

An investigation into factors influencing coach retention and coaching career pathways

$320,000 AUD

Griffith University

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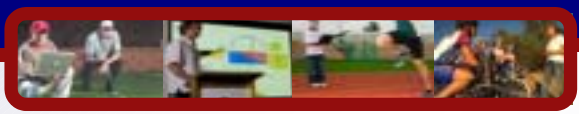


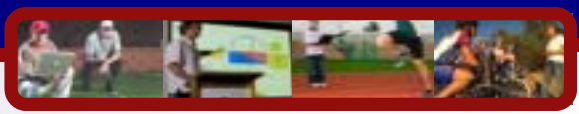
Lessons learned

Solution-driven approach

- **tried not to dwell on road blocks and their causes and quickly let go of what was not successful**
- **tried to keep thinking about what was seen as valuable by QAS for improving athlete/coach performance and tried to do more of this**

Who-focussed

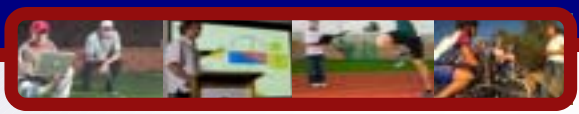
- **the right people are the centre's most important asset so researchers committed to building excellence for its own sake were recruited**



Applied sport science research in Australia: The future

Implementation of a coordinated, strategic approach to building national capability in applied sport science research is needed to

- **consolidate work to maximise benefits from limited resources**
- **increase collaboration among key stakeholders nationally**
- **divest redundant duplication of research efforts**
- **augment dissemination of research outcomes**



Thanks

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