



Exercise and Sports Science Research Group

Annual Report 2005

Faculty of Computing, Health and Science

Table of Contents

INTRODUCTION	3
OBJECTIVES	3
PRIMARY RESEARCH AREAS	4
MEMBERSHIP	4
SUMMARY OF RESEARCH ACTIVITY	6
GRANTS AWARDED	6
GRANTS AWARDED	7
PUBLICATIONS	8
CONFERENCE PRESENTATIONS	12
REPORTS	17
AWARDS.....	17
RESEARCH STUDENT COMPLETIONS.....	17
EXPERT EVALUATIONS OF ACADEMIC THESES.....	18
STRATEGIC RESEARCH ALLIANCES	18
VISITING RESEARCH FELLOWS	19
APPOINTMENTS TO BOARDS OR EXTERNAL COMMITTEES	19
MEDIA COVERAGE	21
PATENTS.....	21



INTRODUCTION

The Exercise and Sports Science Research Group (ESSRG) was formed in July 2000 and brought academic staff from multiple disciplines whose research focuses on various aspects of musculo-skeletal function and holistic human performance. Since then, their goals have been to foster high quality research in exercise and sports science; to promote and enhance the teaching of exercise and sports science at ECU; and to establish collaborative links with other research groups and institutes in an effort to contribute to exercise and sports science needs at local, national and international levels. Major areas of specialisation have included: bio-mechanics; physiology of exercise; psycho-social aspects of sport and leadership; multi-dimensional studies into ageing; motor control and learning; and exercise rehabilitation. Joint studies into the neuro-physiological basis of fatigue in Multiple Sclerosis have been carried out with the Australian Neuromuscular Research Institute at QEII Medical Centre, and new research linkages have been established with researchers in the United States (Ball State University and the University of Connecticut) and Finland (University of Jyvaskyla). Furthermore, the establishment of the Joondalup Rehabilitation Centre, aimed at catering for the rehabilitation demands of emerging Perth's northern corridor, is closely aligned to the Sports Science program at ECU, and provides an ideal environment for significant research to be conducted.

Research conducted by staff at the ESSRG has continued to build during 2005 due to the appointment of several key staff and the development and increased activity of existing staff. We have achieved good recognition and research outcomes for sports performance research, exercise and ageing, biomechanics of neck injury, and basic science in the physiology and biomechanics of muscle damage.

OBJECTIVES

The objectives of the group are to conduct scientific research and provide postgraduate training in the area of exercise and sports science. The specific aims of the research group are:

- To foster high quality research in exercise and sports science at ECU
- To promote and enhance the teaching of exercise and sports science at ECU
- To attract and support honours and postgraduate students
- To establish collaborative links with other research groups and institutes
- To attract research funding from competitive grant agencies and industry
- To contribute to exercise and sports science needs at local, national and international levels

PRIMARY RESEARCH AREAS

The Exercise and Sports Research Group conducts research into several key areas:

- Application of exercise as medicine for treating and preventing disease, maintaining health, physical and mental function.
- Physiology and biomechanics of delayed onset muscle soreness.
- Biomechanics of neck muscle function, injury, prophylactic and rehabilitation programs.
- Development of athlete performance through strength and conditioning.

MEMBERSHIP

The ESSRG is headed by the Foundation Professor in Exercise and Sports Science who coordinates the team of academic and technical staff, strategic adjunct appointments, honours and postgraduate students.

Co-ordinator: Professor Robert Newton

Academic Staff: Dr Dylan Edwards
Assoc. Prof. Barry Gibson
Dr Paul Laursen
Dr Mike McGuigan
Kevin Netto
Michael Newton

Assoc. Prof. Ken (Kazunori) Nosaka

Dr Carmel Nottle

Dr Elizabeth Rose

Dr. Matthew Sharman

Adjuncts: Professor William Kraemer (University of Connecticut)
Professor Michael Stone (USOTC)
Dr Paul Sacco (University of East London)
Dr Angus Burnett (Curtin University of Technology)
Professor Bonnie Berger (Bowling Green State University)
Associate Professor Kay Cox (Medical Research Foundation,
Royal Perth Hospital)

Technical Staff: Mary Cornelius
Nadija Vrdoljak

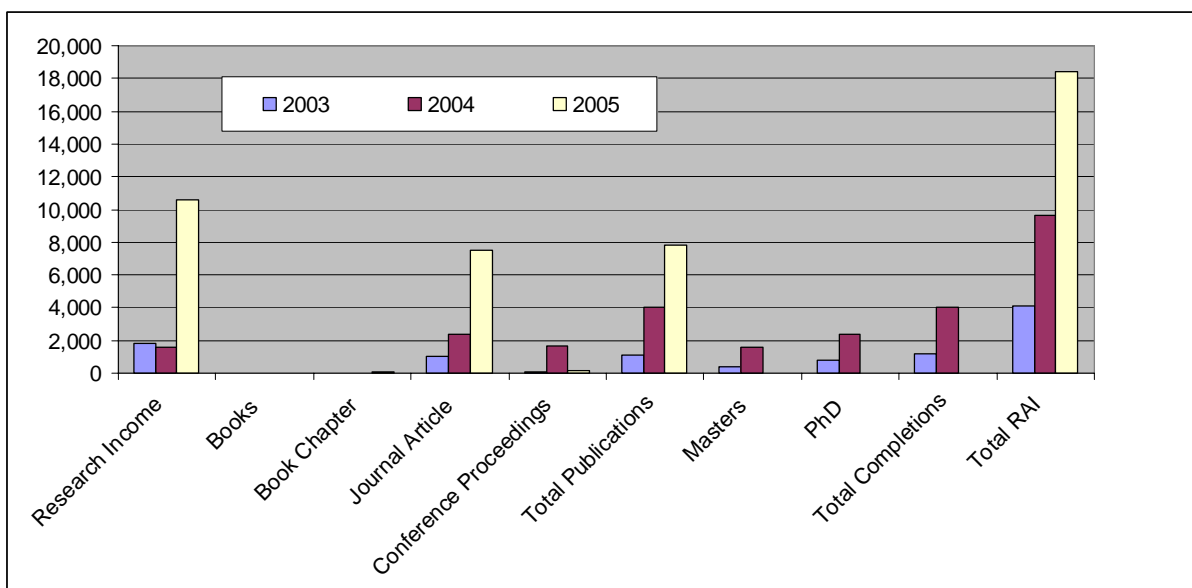
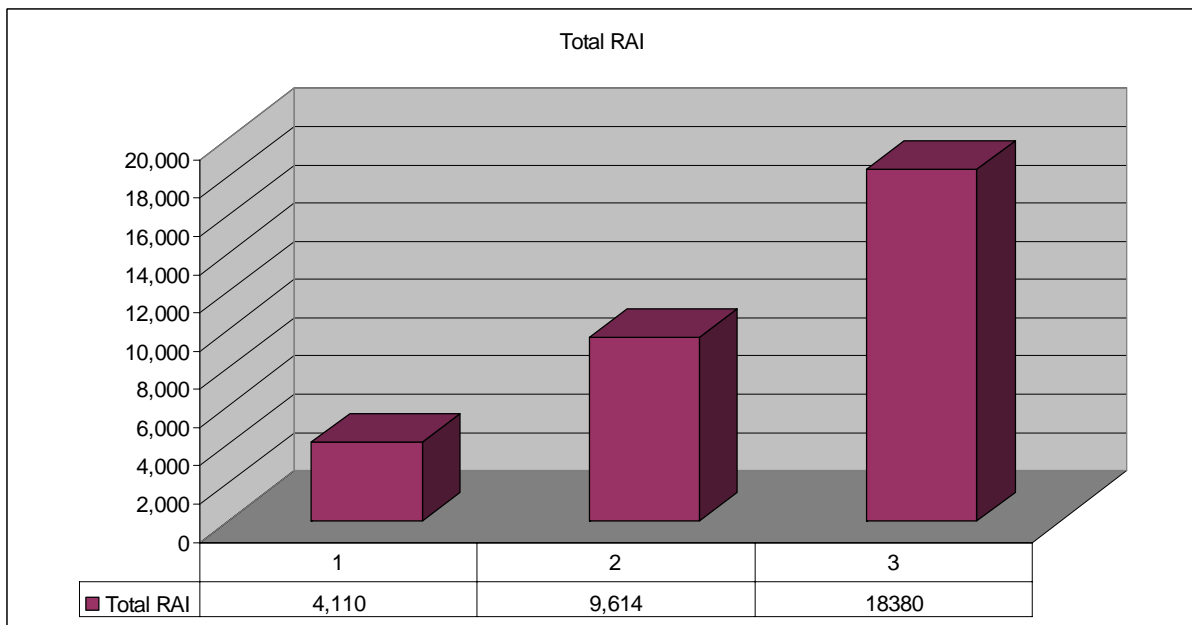
Honours Students: Favil Singh Graeme Francis

Masters Students: Adam Beard Tasuku Fujikake
Gregory Levin Lynda Murray
Melissa Tatasciore Barbara Howard

PhD Students: Chris Abbiss Warren Andrews
Daniel Baker Dale Chapman
Tim Doyle Daniel Galvao
Peter Hope Naruhiro Hori
Naoki Kawamori Michael Lim
Stuart Cormack Mark Muthalib
Mike Newton Sophia Nimphius
Jeremiah Peiffer Marc Quod
Kevin Netto Alastair Stewart

SUMMARY OF RESEARCH ACTIVITY

Key performance indicators in terms of research productivity increased markedly between 2003 and 2004 and this growth continued in 2005. The total RAI for members of ESSRG increased by 134% from 2003 to 2004 and a further 91% from 2004 to 2005. Most of the increase between 2004 and 2005 was realised in research income (559%), journal articles (221%), and total publications (94%). However, Masters, PhD, and Total Completions were down reflecting the “lumpy” nature of these measures. Conference publications were also down considerably (-90%) but this is almost entirely due to the reduction by ECU in the number of RAI points from 200 to 100 for 2005.



GRANTS AWARDED

11 grants and \$ 850,897 in total

1. Department of Health and Ageing – Equipment Request. Dual Energy X-ray Absorptiometry (DEXA) machine for obesity, cancer and Alzheimer's disease research. Principal Investigator: Robert Newton. Amount: \$AUD150,000
2. J. O. & J. R. Wicking Trust - Keeping the Aged Healthy, Happy and Independent Through Physical and Cognitive Exercise. Chief Investigators: Robert Newton, Ralph Martins and Darryl Turner. Amount: \$AUD446,000
3. Telstra Foundation Grant - Strengthening the role of Exercise Physiologists in Overcoming Childhood Obesity. Principal Investigators: Michael McGuigan, Robert Newton and Simone Pettigrew. Amount: \$AUD97,000
4. The Cancer Council Western Australia - Exercise and Cancer Recovery. Principal Investigator: Robert Newton. Amount: \$AUD15,000
5. Martinus Van Breems Inc - Changes in balance, gait, obstacle negotiation, functional capacity and walking endurance in older adults accompanying a 12 month walking pole exercise program – Phase II. Principal Investigator: Robert U. Newton. Amount: \$USD16,786
6. Graduate Student Life Fitness Academy Michael Pollock Memorial Grant - Resistance exercise dosage in men receiving androgen deprivation therapy for prostate cancer. Principal Investigators: Daniel Galvão, Robert Newton, Linda Kristjanson, Michael McGuigan, Nigel Spry. Amount: \$AUD6,561
7. Edith Cowan University, Faculty of Computing and Health Science Small Grant - The influence of skin, muscle, and core temperature on pacing and fatigue during prolonged cycling. Principal Investigators: Paul Laursen and Chris Abbiss. Amount: \$AUD5,000
8. Edith Cowan University – Industry Collaboration Scheme - Effect of amino acid supplement on delayed onset muscle soreness and symptoms associated with exercise-induced muscle damage. (Ajinomoto Co. Inc, Japan). Principal Investigators: Ken Nosaka and Paul Sacco. Amount: \$AUD43,100

9. Daikin Environmental Laboratory Grant - What makes muscle and joint stiff after sleep? Methodology to investigate muscle and joint stiffness. Principal Investigator: Ken Nosaka. Amount: \$AUD9,600.
10. Edith Cowan University, Faculty of Computing and Health Science Small Grant - B-mode ultrasound as a measure of exercise-induced muscle damage. Principal Investigator: Ken Nosaka. Amount: \$AUD4,730
11. West Australia Institute for Medical Research & Road Safety Council Neurotrauma Research Program Grants - Can interventional brain stimulation improve motor performance after stroke? Principal Investigators: Gary Thickbroom, Dylan Edwards, Frank Mastaglia. Amount: \$AUD 57,120.

PUBLICATIONS

36 journal publications in total

1. Neils, C.M., Udermann, B., Brice, G., Winchester, J.B. and McGuigan, M.R. (2005). Influence of contraction velocity in untrained individuals over the initial early phase of resistance training. *Journal of Strength and Conditioning Research*. 19(4): 883-887.
2. Tod, D.A., Iredale, F., McGuigan, M.R., Strange, D. and Gill, N.D. (2005). "Psyching-up" enhances force production during the bench press exercise. *Journal of Strength and Conditioning Research*. 19(3): 599-603.
3. McGuigan, M.R., Ghiagiarelli, J and Tod, D. (2005). Effects of psyching-up on one repetition maximum and salivary cortisol in the squat exercise. *Journal of Sports Sciences*. 23(7): 687-692.
4. Johansson, K., K. Tibe, A. Weibull, R.U. Newton. Low intensity resistance exercise for breast cancer patients with arm lymphedema with or without compression sleeve. *Lymphology*, 38: 181-192, 2005.
5. Hori, N., R.U. Newton, K. Nosaka, and M.H. Stone. Weightlifting Exercises Enhance Athletic Performance That Requires High-Load Speed Strength. *Strength and Conditioning Journal*, 27(4): 50-55, 2005.

6. Dugan, E.L., R.U. Newton, T.L. Doyle, and B. Humphries. Design of a controlled-release ergometer for the measurement of musculotendinous stiffness of the knee flexors. *Journal of Strength and Conditioning Research*, 19(4):959-963, 2005.
7. Baker, D.G. and R.U. Newton. Acute Effect on Power Output of Alternating an Agonist and Antagonist Muscle Exercise During Complex Training. *Journal of Strength and Conditioning Research*, 19(1): 202-205, 2005.
8. Balakrishnan, K., G. Verdile¹, P.D. Mehta, J. Beilby, D. Nolan, D. Galvao, R.U. Newton, S.E. Gandy, and R.N. Martins. Plasma A β 42 correlates positively with increased body fat in healthy individuals. *Journal of Alzheimer's Disease*, 8: 269–282, 2005.
9. Young, W.B., R.U. Newton, T.L.A. Doyle, D. Chapman, S. Cormack G. Stewart, and B. Dawson. Physiological and anthropometric characteristics of starters and non-starters and playing positions in elite Australian Rules football: A case study. *Journal of Science and Medicine in Sport*, 8(3):333-345, 2005.
10. Doyle, T.L.A., R. U. Newton, and A.F. Burnett. Reliability of traditional and fractal dimension measures of quiet stance centre of pressure in young, healthy people. *Archives of Physical Medicine and Rehabilitation*, 86:2034-2040, 2005.
11. Galvão, D.A., R.U. Newton and D.R. Taaffe. Anabolic responses to resistance training in older men and women: A brief review. *Journal of Ageing and Physical Activity*, 13(3): 343-358. 2005.
12. Stone, M.H., W.A. Sands, K.C. Pierce, J. Carlock, M. Cardinale, R.U. Newton. Relationship of Maximum Strength to Weightlifting Performance, *Medicine and Science in Sports and Exercise*, 37(6): 1037–1043, 2005.
13. Baker, D.G. and R.U. Newton. Methods to Increase the Effectiveness of Maximal Power Training for the Upper Body. *Strength and Conditioning Journal*, 27(6): 24-32, 2005.
14. Galvão, D.A. and R.U. Newton. A Review of Exercise Intervention Studies in Cancer Patients, *Journal of Clinical Oncology*, 23(4): 899-909, February 2005.
15. Laursen, P.B., C.M. Shing, J.M. Peake, J.S. Coombes, and D.G. Jenkins. Influence of high-intensity interval training on adaptations in well-trained cyclists. *Journal of Strength and Conditioning Research* 19(3), 527-533, 2005.
16. Laursen, P.B., W.L. Knez, C.M. Shing, R.H. Langill, E.C. Rhodes, and D.G. Jenkins. Relationship between laboratory measured variables and heart rate

- during an ultra-endurance triathlon. *Journal of Sports Sciences*. 23(10):1111-1120, 2005.
17. Laursen, P.B., E.C. Rhodes, R.H. Langill, J.E. Taunton, and D.C. McKenzie. Attainment of exercise-induced arterial hypoxemia is not different during cycling and running in triathletes. *Scandinavian Journal of Medicine and Science in Sports and Exercise*. 15(2):113-7, 2005.
18. Abbiss, C.R., and P.B. Laursen. Models to explain fatigue during prolonged endurance cycling. *Sports Med*. 35 (10): 865-898, 2005.
19. Laursen, P.B., S.E. Chiswell, and J.A. Callaghan. Should endurance athletes supplement resistance training into their training program to improve performance? *Strength and Conditioning Journal*, 27 (5): 50-55, 2005.
20. Burnett, A., F. Naumann, R. Price, and R. Sanders. A comparison of training methods to increase neck muscle strength. *Work: A Journal of Assessment, Prevention and Rehabilitation*, 25 (3) 205-210, 2005.
21. Nosaka, K., Newton, M., Sacco, P., Chapman, D., Lavender, A. Partial protection against muscle damage by eccentric actions at short muscle lengths. *Medicine and Science in Sports and Exercise* 37: 746-753, 2005.
22. Nosaka, K., Newton, M.J., and Sacco, P. Attenuation of protective effect against eccentric exercise-induced muscle damage. *Canadian Journal of Applied Physiology* 30: 529-542, 2005.
23. Peake, J.M., Suzuki, K., Wilson, G., Hordern, M., Nosaka, K., Mackinnon, L., and Coombes, J.S. Exercise-induced muscle damage, plasma cytokines, and markers of neutrophil activation. *Medicine and Science in Sports Exercise* 37: 737-745, 2005.
24. Peake, J., Nosaka, K., and Suzuki, K. Characterization of inflammatory responses to eccentric exercise in humans. *Exercise Immunology Review* 11: 64-85, 2005.
25. Chapman, D., Newton, M., and Nosaka, K. Eccentric torque-velocity relationship of the elbow flexors. *Isokinetics and Exercise Science* 13: 139-145, 2005.
26. Hori, N., Newton, R. U., Nosaka, K., and Stone, M. Weightlifting exercises enhance athletic performance that requires high load speed strength. *Strength and Conditioning Journal* 27: 50-55, 2005.

27. Nottle, C., and Nosaka, K. Repeated bout effect conferred by downhill backward walking. *Journal of Exercise Physiology* (on line) Vol 8, No. 1, 2005.
28. Nottle, C., and Nosaka, K. Muscle damage induced by downhill backward walking. *Journal of Science and Medicine in Sport* 8: 264-273, 2005.
29. Zainuddin, Z., Newton, M., Sacco, P., and Nosaka, K. Massage reduces DOMS and swelling without effect on recovery of muscle function. *Journal of Athletic Training* 40: 174-180, 2005.
30. Zainuddin, Z., Hope, P., Newton, M., Sacco, P., and Nosaka, K. Partial immobilization after eccentric exercise does not enhance recovery from muscle damage. *Journal of Athletic Training* 40: 197-202, 2005.
31. Chen, T.C., Nosaka, K., and Lin, J-C. Effects of immobilization and active mobilization on recovery of muscle after eccentric exercise. *Journal of Exercise and Sports and Fitness* 3: 1-8, 2005.
32. Jamurtas, A.Z., Theocharis, V., Tofas, T., Tsiokanos, A., Yfanti, C., Paschalis, V., Koutedakis, Y., and Nosaka, K. Comparison between leg and arm eccentric exercise of the same relative intensity on indices of muscle damage. *European Journal of Applied Physiology* 95: 179-185, 2005.
33. Peake, J.M., Suzuki, K., Hordern, M., Wilson, G., Nosaka, K., and Coombes, J.S. Plasma cytokine changes in relation to exercise intensity and muscle damage. *European Journal of Applied Physiology* 95: 514-521, 2005.
34. Rodrigues JP, Edwards DJ, Walters S, Byrnes ML, Thickbroom GW, Stell R, Mastaglia FL (2005). Gabapentin can improve postural stability and quality of life in Primary Orthostatic Tremor. *Movement Disorders* 20(7): 865-886.
35. Larkin, D., & Rose, E. (2005). Assessment of developmental coordination disorder. In D. Sugden & M. Chambers (Eds.), *Children with developmental coordination disorder*. (pp.135 – 154). London: Whurr.
36. Rose, E., & Larkin, D. (2005). Measuring perceived competence and global self-worth in children: Implications for Australian boys and girls in the physical domain. *Malaysian Journal of Sports Science and Recreation*, (1) 35-50.

CONFERENCE PRESENTATIONS

47 conference presentations in total

Keynote Conference Presentations

1. Newton, R.U. Current Trends and Controversies in Strength & Conditioning. Australian Strength and Conditioning Association, ASCA 2005 Conference, Gold Coast, Queensland, 25-27th November 2005.
2. Newton, R.U. Strength and power for sport: Mechanisms, development, assessment and management. United Kingdom Strength and Conditioning Association, Annual Conference, Loughborough University, 6-8 May 2005.

Invited Presentations

3. Newton, R.U. Exercise Program Design for Bone Health, COTA WA Healthy Bones: Nutrition, Exercise and Treatment, Perth, 11th October, 2005.
4. Newton, R.U. Evaluating Living Longer Living Stronger in WA. ARC-NHMRC 'Ageing Well' Research Network Symposium, West Perth, 29-30th September, 2005.
5. Newton, R.U. Specific strengthening in older people, APA WA Branch Biennial State Conference, Fremantle, 21-22nd May, 2005.
6. Newton, R.U. How does exercise actually decrease cancer related fatigue? 5th State Cancer Nursing Research Conference, Fremantle, 10th March 2005.
7. Newton, R.U. Exercise and Ageing, Pfizer Neuroscience Forum, Adelaide, 19th February 2005.
8. Laursen, P.B. Core temperature and exercise performance. Research Seminar Series. The University of British Columbia, Vancouver, Canada, 28th June 2005.
9. Nosaka, K. Muscle damage and delayed onset muscle soreness. 60th Annual Meeting of the Japanese Society of Physical Fitness and Sports Medicine. Okayama, Japan. 24th September 2005.
10. McGuigan, M.R. Pre and post workout nutrition for strength training in seniors. Living Longer, Living Stronger Forum, Perth, September 15th, 2005.

11. McGuigan, M.R. Use of Resistance Training as a Health Intervention for Different Populations. Multiple Sclerosis Victoria Launching Hope Day, Melbourne, June 19th, 2005.
12. McGuigan, M.R. Using Session Rating of Perceived Exertion to Monitor Training in Athletes. Malaysian National Sports Institute, May 30th, 2005.
13. McGuigan, M.R. Anabolic Exercise and Chronic Disease. Strength Training in an Ageing Australia: Living Longer, Living Stronger Forum, Perth, April 20th, 2005.
14. McGuigan, M.R. Non-pharmacological treatments for Alzheimer's disease: Exercise. McCusker Foundation Lecture Series, Melville, April 8th, 2005.

Refereed Conference Proceedings And Abstracts

15. Galvão, D., R.U. Newton, L. Kristjanson, and N. Spry. Association between muscle strength, functional performance and balance in older men receiving androgen deprivation therapy for prostate cancer. The Cancer Council of Western Australia's State Cancer Conference 'Cancer Knowledge – Cancer Practice'. 18 October 2005, Perth, Western Australia.
16. Hope, P. A. J., R.U. Newton, P. Sacco, L. Kristjanson, and N. Spry. Contemporaneous fatigue, cardio respiratory and functional capacity in women prior to adjuvant breast radiotherapy. The Cancer Council of Western Australia's State Cancer Conference 'Cancer Knowledge – Cancer Practice'. 18 October 2005, Perth, Western Australia.
17. Bryant, A., R.U. Newton, and J. Steele. What is the association between knee functionality and hamstring antagonist activation in ACL deficient and ACL reconstructed patients? 2005 Australian Conference of Science and Medicine in Sport . 13-18 October 2005, Melbourne, Victoria. Published page 210 of Conference Book.
18. Hori, N., R.U. Newton, K. Nosaka and M.R. McGuigan. Comparison of system versus barbell force, velocity and power in the hang snatch. NSCA National Conference and Exhibition, July 6-9, 2005, Las Vegas, Nevada, United States. Conference Book, page 792.
19. McGuigan, M., T. Doyle, M. Newton, D. Edwards, S. Nimphius and R.U. Newton. Eccentric Utilization Ration: Effect of sport and phase of training. NSCA National

- Conference and Exhibition, July 6-9, 2005, Las Vegas, Nevada, United States. Conference Book, page 795.
20. Nimphius, S., M.R. McGuigan and R.U. Newton. Lower body force production in elite softball pitchers. NSCA National Conference and Exhibition, July 6-9, 2005, Las Vegas, Nevada, United States. Conference Book, page 796.
21. Andrews, W.A., N. Hori, D.A. Galvão and R.U. Newton. Comparison of two periodized resistance training models: Effects on jump performance of Australian Rules Football Players. NSCA National Conference and Exhibition, July 6-9, 2005, Las Vegas, Nevada, United States. Conference Book, page 799.
22. Sheppard, J., Young, W., Doyle, T., and Newton, R.U. An evaluation of speed and agility tests for football codes. UK Strength and Conditioning Annual Conference, May 6-8, 2005, Loughborough University, England.
23. Beard, A., A. Burnett, and R.U. Newton. Peak power output in the power clean – the influence of relative strength. International Society for Biomechanics in Sport Conference, Proceedings of the XXIIIrd International Symposium of Biomechanics in Sports, China, 2005.
24. Galvão, D., R.U. Newton, and D. Taaffe. Anabolic responses to high-intensity resistance training in older men and women. 52nd Annual Meeting of the American College of Sports Medicine, Nashville, Tennessee. Published in *Medicine and Science in Sports and Exercise*, Volume 37:5 Supplement, 2005.
25. Irr, M, Kraemer, WJ, Ratamess, NA, Volek, JS, Hakkinen, K, Rubin, MR, French, DN, Gomez, AL, McGuigan, MR, Scheett, TP, Newton, RU, Spiering, BA and Dioguardi, FS. The effects of amino acid supplementation on physiological responses to resistance training overreaching. *Journal of Strength and Conditioning Research*. 19(4): E20, 2005.
26. McGuigan, M.R., Doyle, T.L.A., Newton, M., Edwards, D.J., Nimphius, S., and Newton, R.U. Eccentric utilization ratio: effect of sport and phase of training. *Journal of Strength and Conditioning Research*. 19(4): E26, 2005.
27. Lurken, JJ, Foster, C, McGuigan, M, Brooks, T and Wright, G. Effect of periodized vs monotony training on exercise performance and salivary endocrine measures. *Journal of Strength and Conditioning Research*. 19(4): E24, 2005.

28. Nimphius, S, McGuigan, MR, and Newton RU. Lower body force production in elite softball pitchers. *Journal of Strength and Conditioning Research*. 19(4): E28, 2005.
29. Winchester JB, JM McBride, MA Maher, RP Mikat, DE Kline, BK Allen, and MR McGuigan Ballistic resistance exercise improves power independent of changes in strength and muscle fiber type expression. *Journal of Strength and Conditioning Research*. 19(4): E37, 2005.
30. Petteys, C.L., Foster, C., McGuigan, M.R., Lurken, J.J. and Meeusen, R. Tolerability of heavy training load with low training monotony. *Medicine and Science in Sports and Exercise*. 37(5): S46, 2005.
31. Laursen, P.B. C. Abbiss, R. Surriano, M. Quod, H. Lee, K. Nosaka, D. Martin, D. Bishop. Power, Cadence, Speed and Heart Rate During the Cycle Phase of an Ironman Triathlon. *Journal of Strength and Conditioning Research*. 19(4), e3-338, 2005.
32. Laursen, P.B., R. Surriano, M. Quod, H. Lee, C. Abbiss, K. Nosaka, D.T. Martin, D. Bishop. Core temperature and hydration status during an Ironman triathlon. *Proceedings of the Xth Annual Congress of the European College of Sports Science*. Belgrade, Serbia, 2005.
33. Abbiss, C.R., and P.B. Laursen. Relationship between laboratory variables and performance during a stochastic 100-km time trial. *Proceedings of the Xth Annual Congress of the European College of Sports Science*. Belgrade, Serbia, 2005.
34. Abbiss, C.R., A.F. Burnett, K. Nosaka, P.B. Laursen. Examination of multiple fatigue models during prolonged cycling in hot versus cold climates. *Proceedings of the Xth Annual Congress of the European College of Sports Science*. Belgrade, Serbia, 2005.
35. Burnett, A.F., Abbiss, C., Green, J. and Laursen, P. Muscle activation and fatigue in prolonged endurance cycling in hot and cool conditions - A comparison of analytical methods. *Proceedings of the XXIIIrd International Symposium of Biomechanics in Sports*, 2005.
36. Suzuki, K., K. Nosaka, P. Laursen, C. Abbiss, M. Okutsu, J. Peake. Changes in plasma cytokines and inflammatory markers following an Ironman triathlon. *Proceedings of the VIIth International Society for Exercise and Immunology Symposium*, Monaco, 2005.

37. Nosaka, K., Zainuddin, Z., Sacco, P., and Newton, M. Light concentric exercise has a temporarily analgesic effect on DOMS but no effect on recovery from eccentric exercise. 10th Annual Congress of European College of Sports Science. Belgrade, Serbia. July 2005.
38. Chapman, D., Newton, M., and Nosaka, K. Eccentric torque-velocity relationship of the elbow flexors. 10th Annual Congress of European College of Sports Science. Belgrade, Serbia. July 2005.
39. Zainuddin, Z., Hope, P., Newton, M., Sacco, P., and Nosaka, K. Partial immobilization after eccentric exercise does not enhance recovery from muscle damage. 10th Annual Congress of European College of Sports Science. Belgrade, Serbia. July 2005.
40. Lavender, A., and Nosaka, K. Eccentric exercise with a light load confers protection against a subsequent bout of more demanding eccentric exercise performed 2 days later. 10th Annual Congress of European College of Sports Science. Belgrade, Serbia. July 2005.
41. Edwards DJ, JP Rodrigues, R Stell, S Walters, GW Thickbroom, FL Mastaglia. The effect of lower-limb tremor on postural stability. Proceedings of the 25th Annual Meeting of the Australian Neuroscience Society, 2005; P182.
42. Rodrigues JP, DJ Edwards, SE Walters, GW Thickbroom, R Stell, FL Mastaglia. Differential effects of globus pallidus stimulation and levodopa on postural stability in Parkinson's Disease. Clinical Neurophysiology 2005; 116 e22.
43. Rodrigues JP, DJ Edwards, SE Walters, GW Thickbroom, R Stell, FL Mastaglia. Static and dynamic postural stability in orthostatic tremor. Clinical Neurophysiology 2005; 116 e22
44. Rodrigues JP, DJ Edwards, SE Walters, GW Thickbroom, R Stell, FL Mastaglia. State-dependent effects of Parkinson's disease on static and dynamic postural stability. Proceedings of the 25th Annual Meeting of the Australian Neuroscience Society, 2005; P336
45. Rose, E., Howard, B. Larkin, D. Hands, B, & Parker, H. The validity and reliability of the Children's Attraction to Physical Activity Scale, 11th Annual Congress of the European College of Sports Science, Lausanne, Switzerland. July, 2005.
46. Howard, B., Rose, E., Larkin, D., Hands, B., & Parker, H. The relationship between self-concept, attraction to physical activity, and level of physical activity,

in 6-8 year old girls and boys. 11th Annual Congress of the European College of Sports Science, Lausanne, Switzerland. July, 2005.

47. Rose, E., Stewart, A., Cox, K., & Puddey, I. The relationship between athletic self-perceptions, exercise motivation, autonomy, social connectedness and physical activity in older adults. 11th Annual Congress of the European College of Sports Science, Lausanne, Switzerland. July, 2005.

REPORTS

1. McGuigan, M.R., and Newton, R.U. An investigation of the impact of the LineBreak Sportswear on thermoregulation during exercise in a warm and humid environment followed by recovery in a cooler environment. LineBreak Sportswear P/L. January, 2005. 21 pages.
2. Laursen, P.B. and Newton, R.U. Considerations for travel over multiple time zones. Western Force Rugby Club. March 2005. 7 pages.

AWARDS

1. Best Scientific Poster – Edwards D.J., Byrnes M., Mastaglia F.L. and Thickbroom G.W. Integration of kinaesthetic information from muscle. Sports Physiotherapy Australia, 2nd National Conference, Glenelg, South Australia, 2005

RESEARCH STUDENT COMPLETIONS

Graduating Honours Students

Favil Singh “Monitoring different types of resistance training using session rating of perceived exertion” Supervisor: Dr Mike McGuigan, December 2005. Honours First Class.

Graeme Francis “Repeatability of open- vs. closed-loop treadmill running tests in well-trained runners”. Supervisor: Paul Laursen, July 2005. Honours Class 2A

Graduating Masters Students

none

Graduating PhD Students

none

EXPERT EVALUATIONS OF ACADEMIC THESES

1. McGuigan, M. Examination of Masters Thesis. Daniel Smart – Waikato Institute of Technology “The Reliability of a Rugby Union Specific Test: With reference to the relationship between performance and the concentration of Testosterone and Cortisol”.
2. Edwards, D. Examination of Masters Thesis. Lynda Murray – Edith Cowan University. “Exercise and creatine supplementation for Inclusion Body Myositis Patients”.
3. Laursen, P. Examination of Honours Thesis. Katrina Onus – University of Canberra “The effects of titrated simulated moderate altitude on VO_2 peak power output, gross efficiency and blood ions in well-trained athletes”.
4. Laursen, P. Examination of Honours Thesis. Favil Singh – Edith Cowan University “Monitoring different types of resistance training using session rating of perceived exertion”.

STRATEGIC RESEARCH ALLIANCES

Centre for Neuromuscular and Neurological Disorders (UWA)

Dept of Exercise Science and Human Movement (UWA)

School of Physiotherapy (Curtin)

Australian Institute of Sport

West Australian Institute of Sport

Australian Institute of Aviation Medicine

No 79 Squadron RAAF Pearce

Cycling Australia

University of Edinburgh (UK)

University of Massachusetts (USA)

University of New Mexico (USA)

Yokohama City University (Japan)

University of Connecticut (USA)

The College of New Jersey (USA)

Appalachian State University (USA)

United States Olympic Training Centre (USA)

United States Ski and Snowboard Association (USA)

United States Air Force

Dr. Katsuhiko Suzuki (Waseda University, Japan)

Dr. Thanasis Jamurtas (University of Thessaly, Greece)

Dr. Maffioletti (Université de Bourgogne, France)

Dr. Trevor Chen (National Chiayi University, Taiwan)

Dr. Di Hooper (Curtin University)

Dr. Bill Sheel (University of British Columbia, Canada)

Dr Jonathan Peake (University of Queensland)

University of Notre Dame, Australia, Department of Sport and Recreation, Disability Education Programme

VISITING RESEARCH FELLOWS

Dr Jonathan Peake, Postdoctoral Research Fellow, School of Human Sciences, Waseda University, Japan. October 1st to November 12, 2005.

APPOINTMENTS TO BOARDS OR EXTERNAL COMMITTEES

Assoc. Prof. Professor Barry Gibson

- Member of Curriculum Council - Outdoor Education Committee

Dr. Paul Laursen

- Journal of Science and Medicine in Sport – Sports Medicine Australia, Editorial Board.

Dr Mike McGuigan

- Medicine and Science in Sports and Exercise, Editorial Board.
- Research Committee, National Strength and Conditioning Association.
- Steering Committee, WA Centre of Excellence Application – Centre for Technology and Imaging in Medicine.

- Steering Committee, WA Centre of Excellence Application – Centre for Alzheimer’s Research.

Professor Robert Newton

- Technical Reference Group, National Children’s Nutrition and Physical Activity Survey, Australian Government Department of Health and Ageing
- National Obesity Taskforce – Scientific Reference Group
- Australian Association for Exercise and Sports Science, University Accreditation (NUCAP) committee.
- AVCC Athlete Education Committee
- International Journal of Sports and Health Science, Associate Editor.
- Journal of Strength and Conditioning Research, Associate Editor
- Board of the Western Australian Centre for Cancer and Palliative Care
- Steering Committee, Living Longer, Living Stronger, Council on the Ageing – WA.
- Research Committee, National Strength and Conditioning Association.
- Steering Committee, WA Centre of Excellence Application – Centre for Technology and Imaging in Medicine.
- Steering Committee, WA Centre of Excellence Application – Centre for Alzheimer’s Research.

Assoc. Prof. Ken Nosaka

- International Journal of Sports and Health Science, Associate Editor.
- Journal of Science and Medicine in Sport, Editorial Board.
- Japanese Training Science Association, Editorial Board.
- Medicine and Science in Sports and Exercise, Editorial Board.

Dr. Elizabeth Rose:

- Adapted Physical Activity – International Federation for Adapted Physical Activity
- Malaysian Journal of Sports Science and Recreation
- Recreation Network: Department of Sport and Recreation
- Fitness Institute of Western Australia

MEDIA COVERAGE

1. "LLLS in WA", live television interview for channel ACCESS 37, Perth, 2 December 2005.
2. "The lift of Life", Herald Sun (Melbourne), 1st March, 2005, page 26.

PATENTS

1. Laursen, P.B., K. Alameh, M. Newton and M.J. Quod. Creation of a 'smart' lightweight heat-transfer fabric to control human body temperature using microphotonics technology. Australian Provisional Patent (March 2005).

