

Exercise and Sports Science Research Group

Annual Report 2004

Faculty of Computing, Health and Science

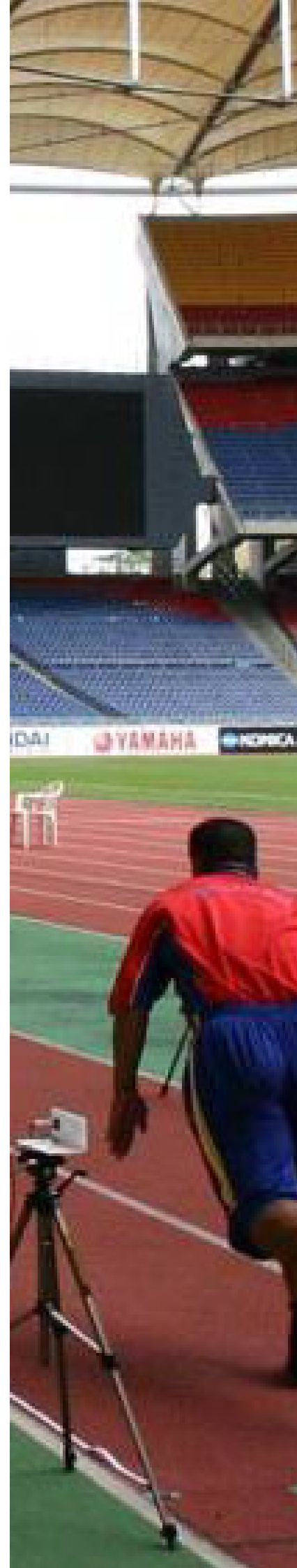
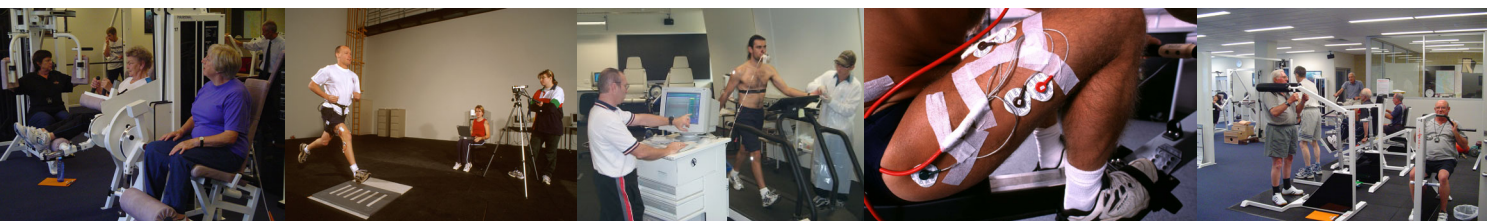


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INTRODUCTION

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 Jyväskylä). 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 2004 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)

Technical Staff: Mary Cornelius

Nadija Vrdoljak

Honours Students: Favil Singh

Masters Students: Adam Beard Tasuku Fujikake

Gregory Levin Lynda Murray

Melissa Tatasciore

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

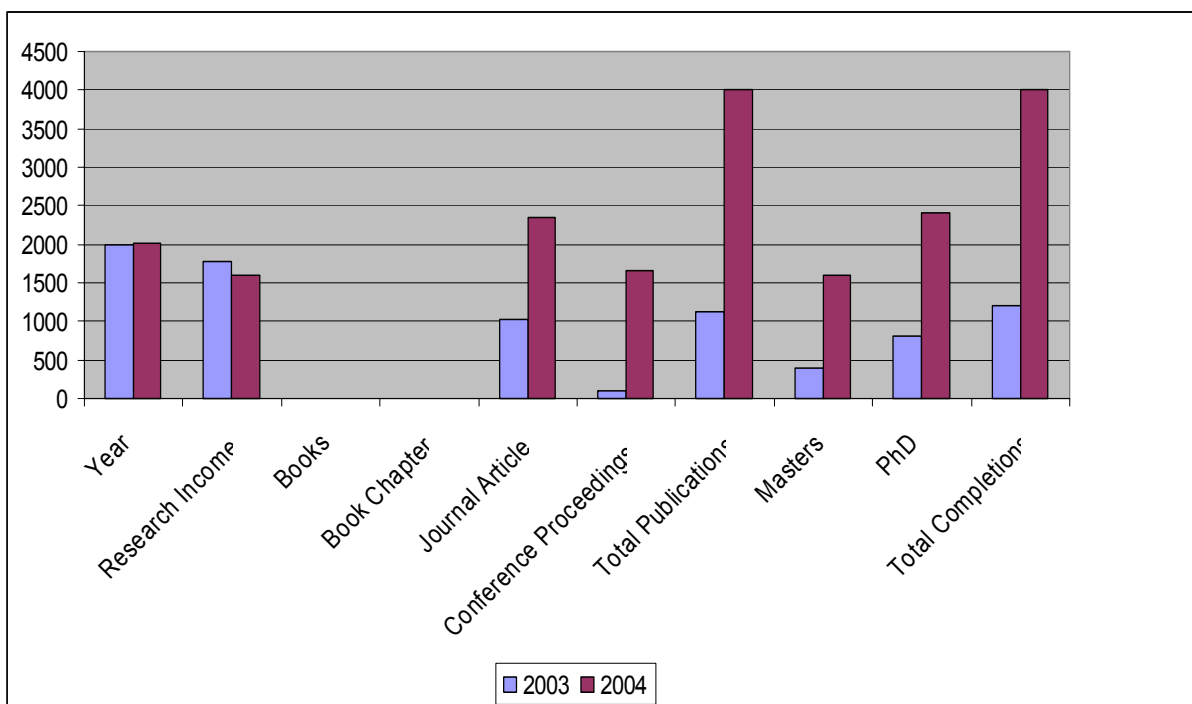
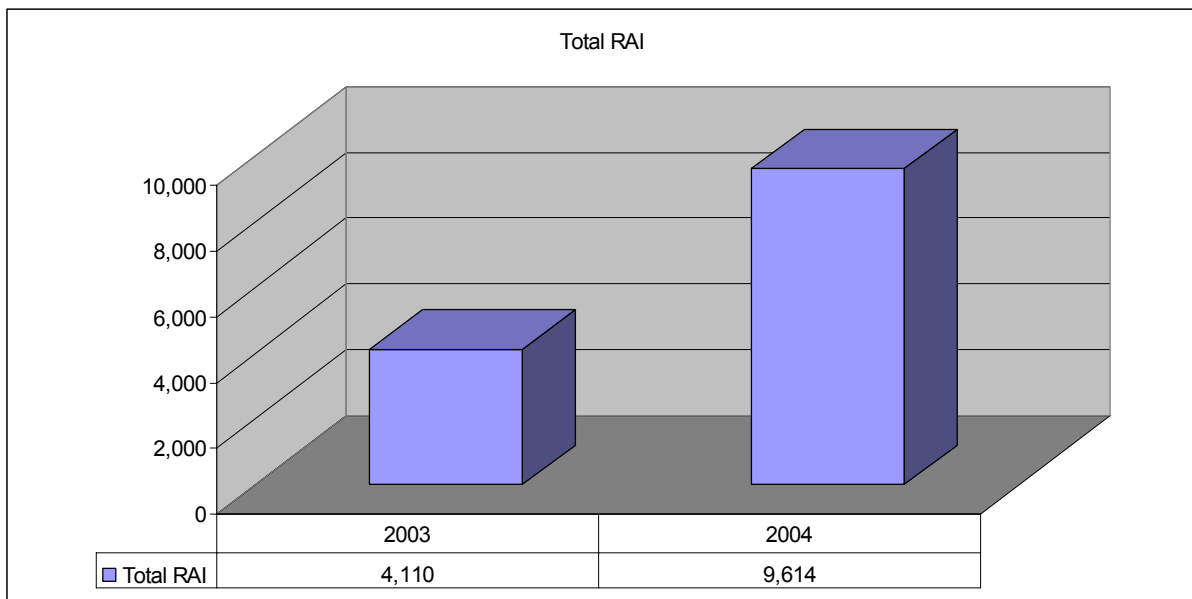
Mike Newton Sophia Nimphius

Jeremiah Peiffer Marc Quod

Kevin Netto

SUMMARY OF RESEARCH ACTIVITY

Key performance indicators in terms of research productivity increased markedly between 2003 and 2004. The total RAI for members of ESSRG increased by 134% with most of the increase being realised in journal articles (127%), conference proceedings (1567%), total publications (254%), Masters (300%), PhD(200%), and Total Completions (233%).



GRANTS AWARDED

8 grants and \$225,481 in total

1. Kristjanson, L., P. Hope, R.U. Newton and N. Spry. (2004) Fatigue and functional capacity in women undergoing adjuvant breast radiotherapy. Cancer Council of Western Australia (\$41,000).
2. Laursen, P.B., Burnett, A.F., Nosaka, K. and Foster, J.K. (2004) A new multidisciplinary model to examine fatigue during exercise. Edith Cowan University Early Career Research Grant Scheme (\$13,000).
3. Laursen, P.B., Bishop, D. and Martin, D. (2004) Examination of the acute and chronic physiological responses to ultraendurance exercise. Edith Cowan University, Faculty of Computing and Health Science Small Grant (\$5,800).
4. McGuigan, M. (2004) Muscle fibre characteristics of different athletic populations. Edith Cowan University Early Career Research Grant Scheme (\$10,000).
5. Newton, R.U. and L. Kristjanson. (2004) Development of a Hydraulic Resistance Exercise Treatment for Prostate Cancer Patients. Edith Cowan University – Industry Collaboration Grant. (\$68,418)
6. Newton, R.U. Assessment and development of a state-wide resistance exercise program for older people. (2004) Edith Cowan University – Industry Collaboration Grant with Council of the Ageing, WA. (\$19,253).
7. Nosaka, K., and Nottle, C. (2004) Effect of amino acid supplement on exercise-induced muscle damage and delayed onset muscle soreness. Ajinomoto Co. Inc, Japan. (\$24,910).
8. Nosaka, K., Sacco, P., Mawatari, K. (2004) Effect of amino acid supplement on delayed onset muscle soreness and symptoms associated with exercise-induced muscle damage. (Ajinomoto Co. Inc, Japan) ECU-Industry Collaboration Scheme-2004 Round Two. (\$43,100)

PUBLICATIONS

30 journal publications in total

1. Anderson , M.L., Foster, C., McGuigan, M.R., Seebach, E. and Porcari, J.P. Training vs. body image. Does training improve subjective rating appearances? Journal of Strength and Conditioning Research. 18(2): 255-259, 2004.
2. Baker, D.G., and R.U. Newton. An analysis of the ratio and relationship between upper body pressing and pulling strength. Journal of Strength and Conditioning Research, 18(3):594–598, 2004.
3. Burnett, A.F., Cornelius, M.W., Dankaerts, W. and O’Sullivan, P.B. (2004). Spinal kinematics and back muscle activity in cyclists: A comparison between healthy controls and non-specific chronic low back pain cyclists - A pilot investigation. Manual Therapy. 9, 211-219.
4. Burnett, A.F., Naumann, F.L. and Burton, E.J. (2004). Flight training effect on the cervical muscle isometric strength of trainee pilots. Aviation, Space and Environmental Medicine. 75, 611-615.
5. Carlock, J.M., S.L. Smith, M.J. Hartman, R.T. Morris, D.A. Ciroslan, K.C. Pierce, R.U. Newton, E.A. Harman, W.A. Sands, and M.H. Stone. The relationship between vertical jump power estimates and weightlifting ability: A field-test approach. Journal of Strength and Conditioning Research, 18(3):534–539, 2004.
6. Dankaerts, W. O’Sullivan, P.B., Burnett, A.F., Straker, L.M. and Danneels, L.A. (2004). Reliability of within-day and between-days EMG measurement for trunk muscles during maximal and sub-maximal voluntary isometric contractions in healthy controls and CLBP patients. Journal of Electromyography and Kinesiology, 14, 333-342.
7. Day, M.L., McGuigan, M.R., Brice, G.A. and Foster, C. Monitoring exercise intensities during resistance training using a session RPE scale. Journal of Strength and Conditioning Research. 18(2): 353-358, 2004.
8. Doyle, T.L.A., E.L. Dugan, B. Humphries, and R.U. Newton. Discriminating between elderly and young using a fractal dimension analysis of centre of pressure, International Journal of Medical Sciences, 1(1): 11-20. 2004.

9. Doyle, T.L.A., R.W. Davis, B. Humphries, E.L. Dugan, B.G. Horn, J. Shim, and R.U. Newton. Further evidence to change the Medical Classification System of the National Wheelchair Basketball Association. *Adapted Physical Activity Quarterly*, 21: 63-70, 2004.
10. Dugan, E.L., T.L.A. Doyle, B. Humphries, C.J. Hasson, and R.U. Newton. Determining the optimal load for jump squats: A review of methods and calculations. *Journal of Strength and Conditioning Research*, 18(3): 668-674, 2004.
11. French, D.N., A.L. Gómez, J.S. Volek, M.R. Rubin, N.A. Ratamess, M.J. Sharman, L.A. Gotshalk, W.J. Sebastianelli, M. Putukian, R.U. Newton, K. Häkkinen, S.J. Fleck, and W.J. Kraemer. Longitudinal tracking of muscular power changes of NCAA Division I collegiate women gymnasts. *Journal Strength Conditioning Research*. 18(1):101–107. 2004.
12. Hasson, C.J., E.L. Dugan, T.L.A. Doyle, B. Humphries, and R.U. Newton. Neuromechanical strategies employed to increase jump height during the initiation of the squat jump. *Journal of Electromyography and Kinesiology*, 14(4): 515-21, 2004.
13. Hill, J.L., B. Humphries, T. Weidner, and R.U. Newton. Female collegiate windmill pitchers: Influences to injury incidence. *Journal of Strength and Conditioning Research*, 18(3):426–431, 2004.
14. Hirose, L., Nosaka, K., Newton, M., Lavender, A., Kano, M., Peake, J., and Suzuki, K. Changes in inflammatory mediators following eccentric exercise of the elbow flexors. *Exercise Immunology Review* 10: 75-90, 2004.
15. Kraemer W.J., Nindl B.C., Ratamess N.A., Gotshalk L.A., Volek J.S., Fleck S.J., Newton R.U., Häkkinen K. Changes in muscle hypertrophy in women with periodized resistance training. *Medicine & Science in Sports & Exercise*. 36(4):697-708, 2004 April.
16. Kraemer, W.J., D.N. French, N.J. Paxton, K. Häkkinen, J.S. Volek, W.J. Sebastianelli, M. Putukian, R.U. Newton, M.R. Rubin, A.L. Gómez, J.D. Vescovi, N.A. Ratamess, S.J. Fleck, J.M. Lynch, and H.G. Knuttgen. Changes in exercise performance and hormonal concentrations over a big ten soccer season in starters and non-starters, *Journal of Strength and Conditioning Research*, 18(1), 121–128, 2004.

17. Kuroki, R., and Nosaka, K. Influence of force level and fatigue on bilateral force deficit of the elbow flexors during isometric contraction. *Japanese Journal of Physical Fitness and Sports Medicine* 53: 379-390, 2004.
18. Laursen, P.B., C.M. Shing, and D.G. Jenkins. Temporal aspects of the VO₂ response at the power output associated with VO₂peak in well trained cyclists - implications for interval training prescription. *Research Quarterly for Exercise and Sport*. 74(4):423-428, 2004.
19. Marshall, R.N. and Burnett, A.F. (2004). A kinematic, kinetic and electromyographic comparison of stooped sheep shearing techniques and shearing with a sheep manipulator. *Applied Ergonomics*, 35, 137-145.
20. McGuigan, M.R. and Foster, C. A new approach to monitoring resistance training. *Strength and Conditioning Journal*. 26(6): 42-47, 2004.
21. McGuigan, M.R. and Kane, M.K. Reliability of performance of elite Olympic weightlifters. *Journal of Strength and Conditioning Research*. 18(3): 650-653, 2004.
22. McGuigan, M.R., Egan, A.D. and Foster, C. Salivary cortisol responses and perceived exertion during high intensity and low intensity bouts of resistance exercise. *Journal of Sports Science and Medicine*. 3(1): 8-15, 2004.
23. Miyama, M., and Nosaka, K. Influence of surface on muscle damage and soreness induced by consecutive drop jumps. *Journal of Strength and Conditioning Research* 18: 206-211, 2004.
24. Miyama, M., and Nosaka, K. Muscle damage and soreness following repeated bouts of consecutive drop jumps. *Advances in Exercise and Sports Physiology* 10: 63-69, 2004.
25. Nosaka, K., Sakamoto, K., Newton, M., and Sacco, P. Influence of pre-exercise muscle temperature on responses to eccentric exercise. *Journal of Athletic Training* 39: 132-137, 2004.
26. Peake, J. M., Wilson, G., Hordern, M., Suzuki, K., Yamaya, K., Nosaka, K., Mackinnon, L. T., and Coombes, J. S. Changes in neutrophil surface receptor expression, degranulation, and respiratory burst activity following moderate and high intensity exercise. *Journal of Applied Physiology* 97: 612-618, 2004.

27. Putlur, P, Foster, C, Miskowski, J.A., Kane M.K., Burton, S.E., Scheett, T.P. and McGuigan, M.R. Alteration of immune function in women collegiate soccer players and college students. *Journal of Sports Science and Medicine*. 3: 234-243, 2004.
28. Sanders, R.H. and Burnett, A.F. (2004). Technique and timing in women's and men's reverse one and one half somersault with two and one half twists (5335D) and men's reverse one and one half somersault with three and one half twists (5337D) 3m springboard dives. *Sports Biomechanics*, 3, 29-41.
29. Sweet, T.W., Foster, C., McGuigan, M.R. and Brice, G. Quantification of resistance training using the session RPE method. *Journal of Strength and Conditioning Research*. 18(4): 796-802, 2004.
30. Volek, J.S., Ratamess, N.A., Rubin, M.R., Gómez, A.L., French, D.N., McGuigan, M.R., Scheett, T.P., Sharman, M.J., Häkkinen, K. and Kraemer, W.J. The effects of creatine supplementation on muscular performance and body composition responses to short-term resistance training overreaching. *European Journal of Applied Physiology*. 91(5-6): 628-648, 2004.

CONFERENCE PRESENTATIONS

51 conference presentations in total

1. Appleby, B., Fitzsimon, M., Doyle, T.L.A, and R.U. Newton. Softball. International Conference of Weightlifting and Strength Training, Greece, 2004.
2. Burnett, A., Beard, A., Newton, R. and Netto, K. (2004). A comparison of methods to calculate the optimal load for maximal power output in the power clean. Proceedings of the XXIIInd International Symposium of Biomechanics in Sports. (Edited by M. Lamontagne, D.G.E Robertson and H. Sveistrup). pp. 434-437, University of Ottawa.
3. Burnett, A., Doyle, M. and Elliott, B. (2004). Continuous registration of the hand-curve in rowing: Differences between scull and sweep rowers. Proceedings of the XXIIInd International Symposium of Biomechanics in Sports. (Edited by M. Lamontagne, D.G.E Robertson and H. Sveistrup). pp. 207-210, University of Ottawa.

4. Burnett, A., Ranson, C., Dankaerts, W. and O'Sullivan, P. (2004). An overview of methods for evidence based practice in spinal rehabilitation. Australian Association of Exercise and Sports Science Inaugural Conference, Brisbane, April.
5. Chapman, D., Newton, M., Sacco, P., and Nosaka, K. A comparison of changes in indices of muscle damage following fast and slow velocity eccentric exercise. 2004 American Physiological Society Intersociety Meeting: The Integrative Biology of Exercise, 6-9 October, 2004. Austin, TX, USA.
6. Dankaerts, W., O'Sullivan, P., Burnett, A., Cornelius, M. (2004). Motor control impairment – a mechanism for back pain in cyclists. International Federation of Orthopaedic Manipulative Therapists Conference, Cape Town, South Africa, March.
7. Dankaerts, W., O'Sullivan, P., Burnett, A., Straker, L. (2004). Surface EMG of trunk muscles in clinical research- Do we have to reconsider normalisation? International Federation of Orthopaedic Manipulative Therapists Conference, Cape Town, South Africa, March.
8. Dankaerts, W., O'Sullivan, P., Burnett, A., Straker, L. (2004). What proceeds RCT's – A new model for clinical research into NSCLBP. International Federation of Orthopaedic Manipulative Therapists Conference, Cape Town, South Africa, March.
9. Doyle, T.L.A., R.U. Newton, M. Newton, and D. Edwards. Vertical jump height correlates with lower body power and 30m sprint times. Exercise and Sports Science 2004, Brisbane, 14th – 16th April 2004.
10. Foster C, Braucher D, Garcia L, Roeker JA, McGuigan M, Maher MA, Porcari JP: Effect of post-prandial exercise duration on glycemic responses to feeding. J Cardiopulm Rehabil 24: 357, 2004.
11. Fowler, T., McBride, N.T., and McGuigan, M.R. The effects of various modes of resistance training on balance and functional abilities of 60+ yr old females. National Strength and Conditioning Association Proceedings, Minneapolis, MN, July 2004
12. Ghiagiarelli, J., McGuigan, M.R. and Tod, D. Maximal strength and cortisol responses to psyching up during the squat exercise. National Strength and Conditioning Association Proceedings, Minneapolis, MN, July 2004

13. Gibson, B. (2004). Establishing a Degree Program in the University with a Corporate Body as a Partner. Paper presented at the EDU.COM Conference Kohn Kaen Thailand, November.
14. Gibson, B. and Ma'ayah, F. (2004). The Coaches Effective Leadership Model. Paper presented at the 9th Annual Congress European College of Sport Science, Clermont-Ferrand, France, July.
15. Gomez, A., W.J. Kraemer, J.S. Volek, D.L. Hatfield, T. Shimano, N.A. Ratamess, D.N. French, J.D. Vescovi, M.J. Sharman, R. Silvestre, B.C. Nindl, R.U. Newton, and K. Hakkinen. Influence of training status on resistance exercise responses of growth hormone. NSCA National Conference and Exhibition, Minneapolis, Minnesota, July 14-17, 2004. Page 578.
16. Heiden, T. and Burnett, A. (2004). Determination of heel strike and toe-off in the running stride using an accelerometer: Application to field-based gait studies. Proceedings of the XXIInd International Symposium of Biomechanics in Sports. (Edited by M. Lamontagne, D.G.E Robertson and H. Sveistrup). pp. 98-101, University of Ottawa.
17. Jamurtas, A.Z., Nosaka, K., Theocharis, V., Tofas, T., Yfanti, C., Paschalis, V., and Koutedakis, Y. Comparison between leg and arm eccentric exercise of the same relative intensity on indices of muscle damage. 9th Annual Congress of the European College of Sports Science, 3-6 July, 2004. Clermont-Ferrand, France.
18. Kraemer, W.J., B.A. Spiering, J.S. Volek, S.A. Tokeshi, J.O. Marx, D.L. Hatfield, A.L. Gomez, L.A. Gotshalk, B.C. Nindl, R. Silvestre, D.N. French, T. Shimano, P. Dixon, H. Chisholm, K. Hakkinen, R.U. Newton, K.E. Noffsinger. Maximal force generation in the bench press during concentric and eccentric upper body exercise: a gender comparison. NSCA National Conference and Exhibition, Minneapolis, Minnesota, July 14-17, 2004. Page 566.
19. Laursen, P. Influence of high-intensity interval training on adaptations in well-trained cyclists. 2004 National Strength and Conditioning Conference. Minneapolis, MN. July 14-16, 2004.
20. Laursen, P. Temporal aspects of the VO₂ response at the power output associated with VO₂peak in highly trained cyclists -implications for interval training prescription. 2004 Australian Association for Exercise and Sports Science Inaugural Conference. Brisbane, April 14-16, 2004.

21. Lavender, A.P., and Nosaka, K. Comparison between young and elderly males for responses to unaccustomed eccentric exercise. 9th Annual Congress of the European College of Sports Science, 3-6 July, 2004. Clermont-Ferrand, France.
22. Lavender, A.P., and Nosaka, K. Effect of eccentric versus concentric exercise on steadiness of force generation during submaximal isometric contraction. American College of Sports Medicine 2004 Annual Meeting, 2-5 June, 2004. Indianapolis, IN, USA.
23. Ma'ayah, F. and Gibson, B. (2004). Problem Solving Techniques of Expert Soccer Coaches. Paper presented at the 9th Annual Congress European College of Sport Science, Clermont-Ferrand, France, July.
24. Marsh, S., Laursen, P. and Coombes, J. Bcl-2 levels are increased in endothelial cells by antioxidant supplementation but not exercise training. International Society for Heart Research World Congress, Brisbane, Australia, 7-11 August, 2004.
25. Marsh, S., Laursen, P. and Coombes, J. Endothelial Bcl-2 is increased with vitamin E and alpha-lipoic acid supplementation but not exercise training. American Society for Biochemistry and Molecular Biology Annual Meeting, Boston, Massachusetts, 12-16 June, 2004.
26. McGuigan, M.R. Conditioning and Circuit Training. 1st annual Conference on the Game: Rugby Essentials for Program Improvements. Wisconsin Dells, March 6-7, 2004.
27. McGuigan, M.R. Strength Training for Rugby. 1st annual Conference on the Game: Rugby Essentials for Program Improvements. Wisconsin Dells, March 6-7, 2004.
28. Newton, R.U. Active Ageing. Victorian Conference of Science & Medicine in Sport and Exercise, University of Melbourne, Melbourne, 13th March 2004.
29. Newton, R.U. Anabolic Exercise and Chronic Disease, COTA Victoria - Living Longer Living Stronger Conference, 12th November 2004.
30. Newton, R.U. Anabolic Exercise and Chronic Disease, WA State Conference of Science and Medicine in Sport and Exercise, 13th November 2004.
31. Newton, R.U. Anabolic Exercise and Falls Prevention. RACGP Falls Workshop, Bunbury, 29th May 2004.

32. Newton, R.U. Anabolic Exercise and Falls Prevention. RACGP Falls Workshop, Fremantle, 1st May 2004.
33. Newton, R.U. Anabolic exercise and falls prevention. Sir Charles Gairdner Hospital – Grand Rounds, Perth, 17th August 2004.
34. Newton, R.U. Development of Strength and Power for Sport: What works, What Doesn't and Why. Japan Institute of Sports Sciences, Tokyo, 5th July 2004.
35. Newton, R.U. Development of strength and power for sport: What works, what doesn't and why. 3rd ISN Sports Medicine Conference, Malaysia, 30th March 2004.
36. Newton, R.U. Neuromuscular adaptations to high velocity exercise. NSCA National Conference and Exhibition, Minneapolis, Minnesota, July 14-17, 2004. Page 351-354.
37. Newton, R.U. Neuromuscular basis of strength and power in the elite athlete: Assessment and interpretation through strength diagnosis. 3rd ISN Sports Medicine Conference, Malaysia, 29th March 2004.
38. Newton, R.U. Non-Pharmacological Treatments for Alzheimer's, Centre of Excellence in Alzheimer's Disease Research Workshop. Perth, 26th June 2004.
39. Newton, R.U. Strength and conditioning for performance enhancement and injury reduction. Exercise and Sports Science 2004, Brisbane, 16th April 2004.
40. Nosaka, K. Eccentric exercise and muscle damage. Australian Association for Exercise and Sports Science Inaugural National Conference, 14-16 April, 2004. Brisbane, Queensland
41. Nosaka, K. Eccentric exercise-induced muscle damage and inflammation. The 2nd Meeting of the Japanese Society of Exercise and Immunology. 14 September 2004. Saitama, Japan.
42. Nosaka, K., and Lavender, A.P., and Newton, M.J. Effect of alternating eccentric and concentric versus separated eccentric and concentric actions on muscle damage. American College of Sports Medicine 2004 Annual Meeting, 2-5 June, 2004. Indianapolis, IN, USA.
43. Nosaka, K., Lavender, A.P., and Newton, M.J. Comparison of changes in indices of muscle damage between eccentric and concentric exercise of the elbow flexors. 9th Annual Congress of the European College of Sports Science, 3-6 July, 2004. Clermont-Ferrand, France.

44. Nosaka, K., Newton, M.J., Hirose, L., Kano, M., Lavender, A.P., Peake J., and Suzuki, K. Changes in cytokines following repeated bouts of eccentric exercise of the elbow flexors. 2004 American Physiological Society Intersociety Meeting: The Integrative Biology of Exercise, 6-9 October, 2004. Austin, TX, USA.
45. Nottle, C., and Nosaka, K. Downhill backward walking: a model for exercise-induced muscle damage (EIMD). 9th Annual Congress of the European College of Sports Science, 3-6 July, 2004. Clermont-Ferrand, France.
46. Rice, C. and Burnett, A. (2004). The effect of strength training on 3km run times in middle level female runners. Australian Association of Exercise and Sports Science Inaugural Conference, Brisbane, April.
47. Sheppard, J., W. Young, T. Doyle and R.U. Newton. The relationship between speed, planned change of direction speed, and agility in Australian Rules football players. Exercise and Sports Science 2004, Brisbane, 14th – 16th April 2004.
48. Shimano, T., W.J. Kraemer, J.S. Volek, D.L. Hatfield, N.A. Ratamess, D.N. French, J.D. Vescovi, M.J. Sharman, R. Silvestre, A.L. Gomez, B.D. Nindl, R.U. Newton, and K. Hakkinen. Influence of training status on resistance exercise responses of IGF-1. NSCA National Conference and Exhibition, Minneapolis, Minnesota, July 14-17, 2004. Page 567.
49. Silvestre, R., W.J. Kraemer, J.S. Volek, D.L. Hatfield, A.L. Gomez, D.N. French, J.D. Vescovi, T. Shimano, P. Dixon, M.J. Sharman, P.A. Caraher, R.U. Newton, and K. Hakkinen. Eccentric exercise: suppression of strength without soreness. NSCA National Conference and Exhibition, Minneapolis, Minnesota, July 14-17, 2004. Page 572.
50. Wallace, B., Winchester, J., and McGuigan, M.R. Effects of elastic bands on force and power characteristics during the back squat exercise. National Strength and Conditioning Association Proceedings, Minneapolis, MN, July 2004
51. Winchester, J., Neils, C., Udermann, B., Brice, G., and McGuigan, M.R. The effect of traditional speed versus superslow resistance training on strength, power and body composition. National Strength and Conditioning Association Proceedings, Minneapolis, MN, July 2004

REPORTS

1. Newton, R.U. and Burnett, A.F. An investigation of the force attenuation properties of the Pelican Hip Protectors and recommendations for enhanced impact resistance. Pelican Manufacturing P/L. March, 2004. Technical Report of 12 pages.
2. Newton, R.U., D. Edwards, M. McGuigan, and T. Doyle. Athlete Profiling Malaysia 2004: A collaborative project between ECU Human Performance Centre and Ministry of Youth & Sports of Malaysia and National Sports Institute of Malaysia. December 2004. Technical Report of 47 pages.

AWARDS

Robert Newton

- Outstanding Sports Scientist of the Year Award, National Strength and Conditioning Association, Minneapolis, USA, 16th July 2004.

RESEARCH STUDENTS SUPERVISED

Graduating Honours Students

Chris Abbiss (2004 1st Class) Supervisor Dr P. Laursen.

“Examination of multiple fatigue models during prolonged cycling in hot versus cold climates”

Jemma Coleman (2004 1st Class) Supervisor Dr. A. Burnett.

“An electromyographic examination of selected neck strengthening exercises”

Jonathon Green (2004 1st Class) Supervisor Dr. A. Burnett.

“Deep Muscle Function in the Cervical Spine: Application to Musculoskeletal Modelling”

Graduating Masters Students

Andrew Lavender

Dale Chapman

Naomi Forrest

Cherina Rice (2004) Supervisor Dr. Angus Burnett

“The Effect of Strength Training on 3km Performance in Recreational Female Endurance Runners”

Graduating PhD Students

Fadi Ma'ayah (2004) Supervisor Assoc. Prof. B. Gibson “

Players' and coaches' perceptions of soccer coaches' specific leadership behaviours”

Carmel Nottle (2004) Supervisor Assoc. Prof. K. Nosaka, Dr A. Burnett, Dr P. Sacco.

“Proprioceptive and muscle activation changes in triceps surae associated with exercise induced muscle damage”

EXPERT EVALUATIONS OF ACADEMIC THESES

1. McGuigan, M. Examination of PhD thesis. J. Wang, Southern Cross University, Lismore. Thesis topic: “Therapeutic Effects of Gingko Biloba Treatment, Supervised Exercise Program and Percutaneous Transluminal Angioplasty in Patients with Peripheral Arterial Disease”, August 2004.
2. Netto, K. Examination of Honours thesis. Jemma Coleman, Edith Cowan University. Thesis topic: ‘An electromyographic comparison of neck conditioning exercises”
3. Newton, R.U. Examination of Doctor of Philosophy Thesis, Carmel Nottle, Edith Cowan University. Thesis topic: “Proprioceptive and Muscle Activation Changes in Triceps Surae Associated with Exercise Induced Muscle Damage.”, June 2004.
4. Newton, R.U. Examination of Doctor of Philosophy Thesis, Mark Watsford, University of Technology, Sydney. Thesis topic: “”, May 2004.
5. Newton, R.U. Examination of Honours thesis, Ken McLachlan, University of Technology, Sydney. Thesis topic: “The reliability and validity of lower body musculotendinous stiffness measures”, March 2004.
6. Newton, R.U. Examination of Masters thesis, Christopher Spinks, University of Technology, Sydney. Thesis topic: “The effects of resisted sprint training on acceleration performance in trained football players”, April 2004.

7. Nosaka, K. Examination of Honours thesis, Chris Abbiss, Edith Cowan University. Thesis topic: "Examination of multiple fatigue models during prolonged cycling in hot verses cold climates", December 2004.
8. Nosaka, K. Examination of Honours thesis, Jonathon Green, Edith Cowan University. Thesis topic: "Deep muscle function in the cervical spine: Application to musculoskeletal modelling", December 2004.

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)

Dr. Suzuki, Dr. Peake (Waseda University, Japan)

Dr. Jamurtas (University of Thessaly, Greece)

Dr. Maffioletti (Université de Bourgogne, France)

Dr. Chen (National Chiayi University, Taiwan)

VISITING RESEARCH FELLOWS

Dr Warren Young

University of Ballarat, Victoria, School of Human Movement and Sports Sciences.

APPOINTMENTS TO BOARDS OR EXTERNAL COMMITTEES

Dr. Angus Burnett

- Committee Member - Australian Association for Exercise and Sports Science (WA Branch)
- Member Scientific Committee – 1st Conference Australian Association for Exercise and Sports Science, Brisbane, April, 2004.

Associate 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.

Professor Robert Newton

- 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, Associate Editor.
- Japanese Training Science Association, Editorial Board.
- Medicine and Science in Sports and Exercise, Editorial Board.

MEDIA COVERAGE

Dr Paul Laursen

- August 20, 2004. "Tired muscles? Don't blame lactate" ABC Science Online (Anna Salleh) <http://www.abc.net.au/science/news/stories/s1180597.htm>
- May, 2004. "Training to foil the effects of EIAH" Running Research News (Owen Anderson) <http://www.rrnews.com>, 20(4) 10-12.

Professor Robert Newton

- Interviewed by ABC Radio Kalgoorlie on exercise and maintaining health, 21st August, 2004.
- "Hockeyroos jump at power play", Australian Newspaper, Higher Education Supplement, June 30, 2004, Page 39.

