

RESEARCH STUDENTSHIPS 2010 PROJECT DESCRIPTION



Project Title

Resistance Exercise Stress: Training Load, Recovery, and Physiological Adaptation

Project Description

Summary of Research Project

Resistance exercise is a potent stimulus to a host of physiological systems, and the biological stresses associated with resistance exercise modalities have been shown to involve complex adaptations that benefit both healthy and clinical populations. Resistance exercise bouts are defined physiologically by preceding anticipatory changes, acute within and immediate post-exercise modulations, and chronic/prolonged training adaptations in bioenergetic, endocrine, and neuromuscular systems that reflect augmented or deleterious functional performance.

By manipulating change within the acute resistance training variables, it is possible to influence the nature of the exercise stress, and ultimately impact the characteristics of the physiological adaptations induced. While previous research has examined resistance exercise stress, the intervention of resistance training protocols remains to be fully explored; particularly with respect to understanding training load, recovery dynamics, and physical performance adaptation. Specifically, from a clinical perspective the role of resistance training in health and wellbeing, aging, and exercise prescription is an expanding area, while from a performance perspective concurrent training methods, diurnal variations in training structure, and modulations in acute training variables all remain to be fully elucidated.

This research studentship will follow a course of study examining 'resistance exercise stress'; with a view to understanding the role training load, recovery, and physiological adaptation play in promoting physical, physiological, and functional performance within athletic, clinical, and adolescent populations. The research will include the study of physiological systems (e.g. endocrine, cardiorespiratory) and neuromuscular function, and students will be expected to develop laboratory based techniques as well as applied monitoring and assessment skills. The Department of Sport and Exercise Sciences at Northumbria University aims to challenge current understanding within the area of resistance exercise stress, and develop a world-class reputation as a research centre for resistance training and conditioning science.

Details of research training to be undertaken as part of this project

The student will be expected to undertake a tailored programme of training under the guidance of the lead supervisor and the supervisory committee. The Northumbria University Graduate School also provides extensive training and support to PhD students. Scientific skills will be developed in accordance with the needs of the specific research projects undertaken, and will include a variety of bench-top laboratory techniques (biochemistry, cardiorespiratory), imagery procedures (ultrasound, MRI), and neuromuscular monitoring (NIRS, EMG,). Students will also be exposed to significant skill development in the handling of resistance exercise training protocols across a variety of participant populations.

Supervisory Team & Research Environment

School(s) School of Psychology and Sports Sciences

Research Centre Sport, Exercise and Wellbeing Research Centre

Academic Supervisors Dr. Duncan N. French

Funding Notes

[Include known detail suitable for advert regarding length of funding, sponsor, stipend, fees, travel and consumables]

Studentships will cover Home fees and a stipend of £13,290 is available. A research allowance of £1000 is also available. The period of funding is 3 years.

Informal Enquiries

Enquiries regarding this studentship should be made to Paul Agnew (paul.agnew@northumbria.ac.uk)

Eligibility

Applicants should hold a first or upper second class honours degree (in a relevant subject) from a British higher education institution, or equivalent. Students who are not UK/EU residents are eligible to apply, provided they hold the relevant academic qualifications (together with an IELTS score of at least 6.5).

How to Apply

You should apply using the University's Research Studentship Application Form. Further details on the University's Research Studentship Scheme, together with the Application Form, can be found on our website:

<http://www.northumbria.ac.uk/researchstudentships>

Applications should be submitted to:

Paul Agnew

**Northumbria University
School of Psychology and Sport Sciences**

Newcastle upon Tyne NE1 8ST

0191 – 243 7770

paul.agnew@northumbria.ac.uk

Deadline for applications: 06.08.10

Interview date (if known): TBD

Start Date: 1.9.10