School of Biomedical Sciences

Sport and Exercise Science
Introductions

• **Professor Emma Stevenson**
• BSc in Sport and Exercise Science
• PhD in Sport and Exercise Nutrition and Metabolism
• Academic positions for 13 years, Fellow of Higher Education Academy
• Professor of Sport and Exercise Science in 2015
• Performance Nutrition Consultant
Introductions

• Dr. Dan West
• BSc in Sport and Exercise Science
• PhD in Clinical Exercise Physiology
• ACSM Certified Clinical Exercise Physiologist
• Fellow of the Higher Education Academy
Sport and Exercise Science (C600)

• New degree in 2017

• First sport and exercise science degree to be delivered from a Medical Faculty in the UK

• Strong scientific focus

• Input in curriculum design and delivery from a range of industry partners, key stakeholders and practitioners in sport and exercise science
Newcastle and surrounding area
Why study at Newcastle University?

Teaching Excellence Framework (TEF) Gold Award

- Consistently outstanding teaching, learning and outcomes for students from all backgrounds
- Investment in high quality facilities
- Commitment to enhancing students’ employability
Teaching on all of our programmes is delivered by staff from our world leading Research Institutes.
The Academic Year

2 semesters per year
120 credits per year

Semester 1: September–January
- 1 Week Induction
- 12 Weeks Teaching
- 2 Weeks Examinations

Semester 2: February–June
- 12 Weeks Teaching
- 3 Weeks Examinations
Sport and Exercise Science (C600)

• **Year 1** – foundation knowledge and skills in the key discipline areas of sport and exercise science

• **Year 2** – application of sport and exercise science to human performance and exercise behaviours.

• **Year 3** – multidisciplinary approach to sport and exercise science including a research project.
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<td><strong>Anatomy</strong></td>
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<td><strong>Human Physiology and Practical skills</strong></td>
<td><strong>Bioenergetics</strong></td>
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<td><strong>Principles of Exercise, Nutrition and Health</strong></td>
<td><strong>Introduction to Biomechanics</strong></td>
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<td>Semester 1</td>
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<td>Principles of Strength and Conditioning</td>
<td>Exercise Physiology</td>
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<td>Applied Sports Psychology</td>
<td>Applied Biomechanics</td>
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**Year long modules**
- Applied Sport and Exercise Nutrition
- Research Methods for Sport and Exercise Science
# Sport and Exercise Science Year 3

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<td>Physical Activity, Exercise and Disease</td>
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Option Modules

Developing Enterprise, Entrepreneurship and Employability

Applied Entrepreneurship

Career Management

Career Development Module for Final Year students
Research Project

• Across both semesters of final year

• Valuable research and applied experience

• Opportunity to work with world-class researchers

• Develops key employability skills
Optional Placement Year

• Available to all students

• Placement between stage 2 and 3 of the degree programme

• Valuable experience and opportunity to develop knowledge and skills

• Links with performance sport, industry and other HE institutions in the UK and abroad
Study Abroad Year

• Available to all students between stage 2 and 3 of the degree programme
• Valuable experience and opportunity to develop knowledge and skills
• Over 15 universities including institutions in USA, Canada, Australia, Hong Kong
• 1/3rd credits studied do not have to be SES related
• Credits do not contribution to overall degree classification
Graduate Employability

Consistently one of the best records for graduate employment in the UK

Focus on career development and skills

Optional Career Development modules

Industry engagement

Placement opportunities

Guest lecturers
Popular destinations include:

- High performance sport & governing bodies
- Health services
- Pharmaceutical and food industry
- Personal training and S&C coaches
- Teaching
- Research
- Future study
Entry Requirements

**A levels:** AAA–AAB including at least one from Mathematics, Physics, Chemistry, Biology or Human Biology, PE and Psychology.

**IB:** 34-35 points with at least one science at Higher Level grade 5 or above

**BTEC:** D*D*D* in an appropriate subject.

Other qualifications are accepted. Please contact Emma Stevenson (emma.stevenson@newcastle.ac.uk)
Sport at Newcastle

• Performance Sport
63 Sports Clubs = Team Newcastle
9th in BUCS
100 sports scholars
7 Full Time & 35 Part Time Coaches
Strength and Conditioning suite

• Competition and Participation
10 sport Intra-Mural program
125 station gym
‘Give it a Go’ programme
New Facilities

- Biomechanics lab
- Gait track
- Performance lab
- Physiology lab
- Environmental chamber
- Nutrition kitchen
- Wet lab
- Body composition lab
- Consultation rooms
Dame Margaret Barbour Building
Key Features

- Innovative and holistic scientific approach which will reflect the strengths and expertise within the Faculty
- Range of learning experiences and assessment strategies
- Input in curriculum design and delivery from a range of industry partners, key stakeholders and practitioners in sport and exercise science
- Partnership with Team Newcastle and local performance clubs
Sport and Exercise Science Research at Newcastle University
Research Areas

Post-exercise recovery interventions
Recovery Following a Marathon

• Efficacy of different recovery interventions following a marathon in 49 endurance trained males
  – Cold water immersion (CWI)
  – Whole body cryotherapy (WBC)
  – Cherry Juice (CJ)
  – Combination of CWI & CJ (MIX)
  – Placebo

• Variables Measured (Pre, Post, 24h, 48h)
  – Muscle Function
  – Perceptions
  – Immune Function
  – Inflammation
  – Muscle Damage
  – Oxidative Stress
  – Pulmonary Inflammation
  – Well-being
Protein for Life

- Research council funded project to better understand protein requirements for healthy ageing
- Multidisciplinary, novel approach to an important public health issue
- Important industry involvement throughout the project
Research Areas

Appetite regulation
Clinical Exercise Research

- World-class research on the effects of exercise and physical activity in ageing, metabolic disease and neuromuscular disease

- e.g. diabetes, heart failure, liver disease, stroke
Type 1 Diabetes and Exercise Research

• Disease that involves the destruction of the insulin producing beta-cells in the pancreas

• Exercise can be extremely dangerous and interact in a negative way with the drug ‘insulin’

• Huge investment in diabetes related technology
Hypoglycaemia unawareness is dangerous in insulin treated diabetes

Brain glucose-sensing nerves ‘habituate’ to low glucose

Blunted hormone responses

Acute high-intensity exercise improved hormone response to hypoglycaemia in a rat model

Children and adults with unawareness to be studied at 3 sites (Dundee, Newcastle, Perth)
Performance, Recovery, Athlete Well-being in international Rugby 7’s

Intensive periods of competition – multi-day tournaments, and consecutive weekends.

WRU/ERU concern about player welfare

Twickenham and Edinburgh legs of IRB 7’s – assessment of muscle damage and recovery over the two tournament stages
Creatine Kinase – blood marker

Creatine Kinase (u/L)

Sample Point

AM Day 1
PM Day 1
AM Day 2
PM Day 2

Creatine Kinase (u/L)

T1
T2

* †
Jump Height Performance

![Graph showing jump height performance over two days and two tournaments.](image-url)
Original research

The influence of passive heat maintenance on lower body power output and repeated sprint performance in professional rugby league players

Liam P. Kilduff\textsuperscript{a,\#}, Daniel J. West\textsuperscript{c}, Natalie Williams\textsuperscript{a}, Christian J. Cook\textsuperscript{a,\textdagger}

\textsuperscript{a} Applied Sports Technology Exercise and Medicine Research Centre (A-STEM), Health and Sport Portfolio, College of Engineering, Swansea University, UK
\textsuperscript{b} UK Sport, Sport and Exercise Science, University of Bath, UK
\textsuperscript{c} Department of Sport and Exercise Science, School of Life Science, Northumbria University, UK

Original research

Influence of post-warm-up recovery time on swim performance in international swimmers

Daniel J. West\textsuperscript{d}, Bernie M. Dietzeg\textsuperscript{b}, Richard M. Bracken\textsuperscript{a}, Daniel J. Cunningham\textsuperscript{a}, Blair T. Crewther\textsuperscript{e}, Christian J. Cook\textsuperscript{a,\textdagger}, Liam P. Kilduff\textsuperscript{a,\#}

\textsuperscript{a} Health and Sport Portfolio, College of Engineering, Swansea University, UK
\textsuperscript{b} British Swimming, Intensive Training Unit Swansea, Wales National Pool, UK
\textsuperscript{c} UK Sport, Sport and Exercise Science, University of Bath, UK
\textsuperscript{d} Department of Sport and Exercise Science, School of Life Science, Northumberland Building, Northumbria University, UK
\textsuperscript{e} Hamlyn Centre, Institute of Global Health Innovation, Imperial College, UK
So **why chose us?**

- Sport and Exercise Science in a Medical School
- Small numbers – great student experience
- High quality research-led teaching
- Great City
- Happy Students
Any questions?