

James Day  
Curriculum vitae  
09/06/2017

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## **EDUCATION**

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| 2016 | PhD (Neuromechanics)<br>Centre for Sensorimotor Neuroscience, The University of<br>Queensland.<br>Supervised by Prof Andrew Cresswell and Dr Glen Lichtwark |
| 2010 | Bachelor of Applied Science (Human Movement Studies)<br>The University of Queensland<br>GPA of 6.1  |
| 2010 | Bachelor of Business Management (Physical activity)<br>The University of Queensland, 2010<br>GPA of 6.5   |

## **EMPLOYMENT HISTORY**

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| 2011- | Sports scientist specializing in biomechanics and data science,<br>Fusion Sport, Brisbane, Australia. |
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As a lead builder, I work closely with clients to design and build data management solutions for their organisations. This focusses on key areas of athlete management such as performance and technique analysis, health and wellbeing, injury data, load management and administrative information. I was the lead on data analytics solutions that utilized external software packages such as R and Tibco Spotfire to develop interactive visualisations that gave an overall understanding of an athlete or team, as well as developing custom algorithms that could be used to predict factors such as overtraining, injury or performance. I worked with many stakeholders within the organization to facilitate sharing of information and ensure best practices were met. I was involved with many clients including Australian Sports Commission, Aspire academy, multiple AFL and NRL Clubs and the Australian Rugby Union.

2011-15      Tutor and practical co-ordinator, School of Human Movement Studies, UQ

As a tutor in three courses (Biomechanics, Neuromechanics, Motor Control and Learning) I have developed a solid understanding of the various concepts covered under these three courses. I have been involved in developing content and assessment, coordinating practical components of the course and delivering weekly tutorials. I also have developed intimate knowledge of motion capture systems in order to design accessible learning tasks for undergraduate students to understand how they work. I have developed a strong teaching style and have received positive feedback from students across.

2014           Consulting Biomechanist, UQ.

As a research Biomechanist with intimate knowledge of 3D motion capture systems and their integration with instrumented treadmills for research, I travelled to a new sports medicine facility in Baku, Azerbaijan on behalf of Qualysis to install a motion capture system. This involved setting up hardware and software, configuring the system and training users to use the system.

## **SKILLS AND EXPERIENCE**

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Through my research, I have developed extensive experience in the area of Biomechanics research that includes the use of 3D motion capture systems (e.g. Qualisys), musculoskeletal modeling (Visual3D, Opensim), force platforms, instrumented treadmills, ultrasound imaging and both surface and intramuscular EMG collection. I also have exposure to microneurography collection and analysis. I am competent in the use of various software packages used in the neuromechanics field including Matlab, Spike2, Visual 3D, QTM, Labview and Prism for data collection, processing and analysis. I also have a good understanding of R for statistical analysis and Tibco Spotfire for developing interacting visualisations.

As an employee of Fusion Sport, I have intricate knowledge of tracking the overall wellbeing of athletes from many different aspects such as monitoring load (e.g. from GPS data), diet, injury, physiological measures, sleep and psychological wellbeing. I have worked with clients to develop systems that allow for an overall picture of each athlete to be developed, with a strong focus on visual reporting and notifications surrounding custom developed flags based on monitoring data.

## RESEARCH PUBLICATIONS

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### Published

- 2013      Day, J. T., Lichtwark, G. A., & Cresswell, A. G. (2013). Tibialis anterior muscle fascicle dynamics adequately represent postural sway during standing balance. *Journal of Applied Physiology*, 115(12), 1742–1750.
- 2017      Day, J.T., Bent, L.R., Birznieks, I., Macefield, V.G., & Cresswell, A.,G. (2017). Muscle spindles in human tibialis anterior encode muscle fascicle length changes, *Journal of Neurophysiology*, 117(4), 1489-1498.

### Manuscripts in Preparation

- 2014      Recovery strategies utilized in response to forward surface translations
- 2014      The role of the tibialis anterior in responding to forward surface translations
- 2013      The effect of whole body vibration on postural sway and the soleus sensorimotor pathway

## CONFERENCE ACTIVITY

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### Invited Presentations

- 2014      The Proprioceptive and Mechanical Role of the Tibialis anterior muscle in Responding to Unexpected Surface Perturbations. 7<sup>th</sup> *World Congress of Biomechanics*, Boston, USA
- 2014      The proprioceptive and mechanical role of the tibialis anterior muscle in maintaining balance. *University of British Columbia* Canada
- 2014      Research Overview: The proprioceptive and mechanical role of the tibialis anterior muscle in maintaining balance. *University of Freiburg* Germany

### Oral Presentations

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| 2014 | Recovery strategies utilized in response to forward surface translations. 9 <sup>th</sup> Australasian Biomechanics Conference, Wollongong, Australia.  |
| 2014 | Determining the Neuromechanical role of the tibialis anterior muscle in maintaining balance. <i>42<sup>nd</sup> Annual SMA Queensland State Conference</i> , Brisbane                                   |
| 2013 | Determining the Neuromechanical role of the tibialis anterior muscle in maintaining balance. <i>The 12<sup>th</sup> Annual Human Movement Studies Postgraduate Conference</i> , Brisbane, Australia.    |
| 2012 | The effect of whole body vibration on the soleus sensorimotor pathway. ISEK 2012: XIX Congress of the International Society of Electrophysiology and Kinesiology, 20-22 July 2012, Brisbane, Australia. |
| 2012 | The effect of whole body vibration on the soleus sensorimotor pathway. UQ HMS Annual Postgraduate Conference, April 11-12, 2012, Brisbane, Australia.   |

### **Poster presentations**

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| 2014 | A pilot study investigation the relationship between tibialis anterior muscle fascicle dynamics and muscle spindle firing patterns. <i>UWS Sensory Neuroscience Symposium</i> , Sydney , Australia. |
| 2012 | Determining the Neuromechanical role of the tibialis anterior muscle in maintaining balance. <i>XXIV Congress of the International Society of Biomechanics</i> , Natal, Brazil                      |

### **RESEARCH GRANTS AND SCHOLARSHIPS**

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| 2014    | UQ Graduate School International Travel Award                                   |
| 2014    | International Society of Biomechanics Matching Dissertation Grant               |
| 2013    | International Society of Biomechanics Student Congress Travel Grant             |
| 2011-14 | UQ Research Scholarship<br>Graduate school, UQ                                  |
| 2009-10 | UQ Summer Research Scholarship program<br>Office of Undergraduate Education, UQ |

2007-10 Commonwealth learning scholarship  
Commonwealth Government of Australia

## **AWARDS AND HONOURS**

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### **Awards**

2014 School of Human Movement Studies, UQ – Tutoring Excellence Award

2013 Sports Medicine Australia Award: Best postgraduate student presentation. 12<sup>th</sup> Annual Human Movement Studies Postgraduate Student Conference, Brisbane, Australia.

2013 Australia and New Zealand Biomechanics Society Award: Best postgraduate student presentation in relation to Biomechanics and Motor Control. 12<sup>th</sup> Annual Human Movement Studies Postgraduate Student Conference, Brisbane, Australia.

2008-10 Dean's Commendation for High Achievement, UQ.

### **Other notable achievements**

2014 UQ Human movement studies postgraduate executive committee member – Equity

2013 Member of UQ Human Movement Studies Postgraduate Conference organizing committee

2011 UQ Human movement studies postgraduate executive committee member – OH&S

## **TEACHING EXPERIENCE**

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### **School of Human Movement Studies, University of Queensland**

2011-14 Biomechanics – tutor and practical coordinator  
Motor control and learning - tutor  
Neuromechanical basis of human movement – tutor and practical coordinator

## **RESEARCH EXPERIENCE**

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2010 Research Assistant volunteer at The School of Human Movement Studies, UQ. Completed and presented study into the effect of Whole Body Vibration on the Hoffman Reflex.

2009            Research Assistant at The School of Human Movement Studies,  
UQ. Completed pilot study into the biomechanical analysis of  
Nordic walking.

## **PROFFESIONAL MEMBERSHIPS**

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2012-15        International Society of Biomechanics  
Australian and New Zealand Society of Biomechanics  
International Society of Electrophysiology and Kinesiology  
Sports Medicine Australia

## **REFEREES**

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Professor Andrew Cresswell  
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