

## PhD Student Gregory Tierney

### MEng

**Research specialisation:** Head kinematics and tackling in Rugby Union.

**Experience:** Bioengineering PhD student from Trinity College Dublin and top of the class Mechanical Engineering MEng graduate scholar from the University of Liverpool, a top 100 world university for Mechanical engineering, with national and international awards for research/design work. Master's level design project titled "An Operational Model of the Human Torso for Use as a Test Bed for Catheterisation Systems" came runner up in the CDIO Academy Cup 2014. Current PhD project was awarded "The Best Early Stage PhD" at the Bioengineering Ireland 2015 conference. I have advanced skills in computer modelling, CAD, programming, image processing and statistical analysis. Experience with a range of softwares and systems including Matlab, Creo, LS-DYNA, Vicon, Wearable Head Impact Sensors, SPSS, Madymo, Sportscode and Adobe Creative Suite.



**Research overview:** Just beginning the third year of my PhD. My project focuses on gaining a greater understanding of the head kinematics that lead to a concussion injury in elite rugby union players and pioneering the hypothesis that certain legal tackles within rugby union can be concussive. What I love about this area is that there is so much more we need to know about concussion and therefore so many diverse areas to explore. As a result of this, I have designed a number of my own studies from concept through to completion stage whilst creating and developing collaborations with industry (Santry Sports Surgery Clinic), universities (University of Virginia and the Norwegian School of Sports Sciences) and rugby union clubs/bodies (Leinster and IRFU). My project has featured in The Irish Times, The Irish News, Engineers Journal and The Irish Examiner. Although I love Rugby Union, I currently play Gaelic football at club level having previously captained my university team. I think my PhD can provide a stepping stone for moving into Gaelic football concussion research.

**Research publications:** 1 peer reviewed journal publication (2 more in review) and 1 conference paper. Although this is currently not much, I intend on having double figure peer reviewed original article journal publications before I complete my PhD in 2018. Example publications:

Tierney, G. J., Lawler, J., Denvir, K., McQuilkin, K., & Simms, C. (2016). Risks associated with significant head impact events in elite rugby union. *Brain Injury*. doi: <http://dx.doi.org/10.1080/02699052.2016.1193630>



**Gregory Tierney (MEng)**  
Centre for Bioengineering,  
Trinity College Dublin, Ireland

**M: + 353 (0) 89 238 1688**  
**E: [gtierne@tcd.ie](mailto:gtierne@tcd.ie)**



**Trinity College Dublin**  
Coláiste na Tríonóide, Baile Átha Cliath  
The University of Dublin