Franky Mulloy

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I primarily teach on the second year Applied Movement Analysis module on the BSc. (Hons) Sport and Exercise Science programme. My principle role on this module is to link principles of human movement (biomechanics) with applied practice to improve sporting performance and in aid of injury prevention / rehabilitation. I also mentor the MSc. Sport and Exercise Science students in applied sport science support, alongside supervision of undergraduate and postgraduate dissertations in biomechanics.

My research ethos is driven by the desire to interlink biomechanical information (termed biofeedback) with the development of complex motor skills. I am a member of the Biofeedback Research Group at the University of Lincoln. Current projects include:

- Longitudinal role of biofeedback toward complex skill development.
- The influence of biofeedback on lower limb coordination.
- Applications of wearable technology to influence trampoline design.
- Influence of foot strike patterns on impacts in marathon running.
- The role of the foot and ankle in running impacts.

Additional Departmental Responsibilities: I chair the School of Sport and Exercise Science's Enterprise Working Group, set up to develop and drive external income generation and collaborations with the department.

Applied Consultancy: Provision of Sport Science support (Biomechanics and S&C) to the University of Lincoln Bursary Athlete's, who compete at regional, national and international level. Run the MoCap Technology Hub, applying motion capture technology to help inform design and manufacture processes with the human-equipment interaction in industry.

Professional Memberships: I am a member of the British Association of Sport and Exercise Science (BASES) and the International Society of Biomechanics in Sports (ISBS).

Topics for the 12th International Teaching Week

1) Biofeedback: What are the Most Effective Methods in Complex Skill Development?

As sport scientists, coaches, and clinicians, we have access to equipment that can accumulate a wealth of information on athletic performance, technical ability and physiological function for each individual. The provision of such information, relating to biological variables, is termed 'biofeedback'. Recent developments in technology have also given access to these large volumes of data live, or in real-time. However, questions still remain as to the most effective methods of using biofeedback to support the development of complex skills, in sport and everyday life. Research in the area of biofeedback has given rise to guidelines and instruction showing the most effective use of this information, with more recent work looking to link this information to sporting movements. This talk will discuss factors that govern the most effective use of biofeedback from research such as when is best to provide feedback, and which delivery methods prove the most successful. This presentation will also seek to consider areas that require further research and linking these themes to everyday skills.

2) Sports Biomechanics: A Whistle Stop Tour Through the Applied World

Biomechanics as a discipline uses mechanical principles from physics and applies these to human (biological) movement. Sports biomechanics is a branch of this discipline that looks to improve human performance in a range of different sporting skills, and also to reduce the risk of injury. Often, applied biomechanical support requires innovative and exciting approaches that are individually focused. This presentation will discuss basic principles of biomechanics and demonstrate these applications through a number of interesting case studies in the applied world. Case studies will include para-athlete support to break world records, analysis of the human-equipment interaction, and the support of internationally competitive athletes.