

## **DEADLINE FOR ABSTRACT SUBMISSION:**

**February 26th 2017**

**Instructions for Submission of Abstracts** Please read all instructions before preparing the abstract. Individuals may submit only one abstract as primary (presenting) author, but may submit unlimited abstracts as a co-author. All abstracts will undergo blind review.

### **Abstract format**

Typed abstracts should be no longer than 500 words and no longer than one A4 page. Abstracts should follow the format of the sample abstract (on the next page) and this abstract can be used as a template by simply editing the text. When using the sample abstract as a template, please do not change font sizes (Calibri 10), margins (2.3 cm), line spacing etc.

The author submitting the abstract should appear as the first named author and will be expected to present the work if it is accepted. Tables/charts may be included in abstracts as long as the abstract is still less than one A4 page. As the conference follows the theme of *“research to practice”* authors are encouraged (if appropriate) to emphasise the possible contribution of their research to practitioners/other researchers.

### **Specific Content Requirements for Quantitative and Qualitative Research** Abstracts must include:

**Title :** Keep the title succinct and reflective of the type of design used by stating e.g. Prospective cohort, randomised control trial, qualitative etc

**Author (s)**

**Institution (s)**

**Introduction:** the purpose of the study, background to study, main aim, research question or hypothesis

**Methods:** experimental methods and materials (what was done, how and when it was done and how long it was done for) and the type(s) of data analysis implemented. Participants: a description of the subjects, number, gender and exclusion criteria.

**Results:** State actual significance values and employ confidence intervals where appropriate. Tables are welcome if they fit within the A4 template.

**Conclusion(s):** Primary conclusions and their practical implications.

**References**

## **Review**

All abstracts will be reviewed by the conference committee who will make recommendations as to the type of presentation preferred (poster or oral); further guidelines for poster and oral specifics will be forwarded post review.

In the submission email, **authors should state their preferences** for the following:

i) The **type of presentation** (oral or poster) and

ii) **Thematic preference** i.e.

- 1) Sports Performance;
- 2) Physical Activity and Physical Education
- 3) Injury Prevention and Rehabilitation

## **Abstract submission**

Abstracts should be submitted by email as a MS Word document to [claire.lodge@itcarlow.ie](mailto:claire.lodge@itcarlow.ie) **by Sunday February 26<sup>th</sup> 2017.**

*Please ensure that your supervisor has reviewed your abstract prior to submission.*

The receipt of your abstract submission will be confirmed by e-mail. You will receive notification of the abstract decision by March 14<sup>th</sup> 2017.

## **The reliability and validity of an eccentric hamstring strength measurement device (The Hamstring Solo Elite).**

**Diarmuid Tobin,<sup>1</sup> Brian O'Rourke, MSc,<sup>1</sup> Conor Gissane, PhD,<sup>2</sup> Kristian Thorborg, PhD,<sup>3,4</sup> Claire Lodge, DPT<sup>1</sup>**

<sup>1</sup>Department of Science and Health, Institute of Technology Carlow; <sup>2</sup>School of Sport, Health and Applied Science, St Mary's University Twickenham; <sup>3</sup>Department of Orthopaedic Surgery, Sports Orthopaedic Research Centre Copenhagen; <sup>4</sup>Physical Medicine and Rehabilitation, Faculty of Health Sciences, Copenhagen University, Denmark.

**Introduction:** The aim of this study was to investigate the reliability and validity of a new eccentric hamstring strength measurement device (the Hamstring Solo Elite (HSE)). The HSE is an instrumented device that monitors eccentric knee flexor strength in each limb whilst the Nordic Hamstring Exercise (NHE) is being performed on it. While the NHE has been supported by the literature as a valid means of developing hamstring strength (Sconce et al., 2015, van der Horst et al., 2015), the ability to obtain live and objective strength measures means that any weakness or imbalance can be immediately identified and addressed. Individual limb feedback allows imbalances caused by limb dominance or injury to be identified and addressed by the trainer or clinician.

**Methods:** To test reliability and validity, 19 subjects were analysed. Peak torque (Nm) and peak force (N) were recorded on two different devices (HSE and Biodex) to determine if acceptable reliability and validity were observed. Subjects first attended a familiarisation session to perform repetitions of eccentric knee flexion on the Biodex System 3 isokinetic device and Nordic Eccentric Lowers on the HSE. The subjects were then randomly separated into two equal groups.

**Table 1.0: Testing protocol for collection of reliability data**

	<b>Session 1</b>	<b>Session 2</b>	<b>Session 3</b>	<b>Session 4</b>
<b>Group 1</b>	Familiarisation	Biodex x5reps	HSEx5reps	HSEx5reps
<b>Group 2</b>	Familiarisation	HSEx5reps	Biodex x5reps	HSE x5reps

**Results:** High test-retest reliability was observed from the HSE, ICC=0.910 (CI .76 to .96) and 0.914 (CI .78 to .96) for left and right peak force respectively. Typical error of measurement (TEM) between trials was calculated to be 14.65N and 17.29N for the left and right limbs respectively. Minimum detectable change (MDC) was also calculated to be 40.62N (MDC%=14.68%) and 39.63N (MDC%=13.31%) for left and right limbs respectively. The inter-device correlation showed good validity, ICC=0.823 (CI .58 to .93) and 0.840 (CI .58 to .93) for left and right peak torque/force respectively.

**Conclusion(s):** The HSE is a reliable and valid device that makes valid assessments of eccentric hamstring strength in individual limbs possible. The incorporation of this device as a daily screening, injury rehabilitation or strengthening device could play a key role in detecting, quantifying and addressing strength related hamstring injury risk factors in patients and athletes alike.

### **References:**

- SCONCE, E., JONES, P., TURNER, E., COMFORT, P. & GRAHAM-SMITH, P. 2015. The Validity of the Nordic Hamstring Lower for a Field-Based Assessment of Eccentric Hamstring Strength. *Journal of Sport Rehabilitation*, 24, 13-20.
- VAN DER HORST, N., SMITS, D. W., PETERSEN, J., GOEDHART, E. A. & BACKX, F. J. G. 2015. The Preventive Effect of the Nordic Hamstring Exercise on Hamstring Injuries in Amateur Soccer Players: A Randomized Controlled Trial. *American Journal of Sports Medicine*, 43, 1316-1323.