

ABSTRACT

Development of a digital gym instructor to improve movement patterns during gym-based exercises for women

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In New Zealand the number of gym and fitness training related injuries dominate over every other sport. In 2020 it was reported they surpassed the number of claims for NZ's national sport, rugby [1]. A recent Accident Compensation Corporation [ACC] report showed an 18% increase in gym injuries in the period between 2015-2020 with the cost of support rising by 43% [2]. An epidemiology analysis of 10 years of ACC injury data found that the exercises which led to the greatest number of injuries were the bench press, deadlift, and shoulder press [3]. The aim of this doctoral research is to trial the feasibility of a digital system to coach technique. We are recruiting 200 female inexperienced gym-users for an initial biomechanics screening using motion capture software to assess participants' technique during bench press, deadlift, and shoulder press resistance exercises conducted using free weights, resistance machines and a TONAL strength training device. A survey assessment will be carried out concurrently to understand the participants' knowledge, attitudes, and behaviours (KAB) towards strength training and injury. Based on the biomechanics screening, 30 participants with poor technique will be identified and invited to participate in a 4-week study to understand the feasibility of a digital system to coach strength training and improve their technique. The knowledge gained in the study will enable education of gym users to prevent further injury via the ACC SportSmart program, with the potential to integrate digital gym instruction by development of a mobile application. In this poster presentation, I will present the findings of my epidemiology analysis and outline the practical aspects of the project, including the biomechanics screening, tools and follow-up study. There will be an opportunity for visitors to the symposium to find out more information about the study and express their interest to participate.

References

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