UNIVERSITY of LIMERICK

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Flexibility and neuromuscular development in adolescents

Background:

Adolescents in the modern world are less active and more overweight than in previous generations, with both of these factors being associated with a range of health complications. This has serious future implications, both for the health of the person themselves and in terms of the societal costs associated with these health complications. Barriers to becoming more active include injury during activity, with adolescents being prone to injury in their teenage years as their flexibility and neuromuscular development may not always be in line with their bony (skeletal) development. This study will investigate flexibility and neuromuscular development, and their relationship to obesity and activity, in a large group of adolescents. The main aims are to;

1. Establish how baseline values for flexibility and neuromuscular development vary according to age, gender, body mass index as well as type and level of activities performed.
2. Examine the effect of a simple programme aimed at enhancing flexibility, neuromuscular control, diet and patterns of physical activity among these adolescents

Testing Procedure:

Adolescents will be tested on four occasions over the course of six months. This will include a baseline test, and retests 1 month, 2 months and 6 months later. Each testing session will involve recording the participant's age, gender, height, weight, energy, sleeping pattern, mood and activity pattern. In addition, body mass index and waist:hip ratio measures will be used to estimate obesity. Flexibility will be calculated using the speedflexer device. Neuromuscular control will be measured using both the Functional Movement Screen and the counter-movement jump.

Flexibility and Neuromuscular Development Programme:

An individualised programme for each participant, which specifically targets any identified deficits in flexibility and neuromuscular development from their testing, will be provided. This programme will be performed independently by each adolescent, with a view to empowering them to take ownership of their own health. This programme will also include simple tips on how to gradually increase physical activity patterns, and advice on dietary habits.

Implications of this Research:

- The manner in which flexibility and neuromuscular development vary at baseline and over the course of the six months will provide much needed information about what constitutes typical development in adolescents.
- The effectiveness of the training programme will be examined in the short-term (one and two month follow-ups) and long-term (six month follow-up), and provide valuable information on how societally important parameters such as obesity and physical inactivity may be influenced by simple, self-managed training programmes.

Regards
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