Exploring the Link:
Countermovement Jump Performance and Attitudes Toward Physical Activity in Physiotherapy Students

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Summary

This study investigates the relationship between countermovement jump (CMJ) performance and physiotherapy (PT) students' attitude toward physical activity (PA). Fifty-five year-one PT students were assessed on their jumping performance with force plates and attitude toward PA with two questionnaires. Results revealed significant correlations between CMJ performance and positive attitudes towards exercise, particularly for female students, while no such correlation was found among male students. Findings indicated that better CMJ performance was associated with a more favourable perception of exercise. This highlights the potential of fostering positive attitudes toward PA in PT education.

Introduction

The CMJ, which measures leg power and explosiveness, is widely used to assess functional ability, establish normative data and identify talents. Furthermore, active individuals exhibit better CMJ performance than sedentary individuals. With half of adults in Hong Kong not meeting the PA guidelines from the World Health Organization, future physiotherapists must be the role model, physically and affectively, that catalyze favourable attitudes toward PA to their clients.

Physiotherapists play a pivotal role in promoting PA, which prevents and treats non-communicable diseases including heart disease, type 2 diabetes and dementia among others. To promote PA effectively and efficiently, PT students should cultivate a positive attitude toward PA. This study explores the relationship between PT students' CMJ performance and attitudes toward PA, measured by i) Exercise Benefits/Barriers Scale (EBBS) with perceived benefits and barriers; and ii) Attitudes of PT Students Toward Role-Modeling PA.

Methods

Fifty-five healthy year-one PT students attended a single session in the PT laboratory which is incorporated as part of their course. All students were assessed using the two questionnaires and the CMJ performance. A standardized warm-up was performed before performing the CMJ trials which was assessed with two 0.6 x 0.4-m Bertec force plates (Bertec Corporation, Columbus, OH) with a sampling frequency of 1000Hz. Each student was instructed to start the CMJ in the standing position, dropped into the squat position, and jump immediately as high as possible for three trials.

Results and Discussion

The sample consisted of 35 males and 20 females (mean age=20.7 and 21.0 years respectively) who were year-one PT students. The data revealed a clear significant correlation for female but not for male students between CMJ performance and the two questionnaires (table 1).

Table 1: Pearson's analysis for female students (n = 20).

	EBBS (Benefits Score)	Attitudes of PT students toward role-modeling PA
Peak force	r=0.567; p=0.009	r=0.529; p=0.017
Max rate of force development	r=0.513; p=0.021	r=0.509; p=0.022
Peak braking force	r=0.574; p=0.008	r=0.568; p=0.009
Average braking force	r=0.607; p=0.005	r=0.566; p=0.009
Peak propulsive force	r=0.567; p=0.009	r=0.529; p=0.017
Ground reaction force z braking phase	r=0.574; p=0.005	r=0.565; p=0.009
Ground reaction force z propulsive phase	r=0.531; p=0.008	r=0.540; p=0.014
Ground reaction force z post-stabilization phase	r=0.581; p=0.016	r=0.464; p=0.039

For the EBBS, the correlations were only found with the 'benefits' score and not the 'barriers' or 'total' score. From the results, the more positive PT students are in their attitude towards PA and the perception of exercise, the more favourable they are on the utilization of force when performing the CMJ. However, this relationship was not observed in male students. The results offer insight into the interplay between functional (CMJ) and affective (attitudes) aspects of PA. However, this pattern was only revealed in females which suggests a more complex interaction on the components of PA may exist in males.

Conclusions

There is a significant relationship between CMJ performance and positive attitudes toward PA, particularly in female year-one PT students. This reinforces the importance of a holistic approach and the potential importance of integrating attitude components into PT education. Future research should explore if a positive attitude to PA correlates with other physical fitness parameters and the underlying factors contributing to the observed gender differences in the relationship.