Navigating exercise programme for promoting an exercise habit of diabetic patients in a primary healthcare setting

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Background and purpose: In Hong Kong, diabetic mellitus (DM) is one of the major noncommunicable diseases. A healthy life style, which includes regular exercise, is a pivotal element in DM management. However, helping patients to establish a regular exercise habit in terms of ensuring exercise compliance is a real challenge to the medical professional. A physiotherapist has an important role in fostering patients to develop a regular exercise habit. A navigating self-weight management exercise programme using telephone-coupling with encouragement by exercise coaching has progressively been commenced in the NTWC since June 2011 to facilitate DM patients to adopt behavioural changes in their sedentary life style. Such a navigating programme is implemented to identify the risk of the DM patients and establish a regular self-exercise habit for a good control of DM risk factors. The objectives of this programme were as follows: (1) to empower DM patients to establish an exercise habit and (2) to facilitate DM control through a self-exercise programme.

Methods: Type II DM patients with a body mass index (BMI) of over 27.5 were recruited. This programme with two training sessions and a 6-month telephone follow-up was launched from June 2011 to December 2012. The contents included individual consultation, physical assessment, risk identification, goal setting, education talk, and exercise skill training. In addition, the regular telephone coupling helped the patients go through the stages (from the preparation stage to the maintenance stage) of their behavioural changes. The clinical outcomes were collected at baseline, and 6 months and 12 months after the programme. The exercise habit was evaluated by Short-International Physical Activity Questionnaire (IPAQ). The effect of weight management was monitored by BMI, whereas the DM control was evaluated by the change of glycated haemoglobin (HbA1c), which was retrieved from the clinical management system. A pre- and a post-quiz were conducted for checking the exercise knowledge of participants. A patient satisfaction survey was conducted to collect the patients’ feedback. Among 1782 articles screened, 10 articles (9 studies) totalling 341 participants satisfied the selection criteria and were included in this review. Eight of these studies were RCTs, whereas one was a quasi-experimental study. Methodological quality was "excellent" for one RCT (PEDro score: 9–10), "good" for five (score: 6–8), and "fair" for two (score: 4–5). Three studies (two RCTs) examined the effects of a single session of WBV. Five RCTs examined the effects of a WBV programme spanning 3–12 weeks. No consistent benefits on bone turnover, leg muscle strength, functional mobility, balance, activities of daily living, and societal participation were found. No serious adverse event was reported.

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Conclusion: This systematic review showed that research on WBV in stroke patients is relatively scarce. Available evidence does not support the use of WBV in enhancing body function, activity, and participation after stroke. More good-quality WBV trials are required to investigate further the therapeutic value of WBV in stroke patients.

Transmission of vertical whole-body vibration with different frequencies and postures in healthy young adults

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Background and purpose: Whole-body vibration (WBV) could be a viable and inexpensive alternative for enhancing physical functioning. The transmissibility of WBV signals is known to be affected by vibration frequency, amplitude, and posture assumed on the platform. Studies investigating the transmissibility of WBV with a combination of varying vibration frequencies and postures have been lacking. The aim of this study was to investigate the effect of vibration frequencies and postures on the transmissibility of WBV.

Methods: Fifteen healthy young adults (8 men and 7 women, mean age 30.1 ± 4.4 years) participated in this study. Participants were asked to assume six different postures (erect standing, semisquat, deep squat, tip-toeing, forward lunge, and single-leg standing) under different vibration conditions (amplitude: 1 mm; frequency: 20 Hz, 30 Hz, or 40 Hz). Triaxial accelerometers were attached to the participants’ ankle (medial malleolus), knee (tibial tuberosity), hip (greater trochanter), lumbar spine segment (L3), and forehead to record the accelerations of the WBV signals at the respective body parts. Transmissibility of WBV at each anatomical site was then calculated by dividing the acceleration at the specific body part by the acceleration measured at the platform. For each body part, the main effects of posture and frequency on transmissibility and their interactions were...