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Background and purpose: This study aims to quantify cardiovascular measures of exercise intensity while playing the Nintendo® WiiTM Sports Boxing and Tennis on normal sedentary individuals ages 18 − 25 to provide a basis for exercise prescription. It also aims to compare the cardiovascular responses of playing the Nintendo® WiiTM Sports Boxing and Tennis.
Methods: Thirty four (34) participants were recruited and randomly allocated to two groups: the Boxing Group and the Tennis Group respectively. Participants underwent a thirty-minute (30 min) gaming session of each of the sport. The outcome measures, which included heart rate (HR), systolic blood pressure (SBP), diastolic blood pressure (DBP), and Borg's Rate of Perceived Exertion (RPE) were obtained before, during, and after the exercise session.
Results: Only 30% of the participants reached the American College of Sports Medicine's (ACSM) recommended target HR after 15 minutes of exercise and none reached the target HR as computed by the Karvonen's Formula. 67% reached the ACSM's target HR recommendation and only 6% reached the Karvonen's Formula computed target HR after 30 minutes of play. Comparing all outcome measures between baseline, after 15 minutes, and after 30 minutes of WiiTM increased significantly except for DBP after minutes. This study found no evidence of statistically significant differences between boxing and tennis on all outcome measures, except for RPE which showed higher ratings for boxing.
Conclusion: Playing WiiTM Sports Boxing and Tennis may be regarded as moderate intensity exercises based on prescribed target HR measurements by the ACSM. Thirty minutes playing time is preferred more than 15 minutes in order to achieve aerobic effects.

Dietary habit and bone health in community-dwelling individuals with stroke

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Background and purpose: Stroke patients have more compromised bone health and higher fall rate than the age-matched reference population. This explains why fragility fracture is common among stroke survivors. Bone fractures post-stroke is associated with increased morbidity, length of hospital stay, and mortality rate. Previous studies have shown that dietary habit has important influence on bone health in other populations. The aim of the study was to investigate the association between dietary habits and hip bone mineral density (BMD) in community-dwelling individuals with stroke.
Methods: This was a cross-sectional exploratory study. Usual dietary intake was assessed by a 3-day dietary survey for 95 community-dwelling individuals with chronic stroke (onset of stroke 6 months or more) and 59 age-matched healthy individuals. Independent t-test was used to compare the difference in nutritional intake among stroke and control group. For stroke individuals, hip BMD (g/cm^2) was measured by Dual-energy X-ray absorptiometry (DXA). The BMD value of each individual was compared with the mean value of the gender-matched young population (20-29 years old) provided by the DXA system and a T-score was generated. A T-score of -1 indicates that the BMD value is 1 standard deviation below the mean value of the reference population. All nutritional assessments were done by a physiotherapist, whereas the DXA assessments were performed by an experienced technician. Multiple regression were used to identify the significant nutrition factors in determinant for hip T-score with consideration of the relevant factors [age, gender, BMI, physical activity level (Physical Activity Scale for the Elderly questionnaire), post-stroke duration, motor impairment (Chedoke McMaster Stroke Assessment) and six minutes walk test]. The reliability and validity of these measurements are well established.
Results: The stroke and control groups showed no significant difference in age, gender proportion, and other demographic variables. In the stroke group, the mean T-score of the affected side and non-affected side was -1.5 and -1.04, respectively. The number of people with osteoporosis (T-score $\leq$-2.5) on the paretic side (n=17) nearly doubled that on the non-paretic side (n=9). Independent t-test showed that there were significant differences in total calories intake, and consumption of carbohydrate (p=0.016), total fat (p<0.001), vitamin C (p=0.015), magnesium (p=0.042), phosphorus (p=0.043), sodium (p=0.025) and fiber (p= 0.003) between the stroke and control groups. Multiple regression analyses revealed that fiber, protein and magnesium were the significantly associated with hip T-score on the affected side, after accounting for the

effects of age, BMI, physical activity level, post-stroke duration, motor impairment, and six minute walk distance, accounting for 4.1%, 4.3%, and 3.1% of the variance respectively. The regression models explained a total of 32-37% of the variance in hip T-score on the affected side. On the unaffected side, intake of fiber was significantly associated with hip T-score and account for 5.1% of the variance after adjusting for the effects of relevant factors. The regression model accounted for a total of 41.8% of the variance in hip T-score on the unaffected side.
Conclusion: Certain nutritional factors such as fiber, protein and magnesium are independently associated with hip bone health in stroke survivors. Diet modification to promote bone health may be an important component for stroke care but is efficacy in improving BMD will require further investigations.

Influence of sport type and skill level on visual imagery perspectives of young athletes

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Background and purpose: Motor imagery can be divided into visual (or called visuo-motor) imagery and kinesthetic imagery. Visual imagery involves visualization of a movement from a first- (internal) or third-person (external) perspective. This study investigated how skill level and sport types would influence internal visual imagery ability of young athletes.
Methods: Seventy-two young athletes specialized in open (n=45) or closed (n=27) sports and with high (n=36) or low (n=36) skill levels completed an internal visual imagery (IVI) task. Two-way ANCOVA with years of experience as covariant was conducted for data analysis.
Results: No significant interaction effects ($F(1,67)$=0.18, p>0.050) of skill level and type of sport was found in the IVI task. Participants of higher skill level performed better than those of lower level ($F(1,67)$=12.64, p=0.001); participants in open sports had higher accuracy than those in close sports ($F(1,67)$=5.70, p=0.020). The covariate of Years of Experience was not statistically significant ($F(1,67)$=.51, p>0.050).
Conclusion: The findings further substantiate the differentiation of internal visual imagery between different levels of skill and types of sport. The internal perspective would be more involved in open sport training and competing. Internal visual imagery appears to associate with increase in levels of skills. The causal relationships between internal visual imagery ability and intensity of gain in practice call for future study.

Relationships between physical activity and pulmonary functions in Parkinson's disease

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Background: The purpose of this study was to investigate the relationships between the pulmonary functions and the physical activities in Parkinson's disease (PD) patients.
Methods: Twenty-nine PD patients (70$\pm$7 years old) and 10 healthy volunteer participated in this study. The following parameters were assessed for each patient: sex, age, height, weight, body mass index (BMI), grip strength and for PD patients: interval from onset to admission, interval from diagnosis to admission, serum albumin level, and length of hospital stay. The pulmonary functions were evaluated FC, FEV1, FEV1/FVC, MMF and PEF using a spirometer. The score for each physical activity of daily living was evaluated using the functional independence measure (FIM).
Results: MMF and PEF in the PD patients were statistically significantly lower than in the healthy people. The degree of severity of PD in pulmonary function was significantly reduced. Significant correlations were also found between pulmonary functions parameters and FIM. Impairment of pulmonary function was detected in 9 patients (31%). Restrictive defect and obstructive defect were observed in 4 patients (14%) respectively; combined defect was observed in 1 patient (3%).
Conclusion: These results suggest that the pulmonary functions are closely related to the physical activity in PD patients.