The Influence Of Health Qigong Exercise On Respiratory Function And Energy Metabolism Of Undergraduates

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Health Qigong, a Chinese traditional sport, regulates mental power, body, and respiration. Previous studies on the effect of Health Qigong exercise on respiratory function demonstrated decreased respiratory frequency. Energy metabolism can be affected by changes in respiratory frequency. However, there was no evidence confirming the relationship between respiratory frequency and energy metabolism in Health Qigong.

PURPOSE: To investigate the influence of Health Qigong exercise on physiological mechanism by studying the relationship between Health Qigong and respiratory frequency and energy metabolism.

METHODS: Thirty-two undergraduates were randomly divided into experimental group and control group. The experimental group (n=21.8±1.59 yrs) had practiced Ba Duan Jin thrice a week and the control group (n=21.06±1.43 yrs) had not accepted the intervention. Three months later, the respiratory frequency and energy metabolism of all the subjects were measured by K4b2 in three phases:
- Quiet Phase: Tested the respiratory frequency and energy metabolism for 30 minutes at normal state
- Intervention Phase: Tested the changed Indexes of experimental group during an imagining exercise of Ba Duan Jin and control group under controlled respiratory conditions, as far as 8-10 beats/min for 30 minutes
- Recovery Phase: Tested the changed Indexes during recovery period for 30 minutes. The respiratory frequency and energy metabolism comparisons were made using 2x3 mixed ANOVA with groups (SD, C) x Phase (three phases) with repeated measures.

RESULTS: The respiratory frequency of two groups were similar in Intervention Phase (F = 0.010, P = 0.921>0.05). The respiratory frequency was the lowest. The energy metabolism of the experimental group decreased by 16.35% and 10.93%, respectively in Phase2 and Phase3; whereas, the energy metabolism of the control group increased by 13.37% and 4.77%, respectively in both phases.

CONCLUSION: Overall the results suggest that Health Qigong exercise could decrease energy metabolism by body regulation, respiratory regulation, and mental regulation. Mental regulation is the main reason for the change, while simple respiratory frequency control could not decrease the energy metabolism. Lower energy metabolism can reduce entropy increment and improve the degree of the body’s ordering.

Physical Activity Levels and Obesity Status of Oregon Rural Elementary School Children

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Increasing physical activity during the school day has been proposed as one of the best options for accelerating progress in obesity prevention. In rural environments where access to before and after school programs, and active transportation efforts are limited by long bus commutes, the 6.5 hour school day may present the only opportunity for many children to meet the 60 minute recommended daily minimum of moderate and vigorous physical activity (MVPA).

PURPOSE: Our aim was to determine the relationship between school-day physical activity (PA) and body mass index (BMI) among rural elementary aged children.

METHODS: We measured height, weight, and PA on 1535 children enrolled in six rural Oregon elementary schools in fall, 2013. PA accrued during the school week was measured over four consecutive days using Walk4Life pedometers. Single day averages were calculated for wear time, steps, total activity (TA; combined light, moderate, vigorous PA), and moderate to vigorous activity (MVPA; step count > 120/min) using four consecutive days using Walk4Life pedometers. Single day averages were calculated and regression models were run to examine the relationships between PA variables and BMI z-scores, adjusting for wear time, gender, and grade.

RESULTS: The prevalence of overweight (38.5%) and obesity (19.7%) was similar for boys (n=814) and girls (n=721). More MVPA was associated with lower BMI (p<0.001), independent of gender, wear time or grade. Mean MVPA time was 18.8 (8) versus 15.3 (6.8) minutes for healthy-weight and obese children respectively. Mean data suggest no children met the minimum daily PA recommendations while at school.

CONCLUSIONS: Efforts to promote PA as a strategy for obesity prevention in rural elementary school settings should focus on increasing opportunities for MVPA.

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Effect of Anthropometric Variable Changes during a High School Wrestling Season on Brachial Plexus Neuropathy

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Episodes of brachial plexus neuropathies (BPN) are common in wrestling. When evaluating etiology, it is queried whether anthropometric variable changes during the season may be at fault, especially in high school wrestlers. Throughout the competitive wrestling season, changes in neck muscle strength and ROM may be evident. However, with limited research, it is unknown how these changes may affect occurrence of BPN.

PURPOSE: To determine the incidence of BPN based on changes in head-neck length, neck girth, neck muscle strength, and neck ROM over the course of a wrestling season.

METHODS: Twelve high school wrestlers (16.0±2.0 yrs) in grades 9-12 and representing 12 weight classes (113-285) completed the study. The subjects were tested three times throughout the 15-week wrestling season (pre, mid, and post-season). Pre and post-season testing consisted of head-neck length (spinoval process of 7th cervical vertebrae to top of head) and neck muscle girth measurements (circumference of neck above thyroid cartilage). Manual muscle testing with a hand held dynamometer and cervical range of motion (CROM) with a CROM device were evaluated pre. mid and post testing. Neck strength and neck ROM testing consisted of forward flexion, extension, right and left lateral flexion, and right and left rotation. Occurrence of BPN episodes were documented throughout the season.