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Influence of Physical Activity on Stress Tolerance in College Students

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College years are one of the most stressful periods of a person's life (Hales, 2009). Millennial college students are unique, including the manner in which they handle stressors. While physical activity plays a role in perceived stress level of college students, there is need to examine physical activity in relation to the construct of stress tolerance. Variance in ability to handle stress can be attributed to stress tolerance (Welle & Graf, 2011). The purpose of this study was to identify types of physical activity (PA) significantly related to high stress tolerance among college students. An epidemiological cross-sectional study of randomly selected college students (N=973) completed the Stress Tolerance Questionnaire (STQ) comprised of checklists for stressors, coping strategies and physical activity. Stress tolerance ratios (STRs) were calculated, and subjects divided into high or low stress tolerance groups. Statistical differences were determined by Chi-Square and Odds Ratio (95%CI). Fourteen coping factors (out of 29) were significantly associated with high stress tolerance (HST); six were protective factors while the other eight put one at risk for low stress tolerance (p<0.05). Out of four types of PA studied, vigorous exercise, stretching, and resistance training were found to be significantly associated with HST (p<0.05); however, moderate exercise was not. Most coping mechanisms employed by college students are ineffective for alleviating stress and actually put these students at risk for low stress tolerance. In order for college students to guard against stress, physical activity needs to be promoted more within the college environment.

### Results

#### Data Analysis:
- Stress tolerance ratios (STRs) were calculated and subjects were divided into high or low stress tolerance groups.
- Significant differences between Low and High Stress Tolerance groups by coping mechanisms and physical activity levels were assessed using Chi-Square analysis and Odds Ratio (95%CI).

#### Findings:
- Data from 973 college students were used to examine the influence of physical activity on stress tolerance.
- Significant (p<0.05) differences were observed between Low and High Stress Tolerance groups.
- Of the 31 coping mechanisms assessed, 14 were significant (p<0.05) and protective factors.

### Conclusion/Recommendations

Of the 31 coping mechanisms assessed, 14 were significant (p<0.05). Six of the 31 mechanisms were significant protective factors (p<0.05). Eleven factors placed a student at risk for low stress tolerance, of which eight were significant (p<0.05).

Out of the four different types of physical activity, vigorous exercise (p<0.01), stretching (p<0.05) and resistance training (p<0.001) were found to be significantly associated with high stress tolerance. Moderate exercise was not found to be associated with high stress tolerance. The finding that moderate physical activity did not equate to a higher stress tolerance is remarkable.

Interestingly, four out of the six significant protective factors were activity based: exercised, engaged in leisure activity, engaged in extra-curricular sports. Encouraging students to get active and remain active can buffer students against the ill effects of stress. Students with high stress tolerance protect themselves by being active.

In order for college students to be able to effectively cope, physical activity needs to be promoted more within the college environment.