

2552 Board #13 May 29 9:30 AM - 11:00 AM

**Relationships Among Motivation Type, Academic Achievement, And College Athlete Status**

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Motivations to attend college differ between college athletes and non-athletes. Previous literature indicates a relationship between motivation type and college student GPA. However, the role of athlete status in this relationship has not been explored.

**PURPOSE:** To evaluate the differences in GPA 1) between student-athletes and non-athletes and 2) among motivation types to attend college. In addition, this study aimed to 3) investigate motivation to attend college as a moderating variable in the relationship between student-athlete status and GPA.

**METHODS:** Participants were recruited through a health-related college and athletic program at a NCAA Division II Liberal Arts College in the Midwest and were asked to complete an online survey (n=209). Multiple demographic variables were assessed. In addition, students were asked to report athlete status (current athlete, yes/no), college cumulative GPA (4.0 scale), and to complete a modified version of the American Motivation Scale College Version (AMS-C). A primary motivation type was identified based on the AMS-C results. Motivation types with small sample sizes were combined together. Means, standard deviations, and percentages were calculated for all variables of interest. Independent samples t-test, ANOVA and ANCOVA were used to assess purposes 1, 2, and 3, respectively.

**RESULTS:** The majority of students were freshmen (33.5%), female (75.1%), and white (90.4%). On average, students reported a college cumulative GPA of 3.42±0.43. Most students identified as extrinsically motivated (82%), 6% identified as intrinsically motivated, 12% identified as both, and no participants identified as amotivated. No differences were found in GPA between athletes (3.43±0.42) and non-athletes (3.41±0.44), p=0.70. No differences were found in GPA among motivation types, p=0.751. The interaction between motivation type and athlete status did not significantly relate to GPA (p=0.447).

**CONCLUSION:** Athlete status and motivation type do not relate to self-reported college student GPA. Future research should investigate these relationships in a more heterogeneous sample. Further, it is important to continue to investigate extrinsic motivation in college students and its influence on academic success.

2553 Board #14 May 29 9:30 AM - 11:00 AM

**Relationship Between Physical Activity Intensity And Bone Mineral Density In Premenopausal Women**

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Osteoporosis has become a global health problem. Mechanical loading during physical activity (PA) and exercise increases and maintains bone mass and strength. Quantitative PA measures are needed to identify the functional loading intensity that is beneficial for bone health.

**PURPOSE:** This study aimed to examine the relationship between PA intensity and bone mineral density (BMD) at the femur and spine in premenopausal women.

**METHODS:** The data from 2005–2006 National Health and Nutrition Examination Survey (NHANES) were used for this study. PA was assessed using ActiGraph accelerometers, and bone health metrics were measured through dual-energy X-ray absorptiometry. After removing all missing values, 1446 female participants (Age: 47.61 ± 5.39 yr., Height: 162.01 ± 6.30 cm, Weight: 74.60 ± 16.80 kg, BMI: 28.45 ± 6.30 kg/m<sup>2</sup>) remained. PA intensity is translated from accelerometer counts per minute (cnts/min) using the thresholds in previous calibration studies, e.g.: Light intensity activity = 100–1951 cnts/min, Moderate–vigorous intensity = 1952–5724 cnts/min, and Vigorous intensity > 5724 cnts/min. The bone health metrics were the BMD of femur neck, trochanter, total femur, and total spine. The correlations between PA intensity with bone health metrics were computed.

**RESULTS:** The means and standard deviations of Light intensity = 537.79 ± 85.59 (cnts/min), Moderate–vigorous intensity = 2694.48 ± 340.54 (cnts/min), and Vigorous intensity = 7120.53 ± 1721.06 (cnts/min). A low correlation between overall PA intensity and total BMD (r = 0.01) was found. Correlations between different PA intensities and BMD are summarized below:

Bone Mineral Density	Light Intensity	Moderate–vigorous Intensity	Vigorous Intensity
Femur neck	0.06	-0.07	0.02
Trochanter	0.10	-0.01	0.03
Total femur	0.09	-0.03	0.01
Total spine	0.03	-0.02	-0.09

**CONCLUSION:** Although low correlation was found between PA intensity and BMD, only no or low correlation was found between BMD and a specific PA intensity. Lack of variabilities within a specific PA intensity may be the reason. More studies are needed to understand the relationship between PA intensity and bone health.

2554 Board #15 May 29 9:30 AM - 11:00 AM

**Pre-performance Motivational Music Enhances Force Output Parameters In Healthy Adults**

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Music is integral to sport, and is commonly heard during intervals between play, such as a timeout in basketball or as a baseball batter approaches the plate. When competition resumes, music is typically ceased owing to potential distraction. The ergogenic effect of music during physical performance is well established; the effect of listening prior to activity is not.

**PURPOSE:** To test the effect of pre-participation music on force output.

**METHODS:** 23 recreationally active adults (7 men, 16 women) between the ages of 18-50 with no history of lower leg injury completed dominant leg flexion and extension using a Cybex HUMAC NORM dynamometer. After a standardized familiarization protocol, subjects completed 3 trials separated by 3 minutes. The experimental conditions were: 1) no preparational music, 2) researcher-selected music, and 3) participant-selected music. The order of trials was randomized and listening conditions were constant: headphones were worn during the silent trial, and volume and duration were identical during music trials. Peak torque (PT) and time to achieve peak torque (TPT) were recorded. Mixed ANOVA with repeated measures tested the difference between preparational music conditions.

**RESULTS:** Subjects were 26.7 ± 8.4 years old. Across all trials, PT was 86.0 ± 36.6 ft-lb for extension and 50.5 ± 21.7 ft-lb for flexion; TPT was 1.2 ± 0.7 sec for extension and 0.9 ± 0.6 sec for flexion. Repeated measures ANOVA with a Greenhouse-Geisser correction found a PT difference in the trials for flexion (F=5.077; p=0.016) and extension (F=4.020; p=0.036). In both movements, the highest PT was achieved with participant-selected music and the lowest during the non-music trial. For flexion, post hoc tests using the Bonferroni correction revealed participant-selected music to have significantly higher PT than the non-music trial (p=0.043) and a weak trend for higher PT than the administrator-collected trial (p=0.099). These relationships were less significant in extension. Although the same patterns were reflected in TPT, the differences failed to reach significance for flexion (p=0.125) and extension (p=0.420).

**CONCLUSIONS:** These findings support the ergogenic effect of pre-participation music on post-listening performance, and the importance of administrator selection.