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Pain Relief in Older Adults Following Static Contractions is not Task-Dependent

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D-26 Free Communication/Poster - Pain

MAY 31, 2012 1:00 PM - 6:00 PM
ROOM: Exhibit Hall

2495 *Board #170* **MAY 31 3:30 PM - 5:00 PM**

Physical Activity is Related to Pain Sensitivity in Healthy Women

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(No relationships reported)

There are many benefits associated with meeting current physical activity recommendations. At present, it is unknown whether a reduced sensitivity to pain is included among these benefits.

PURPOSE: To assess the relationship between pain sensitivity and physical activity and sedentary behaviors in a sample of healthy women.

METHODS: Self-reported and accelerometer measures of physical activity and sedentary behavior were collected and compared with pain intensity and unpleasantness ratings to noxious thermal stimuli in a sample of twenty-one healthy women (age 30.0 ± 5.8). Based on accelerometer data, participants were classified into two groups: meets recommendations (n=12) and insufficiently active (n=9). Independent samples t-tests were conducted to compare pain ratings and physical activity behaviors between groups and correlation coefficients (Spearman's ρ) were calculated between average minutes per day spent in moderate, vigorous, and sedentary behaviors and average intensity and unpleasantness ratings.

RESULTS: Participants who met physical activity recommendations had significantly lower unpleasantness ratings than their insufficiently active peers. Correlational analyses demonstrated a significant relationship between minutes spent in vigorous physical activity and both pain intensity and pain unpleasantness ratings. Relationships were not significant for moderate activity or sedentary behavior.

CONCLUSIONS: These results provide preliminary evidence that meeting current physical activity recommendations may be beneficial for pain in women. Moreover, participation in vigorous activity appears to account for the decreased pain sensitivity. In our sample, sedentary behavior did not appear to have a deleterious effect on pain. Results from this study have a number of potential applications including aiding our understanding of why exercise functions as a treatment for those with chronic pain conditions, and providing a rationale for including physical activity assessment in pain research.

2496 *Board #171* **MAY 31 3:30 PM - 5:00 PM**

Pain Relief in Older Adults Following Static Contractions is Not Task-Dependent

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(No relationships reported)

Pain complaints increase with age. Exercise is frequently utilized for pain relief but the optimal exercise prescription to relieve pain is not clear. Following static contractions, young adults experience the greatest pain relief with low intensity, long duration contractions. The pain response to static contractions in older adults however is unknown.

PURPOSE: To compare pain reports in healthy older adults before and after static contractions of varying intensity and duration.

METHODS: Pain perception was assessed in 23 healthy older adults (11 men, 12 women; 72.0 ± 6.3 yrs) using a pressure pain device consisting of a 10 N force applied to the right index finger through a Lucite edge (8 x 1.5mm) for two minutes. Subjects pushed a timing device when they first felt pain (i.e., pain threshold) and rated their pain intensity every 20 seconds using a 0-10 numerical rating scale. Pain threshold and pain ratings were measured before and immediately after static contractions of the left elbow flexors at the following three doses: 1) three brief maximal voluntary contractions (MVC); 2) 25% MVC sustained for 2 minutes; and 3) 25% MVC sustained until task failure. Experimental sessions were randomized and separated by one week.

RESULTS: Time to task failure for the 25% MVC contraction was 11.8 ± 5.1 minutes. A reduction in pain was found following all three tasks with no difference between tasks (trial x task effect: $p > 0.05$), despite the duration of the 2 minute low-intensity contraction being ~17% of the contraction held to task failure. Pain thresholds for all doses increased 20% from 51 ± 33 to 61 ± 37 seconds and pain ratings averaged over the six time points decreased 20% from 3.3 ± 2.8 to 2.6 ± 2.5 following static contractions (trial effect: $p < 0.001$ and $p < 0.001$, respectively).

CONCLUSION: Low and high intensity static contractions of both long and short duration produce similar levels of pain reduction in older adults. These preliminary data suggest that several different types of static contractions can induce significant pain relief in older adults. Age-related changes in the pain response to static contractions must be taken into account when prescribing static exercise for the management of pain.

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Robustness of Pain Catastrophizing Scores During Isokinetic Testing of Anterior Cruciate Ligament Deficient Patients

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(No relationships reported)

Measurements of isokinetic knee musculature strength and pain catastrophizing behavior prior to Anterior Cruciate Ligament (ACL) reconstruction may serve as a baseline to which post-operative patient status may be compared. To attain maximal voluntary contractions during isokinetic testing, clinicians routinely employ various patient targeted psychological interventions with the purpose of enhancing motivation as well as reducing apprehension. However, these regular clinical practices may also influence immediate pain catastrophizing behavior, and hence confound baseline measurements of this psychological construct.

PURPOSE: To assess the robustness of pain catastrophizing scores obtained during knee strength testing of unilateral ACL deficient patients.

METHODS: 12 men (26±4 yrs) and 10 women (25±5 yrs) with unilateral ACL deficiency performed bilateral isokinetic knee musculature strength testing. The healthy knee was tested first, and testing of each leg encompassed 2 sets of 6 concentric extension-flexion repetitions at angular velocities of 60°sec-1 and 180°sec-1. During the warm-up phase and during testing, the examiner attempted to increase confidence and reduce possible fear of pain, or injury aggravation by providing targeted verbal and visual feedback on performance. Pain catastrophizing scores were obtained using the pain catastrophizing scale questionnaire prior to testing, between testing of the healthy and injured leg, and at completion of all efforts. Differences in pain catastrophizing scores within the testing session were assessed using one-way ANOVA with repeated measures.

RESULTS: Omnibus test results indicate nonsignificant statistical differences in pain catastrophizing scores as a function of questionnaire administration occurrence (mean pain catastrophizing scores 12.5, 11.9, and 11.2 for pre, mid, and post test occasions, respectively, $p = 0.26$).

CONCLUSION: The construct of pain catastrophizing was not affected by psychological interventions regularly employed during muscle strength testing. From a practical perspective, the pain catastrophizing scale questionnaire can be administered at a time of convenience during pre-operative isokinetic testing in this specific patient population.

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Biopsychosocial Factors Influencing Physical Activity Participation Among People With Chronic Pain

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(No relationships reported)

While it is known that a range of biological, psychological and sociological factors such as pain, perceived stress and exercise self-efficacy are associated with physical activity participation among people with chronic pain (CP), little is understood about the relationships among these variables and how they might impact physical activity participation in younger versus older adults with CP.

PURPOSE: To explore the relationships between pain, stress, exercise self-efficacy and physical activity participation among people with CP, and to examine the differences between older adults (50 years and older), and younger adults (under 50 years) in terms of the study variables.

METHODS: Self-administered surveys were collected from adults ranging in age from 19-79 years (N = 99). The Brief Pain Inventory (Cleeland & Ryan, 1994), Perceived Stress Scale (Cohen, Kamarck, & Mermelstein,1983), Baecke Questionnaire of Physical Activity (Baecke, Burema, Fritjers, 1982), and Exercise Self-Efficacy Scale (McAuley, 1993) were used to examine the relationships among pain (pain severity and pain interference), stress, physical activity (PA) participation (Sport PA, Work PA, and Leisure PA), and exercise self-efficacy. Hierarchical regression, mediation analyses, and independent t-tests were used to test the hypothesis that greater stress prompts people to be more physically active because it helps them to cope with stress, and that those who are more physically active experience less pain.

RESULTS: Pain interference was more significantly associated with Sport PA, stress, and exercise self-efficacy than pain severity. Mediation analyses confirmed the buffer effect of physical activity participation on the association between stress and pain among the oldest adults (i.e. 70+ years). More active participants versus less active participants reported lower pain severity, lower pain interference, and higher levels of exercise self-efficacy.

CONCLUSION: An individual's perception of the way pain interferes with their life and activities (e.g. mood, exercise, social relations, and work) is associated with their level of physical activity. People with CP, especially older adults, may reduce stress and pain in their lives by being more physically active.