Phantom Limb Pain and Pain Interference in adults with lower extremity amputation: The moderating effect of age.

- The researchers conducted the study to determine whether the relationship between phantom limb pain severity and pain-related interference was moderated by age and to compare 2 theoretical perspectives to account for age-related differences in the experience of chronic pain. The study had 2 objectives. Objective 1 was to determine whether the relationship between pain and the pain interference was moderated by age and objective 2 was to evaluate and compare two theoretical approaches that have been used to account for this moderation by comparing the unique incremental variance associated with time since amputation with that associated with chronological age. Participants were asked to rate pain interference on an 11-point numeric scale ranging from 0 (does not interfere) to 10 (completely interferes). This BPI scale assesses the degree to which pain interferes with seven activities of daily living, including general activity, mood, household work, getting around, sleep, enjoyment of life, and relationships with other people. For this study three additional items measuring pain interference with self-care, recreational activities, and social activities were added.

- Participants in the study were recruited from several sources, a pool of individuals who had undergone a lower limb amputation at one of two Seattle or one Spokane area hospitals. Other recruitment sources included flyers posted in area prosthetic and orthotic clinics and an advertisement in the in Motion magazine. From the total pool of potential participants in the hospital databases, names were selected via a random number generator. Approx. 70 surveys were mailed each month over a period of 13
months. Participants also called or e-mailed the study personnel in response to the flyers or the magazine advertisement. Criteria included (a) 6 or more months after lower limb amputation (b) 18 years of age or older and © the ability to read and write English. The majority of participants were male (67%) and ranged in age from 19-92. Most amputations were below the knee (55%) and were caused by injury (52%). Participants on average were 11 years from their amputation surgeries.

Questionnaires were mailed to a total of 1,307 individuals. A total of 478 useable surveys were returned having a response rate of 57%.

- Researchers used the survey method to conduct their research and tests. They used demographics, pain intensity, and brief pain inventory to conduct their studies. For this study they used a 11-point numeric rating scales ranging from 0-10 for pain intensity and BPI scale that assesses the degree to which pain interferes with seven activities of daily living; general activity, mood, household work, getting around, sleep, enjoyment of life, and relationship with other people. For this study they used three additional items to measure pain inference with self-care, recreational activities, and social activities. Participants were asked to rate their pain on a scale of 0 (does not interfere to 10 (completely interferes). Researchers used 2 Objectives.

OBJECTIVE 1: they used a moderated regression approach, all predictor variables were centered prior to analysis and an AGEXPLP (phantom limb pain) interaction term was created. The variable of cause of amputation (traumatic to no traumatic) was included as a control in all the analyses. After entry of control variables, main effects for age and PLP were entered followed by their interaction. They created 2 variable for age. One for participants 1.5 standard deviations above age mean and one for participants 1.5 standard deviations below the age mean. Separate regression slopes were then computed for the effect of PLP on Bpi for each of the 2 age cohorts.

OBJECTIVE 2: The variable of interest were entered in a stepwise fashion to
determine their relative contributions to overall model variance: Step 1-amputation type (control variable), Step 2: PLP severity, Step 3: Time since amputation, age, Step 4: PLP severity Age, Step 5: PLP severity time since amputation

- **OBJECTIVE 1**: For participants 1.5 standard deviation above the age mean, the relationship between PLP severity and interference was not statistically significant. For participants 1.5 standard deviations below the age mean and the association between PLP severity and interference was strong sign and significant. At mild to moderate pain levels, older adults did not differ from younger adults in level of interference. At moderate to severe levels of PLP older adults were on average 3.24 scale points below younger adult. **OBJECTIVE 2**: in regression 1 Painx Time since amputation contributed unique variance to the model above and beyond the effect of Painx Age. The effect of Painx Time since amputation was significant, the effect of Agex Pain was not. In regression 2 Painx Age did not contribute a significant amount of variance to the model beyond the effect of Painx Time since amputation. In their study they concluded that older adults are less bothered by their pain than younger adults; the relationship between pain intensity and pain related disability is stronger in younger adults which seems to be driven by greater time since injury in older adults with limb loss; time since injury was a greater factor in pain disability relationship than was chronological age; older adults are more experienced and perhaps more successful at dealing with their pain than younger adults; emphasizing age-related pain attitudes were not supported by the data, chronological age did not account for significant unique variance in regression analyses above time since injury; the longer a person is from his or her amputation, the less direct the relationship between pain and disability

- I thought this study was very interesting. I found it interesting to know that older adults deal with their pain after amputation better than younger adults. In my own
opinion, I feel as if they dealt with their pain better because they have experienced more and maybe worse pain in their life before the amputation and can deal with it better. I, personally, don’t think the researchers could use a different approach to this method. I could clearly understand this method and it made sense to me. However, I am sure there are other methods to conducting this research but I found this to be a very good and comprehensive study.