

and this was used to form 3 levels of exposure (ie, low [0-1], medium [2-3], high [≥ 4]). Linear mixed model ANOVAs found that all groups demonstrated significant TS-NFR and TS-Pain; however, the degree of summation was greatest in the high exposure group ($p < .05$). TS-NFR and TS-Pain were similar in the other groups ($ps > .05$). These findings suggest that greater trauma exposure is associated with greater amplification of pain and spinal nociception. Future research should examine potential psychosocial (eg, PTSD symptoms, catastrophizing, emotion regulation) or biological (eg, allostatic load) factors that mediate the relationship between trauma exposure and enhanced TS-NFR and TS-Pain. Further study is necessary to determine whether these markers of central sensitization might contribute to the development of PTSD and/or chronic pain syndromes in those who are exposed to multiple traumatic events.

Treatment: Non-Pharmacological

(448) Self-management strategies for pain reported in population-based surveys: A systematic review

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Controlled clinical trials usually test the effectiveness of a single treatment whereas the typical individual with chronic pain may use multiple strategies to manage their pain. The purpose of this systematic review was to identify the types of management strategies reported by individuals with chronic pain to manage chronic pain, the average number of strategies used, outcomes, and side effects. To be included in the systematic review, reports of population surveys of adults with chronic pain, as defined by the authors, had to be published in English, include chronic pain from any cause, and include information on the treatment strategies used by respondents. Search terms included "pain," "self-care," "self-management," "self-treatment," and "adult" and the search strategy included systematic searches of Pubmed, Embase, Cochrane Library, PsycINFO, CINAHL, Web of Science, International Pharmaceutical Abstracts, searches of reference lists, and citation searches as well as some key websites such as the CDC and NIH. A total of 14 study reports were identified. Sample size ranged from 272 to 4839; mean age ranged from 42 to 81 and 51 to 69%, female. All reports included information on medications used to manage pain; 6 reported other medical strategies; 9 reported physical strategies; 6 reported psychological strategies; and 11 reported non-medical strategies. Limited data were reported on number of strategies used; 23% used 6 or more medications in one study, and 51% used 3 or more in another study. Outcomes reported included inadequate control of pain (40%), good relief (87%), and 36% as effective. Few side effects were reported; two studies reported constipation, nausea and vomiting. Population-based surveys of chronic pain have identified a large number of strategies used to manage pain, however they provide little information on the average number of strategies used, the effectiveness of the strategies, or resulting side effects.

(449) Kinesio Tape for Pain Reduction: More than a Placebo Effect?

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Athletes, athletic trainers, chiropractors and many other people have used Kinesio tape to help alleviate pain symptoms. Currently, no clear reason exists as to why pain is relieved with the use of Kinesio tape and whether the analgesic effect is simply a placebo effect. Additionally, the most effective taping parameters (i.e., tension of tape) for pain reduction remain unknown. The purpose of this study was to determine if Kinesio tape applied at various tensions is effective in reducing pressure and heat pain sensitivity compared to a placebo condition and no tape. Nine healthy adults have been enrolled in this study. Participants completed four sessions. In each session, participants had pressure pain thresholds (PPT) and heat pain thresholds (HPT) assessed on their right forearm without Kinesio tape (pretest). Five minutes after PPT and HPT testing, a certified athletic trainer placed tape on the right forearm that had one of the following tensions: 0% (placebo), 25% (low tension), 75% (high tension), or no tape at all. After another five minutes, PPTs and HPTs were assessed again on the right forearm while the tape was in place (posttest). In order to analyze the data, paired t-tests were used to compare the pretest to posttest measures.

For PPTs, the high tension condition increased ($p=0.032$) PPTs from pre (pretest= 473 ± 201 KPA) to posttest (posttest= 529 ± 236 KPA). For HPTs, the low tension (Pre= $44.9 \pm 3.2^\circ\text{C}$, Post= $46.1 \pm 2.5^\circ\text{C}$) and high tension (Pre= $44.7 \pm 3.6^\circ\text{C}$, Post= $45.7 \pm .3^\circ\text{C}$) conditions increased HPTs ($p's < .05$). No significant differences were found in the other conditions. These results suggest that Kinesio tape's analgesic effect is not just a placebo, with pain-reducing effects partially depending on the tension of the tape.

(450) Efficacy of Vibrating Gloves for Chronic Hand Pain due to Osteoarthritis

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This study investigated the efficacy of vibrating gloves for women with persistent hand pain due to osteoarthritis (OA) to see if mild compression and small vibrating motors that massage the hands had lasting benefit with periodic use. Sixty women with OA hand pain were randomized to either use the vibrating gloves once a day for twenty minutes (Experimental, N=30) or were monitored for 3 months without the gloves (Control, N=30). All subjects completed baseline questionnaires, were administered a brief quantitative sensory test (QST), and uploaded a smartphone pain app for daily assessment. The pain app had 2-way messaging and push notification for reminders to complete the daily assessments of pain, sleep, activity interference, mood, and perceived change. All subjects completed mailed questionnaires at 6 weeks and 3 months. We used an enriched design by having the potential subjects try on the vibrating gloves to see if they would agree to wear them over the 3-month trial. Other inclusion criteria: chronic pain for > 3 months, averaging ≥ 4 on a 0-10 scale, and able to speak and understand English. The average age of the subjects was 62.7 ± 7.7 , pain intensity averaged $4.1 \pm 1.9/0-10$, and they reported having pain for an average of 11.5 ± 9.6 years. Most of the subjects were right handed (88.5%) and 50.0% reported primary right hand pain. Three subjects ($< 5\%$) did not want to participate after trying the gloves. Over time the experimental subjects tended to use the gloves less often (average 5.2 days a week). Results showed that compared with the control subjects, those in the experimental condition demonstrated reduced pain intensity ($p < 0.05$). No differences were found on mood or sleep. Those with greater sensitivity on the QST demonstrated most benefit ($p < 0.05$). Overall, the results demonstrated that the vibrating gloves were beneficial in reducing hand pain in women with hand OA.

(451) The Effects of Active vs. Passive Prayer on Experimental Pain Tolerance

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Prayer is commonly used to cope with pain. Previous studies have reported race differences in the use of prayer and suggest that prayer may partly account for race differences in pain outcomes. For example, studies have found that Black individuals pray more than White individuals, which, in turn, is associated with their decreased pain tolerance. A key limitation of prior research is that prayer has been operationalized as a passive coping strategy for pain. Therefore, it is unclear how more active types of prayer affect pain outcomes and whether Black-White differences in pain tolerance are driven by prayer, per se, or by prayer that is passive in nature. To better understand the relationships among race, prayer, and experimental pain tolerance, we randomized healthy undergraduates (N=193, 79% female, 46% Black) to one of three groups: active prayer, passive prayer, and no prayer. Participants repeated a prayer or neutral statement while submerging their hand in cold water for as long as tolerable. Results of a 2 (Race: White/Black) X 3 (Prayer: active/passive/none) between-subjects ANOVA on pain tolerance (seconds) indicated no significant main effect of race [$F(1,187)=.83$; $p=.36$], a non-significant trend for the main effect of prayer [$F(2,187)=1.86$; $p=.16$], and no significant race X prayer interaction [$F(2,187)=.62$; $p=.54$]. Inspection of the means suggested that participants engaged in active prayer demonstrated longer tolerance times (M=55.37; SD=51.28) than those engaged in passive prayer (M=43.34; SD=36.64) and no prayer (M=41.47; SD=40.73). These results are consistent with the literature indicating that active coping strategies are associated with better pain outcomes than passive strategies. Specifically, they suggest that different types of prayer are more or less adaptive, which contributes to a more nuanced