physical activity levels. Lower levels of physical activity have been associated with elevated levels of obesity which increases the risk for the negative health consequences associated with a higher BMI.

PURPOSE: To compare the prevalence of obesity, musculoskeletal pain, and the difficulty to engage in physical activity of Correctional Officers (COs) to the U.S. adult general population at two time points. Furthermore, to explore the associations between musculoskeletal pain and health behaviors amongst COs.

DESIGN: Seventy-seven Correctional Officers from two maximum security correctional facilities in the Northeastern United States were enrolled in the study. The health profiles (musculoskeletal pain, difficulty to engage in physical activity, and BMI characteristics) of participants were collected at two time points (Time 1 (2011) and Time 2 (2013)) and compared to the U.S. adult general population. The health profiles of COs were also used to investigate associations between musculoskeletal pain and the difficulty to engage in physical activity at two time points. Also to explore if musculoskeletal pain at Time 1 predicts the difficulty to engage in physical activity at Time 2.

RESULTS: Correctional employees exhibited a significantly higher prevalence of overweight and obesity, musculoskeletal pain, and difficulty to engage in physical activity than the U.S. adult general population at both time points ($p < .05$). Musculoskeletal pain was associated with a difficulty to engage in physical activity at both time points ($p < .05$). Musculoskeletal pain was predictive of the future difficulty to engage in physical activity ($p < .05$).

CONCLUSIONS: As a result of the musculoskeletal pain, COs report difficulties to engage in physical activity. The results of this study provide a rationale for the implementation of feasible ergonomic interventions in the environment of corrections to alleviate musculoskeletal pain and improve the health behaviors of COs.

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Effects Of Methol Gel On Delayed-Onset Muscle Soreness (DOMS) In Sedentary Young Adults

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(No relationships reported)

Delayed-onset muscle soreness (DOMS) is common 24 hr after engaging in resistance training. Topical analgesics containing menthol are often used to treat DOMS but little is known about their effectiveness.

PURPOSE: To determine how long menthol gel may reduce pain associated with DOMS.

METHODS: Sedentary young men ($n=3$) and women ($n=6$) (age = 23.9 yr; wt = 70.1 kg) participated in the study and were instructed to refrain from exercise and consuming or applying any type of anti-inflammatory medication 24 hr before, and throughout the duration of, the study. After determining 1-RM, participants performed 10 sets of 10 repetitions of barbell back squats at 60% of their 1RM to elicit DOMS. Squats were performed to a predetermined depth using stacked 5-cm spacers so the femurs were parallel to the floor at the end of the eccentric phase. 24 hr later, a gel containing 4.0% menthol was applied (1ml of gel per 200 cm² of surface area) to one quadriceps and the same dose of a menthol-scented placebo gel was applied to the other quadriceps. Application was randomized to each leg and participants were blinded to the gel identity. Prior to application, participants rated pain in each leg using a scale ranging from 0 (no pain) to 10 (pain as bad as it could be). Following application, participants completed this rating scale every 30 min for 8 hr.

RESULTS: Pain was reported to be exactly the same for both legs at 24 hr (6.67 - severe pain). After application of the menthol gel, pain declined ($p < 0.05$) to a minimum at 60 min (pain rating = 5.28; 21% decline) that was classified as moderate pain. Although pain tended to increase after 1 hr, pain remained less ($p < 0.05$) than placebo for 5 hr.

CONCLUSION: A 4.0% menthol gel reduces DOMS-related pain by ~20% 60 min after application in sedentary young adults and then a lower plateau of pain perception is achieved for 5 hr following application. Our previous study using the same protocol with recreational athletes who had lower ($p < 0.05$) levels of pain (4.65) 24 hr after exercise also reported maximum pain relief 1 hr after application. Although a 31% relative decline, their absolute pain scores declined similarly (1.4 points) compared to the current study. Further research is needed to determine whether declines in pain can be attained in less time and/or if a greater decline can be achieved.

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Exercise Intervention Effects On Winged Scapula And Postural Pain: A Case Study

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(No relationships reported)

Researchers have shown that more than 80% of the American workforce has a sedentary lifestyle that can leave people sitting for upwards of 10 hours a day (OECD, 2014). In turn this has a negative influence on posture and back pain. "Molly", a 52 year-old, sedentary individual that has experienced right subscapular pain due to her posture, had developed protracted shoulders and winged scapula. Molly volunteered to take part in an 8-week Community Fitness Partner program as part of Westfield State University's Exercise is Medicine on Campus intervention. A student trainer developed an 8-week total body exercise prescription.

PURPOSE: The purpose of the study was to determine if resistance training postural exercises (RTPE), stretches, and self-myofascial release (SMR) could be used to counteract the protracted shoulder posture resulting in her upper back pain. RTPEs have been shown to help healthy population to neutralize the shoulder girdle and improve the overall health of the upper extremity.

METHODS: Initial meetings included goal setting and fitness screening. Subject characteristics include: Height= 1.74m, Body Mass=65kg, BMI=22.4, Resting HR=68bpm, Resting BP= 115/70mmHg and FMS shoulder mobility of left arm grade III and right arm grade II. The program included RTPE, stretching, SMR, and cardiovascular training. After each workout specific exercises, stretches and/or SMR modalities were performed to target her upper back and pectoral area to help with shoulder girdle imbalances. Pre and posttest measures included assisted push-ups, curl ups, and self-awareness of back pain.

RESULTS: Molly's upper body strength increased from 19 assisted pushups to 35, Curl-ups improved from 23 to 42. Improved alignment of her shoulders were observed in an axillary line with her ear and superior iliac crest. Additionally, she reported changes that included: an increase in overall mood, more energy, reduced upper back pain, improvement in body image and fewer aches throughout the day.

CONCLUSION: An 8-week training program consisting of resistance training and specific postural exercises can effectively improve posture and decrease upper back pain. Through a multimodal approach, including strengthening and lengthening of muscles and tendons, posture can be improved which may lead to a decrease in pain.

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Compariso of Knee Strength And Stability In Primary And Revision Acl Reconstruction

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PURPOSE: The number of primary anterior cruciate ligament (ACL) reconstructions has increased in parallel with graft failures, with a resultant effect on revision surgery. Primary ACL reconstruction is successful for most patients, but some have had persistent giving-way symptoms and recurrent ruptures, such that revision surgery is required. Knee strength deficits are among the consequences of muscle weakness after ACL reconstruction. This study compared knee strength and stability in primary and revision ACL reconstruction.

METHODS: This was a cross-sectional study with a total of 78 participants, in whom 38 revision surgeries were performed at a single hospital between April 2013 and May 2016. All revision reconstructions used tibialis anterior tendon allografts. Forty patients underwent primary ACL reconstruction using double-looped semitendinosus and