DISCUSSION: Infection following a knee or hip replacement occurs in less than 1% of patients. Infections are classified as early (less than 3 months), delayed (3-24 months), or later (more than 24 months). Complications of infection include prosthetic component loosening and failure and should be considered when establishing differential diagnoses in patients presenting with joint pain who have a history of total joint replacement.

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OP074

FATIGUE-ASSOCIATED CHANGES IN SCAPULAR CONTROL AND SERRATUS ANTERIOR

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PURPOSE/HYPOTHESIS: Individuals with shoulder pathology are likely to have altered scapular kinematics and serratus anterior (SA) muscle performance. There are few clinical tools that are capable of collecting specific and efficient data on alterations in scapular motion and SA muscle performance. The primary purpose of this study was to determine the effectiveness of accelerometers for detecting changes in scapular motion and ultrasound imaging for measuring changes in SA fatigue contractility following a shoulder fatiguing task. The secondary purpose of this study was to compare the accelerometer and ultrasound measures in those with observable scapular dyskinesis to those without dyskinesis

NUMBER OF SUBJECTS: Twenty-six subjects (mean ± SD age, 24 ± 2 years; 50% male; 100% right handed).

MATERIALS/METHODS: Healthy subjects were screened for scapular dyskinesis. Subjects were positioned in a standardized sitting posture and anatomical references were marked on the SA for the ultrasound (Mindray MSK Z6), and scapula for both the wired accelerometer (Biopac, TSD109C2) and smartphone accelerometer (Sensor Kinetics Pro). After the accelerometers was secured with kinesiology tape, subjects performed 3 repetitions of seated scaption from 90° to 120° without resistance. Upper extremity elevation was externally paced by previously recorded verbal instructions at a rate of 10°/s. Acceleration of the scapula was collected through the entire range of motion, while ultrasound images of the SA were taken at rest and at 120° of scaption. After pretest data were recorded, the subject began the fatigue portion of the experiment without data collection. The subject performed repeated shoulder elevation in the same scapular plane as in the prefatigue phase. Repeated shoulder elevation was limited to 90° to 120° at a pace of 60 bpm while holding weight equal to 20% of the volunteer's maximum volitional isometric contraction. The postfatigue test followed and was identical to the prefatigue test. SA thickness measures were obtained post hoc with manufacturer software. Percent change in thickness was calculated by subtracting the average rest value from the average contractile value, and dividing the difference by the average rest value. Paired *t* test were used to compare pre fatigue measure of muscle thickness and scapular acceleration to post fatigue measures.

RESULTS: Both accelerometers showed a significant increase ($P<.01$) for postfatigue measures compared to prefatigue in all planes of motion. We also found a significant increase ($P<.01$) in postfatigue measures in those with dyskinesis.

CONCLUSIONS: This study demonstrates that both the smartphone accelerometer and wired accelerometer detected fatigue- associated changes in scapular motion. Further research on a pathological population is needed in order to validate these tools for clinical use.

CLINICAL RELEVANCE: Smartphone accelerometery has the potential to be a valuable clinical tool for assessing the quality of scapular motion while the value of assessing the SA with ultrasound imaging is still not well understood.

OP075

KINESIO TAPING INCREASES THE ACROMIOHUMERAL DISTANCE IN INDIVIDUALS WITH SYMPTOMATIC ROTATOR CUFF TENDINOPATHY

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PURPOSE/HYPOTHESIS: To investigate the short-term effects of Kinesio Taping (KT) on the acromiohumeral distance (AHD) in individuals with symptomatic rotator cuff tendinopathy (RCTe). Since, KT has been previously shown to increase AHD in healthy subjects, we hypothesize that KT will provide a significant increase of AHD in individuals with symptomatic RCTe.

NUMBER OF SUBJECTS: Twenty-six individuals diagnosed with RCTe were recruited from the mailing list of the local university.

MATERIALS/METHODS: The AHD was measured using an ultrasound scanner (Logic e9; GE Healthcare, Milwaukee, WI) with a 4-15-MHz linear array probe (model ML6-15-D). Measurements of AHD were taken pre-KT and post-KT application in 2 arm positions (0° and 60° of abduction), with participants seated up straight against the backrest of the chair, looking straight ahead. First, 2 measures of AHD with the arm at 0° and 60° of abduction, without KT, were taken. Thereafter, after proper skin cleansing, therapeutic KT for RCTe was applied on the symptomatic shoulder. The Kinesio Tex Classic was applied using a combination of techniques designed for RCTe. All applications followed the principles described by Kase et al (2003) and were applied by the same physiotherapist, who is a practitioner certified by the Kinesio Taping Association International (KTAI). Ten minutes after the application, measurements of AHD at 0° and 60° were retaken.

RESULTS: A 2-way analysis of variance (ANOVA) for repeated measures revealed that the application of KT led to a significant increase in the AHD, at both 0° and 60° of abduction ($P<.05$).

CONCLUSIONS: Therapeutic KT provided an immediate increase in the AHD in symptomatic patients with RCTe. Therefore, KT may be useful to reduce the symptoms associated with the narrowing of the subacromial space. Further studies investigating long-term effects of KT on AHD as well as the effects of KT on underlying symptoms of RCTe are still needed to confirm its positive effects.

CLINICAL RELEVANCE: The present results will contribute to building a solid framework of evidence for the use of KT within a clinical setting and to the development of more effective approaches and treatments for patients with RCTe. They provide new insights on the use of KT in the rehabilitation of symptomatic patients with RCTe.

OP076

THE RELATIONSHIP BETWEEN HIP STRENGTH, RUNNING GAIT FOOT-STRIKE PATTERN, AND RUNNING-RELATED INJURY

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PURPOSE/HYPOTHESIS: A potentially high proportion of long distance runners will sustain a running-related injury (RRI). Runners with a rearfoot