

Rutland MD, Faz L, Gray A, Shook P, Taylor M. THE RELATIONSHIP OF THE BEIGHTON SCALE, ABDOMINAL STRENGTH, AND PREVALENCE OF SACROILIAC PATHOLOGIES. Hardin-Simmons University Department of Physical Therapy, Abilene, TX.

PURPOSE: To investigate the relationship between the Beighton scale, abdominal strength, and the presence of sacroiliac joint dysfunction in females. **SUBJECTS:** Females between 18-30 years of age. **METHODS:** Following Institutional Review Board approval and prior to testing, participants completed informed consent, demographics, and a researcher administered Beighton scale assessment. Each participant performed the supine double leg lowering test (DLLT) with an inflatable pressure cuff under the low back while diagnostic ultrasound (DUS) images of the transverse abdominus (TrA) were recorded initially and at point of failure. Following completion of the DLLT, participants performed the prone plank test and SIJ provocation test series (distraction test, compression test, thigh thrust test, Gaenslen test, FABER test) in a randomized order. **DATA ANALYSIS:** Pearson correlations assessed relationships between TrA muscle thickness, plank time, DLLT failure point angle, age, BMI, Beighton score, and number of positive SIJ provocation tests. Chi-squared tests determined the relationship between presence of hypermobility, presence of SIJ pathology, use of birth control, and sitting with legs crossed. Spearman correlations determined the relationship between parametric variables of TrA muscle thickness, plank time, DLLT failure point angle, age, BMI, Beighton score, number of positive SIJ provocation tests and nonparametric variables of presence of hypermobility, presence of SIJ pathology, use of birth control, and sitting with legs crossed. **RESULTS:** Sixty-six females, ages 18-30 year of age (22.8 ± 2.01) participated. Nine (13.6%) participants had SIJ pathology as defined as ≥ 3 positive SIJ tests. Presence of hypermobility (4/9 or greater Beighton scale) was found in 30 participants (45.5%). Weak and non-significant correlations were found between the variables of muscle thickness of the TrA, plank time, failure point of DLLT test, hypermobility, and SIJ pathology. Weak and non-significant correlations were found between the Gaenslen test and SIJ pathology ($r = 0.187$) and the distraction test and SIJ pathology ($r = 0$). A low-moderate correlation was found between the number of positive SIJ provocation tests and use of birth control ($r = 0.39$), the compression test and SIJ pathology ($r = 0.31$), the thigh thrust test and birth control ($r = 0.29$) and the FABER test and birth control ($r = 0.29$). A moderate correlation was found between the thigh thrust test and SIJ pathology ($r = 0.67$), and FABER test and SIJ pathology ($r = 0.52$). Mean plank time of participants was 50.5 seconds (± 25.21). Mean failure point of the DLLT was 41.4 degrees (± 22.7); 70% muscle strength grading. Of the 66 total participants, 35 (53.03%) utilized birth control. **CONCLUSION:** A low-moderate correlation was found between a participant's number of positive SIJ provocation tests and the usage of birth control. Further research is needed to determine the etiology of this relationship. **CLINICAL RELEVANCE:** In non-symptomatic active females ages 18-30 years, weak and non-significant relationship were found between abdominal strength, presence of hypermobility, and presence of SIJ pathology. However, clinicians should continue with standard methods of care including lumbar and abdominal strengthening in those with SIJ pathology and pain. Further research should be performed with participants of older ages who have complaints of SIJ pain. Assessment of other musculoskeletal considerations, including posture and sitting mechanics, should be evaluated in older populations with SIJ pathology and hypermobility.