ABSTRACT

Background: Cross-legged sitting is a commonly adopted posture that may affect lower limb alignment and musculoskeletal biomechanics due to prolonged asymmetrical positioning. Parameters such as the Q-angle and Tibial Torsion Angle (TFA) play an important role in knee alignment and lower extremity mechanics. The present study aimed to evaluate the relationship between Q-angle and tibial torsion in habitual cross-legged sitters.

Methodology: An observational study was conducted among habitual cross-legged sitters. Q-angle was measured using a universal goniometer by assessing the angle formed between the anterior superior iliac spine, center of the patella, and tibial tuberosity. Tibial torsion was assessed using the thigh-foot angle method with participants positioned in prone lying and knees flexed to 90°. Data analysis was performed using Microsoft Excel with Analysis ToolPak. Descriptive statistics, paired t-test, and Pearson's correlation coefficient were applied for statistical analysis.

Results: The mean Q-angle was 15.27 ± 1.69 on the right side and 15.95 ± 0.47 on the left side. The mean TFA was 15.98 ± 3.00 on the right side and 15.61 ± 2.79 on the left side. Paired t-test analysis showed no statistically significant difference between right and left side measurements ($p > 0.05$). Pearson's correlation analysis demonstrated a positive association between Q-angle and tibial torsion.

Conclusion: The study concluded that habitual cross-legged sitting may influence lower limb biomechanics. Although no significant side-to-side differences were observed, a positive relationship was identified between Q-angle and tibial torsion, suggesting a biomechanical association between the two variables.

Keywords: Q-angle, Tibial Torsion Angle, Cross-legged Sitting, Biomechanics, Lower Limb Alignment

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