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The relationship among four measurements of round shoulder posture

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Rounded shoulder posture (RSP), associated with altered scapular kinematics and muscle activities can increase stress at the shoulder and result in pain, numbness, loss of function, and various neuromuscular symptoms. This study investigated the validity and reliability of four measurements for RSP in health subjects. Twenty-one healthy subjects (age: 22.3±2.0) were recruited. Four RSP measurements including pectoralis minor index (PMI), acromial distance (AD), scapular index (SI) and shoulder angle (SA) were taken on dominant shoulder of each subject. Convergent validity was presented by Pearson correlation matrix among four tests. The intra-class correlation (ICC) (1, 3) was 0.96, 0.94, and 0.99 for SI, AD, and PMI, respectively. Standard error of measurement was 1.2, 0.3 cm, and 0.1 for SI, AD, and PMI, respectively. High to moderate Pearson correlations were $r = -0.61$ ($p<0.05$) between AD and SI, $r = -0.52$ ($p<0.05$) between AD and SA. Low correlations were $r = -0.22$ ($p>0.05$) between AD and PMI and $r = 0.29$ ($p>0.05$) between SI and PMI. The standard error of the measurement (SEM) values of AD and PMI reflected excellent test- retest agreement. Despite similar construct for measuring RSP among four tests, only AD, SA and SI had high convergent validity. The study shows that SI and SA in addition to AD could be alternative ways to measure RSP. On the other hand, the negative correlation between PMI and SI and AD demonstrates length of pectoralis minor is highly related to RSP. Caution should be taken when interpreting these clinical measurements for RSP.

Biography

Yuan-Chun Chiu has completed his Undergraduate degree from Chung Shan Medical University in Taiwan and currently pursuing his master's program at National Taiwan University, Department of Physical Therapy.

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