

Effect of Prone Trunk Extension on Scapular and Thoracic Kinematics, and Activity during Scapular Posterior Tilting Exercise in Subjects with Round Shoulder Posture

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Abstract : Round shoulder posture (RSP) is a position of scapular protraction and elevation, which may appear as scapular winging, and humeral internal rotation. Flexed posture (FP) may also affect RSP because FP is characterized by hyperkyphosis, forward head posture, and height reduction. The aim of this study was to investigate the effect of scapular posterior tilting exercise with prone trunk extension on round shoulder posture, activities of lower trapezius and serratus anterior, flexed posture, and thoracic erector spinae activity in subjects with round shoulder posture. Fifteen subjects with round shoulder posture were recruited in this study. Activities of lower trapezius, serratus anterior and thoracic erector spinae were measured during both scapular posterior tilting exercise and scapular posterior tilting exercise with prone trunk extension using electromyography, and round shoulder posture and flexed posture were measured immediately after each exercises using caliper. When the prone trunk extension was applied, the round shoulder posture and flexed posture significantly decreased, activities of lower trapezius and thoracic erector spinae significantly increased ($p < 0.05$) compared with the scapular posterior tilting exercise alone. There was no significant difference in serratus anterior activity between two exercises. Thus, prone trunk extension could be effective method to improve round shoulder posture during scapular posterior tilting exercise in subjects with round shoulder posture.

Keywords : flexed posture, prone trunk extension, round shoulder posture, scapular posterior tilting

Conference Title : ICAPTSPMI 2018 : International Conference on Advancement in Physical Therapy Science and Physiotherapy Methods and Instrumentation

Conference Location : Zurich, Switzerland

Conference Dates : January 15-16, 2018