

Gluteal Muscle Activation During Common Yoga Poses

Josh Hoover,*¹ BJ Lehecka,¹ Jacob Thomas,¹ Austin Mettling,¹ Adam May,¹

Sydney Stoffregen,¹ Rex Hafenstine,² Nils Hakansson²

¹Physical Therapy Department, Wichita State University

²Biomedical Engineering Department, Wichita State University

INTRODUCTION: Approximately 55% of physical therapists report using alternative strength training, including yoga, for major muscle groups. Although clinicians and athletes often use yoga as a form of strength training, little is known about the activation of specific muscle groups during yoga poses including the gluteus maximus and medius.

PURPOSE: The purpose of this study is to measure electromyographic (EMG) activation of gluteal muscles during five common yoga poses to determine which is best for gluteal strengthening.

METHODS: Thirty-one healthy males and females aged 18-35 years were tested in five randomized yoga poses. Electromyography (EMG) electrodes were placed on subjects' right gluteus maximus and gluteus medius. Subjects performed the poses on both sides following a maximal voluntary isometric contraction (MVIC) for each muscle tested. All yoga pose EMG data were normalized to the corresponding muscle MVIC data.

RESULTS: Highest gluteus maximus activation occurred during Half Moon Pose on the lifted/back leg (63.31% MVIC), followed by the stance/front leg during Half Moon Pose (61.66%), then the lifted/back leg during Warrior Three Pose (46.06%). Highest gluteus medius activation occurred during Half Moon Pose on the lifted/back leg (41.85%), followed by the lifted/back leg during the Warrior Three Pose (41.58%). A significant difference was found in %MVIC of gluteus medius activity between male and female subjects ($p = 0.026$), and between experienced and inexperienced subjects ($p = 0.050$), indicating higher activation among males and inexperienced subjects, respectively.

CONCLUSION: Half Moon Pose and Warrior Three Pose elicited the greatest activation for both the gluteus maximus and medius. Higher gluteus medius activation was seen in males and inexperienced subjects.