

The Correlation between Musculoskeletal Disorders and Body Postures during Playing among Guitarists

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Abstract : This work focuses on posture and risk factors for the musculoskeletal disorder in guitarists, which constitutes the largest group of musicians today. The source of the problems experienced by these musicians is linked to physical, psychosocial and personal risk factors. These muscular problems are referred to as Playing Related Musculoskeletal Disorder (PRMD). There is not enough research that specifically studies guitar players, and to the extent of our knowledge, there is almost no reference to the characteristics of their movement patterns while they play. This is in spite of the high prevalence of PRMD in this population. Kinematic research may provide a basis for the development of a prevention plan for this population and their unique characteristics of playing patterns. The aim of the study was to investigate the correlation between risk factors for PRMD among guitar players and self-reporting of pain in the skeletal muscles, and specifically to test whether there are differences in the kinematics of the upper body while playing in a sitting or standing posture. Twenty-five guitarists, aged 18-35, participated in the study. The methods included a motion analysis using a motion capture system, anthropometric measurements and questionnaires relating to risk factors. The questionnaires used were the Standardized Nordic Questionnaire for the Analysis of Musculoskeletal Symptoms and the Demand Control Support Questionnaire, as well as a questionnaire of personal details. All of the study participants complained of musculoskeletal pain in the past year; the most frequent complaints being in the left wrist. Statistically significant correlations were found between biodemographic indices and reports of pain in the past year and the previous week. No significant correlations were found between the physical posture while playing and reports of pain among professional guitarists. However, a difference was found in several kinematic parameters between seated and standing playing postures. In a majority of the joints, the joint angles while playing in a seated position were more extreme than those during standing. This finding may suggest a higher risk for musculoskeletal disorder while playing in a seated position. In conclusion, the results of the present research highlight the prevalence of musculoskeletal problems in guitar players and its correlation with various risk factors. The finding supports the need for intervention in the form of prevention through identifying the risk factors and addressing them. Relating to the person, to their occupation and environment, which are the basis of proper occupational therapy, can help meet this need.

Keywords : body posture, motion tracking, PRMD, guitarists

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