

Beyond the Game: Micro-Traumas and Their Effect on Hand Health in Esports Athletes

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ABSTRACT

Introduction: Esports refers to video games in which teams or individuals compete against each other. It is considered a sporting activity in which players can develop and train their mental skills and handcoordination while playing. India is currently ranked fifth among the list of top countries by game downloads globally. This makes a subset of the population of India extremely vulnerable to the harms associated with excessive digital gaming. Need for this study: The increasing popularity of esports has raised concerns about its impact on musculoskeletal health. Apart from neck, back muscles, and poor posture, arguably, the most essential parts of a gamer's body are their hands.

Aim: The objective of the study is to analyse the muscle activity pattern of wrist flexors, extensors, and thenar muscles using Electromyography (EMG) and to evaluate alterations in hand functioning before and after a prolonged gaming session.

Materials and Methods: In the study, 3 separate groups with 10

male participants each, aged 16 to 30 years, will be taken, who will perform different categories of gameplay (MOBA, FPS, SANDBOX). For assessing the grip strength, a hand-held dynamometer and for pinch strength, a pinch gauge will be used. For endurance and speed, the finger tapping test will be used before and after 30 minutes of the match, EMG will be recorded during the gameplay continuously, with electrode placement on the Flexor Carpi Radialis and Extensor carpi Radialis. In Esports, it is generally made to be related to backache, postural changes, neck pain, but the minor changes happening in the wrist are often ignored. These microtraumas do not give any early symptoms, but collectively give difficulty to the individual later in life.

Conclusion: Thus, after assessing these parameters, this study will give evidence on the differences in hand functioning, which can be further prevented or corrected to improve the quality of life.

Keywords: Esports prevalence, Hand functioning Esports, Wrist alterations, Wrist Esports

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