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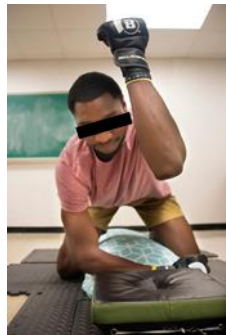
Introduction

According to the current Unified Rules and Regulations of Mixed Martial Arts¹ (MMA), the North-South Elbow (NSE) is a foul and can result in penalties as it has been deemed too dangerous for competition. Although studies on injury in MMA have been conducted^{2,3,4,5,6}, to date, no research has investigated the possible differences in force between the NSE and other legal strikes.

PURPOSE: The purpose of this study was to determine if there are differences in peak force production between the NSE and the hammer fist (HF) strikes when performed in the full mount and side control positions.

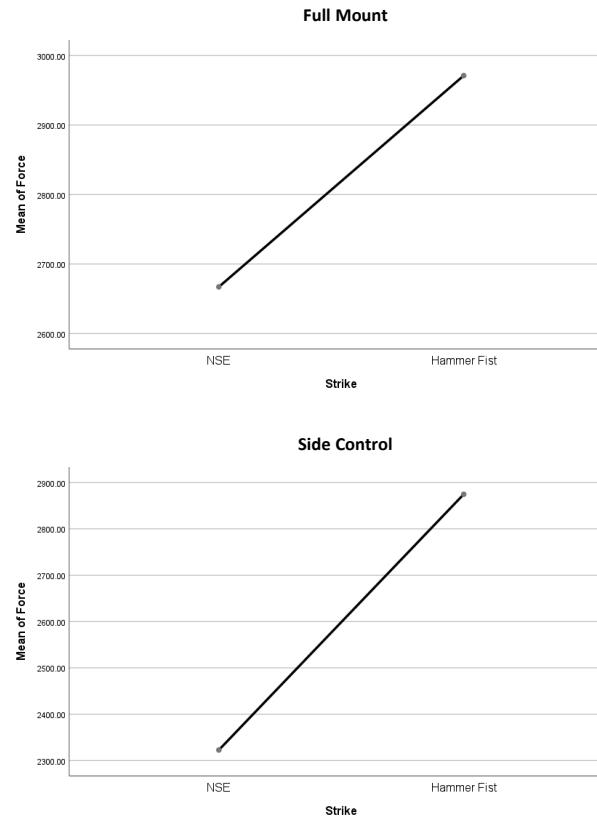
Methods

Twenty men (age 27.7 ± 11.5 years) participated in the study and completed one visit to the lab. Height (1.76 ± 0.15 m) and weight (75.7 ± 5.9 kg) were measured along with body fat percentage (15.2 ± 3.25 percent), which was assessed using air displacement plethysmography. Subjects then struck a padded force plate (Vernier) using the NSE and HF in the full mount and side control positions while wearing regulation compliant gloves. Strike and position order were randomized for each subject. A five-foot long body pillow was used to simulate a person, and the force plate was placed at the location of the head. One-way analysis of variance was performed to determine if there were differences in peak force between the NSE and HF strikes in the full mount position and in the side control position.



Results

There was no difference in peak force between the NSE (2667.15 ± 1006.20 N) and the HF (2971.15 ± 629.63 N) in the full mount position ($F = 1.312$, $p = .259$). However, the peak force was higher during the HF (2974.70 ± 618.12 N) compared to the NSE (2322.75 ± 828.21 N) in the side control position ($F = 5.705$, $p < .022$), and the effect size was medium to large ($\eta^2 = 0.13$).



Conclusions

The peak force generated during a legal strike (HF) and an illegal strike (NSE) was different in the side control position, with individuals striking with more force during the legal strike.

Practical Applications

Practitioners should take into consideration that although strikes such as the NSE may be illegal, other legal strikes may generate greater force, at least in certain positions. However, strike technique during an actual fight, positioning of the head (against the ground vs. in the air), the surface area of the striking body part, and the part of the body struck must also be taken into account when determining safety of a strike in MMA.

References

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