Residual Impact of Previous Injury on Musculoskeletal Characteristics in Special Forces Soldiers
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Musculoskeletal injuries are a significant burden to US Army Special Operations Command (USASOC). The advanced tactical skill level and physical training required of USASOC Special Forces Soldiers highlight the need to improve suboptimal musculoskeletal characteristics, particularly following injury to reduce the likelihood of suffering a recurrent preventable injury.

PURPOSE: To identify the residual impact of previous injury on musculoskeletal characteristics.

METHODS: A total of 106 Special Forces Soldiers were enrolled in this study. Isokinetic strength of the knee, shoulder, and back and flexibility of the shoulder and hamstrings were assessed as part of a comprehensive human performance protocol. A self-reported musculoskeletal injury history was obtained from the time of enlistment to that of laboratory testing. Subjects were stratified based on knee, shoulder, or back injury and analyzed separately.

RESULTS: For the knee injury analysis, no significant strength or flexibility differences existed (p > 0.05). For the shoulder injury analysis, internal rotation strength of the healthy subjects was significantly higher (60.8 ± 11.5 %BW) compared to the injured (54.5 ± 10.5 %BW, p = 0.05) and uninjured limbs (55.5 ± 11.3 %BW, p = 0.014) of the injured group. The external rotation/internal rotation strength ratio was significantly lower in the healthy subjects (0.653 ± 0.122) compared to the injured (0.724 ± 0.121, p = 0.026) and uninjured (0.724 ± 0.124, p = 0.018) limbs of the injured group. Posterior shoulder tightness was significantly different between the injured and uninjured limb of the injured group (Injured: 111.6 ± 9.4°, Uninjured: 114.4 ± 9.3°, p = 0.008). For the back injury analysis, no significant strength differences were demonstrated between the healthy and injured groups (p > 0.05).

CONCLUSION: Few physical differences existed between Soldiers with prior knee or back injury suggesting restoration of strength and flexibility. For differences that existed in the shoulder, rehabilitation/human performance training should target specific suboptimal musculoskeletal characteristics to prevent the recurrence of injury and allow return to unrestricted training and operations.

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