

BIOMECHANICAL STUDY ON AIM TECHNIQUE IN CHINESE ELITE FREE PISTOL ATHLETES.

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INTRODUCTION: The purpose of this study was to analyze the aim technique of elite Chinese free pistol athletes. Pistol shooting in competition requires the athlete to complete 60 shots, consecutively and accurately. This provides a challenge for the marksmen, to maintain the high level of strength needed to perform the technical movements and under pressure. This paper presents a biomechanical study of the shooting techniques using the SELSPOT system. It was used to measure movements of the body-links and firearms in the aiming period in elite Chinese male pistol shooters.

METHOD: The four subjects selected for this study, were all members of the Chinese National Training Team. The measuring devices that was used for shooting, was SELSPOT system with 4 LED attached to the muzzle, the rear of the barrel, the center of the right wrist joint, the center of the right wrist joint and the center of the right elbow joint. The sampling frequency was 50HZ, the sampling time was 30 second. Each shooter was tested with 10 shots.

RESULTS: It was found that the aiming time for Chinese shooters was shorter than their Soviet competitors. This factor probably is related to the chinese ideology that determines training. According to the authors, less emphasis should be placed aiming time. Firing time should be based on individual characteristics, such as the muzzle wobbling factor and the degree of concentration. Through measurement of muzzle wobbling 0.5 second before firing of the four pistol shooters, it was found that this is the maximum related to the direction (Y). Therefore, the key to improved shooting precision is reduction of muzzle wobbling in the direction (Y). This factor should be emphasized during training. The research found that aiming time and the degree of muzzle wobbling, is important technical data required prior to firing. The difference of muzzle's position was significant in the instant of firing. Reducing the amount of muzzle wobbling before firing may make it easier to control the muzzle position when firing. These factors are necessary to ensure consistent performance. The present research reveals that the greater degree of muzzle wobbling would create a considerable negative effect on the aiming time and the muzzle's position when firing. However, the fixed-aiming time may be more suited to an individual shooter and in this instance, the same position of firing may create the advantage of reducing muzzle wobbling.

DISCUSSION: In order to improve the precision in shooting, the first step is for shooters to reduce the degree of the fire arm's wobbling, in the direction (Y). Secondly, shooters should maintain their concentration on the performance. The results of the study suggest an individual technique is important and that each shooter should choose his own firing time according to the individual degree of muzzle wobbling and ability to concentrate. By using an ideology based training program for free shooting competition, each athlete may achieve an optimum level of skill.

REFERENCES:

Lu, D. etc, A Technical Study of Techniques in Free Pistol.