Analysis of the Efficacy of Futur K6AM Buttstock in Terms of Recoil Reduction and Performance Improvement

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Introduction

In the sport of clay pigeon shooting, shooters are required to fire numerous shotgun rounds both in training and competition, which may lead to chest discomfort and a potential decline in sports performance.

Objectives

Through the use of thermography and sports performance analysis, we examined the effectiveness of the Futur K6AM [1] buttstock, comparing it with traditional wooden stocks commonly used in clay pigeon shooting.

Materials & Methods

A simulated 'TRAP' competition was conducted using an over-and-under shotgun (Sporting model, Franchi). Six male and female subjects were recruited (age 28.4±3.2 years; BMI 21.7±1.8 kg/m2) with a minimum of 4 years of shooting experience. Each shooter fired with the same shotgun and cartridges in the first and second trials, with the only modification being the buttstock. Shooting sessions were separated by 60 days of rest. As injuries are related to variations in blood flow reflected on the skin [2], infrared thermographic technique was used to analyze the upper trunk, comparing temperature changes before and after four shooting series (100 clay pigeons, 25 pigeons/series).

Performance was assessed as the percentage of hits on the clay pigeon, using the ISSF Trap scheme 1. One-way ANOVA was used to compare temperature variations within the region of interest (the area of interface between the shotgun and the shooter was previously identified in the infrared images).

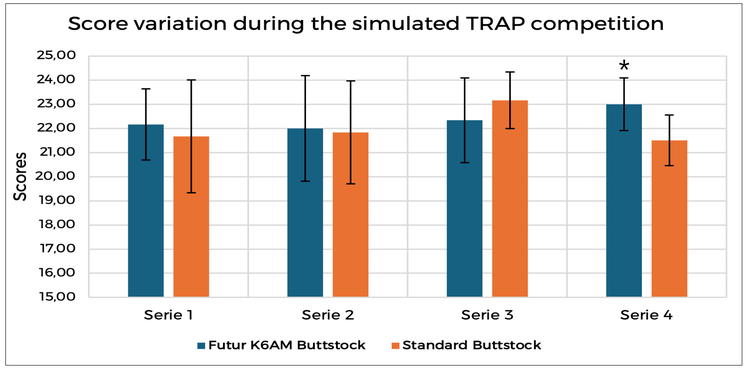

Figure 1: Statistically significant difference (p<0,04) during the fourth shooting series between shotgun with Futur K6AM buttstock and shotgun with standard buttstock in terms of score (broken clays).

Results & Discussion

The use of the Futur K6AM buttstock resulted in a significantly lower temperature increase (0.63±0.26°C, p<0.01) compared to the standard buttstock (1.17±0.6°C). Performance showed a statistically significant result (p<0.04) during the fourth shooting series, where shooters achieved a higher score (23±1.1) using the Futur K6AM buttstock, compared to the standard buttstock (21.5±1.05).

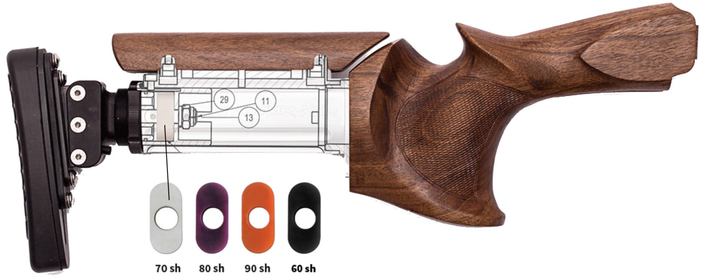

Figure 2: Futur-K6AM buttstock and rubber pads used to reduce the effects of the shotgun's recoil during shooting.

Conclusion

The Futur K6AM buttstock reduces the temperature increase in the anatomical area in contact with the buttplate and improves performance, especially in the latter part of the competition.

References

[1] Futur-K6AM, Professional Adjustable Stock. (2022).

[2] Hildebrandt C., Raschner C., Ammer K. (2010). An Overview of Recent Application of Medical Infrared Thermography in Sports Medicine in Austria. Sensors; 10(5):4700-4715.

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