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Evaluation of pain threshold and tolerance in judokas before competition

Fatma Neşe Şahin[1], Hamza Küçük[2], and Levent Ceylan[3]
[1]Department of Coaching Education, Faculty of Sport Science, Ankara University, Ankara, Türkiye
[2]Yasar Doğu Faculty of Sport Sciences, Ondokuz Mayıs University, Samsun, Türkiye
[3]Department of Sport Management, Faculty of Sport Sciences, Hitit University, Corum, Türkiye

Correspondence: Fatma Neşe Şahin (nese.sahin@ankara.edu.tr)
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Background
The control of pain and the ability to manage pain effectively are essential aspects of sports. This is particularly true for combat sports, where direct physical contact with the opponent is a critical skill for athletes. Athletes are systematically exposed to brief periods of intense pain during training or competition, necessitating the development of effective strategies to cope with such experiences. The aim of this study is to measure the pain threshold of national-level judokas before competition.

Materials and methods
The study involved 30 healthy male judokas with a mean age of 22.37±3.41 years. Pain threshold and tolerance were evaluated using a Baseline® manual pressure algometer. The Baseline® 66 Lb/30 kg dolorimeter consists of a metal probe capable of measuring pressures up to 30 kg in increments of 0.25 kg. Measurements were taken immediately before the competition with participants seated, their right upper limb flexed at the elbow and resting on a table. The measurements were conducted on the back of the hand, between the thumb and index finger.

Results
The pain threshold and tolerance of the athletes were categorized into two groups: ≤15 kg and >15 kg. Accordingly, 13 participants (43.33%) had a pain threshold of ≤15 kg, while 17 participants (56.66%) had a pain threshold of >15 kg, with no significant difference observed between the groups (χ^2: 0.533; p: 0.465). However, in terms of pain tolerance, 23 participants (76.6%) had a tolerance of ≤15 kg, and 7 participants (23.33%) had a tolerance of >15 kg, with a significant difference observed between the groups (χ^2: 8.533; p: 0.0035).

Conclusions
The results of the study suggest that judokas exhibit varying sensitivities to pain before competitions. Specifically, a statistically significant difference in pain tolerance was found between the groups ($p < 0.05$). This highlights the importance of individual differences in pain sensitivity before competitions. However, no significant difference was observed in terms of pain threshold. These findings emphasize the need for further research into the pain adaptation mechanisms of judokas and their impact on athletic performance.