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Abstract

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Deoxygenation and the blood volume signals in the flexor carpi ulnaris and radialis muscles obtained during the execution of the Mirallas's test of judo athletes

[Verdaguer-Codina, Joan, Mirallas, J.](#), Ctr. d'Alt Rendiment**Publication:** Proc. SPIE Vol. 2925, p. 237-247, Photon Propagation in Tissues II, David A. Benaron; Britton Chance; Gerhard J. Mueller; Eds.**Publication Date:** 12/1996**Abstract:**

The technique of execution of any movement in Judo is extremely important. The coaches want tests and tools easy to use and cheaper, to evaluate the progress of a judoist in the tatame. In this paper we present a test developed by Mirallas, which has his name 'Test of Mirallas' to evaluate the maximal power capacity of the judoist. The near infrared spectroscopy (NIRS) signals were obtained to have a measurement of the metabolic work of the flexor carpi ulnaris and radialis muscles, during the execution of the ippon-seoi-nage movement, allowing this measurement to assess by NIRS the maximal oxygen uptake. Also obtained were tympanic, skin forehead, and biceps brachii temperatures during the test time and recovery phase to study the effects of ambient conditions and the post-exercise oxygen consumption. The deoxygenation and blood volume signals obtained gave different results, demonstrating the hypothesis of the coaches that some judoist do the execution of the ippon-seoi-nage movement correctly and the rest didn't. The heart rate frequency obtained in the group of judoist was between 190-207 bpm, and in the minute five of post-exercise was 114-137 bpm; the time employed in the Mirallas's test were from 7 feet 14 inches to 13 feet 49 inches, and the total of movements were from 199 to 409. The data obtained in the skin forehead, and skin biceps brachii confirms previous works that the oxygen consumption remains after exercise in the muscle studied. According to the results, the test developed by Mirallas is a good tool to evaluate the performance of judoist any time, giving better results compared with standard tests.

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