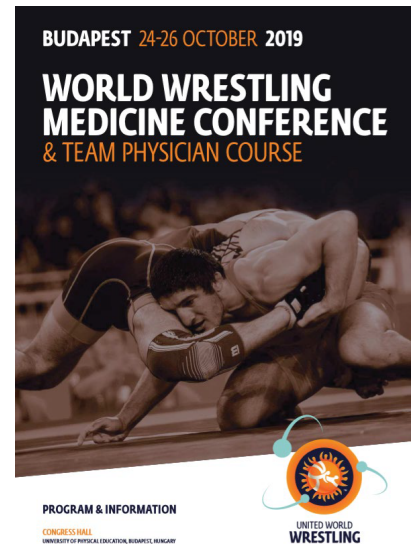




Special Section: Summaries of Presentations from the Wrestling Medicine Conference & Wrestling Team Physician Course, United World Wrestling, Budapest, October 24-26, 2019

STUDY OF THE PEAK OXYGEN UPTAKE AND MAXIMAL HEART RATE IN WRESTLERS

Daniela Cuadra



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STUDY OF THE PEAK OXYGEN UPTAKE AND MAXIMAL HEART RATE IN WRESTLERS

Daniela Cuadra M.D.

Head Team Physician
Chilean Sports Federation of Olympic Wrestling

daniela.cuadra@usach.cl

Background

Special Wrestling Fitness Test (SWFT) is a specific test of wrestling to assess physical condition of athletes. Comes from an adaptation of Special Judo Fitness Test (SJFT).

An important study indicates that this new test could be used to measure a more specific and valid physical ability of the fighters without having to resort to laboratory tests, in which the movements and energy demands are different from the specificity of wrestling (Martínez-Abellán, 2015).

Martínez-Abellán (2016) Special Wrestling Fitness Test: una prueba específica de lucha olímpica aplicada a luchadores jóvenes. Sport TK-Revista Euroam. Ciencias del Deport. 5, 27

Karimi 2016, aimed to determine the validity of the special judo fitness test among Iranian male wrestlers and published the Validity of Special Judo Fitness Test in Iranian Male Wrestlers. He compared the special judo fitness test with Wingate test on a cycle ergometer. There was a significant correlation between the results of HR changes and lactate concentration changes between the two tests.

The study concluded that the special judo fitness test is a valid field test to assess anaerobic fitness of male wrestlers. The test can be used as a field test to evaluate anaerobic fitness in wrestling.

Karimi, M. (2016) 'Validity of Special Judo Fitness Test in Iranian Male Wrestlers', International Journal of Wrestling Science. Routledge, 6(1), pp. 34–38.

SWFT has been positioned as the method to evaluate athletes' performance and physiological parameters.

This physiological behaviour is still unclear.

Objective: Compare values of oxygen uptake in treadmill against SWFT by ergoespirometry (ERGO) analysis in wrestling athletes.

Relative oxygen consumption (VO₂/Kg) peak
Respiratory quotient (RER)
Oxygen pulse (VO₂/HR)
Maximal heart rate (HR_{max})

Design

Descriptive study of female and male cadets (n=10) of freestyle wrestling in pre-season at the Olympic Training Centre.

VO₂ treadmill (ERGO) test with the ACSM protocol for athletes and the SWFT.

SWFT:

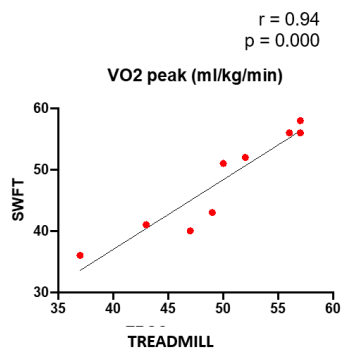
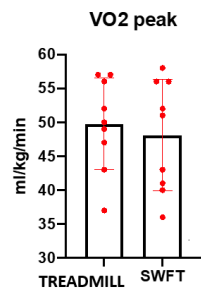
3 bouts of wrestling activity (A: 15 seconds, B: 30 seconds and C: 30 seconds) with 10 seconds rest between bouts.

Each test subject had to bring two other subjects were positioned at a 6-meter distance using the fireman technique. SWFT Index = (Final HR + 1min HR)/Total Number of Throws

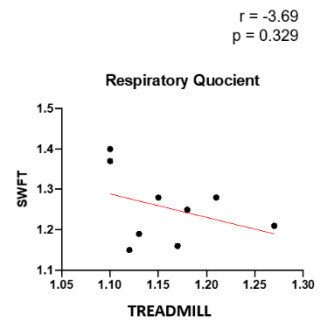
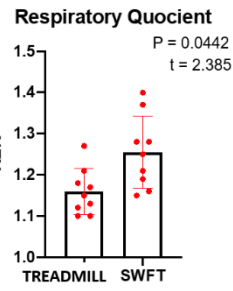
Results

Relative oxygen consumption (VO_2/kg) peak

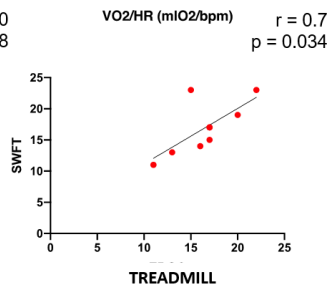
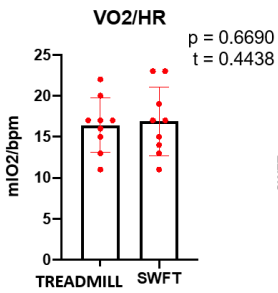
$t = 1.72$
 $p = 0.125$



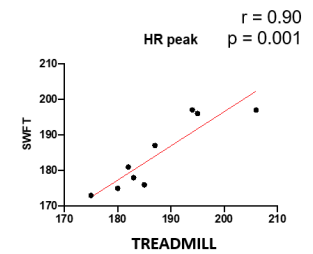
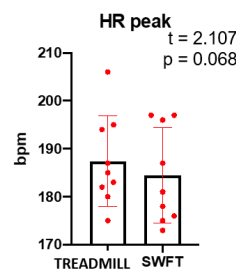
Respiratory quotient (RER)



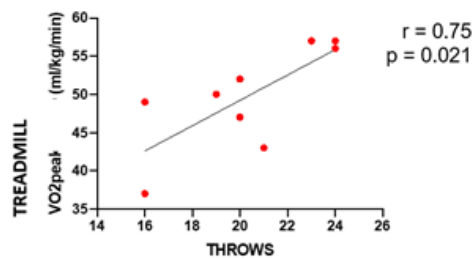
Oxygen pulse (VO_2/HR)



Maximal heart rate (HR_{max})



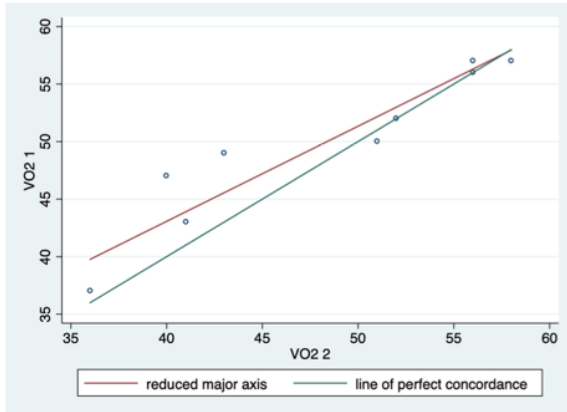
SWFT THROWS



VO₂ Peak Concordance

Concordance correlation coefficient (Lin, 1989, 2000):

rho_c	SE (rho_c)	Obs	[95% CI]	P	CI type
0.900	0.063	9	0.777 1.022	0.000	asymptotic
			0.679 0.971	0.000	z-transform



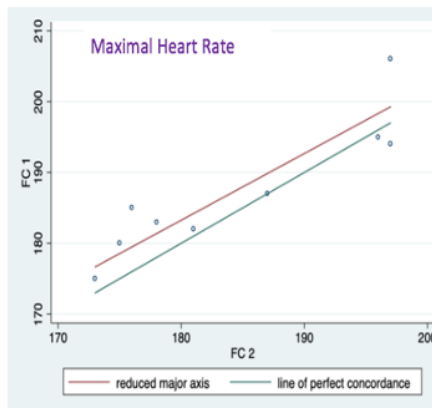
VO2 1: Ergo; VO2 2: SWFT.

HR_{max} Concordance

Frecuencia Cardiaca Máxima

Concordance correlation coefficient (Lin, 1989, 2000):

rho_c	SE(rho_c)	Obs	[95% CI]	P	CI type
0.857	0.093	9	0.675 1.040	0.000	asymptotic
			0.533 0.962	0.000	z-transform



FC 1: Ergo; FC 2: SWFT.

Conclusion:

We observed that the peak VO₂, HR, oxygen pulse are similar in treadmill and SWFT.