

EFFECT OF OVERDRESSING (MUSLIM VEIL) ON SUBMAXIMAL AEROBIC FITNESS

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INTRODUCTION

The veil in Islam is a garment, which covers the entire body except the face, hands and feet. Muslim woman wears it in the presence of any male outside of their immediate family eventually during sports activity. Few years ago, wearing a muslim veil was considered a barrier to physical activity. In some cases, muslim women were not allowed to compete in sporting competitions unless they remove their veil^{1,2}. During the last few years, sports federations around the world started to lift the ban on islamic veil and headgears during their competitions.

AIM

The aim of our study was to determine whether wearing a veil can affect submaximal aerobic fitness based on different parameters.

MATERIAL AND METHODS

Twelve sedentary females aged 21 to 28 years, performed a 6-min walk test³ (6MWT) and submaximal cycle ergometer test (SCET) at 70% of maximal aerobic power (MAP) determinate according to the Wassermann formula⁴. During the SCET, participants warmed up for 3 min at 20% of MAP, then they cycled during 10 min at 70% of MAP. During the first session, the subjects performed the tests wearing sports outfit (sweat pants + jacket +veil). In the second session, the subjects performed the same tests wearing shorts and a t-shirt then we compared parameters in both sessions. Parameters evaluated were: tympanic temperature (TT), heart rate (HR), blood pressure (BP), 6-min walk distance (6MWD) and dyspnea according to the EVA or the Borg scale. The significance level was set at a probability level $p < 0.05$.

RESULTS

Mean age, weight, Body Mass Index (BMI) and MAP were respectively 24 ± 2.2 years, 61.5 ± 13 kg, 20.6 ± 1.5 kg.m⁻² and 155 ± 10 W. During both sessions, we did not find significant difference during 6MWT with or without veil for the following parameters: HR, BP, 6MWD. Significant differences were found for TT ($p < 0.002$) and dyspnea ($p < 0.002$). For the SCET, significant differences were found only for HR and dyspnea ($p < 0.05$).

Table 1: 6min walk test variables with and without veil

	With veil		Without veil	
	Rest	End	Rest	End
Heart Rate (Bpm)	76±5	147±13	73±7	145±9
Systolic Blood Pressure (mmHg)	120±5	126±6	115±6	125±5
Diastolic Blood Pressure (mmHg)	80±5	81±4	73±5	78±6
Dyspnea"EVA"	0	1±0.6	0	0.5±0.5*
6-min Walk Distance (m)	639±51		655±23	
Tympanic Temperature	37.1±0.36	37.3±0.3	36.9±0.3*	37.1±0.3*

Table2: Submaximal cycle ergometer test variables with and without veil

	With veil		Without veil	
	Rest	End	Rest	End
Heart Rate (Bpm)	79±5	183±7	79±8	177±6*
Systolic Blood Pressure (mmHg)	120±5	131±8	115±6	129±10
Diastolic Blood Pressure (mmHg)	80±5	79±6	73±5	76±9
Dyspnea"Borg scale"	0	5.2±1.9	0	3.3±1.7*
Tympanic Temperature	37.1±0.35	37.6±0.31	36.9±0.3	37.4±0.4

*: $p < 0.05$ with and without veil

DISCUSSION/CONCLUSION

Wearing a veil is not likely a constraint for practicing physical activity. It has not an impact on submaximal aerobic capacity. However, the results found can be protocol dependent.

REFERENCES

¹:Gertrud Pfister (2010) Outsiders: Muslim Women and Olympic Games – Barriers and Opportunities, The International Journal of the History of Sport, 27:16-18, 2925-2957, ² Harkness G, Islam S. Muslim Female Athletes and the Hijab. Contexts. 2011;10(4):64-65. ³ ATS statement: guidelines for the six-minute walk test. Am J Respir Crit Care Med. 2002;166(1):111-7.⁴: Wasserman K. Determinants and detection of anaerobic threshold and consequences of exercise above it. Circulation. 1987 Dec;76(6 Pt 2):VI29-39. PMID: 3315297.