

The experience of the World Masters Orienteering Championships 2010 in Neuchatel (Switzerland)

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**Results:**

From the 4117 O-runners, we received 2'200 emails. Figure 1 shows the countries and respective ages of the WMOC participants.

In the clinical part, 201 participants, 35 to 83 years old (mean age: 57), can be included: 83 women and 118 men. Mean heart rate at rest: 65 (+/- 12) pro minute (figure 2). Mean oxygen percentage: 97% (+/- 1,5) (figure 3). Mean systolic blood pressure (sitting): 147 mmHg (+/- 22) (figure 4). Mean diastolic blood pressure (sitting): 92 mmHg (+/- 14) (figure 5). This confirms data from previous international studies (figure 6). Mean IMT: 625 um (+/- 146) (image 3 and figure 7). 30 participants (15%) had atheromatosis in the supraortic vessels: 26 (13%) < 25% stenosis, and 4 (2%) with 25 to 50% stenosis.

In the epidemiological part, we received 578 valid questionnaires = a participation rate of 26,3% (28,5% women and 71,5% men). Only 70 participants (12,1%) have no history of trauma, and 196 (34%) no illness history. 49 runners (8,5%) have a past history of cardiovascular disease, and 22 (3,8%) a cancer. Less than 1% were active smokers. The training level was good: one or more times sport a week for 94,8% of the participants. The stability of the electronic platform was 99,5%, a figure close to Microsoft software in commercial use!

**CHECK YOUR HEALTH !  
PROMOTE THE SPORT !  
JOIN IN IRMAS !**

**Purpose:**

This medical study was performed during the World Masters Orienteering Championships in 2010 in Neuchatel (Switzerland), with the support of the International, National and Regional O-Federation. The objective was to make a good evaluation of the health of the international athletes according to the age, and therefore to test the efficiency of the new quick cardiovascular screening methods in current practice.

**Methods:**

The official medical informations were on the organization homepage: [www.wmoc2010.org](http://www.wmoc2010.org), and on this of the survey (Image 1): [www.irmas.ch](http://www.irmas.ch) in 5 languages (english, german, italian, french and russian).

Nationality	Number of runners	Class	Number of runners
AUS	44	M35	139
AUT	73	M40	206
BEL	60	M45	285
BLR	22	M50	328
BRA	16	M55	374
BUL	42	M60	446
CAN	6	M65	356
CRO	4	M70	268
CZE	141	M75	120
DEU	56	M80	38
ESP	38	M85	15
EST	140	M90	1
FIN	693	M95	1
FRA	138	W35	98
GBR	217	W40	149
GER	102	W45	165
HUN	58	W50	204
IRL	5	W55	271
ISR	9	W60	267
ITA	11	W65	207
JPN	34	W70	118
KAZ	4	W75	40
LAT	50	W80	17
LTU	49	W85	3
LUX	2	W90	1
HDA	10	TOTAL WMOC	4117
NED	5		
NEP	1		
NOR	488		
NZL	8		
POL	19		
POR	43		
ROU	28		
RSA	4		
RUS	342		
SLO	9		
SRB	6		
SUI	699		
SVK	24		
SWE	368		
TUR	2		
UKR	49		
USA	15		
TOTAL	4117		

Figure 1: Countries and ages of the WMOC participants

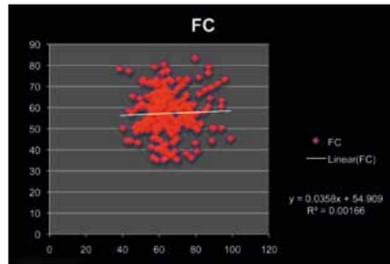


Figure 2: Table of heart rate of participants

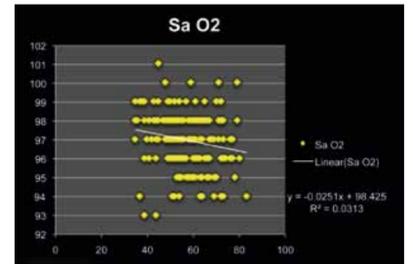


Figure 3: Table of the oxygen saturation by participants

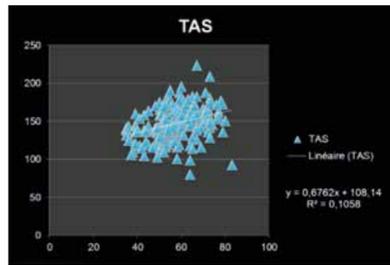


Figure 4: Table of systolic blood pressure participants

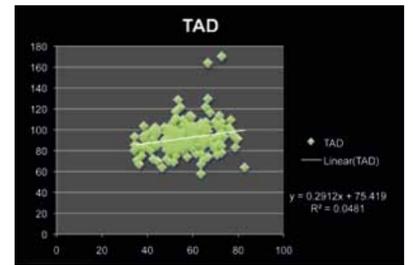


Figure 5: Table of diastolic blood pressure participants

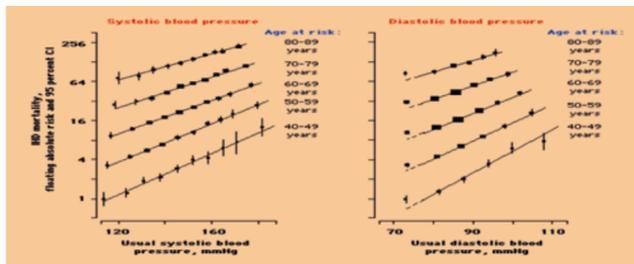


Figure 6: Table of systolic / diastolic blood pressure as risk factors in comparison

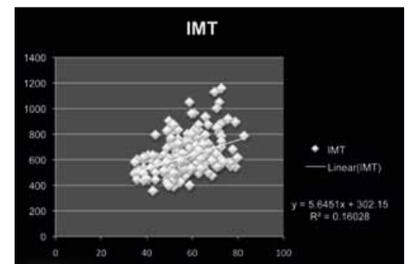


Figure 7: Table of Intima Media Thickness by participants



Image 1: Homepage of the Study

In the clinical part, this parameters were controlled at the event center: heart rate, blood pressure, oxygen percentage in blood, intima media thickness (IMT). This material was used: for the heart rate and the blood pressure, an automatic system of the firm OMRON; to measure the oxygen, an DNYX pulsoxymeter; for the IMT, a portable ESAOTE My Lab 25 with a multi-frequency linear transducer (10-15 Mhz) (Image 2).



Image 2: Stand at the Event Center

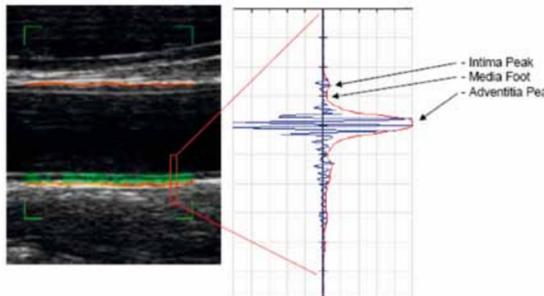


Image 3: Example of Intima Media Thickness measure by new sonography

QIMT (HOWARD) (WHITE)	QIMT (P)
400	400
300	300
200	200
100	100
0	0

LEFT QIMT	RIGHT QIMT	QIMT (RF)
400	304	400
300	204	300
200	104	200
100	4	100
0	0	0

**Conclusions:**

the regression analyse of the clinical data are according to the past studies for the systolic and diastolic blood pressure values 1. With the new portable sonography and softwares like for the IMT measure 2, it's possible to make a good cardiovascular screening in a few minutes (mean time 10 minutes...), out of the hospital, with low costs. The participants were good trained, and more fit as a standard reference population. The electronic platform is efficient, stable and respectful of the current legislation on data protection; it allows clinical trials or large-scale epidemiological, longitudinal or transverse mode. If we want to join large collective in sport sciences, major international events involving veterans will be excellent sources of information in the future.

- 1) Data from prospective studies collaboration, Lancet 2002; 360: 1903.
- 2) Carotid Plaque Area and Intima-Media Thickness in Prediction of First-Ever Ischemic Stroke: A 10-Year Follow-up of 6584 Men and Women: The Tromso Study, Mahtiesen EB Johnsen SH Wilsgaard T et al. Stroke 2011 Feb 10.

**Conflicts of Interest:**

Esaote, Echoworld, Menarini, Mepha, Vifor, Novartis, Drossapharm

In the following monthes, 3 mailing (with a link to a questionnaire of 40 epidemiological questions on the IRMAS homepage) were sended to the 2200 mails addresses in the data-base of the event organization.