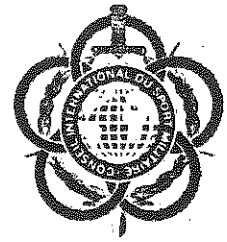


International Symposium ON *Sport for all!*



SWIMMING AND HEALTH

Captain José GONZALES CERA (Spain)

INTRODUCTION

The aims of this lecture are the following:

- To show the advantages of aquatic activities as a sport for all.
- To get to know swimming as a therapy.

Besides, the intention is to give you two documents to serve as base for the initiation of swimming and health activities:

- Running versus swimming. How to make swimming as useful and popular as jogging.
- Program of therapeutic swimming for the back. A guide to implement these programs in any centre.

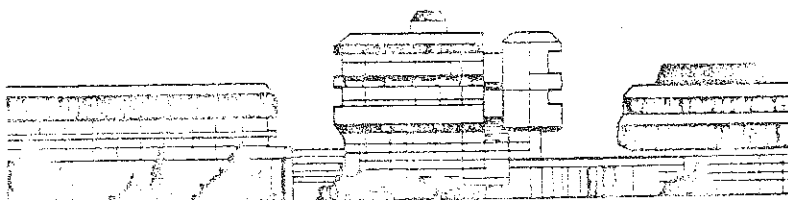
SWIMMING, A SPORT FOR ALL

Why should we think of aquatic activities as a sport in the Armed Forces? There are strong reasons for this. I can speak about military training, educational reasons or because it is the best form of sport for keeping fit in order to move all muscles. But I am going to point two practical reasons:

- In the Armed forces there are a great number of swimming pools that demand to make the investment profitable.
- Swimming pools are used not only by a greater number of people but also a wider range of age groups than the rest of sport facilities.

Centres for aquatic activities are growing in number in Spain. Not only the outdoor ones, which are assumed to be the most common, but the indoor ones are multiplying all over the country through private and public initiatives. In the military world, practically every unit has an outdoor swimming pool. Moreover, some teaching centres and special units have indoor swimming pools.

Regarding the people who use swimming pools, I have up-to-date information on one public centre. In a season up to two thousand people with ages ranging from a few months old to the very elderly regularly use the public centre. In regard to military centres, a recent study by Captain Casado Rincón shows that a great percentage of unit officers are habitual users of the



**Warendorf - Germany
22 - 28 September 1996**

1. the fitness level, health-related living habits and health of the reservists in comparison with the results of a similar study carried out in 1983
2. the impact of fitness testing preceding refresher training and training instruction for training activity and fitness of the participants during refresher training
3. how the reservists cope with the physical load of refresher training

The timetable of the study is shown in appendix 5.

Based on a random sample, 976 reservists were chosen of whom 811, including officers, NCO's and rank and file, participated in the test. They were tested in six different refresher training sessions.

The subjects were divided into three groups (appendix 6). In two groups, physical fitness tests were conducted six months before refresher training; physical fitness, training patterns and health were studied with an extensive questionnaire.

The subjects were tested by the following tests (appendix 7):

blood pressure, anthropometric measurements, co-ordination, balance, mobility of back, hand muscle endurance (pull-ups), pressing force of hands (maximal power), stomach (sit-ups) and back bendings and endurance test (cycle-ergometer and a 2-kilometre walking test (UKK-walking test)).

Some main results are seen in appendix 8. Age, military training and domicile had an impact on the variations in sport interests, physical fitness, health and health-related living habits of the reservists. The anthropometric results show that in 1994 the reservists were on average 3.5 kg (4%) heavier than ten years ago. 8% of the subjects were corpulent (BMI over 30).

Physical fitness, health and performance (appendixes 9 and 10) weakened somewhat after the age of 30 - and more markedly after the age of 36. Officers displayed healthier ways of living than NCO's, and these again healthier ways of living than the rank and file.

The UKK walking test (appendix 11) shows a descending curve in endurance after 35 years of age (under 37 mmol/l).

On the basis of the questionnaire, the practice of sports appeared to decrease after the conscription period. On the average, the level of physical condition was satisfactory both in 1983 and 1994. Officers were in better physical condition than NCO's, and NCO's displayed better physical condition than the rank and file.

One of the main results of the study was that it provided information on the effects of the training instructions given and feedback of the tests made.

All groups were medically examined before refresher training, but group C (appendix 6) did not get any previous information. Group B was tested and given feedback of the tests and group A was tested, given feedback and also given instructions about training on the basis of tests. The result was that in group A motor skills and endurance developed more than in group B. Also body co-ordination and balance developed 10% more compared to group B. In group A, 37% of the subjects felt that training instructions had a positive effect on their practice of sports. 22% believed that the instructions promoted their physical fitness. Shortly: feedback and instructions six months before refresher training promoted fitness better than only feedback.

How did the reservists cope with the physical load of refresher training? In view of their physical condition, the majority of the reservists coped well or extremely well with the physical and psychological stress of the refresher training. During the training about 30% of the subjects experienced difficulties mainly due to back or muscle complaints that hindered activities.

This study is not yet finished. The last phase is to find a reliable, cheap and "easy to use" system for the follow-up and testing of reservists. Testing, feedback and training instructions encourage physical activity and increase people's awareness of each other's physical condition.

Good physical condition is still of great importance to a soldier even though war operations are becoming more and more technical every day.

Physical Performance Capability of
the Finnish Reservists

Research was done

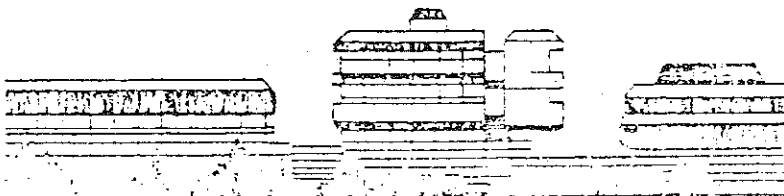
IN CO-OPERATION WITH:

The Defence Staff

The UKK Institute

The Finnish Sport for All Association

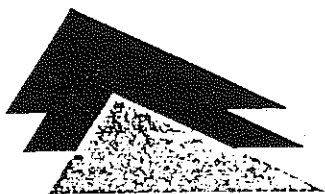
The Finnish Reservists Sports Federation



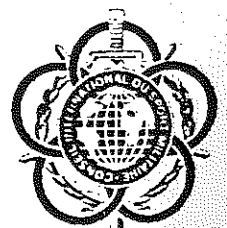
Physical Performance Capability of
the Finnish Reservists

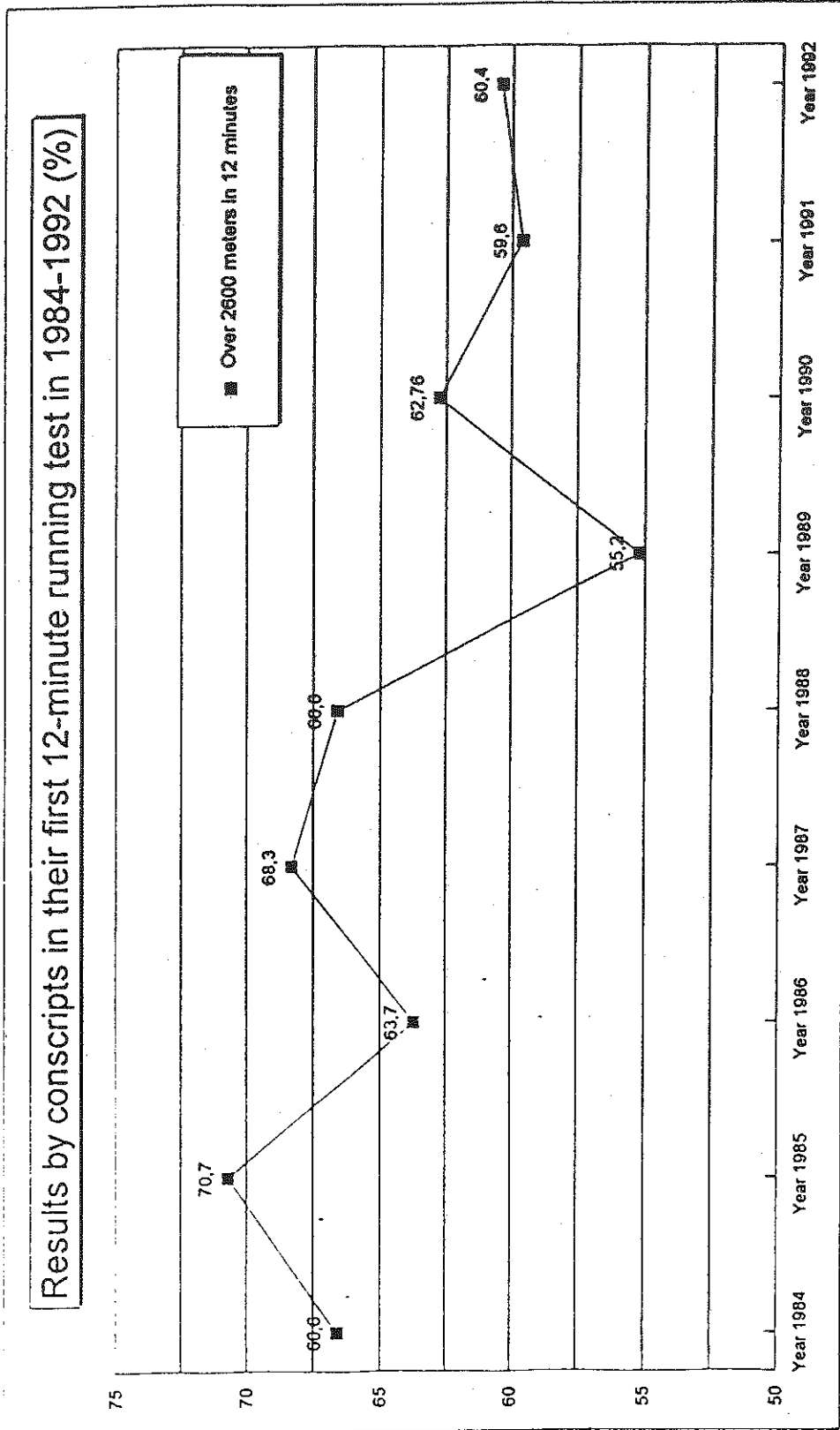
The General Task was

To support the physical activity
of reservists and adults by determining
the level of their physical condition
and to note and describe changes
and to test the continuous
follow-up system

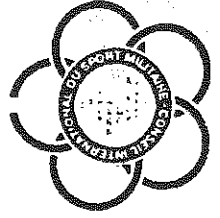


International Symposium
on
Sport for all!





International Symposium
ON
Sport for all!

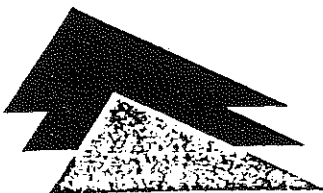


Physical Performance Capability of the Finnish Reservists

The Objective of the Research

to clarify

1. the fitness level, way of living and health of reservists in comparison with the results of a similar study carried out in 1983
2. the impact of fitness testing preceding the refresher training and training activity and fitness of the participants in the refresher training
3. how the reservists cope with the physical load of refresher training



International Symposium
on
Sport for all!



Physical Performance Capability of the Finnish Reservists

Timetable of the study

1st phase, 1993

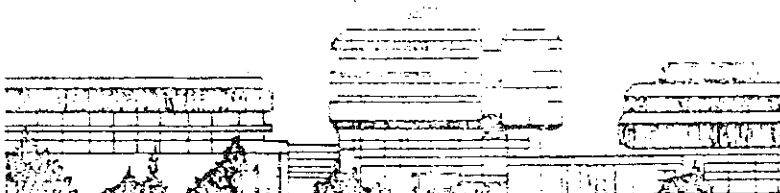
About 500 reservists were studied in Southern Finland. Some of them were tested 6 months before refresher training and the rest were given instructions for fitness training

2nd phase, 1994

About 300 more reservists from the whole country were tested

3rd phase, 1995-

Development of the reporting and testing system (still continuing)



Physical Performance Capability of
the Finnish Reservists

TEST MODEL

GROUP C

No. physical tests before refresher training

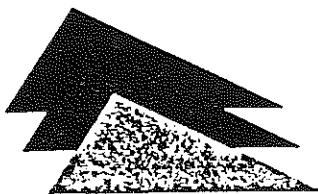
GROUP B

Physical test and feedback 6 months
before refresher training

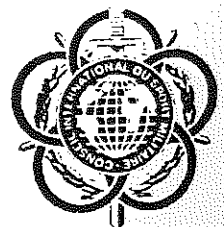
GROUP A

In addition to physical test and feedback
instructions were given for training

All groups were medically tested
before refresher training



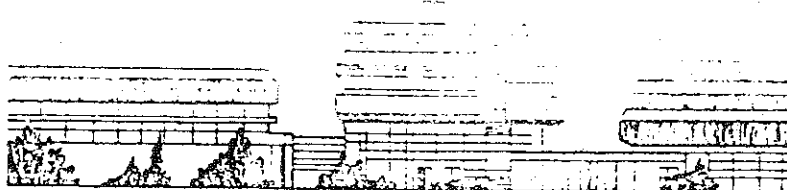
International Symposium
on
Sport for all!



Physical Performance Capability of the Finnish Reservists

TEST PATTERN

1. Blood pressure
2. Anthropometric measurements
(weight, body fat, BMI, hip-waist
relationship)
3. Coordination
4. Balance (standing on one foot
with eyes closed)
5. Mobility of back
6. Pull-ups (muscle endurance of hands)
7. Press power of hands
8. Dynamic (stomach 60s) and
static (back 240s) strength of body
9. Jumping test
10. Bicycle-ergometer test and
2-km walking test

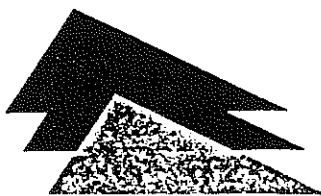


Warendorf - Germany
22 - 28 September 1996

Physical Performance Capability of
the Finnish Reservists

Anthropometric measurements

	Officer		NCO		Rank and File		All	
	1983	1994	1983	1994	1983	1994	1983	1994
	(n=90)	(n=76)	(n=90)	(n=171)	(n=90)	(n=564)	(n=270)	(n=811)
	\bar{x}	\bar{x}	\bar{x}	\bar{x}	\bar{x}	\bar{x}	\bar{x}	\bar{x}
Age in years	27.6	28.4	27.1	28.7	26.9	28.8	27.2	28.6
Height in meters	1.78	1.80	1.78	1.80	1.76	1.78	1.78	1.79
Weight in kilos	77.3	79.8	77.3	78.1	74.1	78.9	75.3	78.8



International Symposium
ON
Sport for all!



Physical Performance Capability of
the Finnish Reservists

PHYSICAL CONDITION

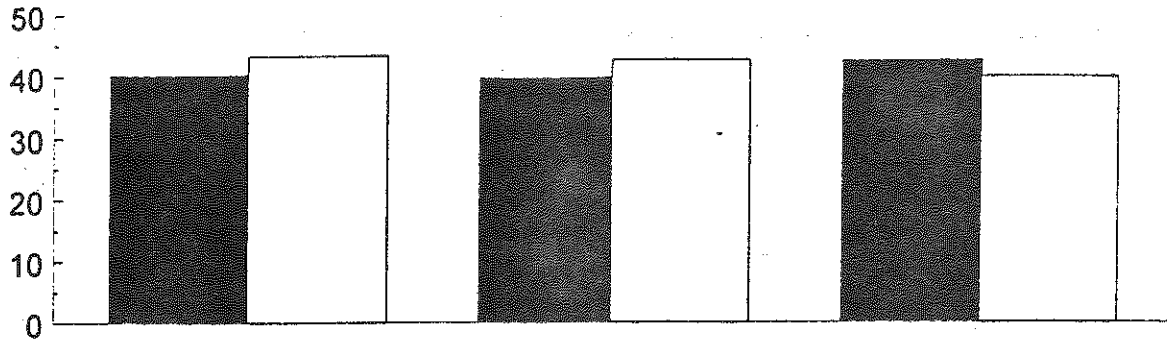
	< 30 v.		> 30 v.	
	1983 \bar{x}	1994 (n=542) \bar{x}	1983 \bar{x}	1994 (n=270) \bar{x}
Bicycle-ergometer (ml/min-1/kg-1)	40.8(T)	42.2(T)	40.8(T)	39.4(T)
Sit-ups (60 seconds)	35.2(H)	37.5(H)	30.9(H)	27.8(T)
Pull-ups (maximum)	9.1(T)	7.3(T)	7.0(T)	5.7(T)

H=POOR
T=SATISFACTORY
H=GOOD
E=EXCELLENT

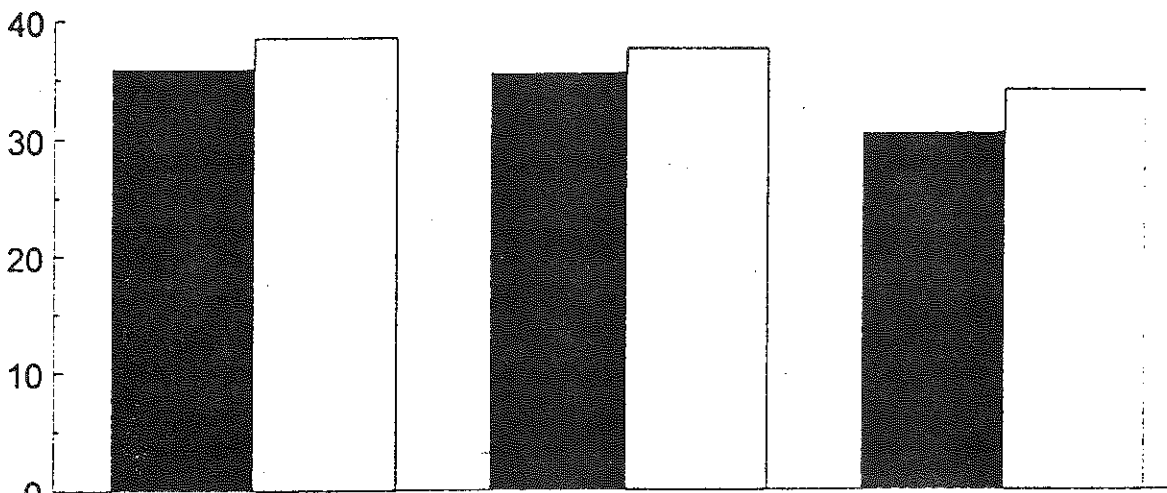
Physical performance capability

■ 1983 □ 1993

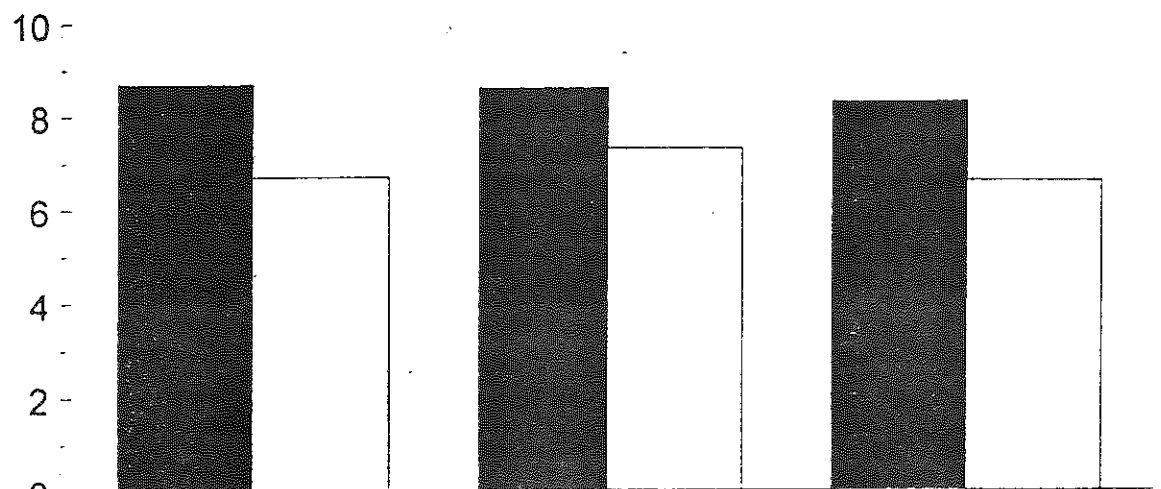
VO2 max



sit-ups



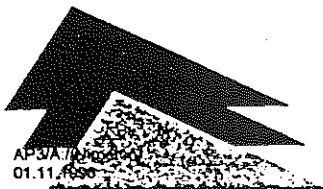
pull-ups



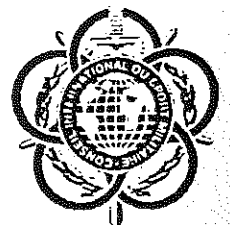
Officer

NCO

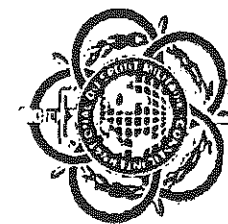
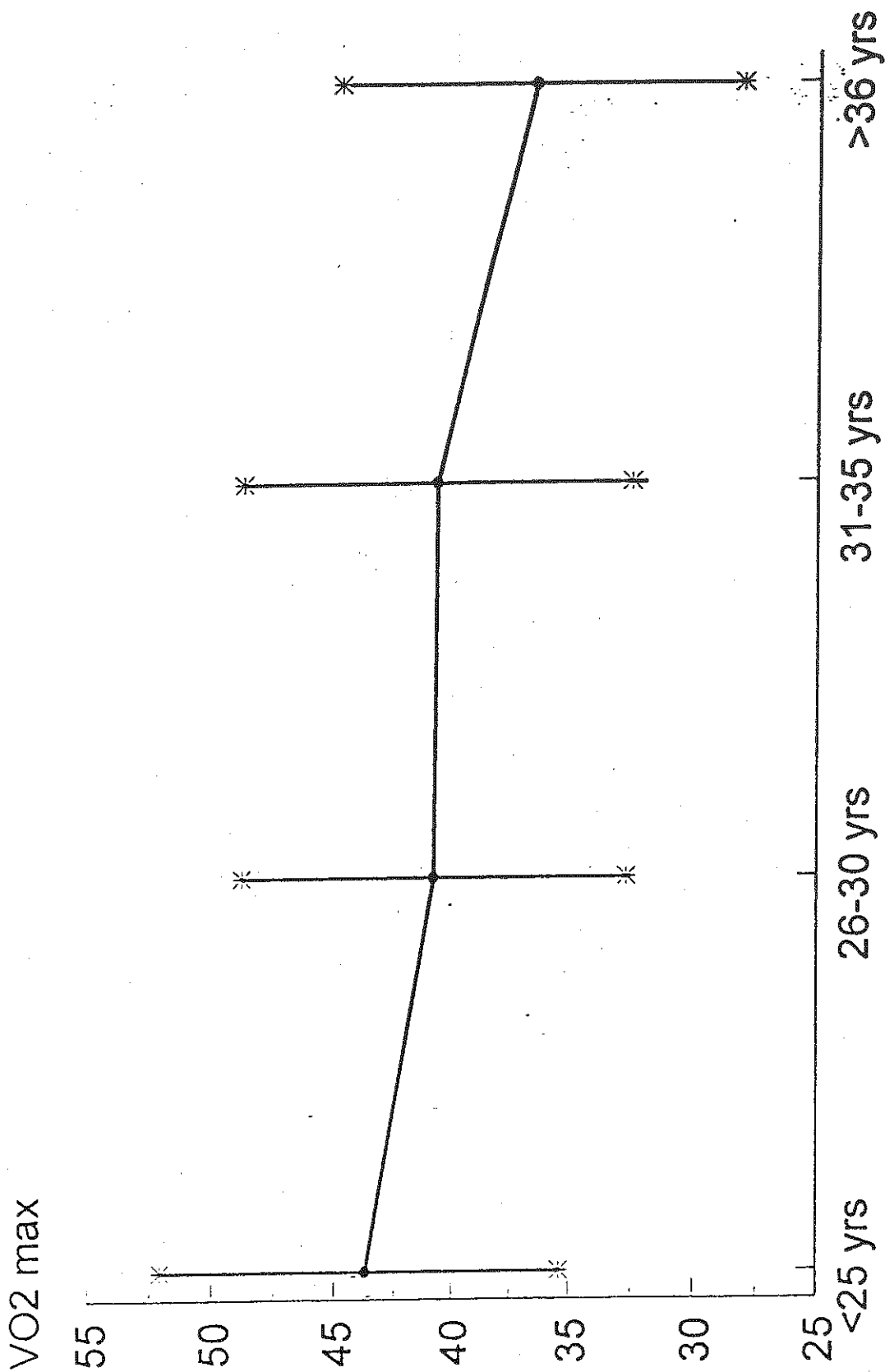
Rank and file



International Symposium
on
Sport for all!



UKK Walking test (2 Km)



International Symposium
on
Sport for all!

