

International Symposium on *Sport for all!*



MOTIVATION FOR PHYSICAL ACTIVITY

Creating a desire to become physically active

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INTRODUCTION

« SPORTS FOR ALL » is a popular vision for any organisation which is interested in the physical and psychological well-being of its members. It is unnecessary to debate the role of sport and physical activity in the advancement of human potential, productivity and overall happiness. This has been established numerous times.

The actualisation of this vision would appear to be very difficult, administrators and organisers usually experience the frustration of Sisyphus who struggled endlessly with no positive end result.

In the military this question is even more pertinent than in other non-military organisations. Geoffrey Best, in the Collin Dictionary of Military Quotations, states the following: « Sport concerns the military in two ways; firstly, as the straight road to physical health and strength, indispensable to the good soldier; secondly, because of the special value attributed to team games in training the essential qualities of the officer. »

SCOPE

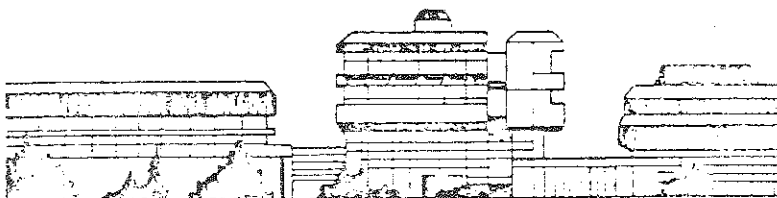
CURRENT SITUATION

Six issues are addressed in this paper. These issues emphasise the necessity of motivating people towards higher levels of physical activity.

Obesity

In a study which was done during the first six months of 1996 in the South African Defence Force (SANDF), a test sample of 7.102 permanent force members were evaluated. Of the study group 30% were over their desired weight according to age, height and body type. This means that approximately 1 out of every three military personnel is obese! 47,2% of all the candidates recorded high cholesterol counts.

Fitness levels



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overweight soldiers is substantially lower than that of the normal weight persons. The importance of the overweight as "risk factor of the risk factors" can be confirmed in this study as well because all essential risk parameters show a partly substantially unfavourable expression (Fig. 2).

Furthermore, it was found that the majority of the subjects were strained by partly extensive fat metabolism disorders. In more than half of the cases increased cholesterol levels and in approximately 10% a substantial hypercholesterolaemia could be documented. Decreased HDL-cholesterol concentrations - according to several epidemiological studies the most important single risk factor - could be detected in almost 40% of all cases, in 6% with an extremely pathological expression.

An increased total cholesterol/HDL cholesterol quotient occurred among almost 30% of all subjects. In this connection it has to be stressed that this quotient possesses the highest predictive value regarding the coronary risk assessment (Fig. 3).

In accordance with the blood pressure values - measured for several times - in approximately 40% of all cases borderline values and in 10-20% clearly hypertonic systolic and/or diastolic values were detected (Fig. 4).

The rate of active smokers is with approximately 17% just half as high as that of the normal German population and therefore considered to be amazingly low. A reason for this finding may be the increased proportion of physically over-average active subjects. But almost 24% of the soldiers confirmed that they had smoked in earlier times.

In all epidemiological studies it is mentioned that the real risk profile results to a lower extent from single than rather from the combination of several risk factors. Under consideration of the established important risk factors it turned out that in this positively selected population as well only approximately one third of the subjects had none or only one risk factor, almost one third, however, two up to five important risk factors (Fig. 5). Because the examined soldiers are an over-average physically active group and therefore a positive selection, it can be suggested that the cardiovascular risk factor profile in a representative sample of soldiers of the same age is even higher.

It appears to be remarkable as well that in most of the cases the soldiers did not know anything about their risk constellation and therefore did not see any reason until then to adjust their life style in an adequate manner.

Numerous new prospective studies describe the negative relation between physical fitness / activity and myocardial infarction incidence. Therefore, this aspect which is of high importance from the sportsmedical point of view, was given special attention in this study. In overall the

subjects showed a mean ergometric performance of 3.3 watt/kg and thereby a physical fitness which is substantially above average for this age group (average normal value: 2.5 watt/kg). When comparing the risk factor profile between soldiers with under- and over-average physical fitness substantially more favourable results could be detected among the physically fitter group (Fig. 6).

The findings of the exercise ECG were evaluated according to the categories "normal", "suspect" or "pathological" depending on the degree of dysrhythmias or indications for ischemia. In approximately 20% formally suspicious or pathological ECG alterations could be found. This number, however, corresponds with a suspicion for coronary heart disease among at least each eighth subject (Fig. 7). It is remarkable that the subjects with suspicious ECG alterations showed a higher prevalence for all investigated risk factors. The differences compared to the group with normal ECG, however, are not statistically significant (Fig. 8). These results are to a great extent in correspondence with those of a follow-up study of middle-aged soldiers which has been carried out at our institute. 130 soldiers were first examined in the age range of 40 and 49 years and re-examined 10 years later. In this study it could be demonstrated as well that the subjects with suspicious ECG findings showed a higher number and stronger expression of risk factors. The differences were - apart from the clearly higher numbers of smokers in the group with suspicious or pathological ECG findings - not or only to a minor degree statistically significant. It could also be confirmed in this study that the subjects who were physically more active or had the highest ergometric performance had a - partly very significant - favourable risk factor profile.

It is quite remarkable, however, that in this prospective study the number of ischemia-suspicious ECG alterations increased from 11% to almost 40% over a period of 10 years (Fig. 9). Four of the originally 170 examined soldiers died in the meantime from a myocardial infarction, 15 suffered from a heart attack or received a coronary bypass operation.

These results make the statistical projection believable that from soldiers aged 40 years and above the risk to suffer from a myocardial infarction in the next ten years is on average 10%. If this finding does not occur as clearly in the figures of the Military Medicine Statistics, this is probably due to the fact that one part of the soldiers retired when reaching the retirement age of 53 years, another part retired due to the employer's welfare obligation in case of proven coronary artery disease before the first myocardial infarction happened.

To summarise it can be concluded that despite a rather over-average physical fitness and an on the whole relatively favourable risk factor profile compared to the civilian population of the same age, middle-aged soldiers possess a remarkably high cardiovascular risk due to life style dependent risk factors. Because in most cases there is lack of knowledge regarding the existing cardiovascular risk, obligatory preventive medical examinations appear to be necessary in order to discover atherogenic risk factors among soldiers at least over the age of 40 years. Obviously physical activity plays directly or indirectly a major role as an essential measure for

Fig.1

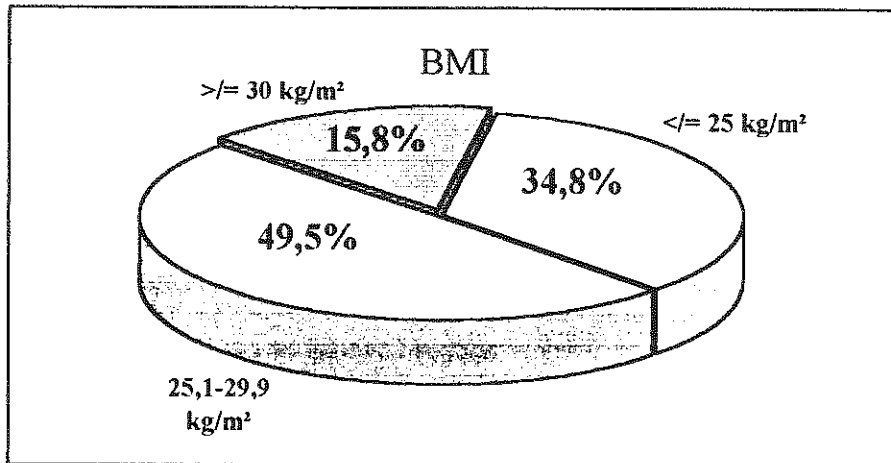


Fig.2

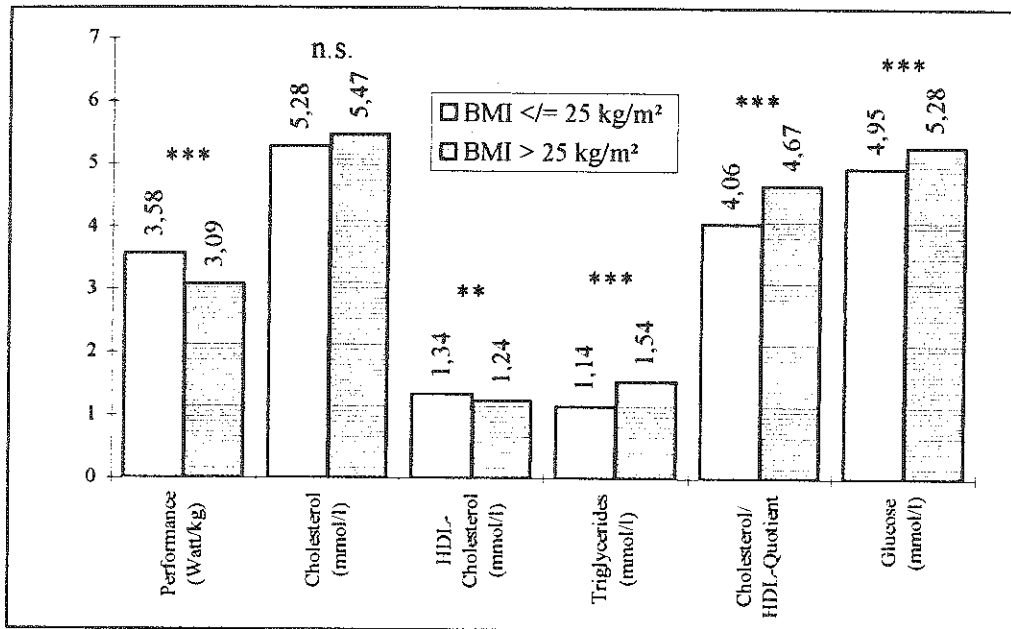


Fig.3

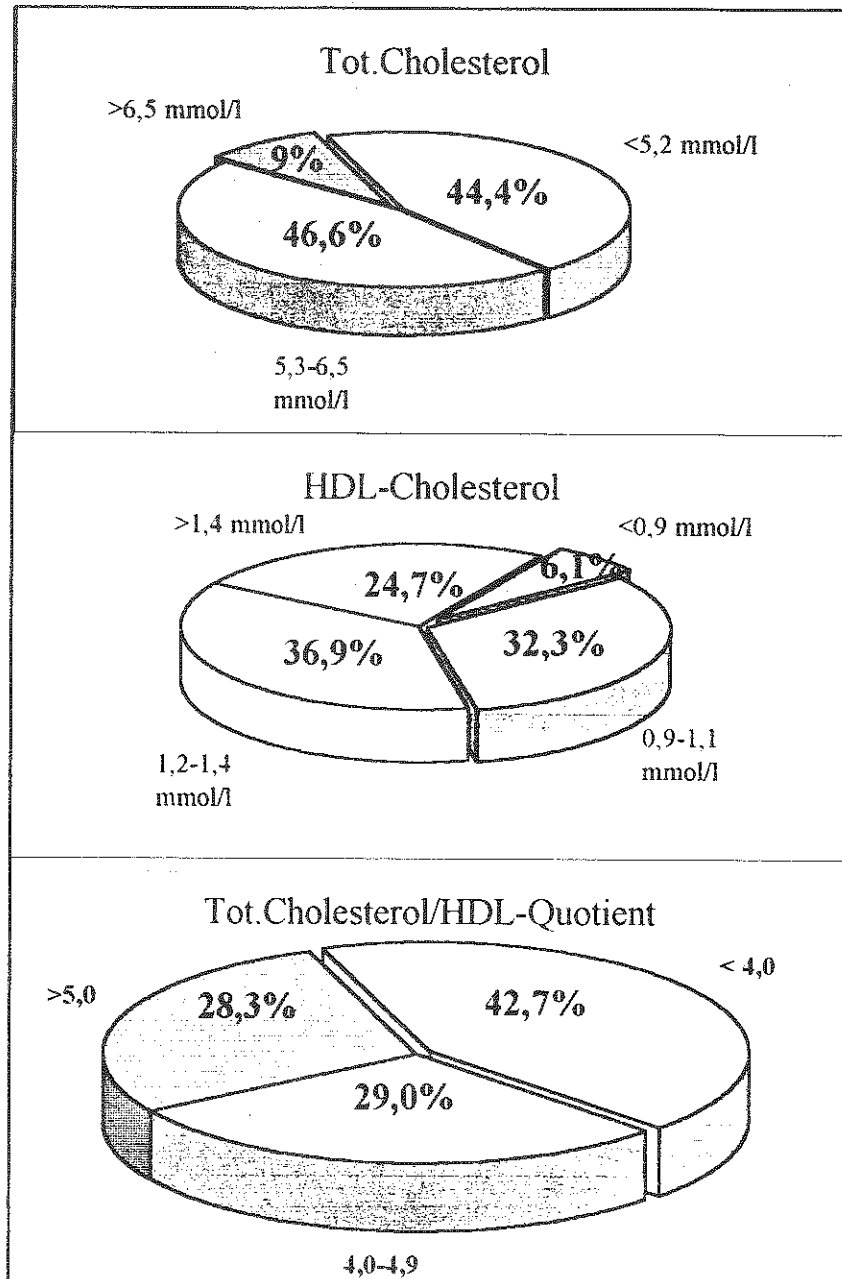


Fig.4

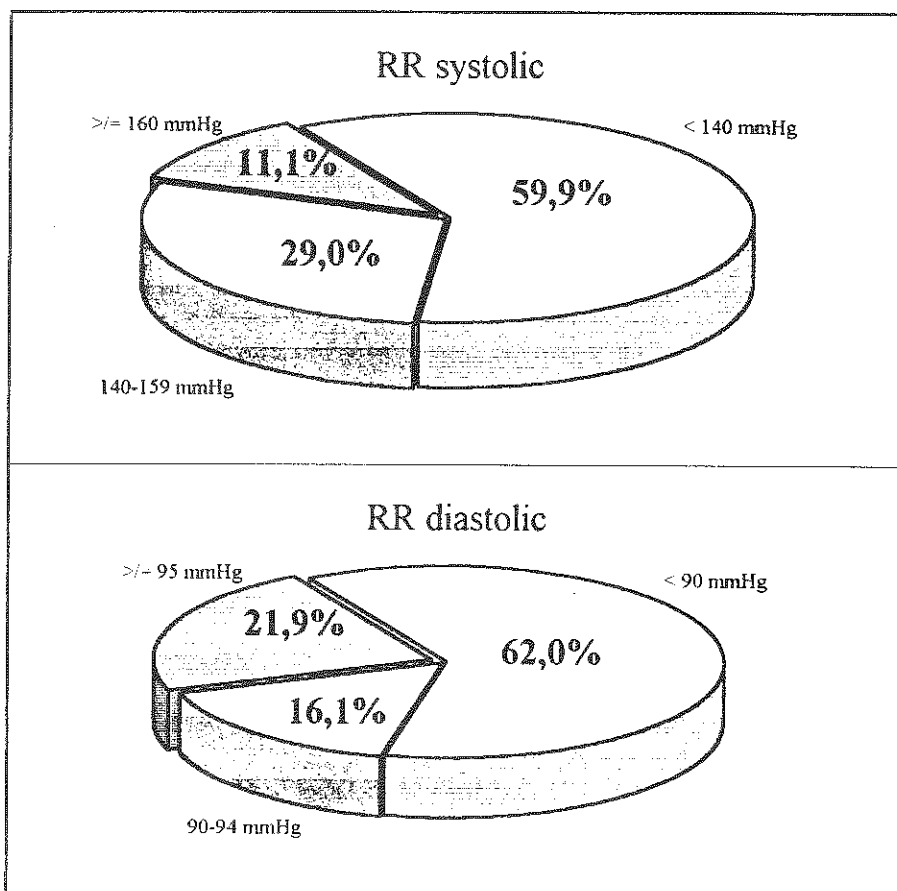


Fig.5

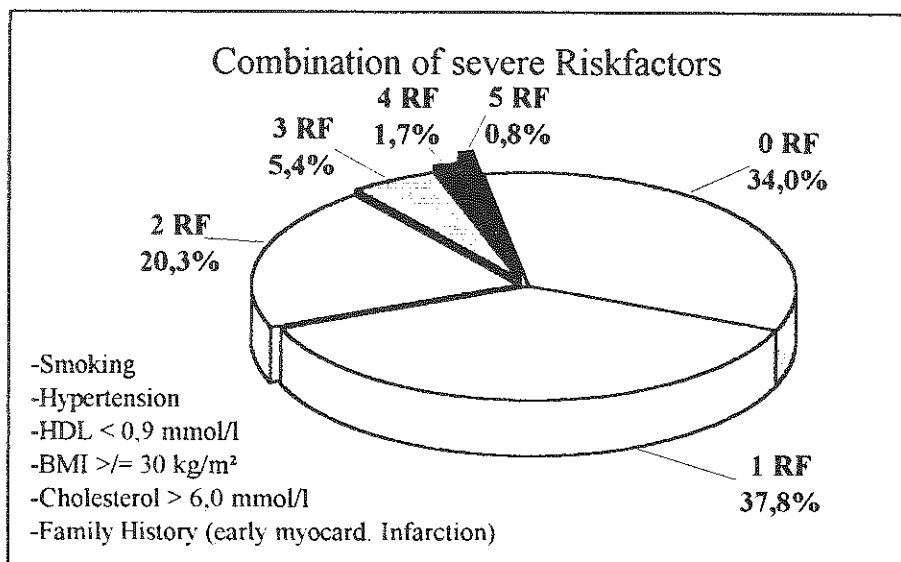


Fig.6

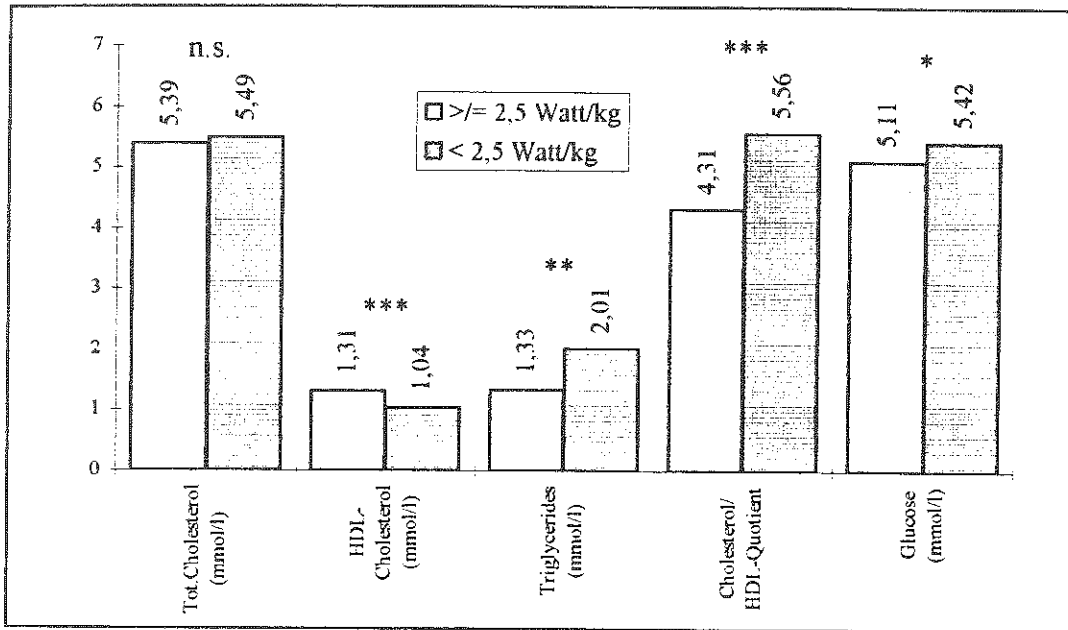


Fig.7

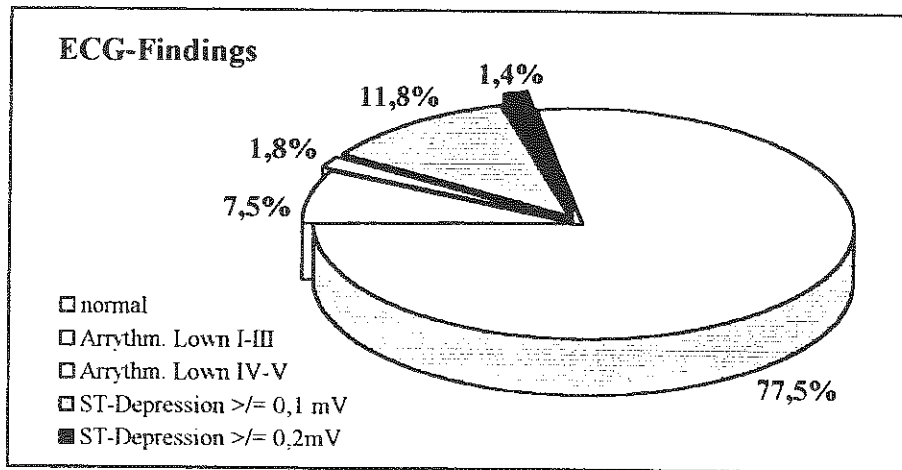


Fig. 8

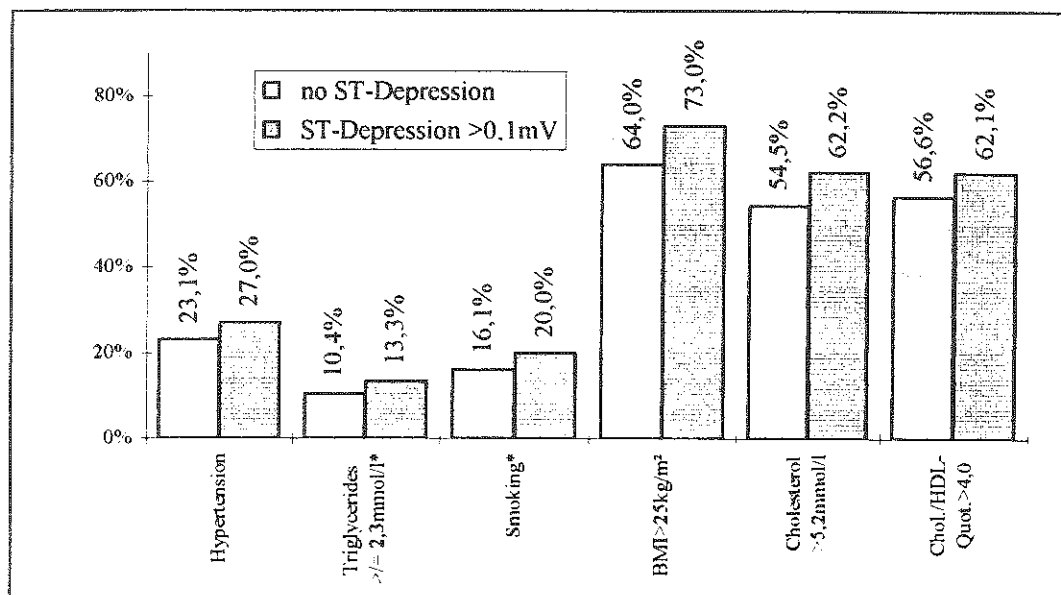


Fig.9

