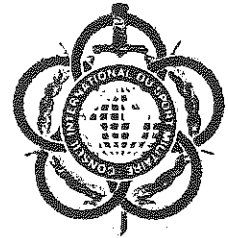


International Symposium on *Sport for all!*



SPORTS ACTIVITIES FOR THE PHYSICAL FITNESS

Lt CERIT (Turkey)

I. INTRODUCTION

I'd like to talk about the sports activities carried out for the purpose of physical fitness. First, I'd like to introduce the reasons driving us to do sports in our spare times and as a part of our daily lives.

In the developing world, catching the space technology, the necessity of doing sports activities was scientifically indicated. It is a fact that sports activities definitely improve the work performance of the individuals.

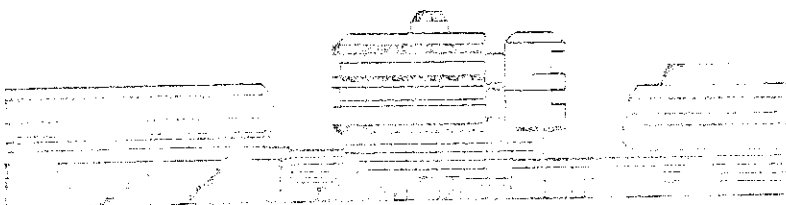
The Armed Forces need to renovate itself by the effect of hi-tech world. The armies in the future times will become lighter but more complicated than ever, and that will include highly mobile troops. Operating these complex war machines will entail more mental and physical strength. The Armed Forces should take into account scientific approaches to the physical fitness activities in order to not to fall behind the world today.

It is a very crucial step to provide the necessary settings and facilities to improve the individual interest and motivation of the sports activities. The recreational approach to the sports activities will keep the interest of the people of various ages alive. By the way, one should pay attention to the common interest of the people to spread the range of the activities among all. We should make it a pressure and a hobby for everybody.

II. DEFINING THE CONCEPT

I'd like to talk about the term "physical fitness" and related concepts: Physical fitness is made up of many facets. It has been variously defined with regard to physical strength, flexibility and endurance; achievement on standardised performance tests; success in coping with daily stress situations; and overall intellectual, moral and emotional well-being. A basic and practical definition, however, characterised physical fitness as a condition of the body in which all systems are functioning at their top capacity and efficiency.

Physical activity is dependent upon the production of energy by the body. To create ingredients oxygen and carbohydrates to parts of the body where energy is being produced. Oxygen is inhaled in to the lungs and enters the blood stream where it is pumped by the heart throughout the body. Once it reaches the tissues, oxygen is replaced by the waste material, carbon dioxide which is returned to the lungs and exhaled. The amount of oxygen delivered depends on the lungs capacity, the number of red corpuscles and the heart's pumping efficiency.



Warendorf - Germany
22 - 28 September 1996

Energy production can take place with oxygen (aerobic) or without (anaerobic). Physical output does not exceed the ability of the body to supply sufficient oxygen is called aerobic work. Muscular work which exceeds the aerobic capacity of the body is called anaerobic work. Lactic acid, the end product during anaerobic work, causing muscle pain and interfering with muscle contraction. Heavy breathing and pounding heart following physical activity usually indicate a temporary condition known as oxygen debt, during which the demand for oxygen exceeds the body's ability to supply it. The more physically fit an individual is, the greater his aerobic capacity.

III. HOW PHYSICAL FITNESS AFFECTS THE BODY

Exercise is essential to maintaining the body's vitality over the years and to individual longevity. Physically fit persons are less frequently the victims of coronary disease and heart attacks. This may be attributed to the efficiency of their cardiovascular systems. Exercise produces a larger and more pliable blood vessels; an expanded supply of blood, haemoglobin and blood plasma; and mass of new networks of blood vessels and capillaries. Heart attacks victims who are physically fit are less apt to suffer the critical effects of this condition as are victims in poor physical states. Exercises can also improve the health of the lungs and the entire respiratory system by increasing their capacity to inhale oxygen. The muscular system also benefits from increased strength, endurance, and elasticity of tissue. Finally, exercise contributes to better mental health by relieving emotional tension and by helping the body adopt to strain resulting from stress situations.

IV. GUIDELINES FOR PLANING A PHYSICAL FITNESS PROGRAM

A. State of health

Each individual should plan his physical fitness program to take into account his state of health. A medical examination, and for some age groups an electrocardiogram to record hearth contractions, should be undertaken.

B. Individual needs and goals

The persons individual goals should also be considered. Not all people require the same activities to keep themselves physically fit. Exercise is an individual matter, and should be selected to complement the normal exertions required in the person's everyday tasks.

C. Maintaining interest

His exercise program should be chosen to complement the normal exertions of his everyday activities, and to provide satisfaction and entertainment so that he is motivated to participate in them consistently.

D. Conditioning and Training

Exercise should begin with a warm-up period to limber up muscles and joints. While care should be taken to avoid exhaustion, healthfull fatigue after exercise, resulting from higher levels of lactic acid and carbondioxide in the system, is safe and normal. It is wise to consider planning an exercise system to avoid strain and to exercise in moderation so that physical stamina is gradually built up. After exercising, a toning-down period allows the body to release gradually. Regularity and consistency in exercise is essential, as sporadic effort, regardless of how strenuous, will not increase the body's ability to withstand increasing workloads.

V. SELECTING AN EXERCISE PROGRAM

Selecting an exercise program is another important step in the producer. Before selecting a program, it is important to consider the fitness objective of the individual, what type of activity would be enjoyable, and would complement his normal activities. Several physical fitness programs are: The Royal Canadian Air Force Plan, which emphasises the development at general motor fitness through a few minutes of callisthenics exercises each day; aerobics, which aims at developing the ability to inspire and deliver oxygen to the system for energy through achieving a certain number of points in various physical activities; jogging, which improves the ability of the heart, lungs and circulatory system to withstand stress, redistributes body weight and firms muscles, through engaging in a moderately paced trot for measured periods of time; isometrics, in which muscle size and strength is increased by exerting maximum pressure for a brief period against an immovable force; and isotonic, similar in concept using a movable force; regular programs at walking and running, or any of a variety of vigorous sports, such as handball, swimming or tennis.

In evaluating the advantages of various sports for physical fitness, the following questions should be asked. Does the sports require sufficient stress? How much actual exercise and active participation is required? How regularly can one engage in the sports?

To place the maximum aerobic load on the circulatory and respiratory systems, swimming, cross-country, skiing, truck, rowing, handball, bicycle racing, tennis, soccer, ice hockey and badminton are recommended activities. Others, such as golf, bowling, archery, hunting and fishing and softball require intermittent and limited energy expenditure, but are excellent activities within a total fitness program.

In selecting a sport for your physical fitness program, those which are highly competitive should be chosen with care. The disadvantage of such sports is that, if not played in the proper spirit of the game, they can produce harmful tension. Further, if they are participated in sporadically or if they require competition with more skilful or stronger opponents, they may place too much stress on the unequal participant. Advantages are in the natural motivation and enthusiasm which sports inspire and their ability to produce bodily agility, co-ordination, alertness, and endurance.

VI. CONCLUSION

Good posture, good diet, good social relationships-all become easier when they are habitual rather than a matter of continual choice. A goal to which one should aspire is to live in such a way-by habitually carrying out goodhealth practices that one becomes increasingly less concerned with health as such. Health is not an end in itself, but a means cultivation of these attitudes which result in a more satisfying life, on both a personal and interpersonal level.

Summary of the Quantity and Quality of The Exercise Program For Healthy Adults

- Frequency of training 3 to 5 days per week
- Intensity of training 60 to 90% of HRR
 or 50 to 85% of max VO_2
- Duration of training 15 to 60 minutes of continuous
 aerobic activity
- Mode of activity Any activity that uses large
 muscle groups, that can be
 maintained continuously, and is
 rhythmical and aerobic in
 nature

Major health-fitness goals and specific physical activity plans for different age groups. (From Haskell et al. Public Health Reports. 100:202, 1985.³⁴)

Major Health-Fitness Goals

Physical Activity Plan

Youth (1-14 years)

- Optimal physical growth and development T Emphasis on large muscle, dynamic exercise; moving body over distance and against gravity; some heavy resistive activity and flexibility exercise
- Good phycho logical adjustment
- Develop interest and skills for active lifestyle as adult
- Reduction of coronary heart disease risk factors

- I Moderate to vigorous intensity
- D Total of more than 30 minutes per day in 1 or more sessions
- F Every day
- G Increased activity to and from scholl

Young adults (15-24 years)

- Optimal physical growth and development
- Good psychological adjustment
- Reduction of coronary heart disease
- Develop interest and skills for active lifestyle as adult

- T Emphasis on large muscle, dynamic strength and flexibility exercise
- I Moderate to vigorous intensity (more than 50% max VO_2)
- D Total of more than 30 minutes per session (more than 4 kilocalories per kg of body weight)
- F At least every other day
- G Increased activity to and from school

Adults (25-65 years)

- Prevention and treatment of coronary heart disease
- Prevention and treatment of type II diabetes
- Maintenance of optimal body composition
- Enhance psychological status
- Retain musculoskeletal integrity

- T Emphasis on large muscle, dynamic exercise; some heavy resistive and flexibility exercises
- I Moderate intensity (more than 50% max VO_2)
- D Total of more than 30 minutes per session (more than 4 kilocalories per kg of body weight)
- F At least every other day
- G Lower level activities (e.g., walking) every day

Older adults (over 65 years)

- Maintain general functional capacity
- Retain musculoskeletal integrity
- Enhance psychological status
- Prevent and treat coronary heart disease
- and type II diabetes

T Emphasis on moving about, flexibility, and some resistive exercises

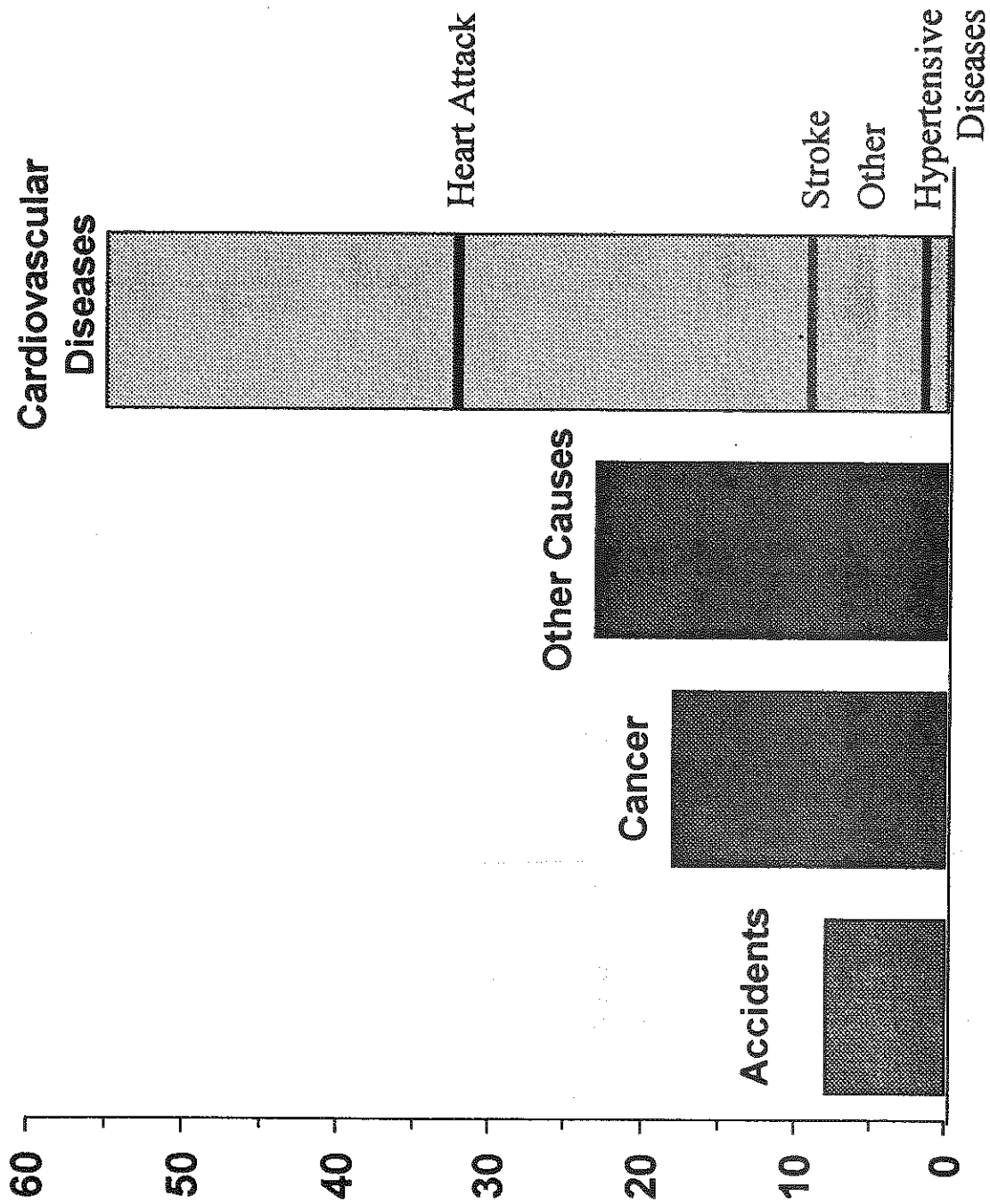
I Moderate intensity (overload with slow progression)

D Based on capacity of individual, up to 60 minutes per day in multiple sessions

F Every day

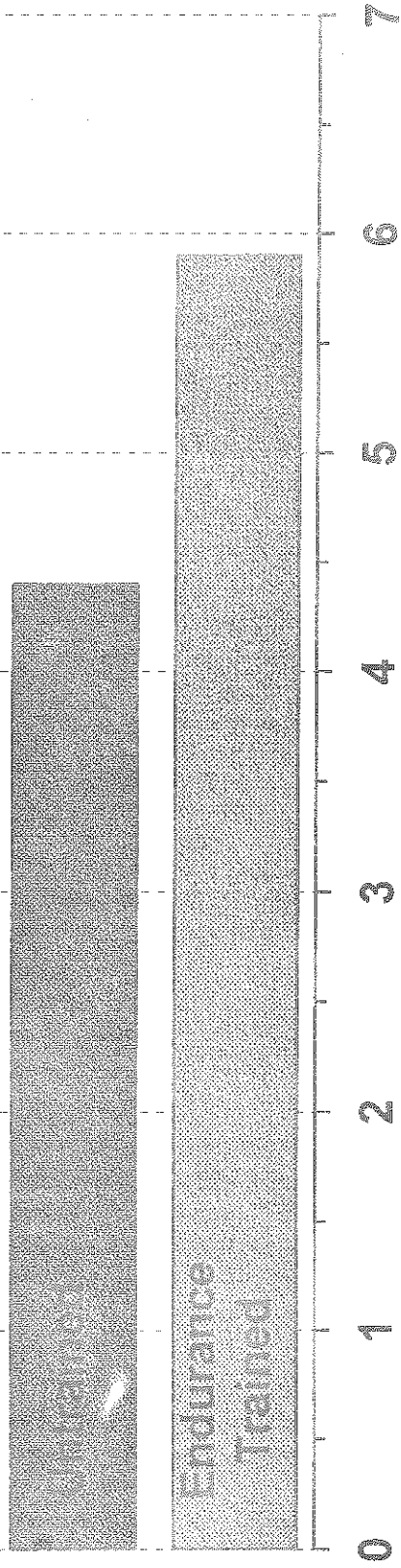
G Lower level activities (e.g., walking) every day

*T=type of exercise; I=intensity; D=duration or amount; F=frequency of exercise session; G=goal



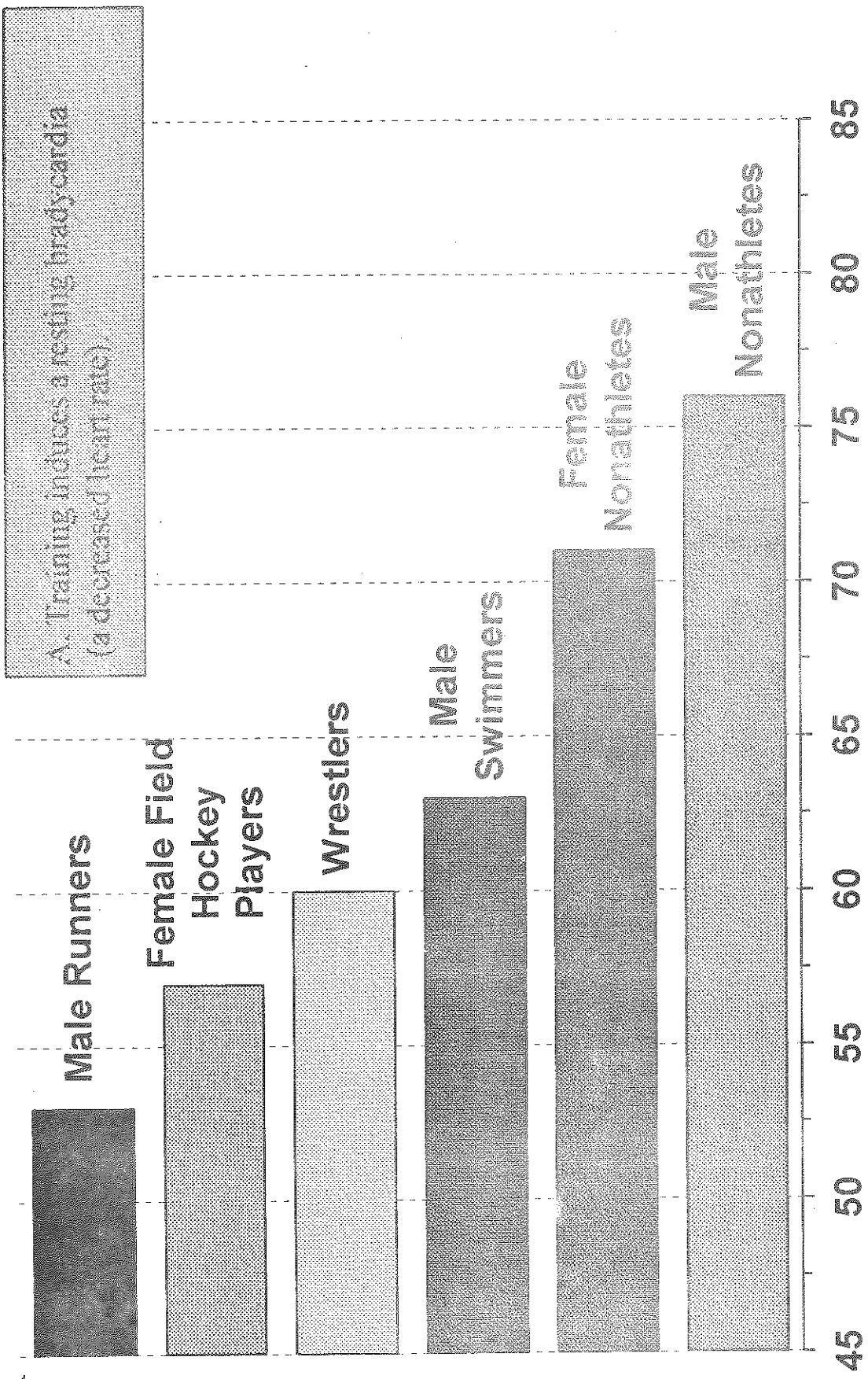
Of all deaths in the United States, more than half are due to cardiovascular diseases.

C. are surrounded by more capillaries than A. the fibers of the untrained subjects.



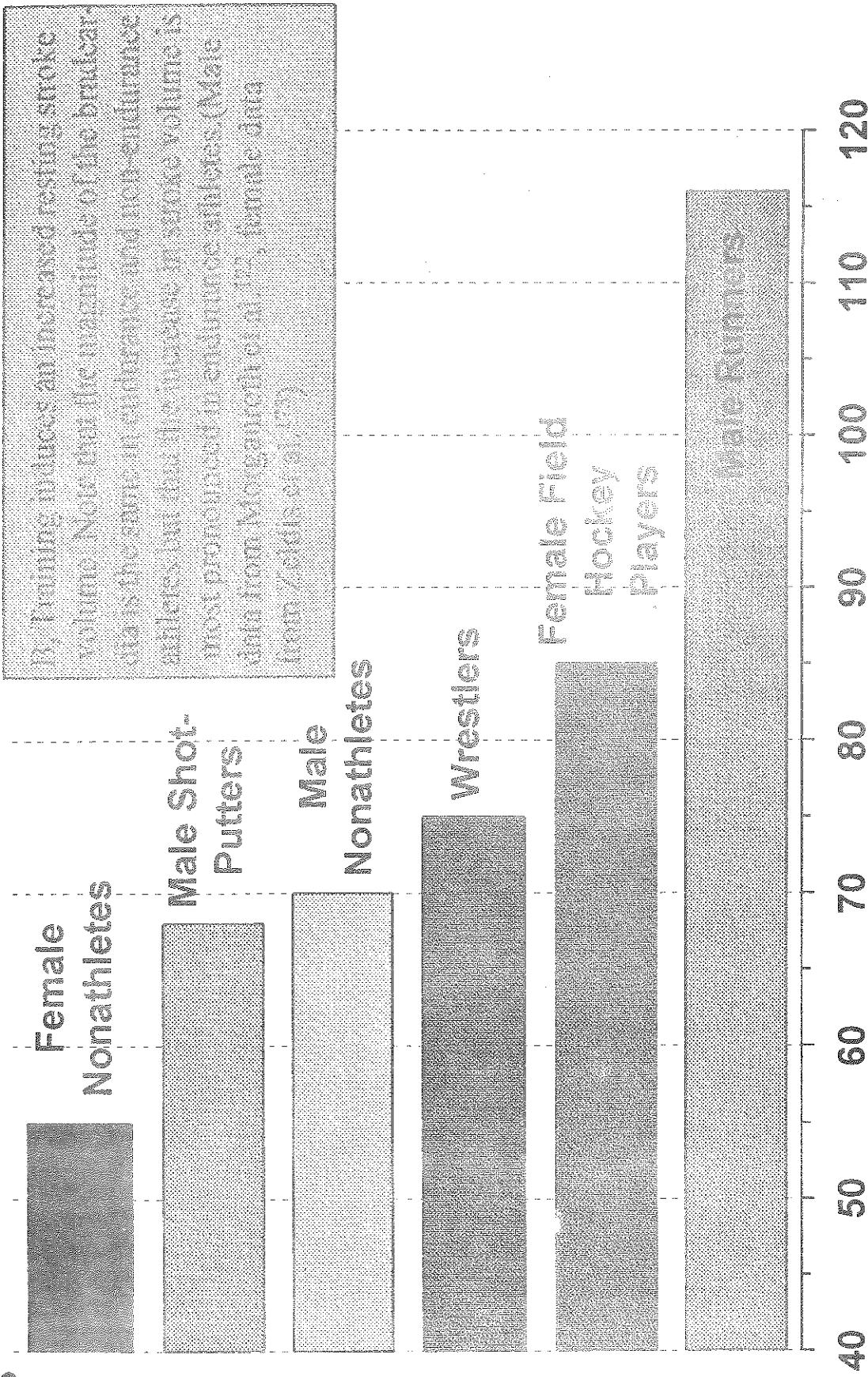
Number of Capillaries around Each Muscle Fiber

A

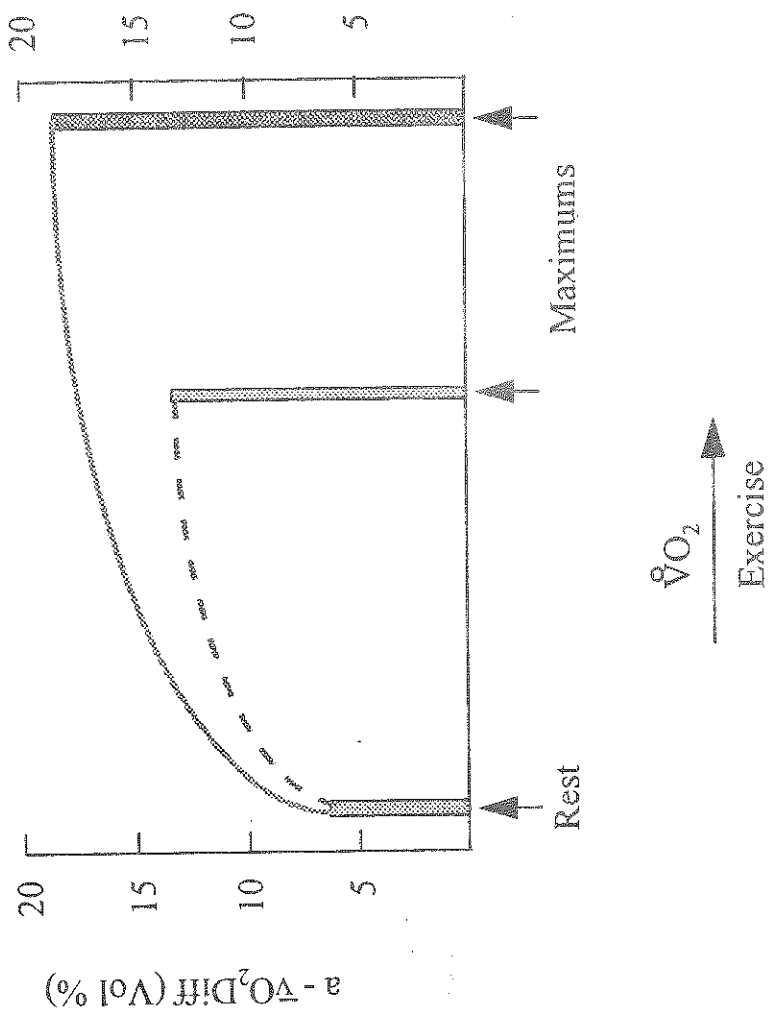


Resting Heart Rate (Beats/Minute)

B



Resting Stroke Volume (ml)



Effects of exercise on arteriovenous oxygen difference ($a-vO_2$ diff) for trained and untrained subjects. During exercise, the muscles extract a greater amount of O_2 from a given quantity of arterial blood. Training improves this capacity.