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# Position Statement of the Brazilian Society of Sports Medicine: Physical Activity and Health

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## INTRODUCTION

Health and quality of life can be preserved and improved by practicing regular physical activity. Physical inactivity is an undesirable condition and represents a risk to health. This document, elaborated by exercise and sports medicine physicians, is based on scientific concepts and experience in clinical practice, focusing on apparently healthy individuals. It is not the aim of this document to discuss aspects related to the clinical use of exercise in the management of illnesses, or to aspects about activities of competitive level. The purpose of this text is to guide health professionals in the efficient use of physical activity.

## EFFECT OF REGULAR PHYSICAL ACTIVITY ON MORBIDITY AND MORTALITY

Epidemiological studies have been demonstrating a close relationship between an active life-style, lower death probability and better quality of life. The deleterious effects of sedentary life surpass by far the eventual complications resulting from physical exercise practice, which, therefore, presents a very interesting risk/benefit ratio. Considering the high prevalence, allied to the significant risk of sedentary life to the development of chronic-degenerative diseases, augmenting population's physical activity represents a definitely contribution for public health, with a strong impact in the reduction of treatment costs, including hospitalization, one of the reasons for its considerable social benefits. Researches have been demonstrating that physically fit and/or trained individuals tend to present the majority of the chronic-degenerative illnesses in a minimal

incidence (table 1), which can be explained by many physiologic and psychological benefits, achieved through regular physical activity.

## PRE-PARTICIPATION EVALUATION

The health risks, particularly cardiovascular risks, consequent to moderate-intensity physical exercise are extremely low and can become even more reduced by a criterious pre-participation evaluation that allows for oriented exercise practice. Depending on the evaluated population, the objectives of the physical activity and the availability of facilities and qualified staff, the complexity of the evaluation can vary from the simple application of questionnaires, until sophisticated medical and functional examinations. Symptomatic individuals and/or with important risk factors for cardiovascular, metabolic, pulmonary, and locomotive illnesses, that could be aggravated by physical activity, demand specialized medical evaluation, for objective definition of eventual restrictions and the correct exercise prescription. The PAR-Q (acronym for Physical Activity Readiness Questionnaire) (table 2) has been suggested as the minimum standard pre-participation evaluation, because it can identify, when there is a positive answer, the ones who need to be submitted to a previous medical evaluation.

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**TABLE 1**  
**Main clinical conditions counteracted by regular physical exercise**

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Coronary artery disease  
Systemic arterial hypertension  
Stroke  
Peripheral vascular disease  
Obesity  
Type II diabetes mellitus  
Osteoporosis and osteoarthritis  
Cancer: colon, breast, prostate, lung  
Anxiety and depression

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2. Originally published in *Revista Brasileira de Medicina do Esporte* 1996; 2(4):79-81.
3. This document can be reproduced as long as it is clearly identified as an official position statement of the Brazilian Society of Sports Medicine - 1996.

## PHYSICAL EXERCISE PRESCRIPTION

There is a strong dose-dependent relationship between the fitness level and its protective effect, with risk to acquire illness diminishing as the activity level augments. Significant health benefits can be achieved with relatively low intensity activities, common in daily life, as walking, climbing up stairs, riding a bicycle and dancing. Therefore, not only formal physical exercise programs, but also informal activities that develop fitness, are interesting. Both possibilities must be considered, since the combined effect of them facilitates to achieve a certain amount of physical activity.

A regular physical exercise program must include at least three components: aerobic, muscular resistance and flexibility, with emphasis on each one depending on the clinical condition and objectives for each individual. The adequate physical activity prescription must include variables such as: mode, duration, intensity, and weekly frequency. Innumerable combinations of these variables can provide positive results. The combination of some activities must be considered, as the ones in table 3, in order to provide a caloric weekly expenditure of at least 2,000 kcal, considered a satisfactory level.

Both the beginning and restarting of activities must be gradual, especially for the elderly individuals. Initially, the duration is increased up to the minimum time accepted. Then, the intensity can be increased. The activity should not induce fatigue in each session of exercise, but it can be perceived as tiring, taking less than one hour to disappear.

The aerobic part of the exercise should be practiced, if possible, every day, with a minimum duration of 30-40 minutes. A practical and very common form for controlling the intensity of aerobic exercise is the measurement of

the heart rate. The information collected during a more detailed functional and medical evaluation, obtaining the direct measure of the maximum oxygen consumption and the identification of anaerobic threshold, contribute for an individualized prescription concerning the exercise intensity.

Exercises for improving muscular function and flexibility are even more important after 40 years of age. They must be repeated at least two to three times per week, including the main muscular groups and joints. Recent data suggest that a set of six to eight exercises carried through during only one series with ten to 12 repetitions or, alternatively, two series with five to six repetitions and a small interval between them are enough for maintenance and improvement of muscular and bone mass and demand little time, what contributes to a better adherence to the resistance training. The flexibility training must involve the main body movements, carried through slowly, until causing slight discomfort, and, then, being kept by 10-20 seconds, and should be performed before and/or after the aerobic component.

There must always be conciliation between the maximum benefit with a minimum risk of injuries or complications, in order to establish an interesting risk/benefit relationship.

## CONCLUSIONS

We recommend that:

1. Health professionals should combat sedentary lifestyle, including in their interview specific questions about regular physical activity, competitive or not, making people aware about this subject and encouraging the increment of physical activity, through informal and formal activities;

TABLE 2

Physical Activity Readiness Questionnaire (PAR-Q) – 1992

1. A doctor has ever said that you have heart problems and that you should only make physical activity under health professional supervision?
2. Do you feel chest pain when practicing physical activity?
3. During the last month, did you feel chest pain when practicing physical exercise?
4. Do you have balance problems because of dizziness and/or loss of conscience?
5. Do you have any bone or joint problem that could be worsened by physical activity?
6. Are you using any medicine for blood pressure or heart problem?
7. Do you know any other reason why you should not practice physical activity?

TABLE 3

Time necessary for a 70 kg person to achieve a caloric weekly expenditure of 2,000 kcal in some activities (approximated values)

Activity	Weekly time	Daily time (7x week)	Daily time (5x week)
Walking on plan	6h	50min	1h10min
Riding a bike	7h30min	1h05min	1h30min
Run slowly	3h30min	30min	40min
Run fast	2h	20min	25min
Gardening	4h40min	40min	1h
Dancing	9h20min	1h20min	1h50min
Shopping	8h	1h10min	1h35min
Swimming (crawl slowly)	3h40min	30min	45min
Swimming (crawl fast)	3h	25min	35min
Sweeping a carpet	10h30min	1h30min	2h10min

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2. The government, at all levels, should consider physical activity as a basic public health question, spreading related information and implementing programs for oriented practice;

3. The professional and scientific organizations, the media, and the society in general, should contribute to reduce the prevalence of sedentarism and to provide oriented physical exercise practice.

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