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ABSTRACT

If exercise programs are to become effective in producing the desired results, then the correct exercise prescription must be applied. Four variables should be controlled in the prescription of exercise: (a) type of activity, (b) intensity, (c) duration, and (d) frequency. The long-term prescription of exercise involves the use of a (a) starter program, (b) progression program, and (c) maintenance program. The starter program is important when the individual is quite unfit and has been inactive for some time. A starter program may last several weeks or more, depending on the initial level of fitness. The progression program involves application of the overload principle in providing an adequate stress to the body systems. The progression must also be gradual in nature, as adequate physiological adaptation must occur before additional stress is applied. The progression program yields to a maintenance program once the desired outcomes are realized, and the level of activity of a maintenance program depends on the large-muscle, aerobic-type activity performed over 30 minutes a day at an intensity of 80 percent of capacity at least 3 days a week. (Author/JS)

# EXERCISE PRESCRIPTION

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If exercise programs are to become effective in producing the desired results then the correct exercise prescription must be applied. The word prescription implies the use of sound principles and knowledge in dispensing the proper treatment according to the specific needs of the individual. The research conducted over the last decade has greatly improved our ability to make the proper prescription but further refinements need yet to be made.

We know that four variables must be controlled in the prescription of exercise:

1. Type of Activity. Regardless of the type of activity (jogging, swimming, or weightlifting) the exercise period should be preceded by a warmup and cooldown period. A balanced program should include all areas of physical fitness, i.e. flexibility, muscular strength, muscular endurance, cardiorespiratory endurance, and body composition with greater emphasis placed upon cardiorespiratory endurance and exercise of an aerobic nature.
2. Intensity. A minimum threshold of 60% of one's capacity must be exceeded in order to produce a significant cardiorespiratory change while the optimal level is between 70 and 90% of capacity. The intensity is commonly controlled by exercising at a specified heart rate.
3. Duration. The duration of the exercise period varies inversely with the intensity and frequency of training and exercise of lower intensity or less frequency requires longer duration to produce comparable results. Generally, the recommended duration is between 30 and 45 min/day although improvements can be made with sessions as short as 15 min/day.
4. Frequency. Research has revealed that exercising 4 days/week is superior to 2 days/week in developing important measure of physical fitness. Regularity is also important and consecutive days/week are less effective than alternate days. Depending upon the intensity and duration, 3 to 5 days/week are generally recommended. If weight loss is a major objective, the frequency and duration should be increased with intensity being decreased.

The long-term prescription of exercise involves the use of a starter program, a progression program and a maintenance program. The starter program assumes greater importance when the individual is quite unfit and has been inactive for some time. Initially this individual must be brought along more slowly to avoid orthopedic problems and to allow proper adaptation to the work. A starter program may last several weeks or more depending upon the initial level of fitness. The next phase is the progression program which involves the application of the overload principle in providing an adequate stress to the body systems. Unless the body is subjected to a stress that is above and beyond that to which it is accustomed, no significant adaptation will take place. The progression must also be gradual in nature and adequate physiological adaptation must occur before an additional stress is applied. The progression program naturally yields to a maintenance program once the desired outcomes are realized and the level of the maintenance program depends upon the objectives that were set up initially. Lastly, the concept of specificity must be kept in mind since the physiological changes are specific to the muscles involved in the training as well as the nature of the training, i.e. bicycle sprint training which is predominantly anaerobic work with the legs will have little or no effect upon improving one's capacity for distance swimming which is predominantly aerobic work with the arms.

In summary, a recommended exercise program might consist of a large-muscle, aerobic type activity performed over 30 min/day at an intensity of 80% of capacity at least 3 days/week.

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