

Empire Fitness would like to thank Mr Wayne Westcott PhD and www.ssymca.org for the following

Exercise: Does It Work For The Over Fat Population?

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We live in a generation that is generally characterized as under-fit and over-fat. Population studies show that 90 percent of Americans do too little exercise to receive any measurable fitness benefit (Centers for Disease Control, 1989). In spite of our national emphasis on fitness and sports, it seems that most people are observers rather than participants.

On the other side of the coin, research reveals that one out of three Americans is obese, making over-fatness nothing short of a national epidemic (Harvard Health Letter, 1994). In spite of over 30 billion dollars spent annually on diet programs (New York Times News Service 1991), the incidence of obesity has increased by 25 percent in the last 15 years (Harvard Health Letter 1994). So what's wrong with this picture?

First, exercise does work, but too few people are doing it. Second, everyone is dieting, but diets don't work. Well, not everyone is dieting, but research reveals that one out of two American women and one out of four American men is presently on a calorie-restricted diet (Tufts University Diet and Nutrition Letter 1992).

But why don't diets work? If you cut down your calorie consumption you should lose weight, right? Yes, and you definitely do lose weight on calorie-restricted diets. However, your weight loss is almost always short-lived. Studies in this area show that 95 percent of all dieters regain all of the weight they lost within the following year (Brehm and Keller 1990). Whatever happened to will power?

Actually, willpower has very little to do with regaining the lost weight. It's much more a matter of physiology than psychology. First, about 25 percent of the weight loss is muscle tissue, and less muscle results in a lower metabolic rate (Ballor and Poehlman 1994). In other words you have less vital tissue to service, so you burn fewer calories on a daily basis.

Second, your body adjusts to the low calorie diet by further slowing your metabolism.

You may not notice the detrimental effects of a slow metabolism while you are dieting, but as soon as you increase your calorie intake, which you must do for survival purposes, you will be surprised at how quickly the lost weight is regained.

So why do people work so hard on something that works so poorly? Primarily because diets do produce satisfying short-term results. It's just the opposite with exercise, which may explain why few people take this approach to weight management. That is, short term changes in bodyweight are relatively small because exercisers typically add lean weight and lose fat weight at the same time.

For example, in a classic study conducted at Tufts University (Campbell 1994) 12 senior subjects were placed on a basic program of strength exercise. They performed about 30 minutes of strength training, three days a week, for 12 weeks. As a result they added three pounds of lean (muscle) weight, and lost four pounds of fat weight. Although their body weight changed by only one pound, they actually made a seven-pound improvement in body composition.

What's more, to keep the participants' body weight relatively constant the researchers had to increase their calorie intake throughout the study period. During the last few weeks of the study, the senior exercisers were eating 15 percent more calories every day to maintain their bodyweight. Unlike dieting, the strength exercise resulted in more muscle and more calories as the subjects lost fat. Of course, if the subjects had not increased their calorie consumption throughout the study they would have lost even more fat weight.

In a larger study, 383 men performed 25 minutes of strength exercise and 25 minutes of endurance exercise, two or three days a week, for eight weeks (Westcott and Guy, 1996).

This combination exercise program produced a 6.4-pound fat loss and a 3.7-pound muscle gain, for a 10-pound change in body composition.

These are impressive improvements for two months of basic exercise, so these men must have been in pretty good shape to start with, right? Actually, only a small percentage of the participants began the program with a desirable body composition. The rest started at varying levels of over-fatness.

As presented in Table 1, the men were divided into five categories based on their initial body fat assessment: (1) less than 15% fat; (2) 15-19% fat; (3) 20-24% fat; (4) 25-29% fat; and (5) 30% plus fat. You will note that the men's entry bodyweights averaged about 20 pounds heavier in successive categories, ranging from 169.9 lbs. to 247.9 lbs. You will also notice that the body composition improvements were greater in successive categories, ranging from a 1.1 to a 6.3 decrease in percent fat. It should be noted that it was difficult to obtain accurate body fat measurements on the most obese participants, rendering their results less reliable.

As illustrated in Figure 1, the men who began the program with higher percent fat scores lost more fat weight and gained more lean weight. As this finding was consistent category by category, it seems that excess fat did not limit the effects of the exercise program. In fact, the results of this study indicate that people with more bodyfat may experience a higher rate of improvement from a basic exercise program than those with less bodyfat.

A parallel study of 749 women divided into five initial percent fat categories produced similar results (Westcott and Guy 1996). That is, the women who began the program with more fat generally achieved better body composition improvements.

So, does exercise work for people who are over-fat? Yes, and it works much better than dieting. Unlike dieting, which reduces lean weight, exercise programs that include strength training add lean (muscle) weight which increases resting metabolism and burns calories all day long for better weight control. Unlike dieting, which cannot be continued very long, exercise can become a permanent part of your lifestyle. Unlike dieting, which needs attention all day long, exercise requires only an hour of your time, two or three days a week. And unlike dieting, which subtracts something good from your life (food), exercise adds something good to your life (physical activity).

While dieting alone is not recommended, a sensible eating plan coupled with a basic exercise program is probably the best way to attain and maintain a desirable body weight. The American Heart Association guidelines of 20% fat, 20% protein and 60% carbohydrate provides heart smart nutrition with limited fat calories. This is a sustainable nutrition program, that combined with regular strength and endurance exercise, can contribute to better health as well as improved body composition.

The exercise protocols in our studies are consistent with the recommendations of the American College of Sports Medicine (1990). The endurance training program consists of about 25 minutes of continuous treadmill walking or stationary cycling at approximately 75 percent of maximum predicted heart rate. The strength training program consists of one set of 8 to 12 repetitions of 12 exercises for each major muscle group. Every repetition is performed at a slow movement speed through a full movement range.

The exercise intensity is increased gradually by means of a double progressive training system, in which the participant alternately adds repetitions and resistance. For example, a trainee who does a repetition with 50 pounds continues to use this resistance until she performs 12 repetitions. After 12 repetitions are completed, she increases the weightload by five percent to 52.5 pounds. When she performs 12 repetitions with this resistance she increases the weightload to 55 pounds.

To ensure productive training each repetition is performed in six seconds, with two seconds for the lifting movement and four seconds for the lowering movement. This technique reduces the role of momentum and makes the important negative muscle contraction more demanding. The goal is to make every repetition count, so that one properly performed set of exercise provides sufficient stimulus for muscle development.

Our experience indicates that this basic program of strength and endurance exercise is a safe and effective means for improving physical fitness and body composition in men and women of all ages. It is also a time-efficient approach to training, requiring only 50 minutes of exercise two or three times per week. Perhaps more significant in our sedentary society, it is a program that produces particularly good results for overweight individuals who have varying percentages of body fat. Getting back to basic exercise may be the key for adults who want to attain and maintain a desirable body weight and body composition.

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