New Perspective on Exercise and Nutrition

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Let's begin by examining some long-held beliefs about exercise and nutrition. First, it is generally understood that endurance exercise is effective for burning extra calories and reducing body weight. Of course, this is true and aerobic activity should be part of a basic fitness program for this reason and because it improves cardiovascular function.

Second, it is typically acknowledged that strength training is effective for building muscle tissue and increasing body weight. While it is true that strength training enhances muscle strength and size, it does not necessarily increase body weight. In fact, most studies on adult strength training show more fat loss than muscle gain, typically three pounds more muscle and four pounds less fat after 10 weeks of training. Consequently, strength training may have a minor effect on body weight but a major impact on body composition, which is actually a more important factor for health and fitness. Strength training also raises resting metabolic rate which assists in attaining and maintaining additional fat loss. For these reasons, and because strength training improves musculoskeletal function, it should be part of a basic fitness program.

Third, with one of two Americans presently on a reduced calorie nutrition plan, it may be assumed that dieting is the best means for decreasing body weight. Indeed it is. Nothing lowers body weight as quickly as dieting. However, 95 percent of those who lose weight through dieting regain all of it within one year; so any benefits are short lived. The reason for weight regain is quite simple: approximately 25 percent of the weight lost on most diet programs is muscle, which results in a major reduction in resting metabolic rate. When dieters return to normal eating patterns, which they must do sooner or later, their previously appropriate daily calorie intake now exceeds their lower metabolic requirements. In 2007, an exhaustive review of diet studies published in the American Psychological Association's research journal concluded that diets do not work and should be uniformly avoided as a viable means of maintaining weight loss.

So how should nutrition be addressed in a comprehensive fitness program? Our weight loss research participants have experienced excellent results using the USDA MyPyramid program, a sensible nutrition plan that emphasizes grains, fruit, vegetables, low fat dairy products and lean meats, and this is my general recommendation. And, based on the results of our most recent study, I have a very specific nutrition suggestion for enhancing both muscle gain and fat loss. In 2007, we conducted a body composition study with 46 subjects, mostly women with an average age of 59 years. All of the participants performed 20-25 minutes of endurance exercise and 20-25 minutes of strength training, two or three days per week for a period of 23 weeks. Half of the subjects consumed a protein rich shake (25 grams protein; 37 grams carbohydrate; 250 calories) immediately following each exercise session.

After six months of training, subjects who did not take the post-workout shake averaged a 3.9-pound muscle gain and a 4.9-pound fat loss, for an 8.8-pound improvement in their body composition. Participants who consumed the post-workout shake averaged a 5.5-pound muscle gain and a 9.0-pound fat loss, for a 14.5-pound improvement in body composition (8.8 versus 14.5 pounds!). By comparison, subjects who ingested the 250 calorie protein/carbohydrate supplement after their workout added 41 percent.
more lean (muscle) weight and lost 83 percent more fat weight than the no-supplement trainees. It is postulated that providing the body with moderate amounts of protein and carbohydrate after a combined strength/endurance exercise session enhances both protein assimilation in the muscles and energy needs/satiatiion feelings in the body. This apparently leads to less calorie consumption at snacks and meals throughout the day, which results in significantly greater fat loss over a six-month time period.

Based on these findings, I recommend that a basic fitness program include 20-25 minutes of endurance exercise, 20-25 minutes of strength training, and a post-workout protein/carbohydrate supplement.* This training protocol appears to be highly effective for improving cardiovascular endurance, developing muscle strength, increasing lean (muscle) weight and reducing fat weight... without the contraindicated outcomes associated with dieting.

* Of interest, two studies presented at the American College of Sports Medicine's 57th Annual Meeting in Baltimore in June 2010 show that chocolate milk may be a worthwhile post-exercise recovery beverage. Chocolate milk can be relatively inexpensive compared to commercially available recovery drinks, making it a viable and palatable option for many people. Chocolate milk has an ideal 4:1 ratio of carbohydrates to protein. The protein and carbs complement each other. Carbohydrates replace the energy lost during exercise, but can't rebuild muscle. On the other hand, protein can help repair the muscles, but can't refuel them. Chocolate milk is better for recovery than plain milk because of the extra sugars it contains.

In the first study it was found that ingesting chocolate milk after a run supported skeletal muscle protein synthesis during recovery. Eight male runners in relatively good training shape completed two runs (each 45 minutes at 65 percent of their maximum levels) during two weeks of eating a balanced diet matched to their individual caloric needs. Following each run, the study participants drank either 16 ounces of fat-free chocolate milk or 16 ounces of a carbohydrate-only beverage, matched for calories with the milk.

Following muscle biopsy samples taken during a three-hour recovery period after each run, researchers found that runners who drank fat-free chocolate milk during recovery had heightened markers of muscle protein repair compared to the carbohydrate drink.

The second study showed that chocolate milk also contributes to replenishing glycogen stores in muscles, a source of fuel during prolonged exercise. Muscle glycogen levels in the same eight male runners were tested 30 minutes and 60 minutes following ingestion of either the fat-free chocolate milk or the carbohydrate beverage. Muscle glycogen content was greater for the chocolate milk drinkers at both measurement times, further supporting the use of this drink in recovery nutrition strategies.