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Body Composition and Its Affect on the Sports Performance Spectrum

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Having a certain body fat to muscle mass ratio is related to athletic performance. Research has shown that correct portion of muscle mass increases strength, power, and agility (8,9). Table 1 (see next page) provides recommend body fat percentages for both men and women.

However, to gain lean muscle it is not just about the exercise protocol but nutritional intake and timing (2,7). Research shows three out of four student athletes may not be getting enough to eat. It also shows that 70% of the women and 73% of the men are not getting enough total calories, only 81% of the women and 90% of the men are consuming enough carbohydrates, and just 68% of the women and 81% of the men are eating enough protein based on USDA guidelines. Intakes of salt, total fat, saturated fat, and cholesterol often exceed recommendations, even in diets deficient in major components (4).

To help you achieve your goals, you should know your body composition. But body composition is much more than a body fat percentage number. Below are different ways the measurement can be utilized.

1. Knowing what percent body fat assists in the type of fuel mixture an athlete needs. If an athlete has a higher body fat they usually need fewer calories and fewer carbohydrates. The opposite is true if the athlete has a low body fat. They usually need more calories and carbohydrates due to more lean weight.
2. In any strength and conditioning or specialized nutrition program there needs to be a way to measure its effectiveness. Body composition testing is an important measurement tool since most athletes want to gain muscle, lose fat, or do both.

3. When you are evaluating body fat percentages the challenge is not to just evaluate the percent body fat number but to also evaluate the lean weight number. Even though you may have the appropriate body fat percentage for your sport, you may still have room for improvement if you continue to gain lean mass.
4. When an athlete has encountered a severe injury where rehabilitation will take several months, measuring body composition on a monthly basis can be a tool to minimize a gain in body fat. Athletes can gain body fat quickly when activity has been limited and eating habits are poor. It is difficult to get an athlete back to "full go" if they have lost muscle and gained body fat.
5. Body Composition testing can be a reassurance test. Many female athletes believe when they gain weight, they are gaining fat. Also an athlete can exchange fat at the same rate they gain muscle so the scale is not displaying the positive exchange.
6. Because female athletes are more vulnerable to developing an eating disorder (5), having biyearly body composition tests can detect any significant changes. These changes could shed light on an unhealthy behavior with food.

The best ways to measure body composition are by hydrostatic weighing, DEXA Scan or Bod Pod testing. However many people do not have access or the funds to use these methods. The next best step is to use Lange skin fold calipers. They are easy to use, easy to learn, and very affordable. However you want to make sure you take the time and follow strict protocols to ensure accuracy (3). Take a minimum of three tests at each site and have at least two numbers that are within a millimeter. If you do not, then keep retesting the site until you do. The last thing you want is the body fat percentage to increase due to poor measuring techniques. Lastly

you want to avoid going the easy route and buy a bioimpedance device. These devices can be anywhere from 6 – 10% off because these techniques depend on the athletes hydration status (6). These tools start off by measuring how fast the current runs through the body. The more hydrated the athlete the lower the body fat will register. The more dehydrated the athlete is the higher the body fat will measure.

Body Composition testing is not just about measuring fat. It can be a very effective tool for menu planning, monitoring progress, improving current athletic status, part of a rehabilitation protocol, offering encouragement, and finding irregularities in behavior. Now that is a tool. ■

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Classification	Women	Men
Essential	10 – 12%	2 – 4%
Athletes	14 – 20%	6 – 13%
Fitness	21 – 24%	14 – 17%
Acceptable	25 – 31%	18 – 25%
Plus	32% plus	25% plus

Table 1

General Body Fat Percentage Category (1)

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