

Exercise, Body Fat Control & Making Weight

What is my ideal weight?

Body weight is a poor indicator of fatness in active people. Changes in weight can be due to fluid losses as sweat, food still being digested from the last meal and changes in the level of muscle glycogen (every gram of glycogen is stored with approximately 3 g of water). Since training, especially weight training, increases muscle mass, skinfold measurements are a better guide to fatness than body weight. When you are training two or more times a day, shifts of fluid and glycogen stores can result in daily weight fluctuations of around 2 kg.

There are clear performance benefits to being light and lean in sports like triathlon, marathon running, swimming and gymnastics. However, body type is under genetic control and each person has a different capacity for leanness. In sports like figure skating, gymnastics and diving, elite performers are naturally small and light. In sports where athletes compete in weight divisions (eg lightweight rowing, boxing, weightlifting), there is often pressure to manipulate bodyweight and fat levels to make a lower weight category.

Dangers of Dehydration

Dehydration to make weight has been associated with a number of deaths in otherwise healthy, fit individuals. In desperation, some people resort to rapid weight loss methods prior to 'weigh in' on the day. Fluid loss of as little as 1% of body weight (0.7 kg in a 70 kg person) will decrease performance, especially in sports like light weight rowing or boxing where a combination of strength and endurance is needed. Other side effects of dehydration include:

- Fatigue, nausea, cramping.
- Poor co-ordination and reaction time (can result in serious injury depending on the sport)

With significant fluid loss (greater than 2% of body weight) effects include:

- Increased body temperature resulting in heat stress/exhaustion
- Muscle breakdown
- Impairment of kidney function
- Electrolyte imbalance
- Circulatory and eventually heart failure

Strategies to make weight, such as severe food restriction, excessive exercise and dehydration are dangerous and in the longer term can result in poor health, psychological problems and eating disorders.

Do calories count?

There is no doubt that too much fat in the diet increases the risk of overweight. Fats are energy dense (37 kJ or 9 calories per gram) compared to proteins (17 kJ or 4 calories per gram) and carbohydrates (16 kJ or 4 calories per gram). The fat we consume is also stored more efficiently in the body than either protein or carbohydrate. Clearly, reducing dietary fat intake is one of the most effective strategies in promoting weight loss. Does that mean we can eat unlimited amounts of low fat foods? That depends on how active you are. Most active individuals can eat as much low fat food as they like and stay lean. Eating a lot of low fat food when inactive will not help weight loss. Energy balance is still an important factor in fat loss for sedentary or moderately active individuals. Although they don't need to count calories, less active people need to eat a moderate, rather than a large, amount of low fat food.

Essential strategies for weight (fat) loss or making weight

- Choose a body fat/weight that keeps you healthy in the long term.

- Choose a balanced diet, emphasising a low-modest fat intake.
- Eat a little less energy (kilojoules/calories) than you burn in training or competition to achieve a slight calorie deficit, and therefore a healthy weight (or body fat) loss. Don't crash diet.
- Learn how to handle eating out socially and include treats.

You should not become obsessed about, or even frightened of, the occasional splurge.

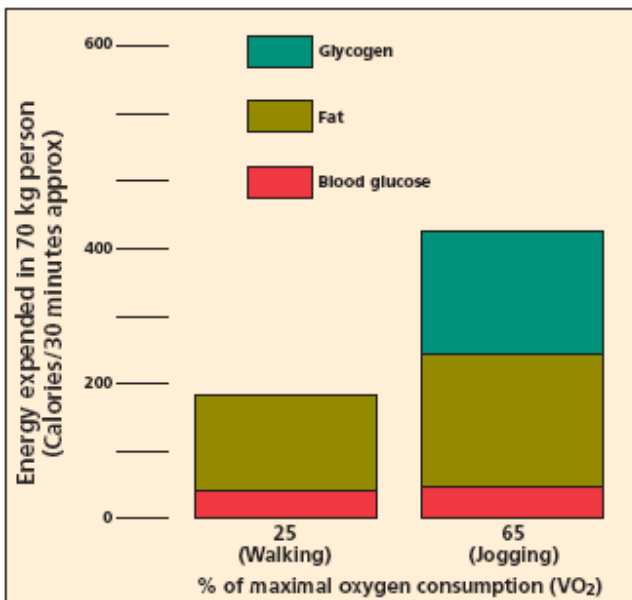
- Have a training program that complements your weight (fat) loss strategies. For a specific competition weight, heavy weight training may need to be reduced or balanced with aerobic training.
- Be wary of times when weight (fat) levels may fluctuate more, for example 'off season' or injury.

Monitor these changes and adjust your dietary intake and training to suit.

- Gradually reduce weight (not more than 0.5-1.0 kg per week) or 2-5 mm of fat each week if using skinfold (the pinch test) measurements.
- Train not more than 2.0 kg away from your optimal competition weight.
- Seek professional advice from a sports Dietitian on dietary requirements for your sport.

Exercising for Fat Loss

Although low intensity exercise is recommended for those starting an exercise program (or with a medical problem), fitter, healthy individuals gain more benefit by increasing the intensity as their fitness improves. Higher intensity exercise burns up more calories, promoting fat loss. Although lower intensity exercise (say about 50% maximum aerobic capacity or maximum heart rate) uses a higher percentage of fat for fuel, the total amount of fat used is less than for high intensity exercise.



(adapted from GSSI V8 No6 1995 fig 2)

This diagram shows that the amount of fat used is higher at 65% of maximal aerobic capacity (65% VO₂max) than at 25%. At 25% VO₂ max, fat accounts for almost all the energy used during exercise. However, the total number of calories expended over 30 minutes, is substantially lower (190 calories) than at 65% of VO₂ max (420 calories). Although only 50% of the energy expended at 65% VO₂ max is derived from fat, over the 30 minutes of exercise, this is a much greater amount of fat (210 calories of fat) than what is burnt at 25% VO₂ max (150 calories of fat). Aerobic training improves the body's ability to burn fat, even when working at moderately high exercise intensities (around 60-70% VO₂ max or maximal heart rate).

To optimise fat loss, you need to work continuously for at least 30-60 minutes. As you get fitter you can exercise harder and still be in the 'fat burning' zone. A

comfortably challenging pace optimises both fat and calorie use, burning more fat in less time. Remember, untrained people need to start slowly. There is also benefit in accumulating three 10-minute periods of low intensity physical activity a day for those less interested in exercise. Moving more by increasing incidental exercise (eg. taking the stairs, walking to work) is a key weight control strategy.

This information was provided by the Dietetics team of the HIV/GU Medicine Directorate of the Chelsea and Westminster Hospital. For more information please call 020 8746 8178

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