



FACT SHEET

Body fat Control and 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 grams of water). Since training, especially weight training, increases muscle mass, skinfold measurements are a better guide to fatness than body weight. When you are in heavy training, shifts of fluid and glycogen stores can result in daily weight fluctuations of around 2kg.

Elite athletes strive to achieve low body fat levels for competition. There are clear performance benefits to being lean in sports like triathlon, marathon running and gymnastics. However, body type is under genetic control and each person has a different capacity for leanness. Use of chronic dieting to maintain a body weight or fat level substantially below your natural physique is detrimental to physical and mental health and ultimately athletic performance will suffer.

In sports where athletes compete in weight divisions (eg lightweight rowing, boxing, weightlifting), there is often pressure to manipulate body weight and fat levels to make a lower weight category. In desperation, some competitors resort to rapid weight loss methods prior to 'weigh in' on the day. 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.

The ideal weight for an athlete needs to take into account:

- their height and frame size;
- their natural body weight;
- scientific evidence for a competitive advantage by achieving a certain body weight or body fat; and
- an athlete's own experience of how easy is it to achieve and perform at a new body weight or fat level.

A smart athlete will choose a sport or category better suited to their physique, where they can concentrate more on performance and feeling good than becoming pre-occupied and overwhelmed with weight and fat loss.

See the following Fact Sheets for more information: [Monitoring Body Composition](#) and [Eating Disorders in Athletes](#)

Do kilojoules count?

Over the past decade there has been increased emphasis on dietary fat and carbohydrate intake and how they are linked with body fat gain. Consuming too much fat, carbohydrate or protein increases the risk of fat gain as these nutrients all provide dietary energy measured as kilojoules (kJ) or calories (Kcal or Cal). However, when compared to carbohydrate (16 kJ/gram) or protein (17 kJ/gram), fat is more energy dense (37 kJ/gram) and is stored more efficiently in the body. Reducing dietary fat is one of the safest and most effective strategies for achieving body fat loss. Does that mean we can eat unlimited amounts of carbohydrate or protein based foods that are low in fat? Basically no! BUT, the more active you are and especially if you have a large lean body mass, the more food (particularly carbohydrate) you need. For the 'couch potato', eating too much low fat food will result in weight gain. Energy balance (kilojoules or calories consumed verses burnt) is the most important factor for fat loss. Less active people need to eat a moderate, rather than a large, amount of low fat food. The same applies to athletes who often need to maintain their body weight slightly below what is natural for them e.g. jockeys, light weight rowers, boxers, gymnasts, and dancers.

Dangers of Dehydration

Dehydration is often used as a quick way to 'make weight'. Fluid loss of as little as 1% of body weight can decrease performance. Other side effects of dehydration include:

- Fatigue, nausea and cramping; and
- 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:

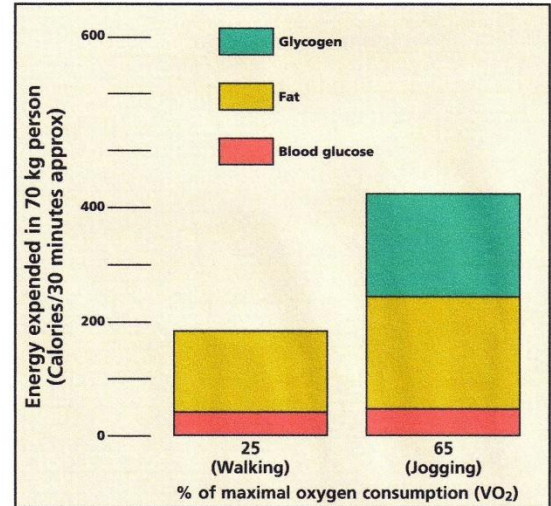
- Increased body temperature (e.g. heat stress/exhaustion);
- Muscle breakdown;
- Impairment of kidney function and electrolyte imbalance; and
- Circulatory and eventually heart failure

Dehydration to make weight has been associated with a number of deaths in otherwise healthy, fit individuals.

Exercising for Fat Loss

It is often stated that to burn fat, exercise intensity must be kept low. While this is appropriate for those starting an exercise program (or with a medical problem), fitter, healthy individuals gain more benefit by increasing exercise intensity as fitness improves. As the bar graph shows, total fat use 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 a 30 minute workout 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 minute workout, 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 a moderate to high exercise intensity (around 60-70% of VO₂ max). To optimise fat loss, you need to exercise continuously for at least 45-60 minutes. As fitness improves you can train harder and still be in the 'fat burning' zone. This strategy is more efficient, burning more fat and calories in less time.



Romijn et al., Am J Physiol (1993): E380-91.

Essential strategies for weight (fat) loss or making weight

- Set realistic body weight/fat targets consistent with maintaining health in the long term. Train close to your competition weight (~ 2 kg) so you do not have to crash diet for competition. A sports dietitian can provide guidance on whether a body fat or weight category is ideal and realistic for your physique and sport.
- Choose a balanced, low fat diet with a slightly lower kilojoule (Calorie) intake than you burn to achieve a modest energy deficit and gradual weight (fat) loss.
- Gradually reduce weight (~ 0.5-1.0 kg) or fat (~2-5 mm from skinfold tests) each week but avoid weighing or measuring yourself too often. It will take a least a week to see a real weight change and three to four weeks to measure a true change in body fat.
- Select healthier meal options when eating out but include some treats in your healthy eating program. If you constantly feel worried or obsessed about your weight or fat, seek support from a sports dietitian, doctor or psychologist.
- Your training program should complement your weight (fat) loss strategies. Weight training may need modification if accumulation of lean mass is an issue for making weight.
- To prevent weight gain, reduce kilojoule intake during the 'off season' when injured or tapering for competition.
- A sports dietitian can devise a healthy and effective meal plan incorporating your physique goals and training nutrition needs. They can also 'coach' you through the challenges of making dietary change and monitor progress with weight and fat loss.

Low carbohydrate (carb) diets

Claims of rapid weight loss while eating unrestricted amounts of protein and fat make low carb diets appear enticing, but how much science is there about these diets? Although research typically reports a greater weight loss in obese individuals with low carb diets up to about six months, thereafter a greater weight regain occurs so by 12 months, the weight difference between a low carb and a range of other popular diets (e.g. low fat, Weight Watchers™ etc) is not different. Participants following low carb diets, particularly the Dr Atkins Diet (only ~ 20 g carb/day) usually report side effects including headaches, nausea, fatigue, poor concentration and halitosis (bad breath), particularly in the early days after starting the diet. These effects are easily explained by inadequate carb intake and the induction of ketosis or rapid breakdown of body fat. Despite ketosis being the reason Atkins claimed his diet works, studies do not link ketosis with greater weight loss. Depletion of glycogen and stored water reserves explain the rapid initial weight loss but in the medium term, research supports that followers lose weight because they eat less food and kilojoules (kJ). Over time as the novelty diminishes and the restriction becomes difficult to maintain, old eating habits return and weight is regained, often to higher levels than before!

In the longer term there are serious concerns with low carb diets including a likely increased risk of cardiovascular disease (due to high fat, particularly saturated fat intake), cancer and nutrient deficiency. Low carb diets restrict intake of wholegrains, fruit and starchy vegetables, foods known to be essential to optimal nutrition and health. For athletes, inadequate carbohydrate intake reduces high intensity exercise capacity and this will compromise the quality of training sessions and ultimately competition performance. For more information see Fact Sheet on [Low Carb diets for weight loss in athletes.](#)