



Weight Management in the Performance Athlete

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Athletes are regularly facing a predicament regarding anthropometry or body composition (this is how much fat, muscle and water we are carrying) and performance. Athletes sometimes strive to lower fat levels (or weight) because they have to, or they believe that a lower body weight will enhance performance. At the same time, whilst dreaming about a perfect fat percentage, they tend to forget that their journey of weight loss is timeous, and that, through taking on this journey, they can experience temporary decreased training output and discomfort due to especially the sensation of hunger and the symptoms of tiredness. To add further agony to this predicament, athletes regularly moves in an environment loaded with relatively inexpensive, good tasting convenient foods. To enter this environment would pose temptation to even the bravest of us all, and for an athlete, where tiredness and hunger flows in their veins, this environment can post the biggest challenge of the day. How then do we do it?

The first reality stop should be at the digits of any scale. Any athlete signing up for weight loss should not evaluate success by the digits of a bathroom scale, but rather in the millimetres of skinfolds, not forgetting the maintenance of lean tissue. Goal setting should therefore be specific towards:

- A decrease in fat mass, measured as sum of skinfolds or fat percentages
- The protection and maintenance of lean tissue mass
- Minimizing the risk of disordered eating behaviour
- And obviously enhance performance

A good weight management attempt in athletes should address two key components, namely:

- **Eating more for lower energy** intake; more fiber, more water and less excessive fat intake will increase the bulk of meals, but decrease the energy density of meals. With the eating more approach we can control satiety better whilst reducing the energy intake.
- **Eating behaviours** to enhance weight loss, for example eating at the right times to avoid excessive hunger, always eating breakfast, food distribution throughout the day, eating after exercise and the overall avoidance of excessive sugar intake and fad diets.

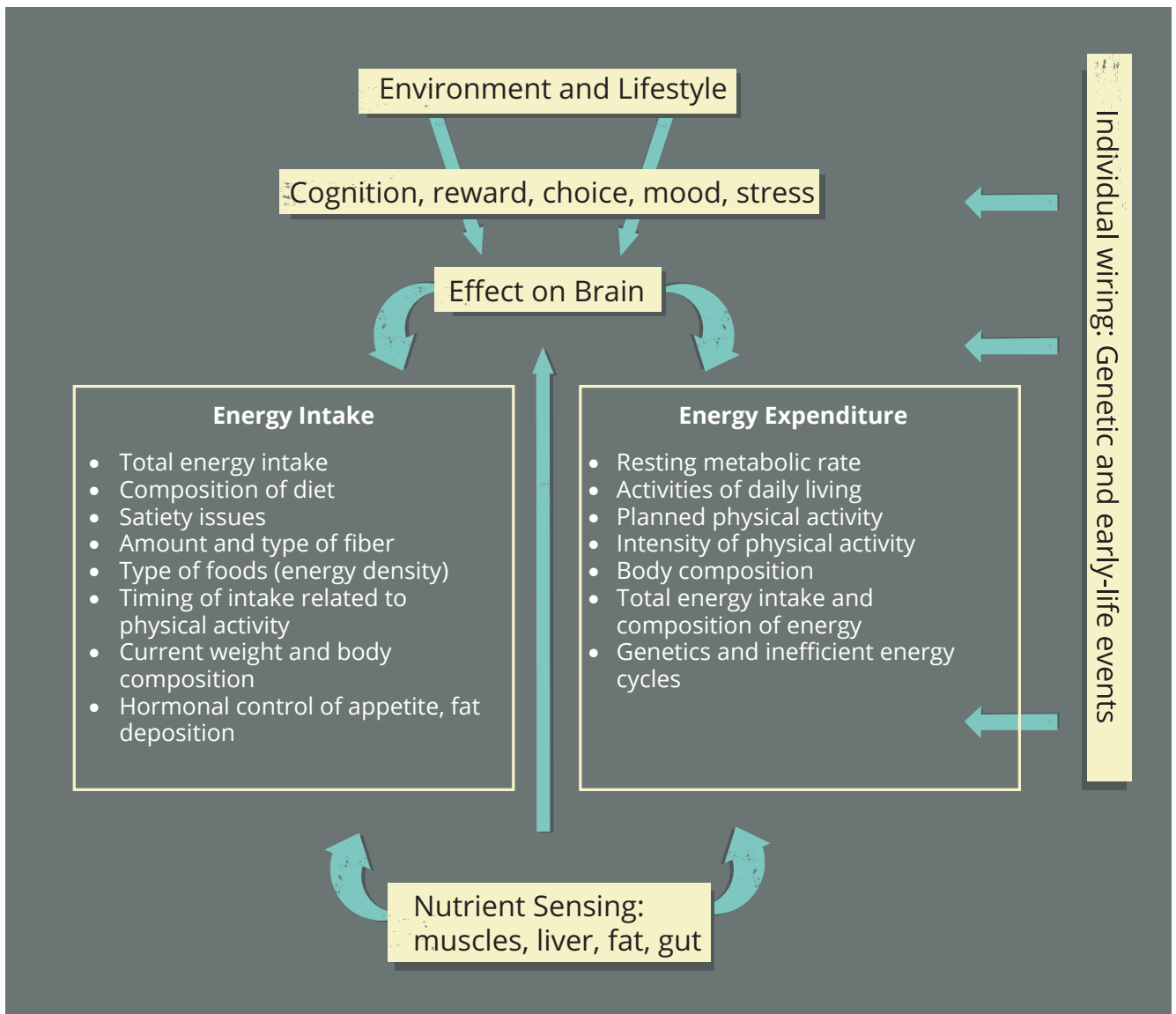
Energy Balance – Is it that simple?

The concept of energy balance seems simple. If we eat the same amount of energy (total amount of kilojoules consumed) than what we spend during the day, then weight is maintained. Seems simple, but this principle is dynamic and changing some factors on the one side of the equation often results in automatic changes on the other side, for example if I train harder to increase energy expenditure, I will be hungrier which will lead me to eat more. It is therefore not as simple as eating less and doing more, since we are human beings that react towards physiological triggers.

Moving away from the total energy content of food, the type of food eaten by the athlete can also change, which will cascade into changes in the thermic effect of food (energy needed to digest food, use and store nutrients) and the fuel sources used during training.

High intensity training can also suppress appetite which can lead to a decreased energy intake.

The amount of weight gain or weight loss would therefore depend in the energy intake, the composition of the energy intake (amount of fat, carbohydrate, protein or alcohol) and the overall energy expenditure.



What is a healthy body weight?

The question of what is healthy and ideal for an athlete regarding body weight is not known. We see people of all shapes and sizes compete successfully in various sporting events. It is therefore up to the athlete him- or herself to determine what weight works best for him / her seeing that there is no clear cut indication on what any athlete MUST weigh. The athlete should consider several factors, additional to a mirror, when setting a body weight goal:

- First do no harm: The goal weight should pose minimal health risks and promotes good health and eating habits whilst supporting optimal training efforts and performance
- Look at your building blocks: The goal weight should consider genetic makeup and family history of weight and body shape
- Consider where you are: The goal weight should be appropriate for the athlete’s age and level of physical development, including normal reproductive function in women
- Consider the “costs”: It should be possible to achieve and maintain the goal weight without constant dieting or restrained food intake.

Some sports ask an unrealistic weight for periods of competition which are often difficult to maintain after competition. It is important for such athletes to regain some weight in the off-season, but the athlete should control the weight gain to prevent the need for excessive weight loss for the next competitive season.

Dietary weight loss strategies for athletes:

Eat more food with a lower energy density

A meal plan concentrating on a lower energy density will bring whole fruits and vegetables, whole grains, low-fat dairy, legumes / beans and lean meats to your table, therefore:

- Eat whole fruits daily
- Substitute dried fruit and fruit juice with whole fruits in season
- Eat vegetables with at least every main meal and throughout the day where possible
- Ensure that vegetables fills up a considerable part of your plate
- Choose whole-grain starch options instead of the refined choices, e.g. whole-grain breakfast cereals, whole-wheat bread and crackers, brown rice and “braaipap”
- Use dairy products daily and opt for low-fat milk and dairy products
- Use legumes such as lentils, dried beans and chickpeas regularly
- Choose lower fat meat options or remove visible fat from meat and poultry
- Eliminate sweetened beverages outside of the training sessions
- Eliminate the intake of alcoholic beverages

These food choices will increase the intake of fiber and water which will allow for an athlete to consume a greater volume of food for an overall lower energy intake and still feel satiated. This implies that portion sizes would not have to be reduced significantly.

Eat breakfast and time meals around training sessions

The timing of food around training sessions and clever spreading of food throughout the day will ensure an adequate energy current throughout the day, but will also ensure nutrient availability needed in the repair and building of lean tissues to optimize training adaptation. The timing of food throughout the day can prevent patches where you are feeling starved or craving for something. Breakfast is proven to play an important role in every person’s life, as a 24 hour investment made early morning to get optimal dividends at the end of a day. Breakfast eaters have been shown to have a lower overall daily energy intake and bodyweight, better diet quality and find weight management easier. Athletes use breakfast as an ideal fuelling opportunity to help replenish glycogen (fuel) stores after an overnight fast and provide fuel for exercise, especially before an early morning training session. Athletes should aim to pack a whole lot of nutrients (high nutrient dense) in a limited amount of energy (low-energy-dense) breakfast and can therefore include a low-fat, high-quality protein, e.g. low-fat dairy or soy products, egg whites or lean meats, and fiber and nutrient-rich foods, e.g. whole-grains and fruits. A high-quality protein source should be included with regular intervals throughout the day, but especially after exercise and at breakfast. The protein intake will provide building blocks for the repair and maintenance of lean tissue throughout the day and will contribute to greater satiety throughout the day. Athletes restricting energy intake may need more protein to maintain lean



tissue and preserve strength. Smaller protein portions with regular intervals throughout the day seem to hold a greater advantage than increased intake of protein with a single meal.

Another very important component of the athlete's diet is recovering after training sessions, even though an athlete wants to lose weight. The post-exercise routine of fluid and carbohydrate intake is a vital component of the athlete's diet. Food choices such as whole fruits, vegetables and whole-grains are good choices to provide carbohydrate without the addition of excessive amounts of energy. Protein choices should be low in fat.

Drink less high-energy beverages

The intake of high-energy sweetened beverages and alcohol can add loads of extra energy to the diet without adding significant micro-nutrients or contributing to satiety. Some athletes used to drinking large volumes of these beverages, for example carbonated drinks, fruit juice, alcohol, energy drinks or flavoured water, coffee or teas, will often lose weight by just eliminating these beverages.

Avoid quick fixes or fad diets

Quick fixes or fad diets often underline extreme low energy intakes or diet practices to support rapid weight loss. Combining these severe energy restrictions with an intense endurance and strength training programme can actually result in metabolic adaptations that will be to the detriment of weight loss while being extremely stressful for the athlete. Severe energy restriction may have several negative consequences such as:

- Decreased ability to train at higher intensities due to poor energy intake and glycogen replacement resulting in decreased aerobic and anaerobic performance
- Increased risk of injury due to fatigue and loss of lean tissue
- Increased risk of disordered eating behaviours due to severe energy restriction
- Increased risk of dehydration, especially if the diet is ketogenic
- Increased risk of poor nutrient intakes, including essential nutrients, due to limited food intake

- Increased emotional distress due to hunger, fatigue and stress of following an energy-restricted diet

Manore MM. Weight management in the performance athlete. Tipton KD, van Loon LJC (eds): Nutritional coaching strategy to modulate training efficiency. Evidence-based nutrition – review of nutritional epidemiological studies. Nestle Nutr Inst Workshop Ser. 2013;75:123 – 133.

