

1...2...3 Nutrition tips – for the best all-round results

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Exactly *what* should an athlete or recreational sportsperson be eating to improve health, energy levels and performance? We all want to eat well but there are so many conflicting opinions about the role of nutrition in performance. To cut through the confusion, this article outlines three key principles aimed at supporting a leaner, stronger physique and improved health.

To lose weight, shouldn't I just eat less?'

1 Calorie-deficit diets don't work

Starving yourself lean is not the answer. Personal trainers can educate their clients that their decision to eat only watercress and lemon juice for the whole of January or one Ryvita with some cottage cheese on it in the month before their beach holiday will not produce desirable results. Research shows that female rhythmic gymnasts, even in energy depletion (consuming less than 800 kcal per day, about a third of the daily recommendation for the average non-athlete) have higher body fat percentages than artistic gymnasts or middle- and long-distance runners competing at the same level. One reason for this is that, when blood sugar is very low during a period of fasting, the amino acid alanine is recruited from muscle tissue for the formation of glucose in the liver. Essentially, the body stabilises blood sugar at the expense of muscle mass.

This approach, that of the yo-yo diet, results in weight stability on the scales but sub-optimal body composition. Higher muscle mass and lower body fat is the desired outcome for increased performance and improved aesthetics.

Strategy: calculate your daily caloric needs with the following formula:

To establish the minimum level of calories to maintain lean mass and metabolic processes, termed the resting metabolic rate (RMR), multiply your bodyweight (BW) in kilograms (kg) using these equations:

Males, 18–30: $(15.3 \times BW \text{ in kg}) + 679$

Females, 18–30: $(14.7 \times BW \text{ in kg}) + 496$

**Eg: 75kg male athlete, 21 years old:
 $(15.3 \times 75) + 679 = 1826 \text{ kcal RMR}$**

Now estimate your energy expenditure and multiply this figure as shown, to reach the desired amount of calories per day (see **Table 1**).

Example: 75kg male athlete (RMR – 1826), exercising at a moderate level (1 hour of structured exercise per day such as weights or cardio training)

$1826 \times 1.8 = 3287 \text{ kcal per day}$

This total amount should be spread over several meals throughout the day, which leads us conveniently to the next tip:

'Should I snack between meals?'

2 Appropriate snacking is good

Frequent eating patterns, of the right type, are strongly associated with lower fat and higher muscle

Activity level	Males – average	Range	Females – average	Range
Bed rest	1.2	1.1–1.3	1.2	1.1–1.3
Very sedentary	1.3	1.2–1.4	1.3	1.2–1.4
Maintenance	1.4	1.3–1.5	1.4	1.3–1.5
Light	1.5	1.4–1.6	1.5	1.4–1.6
Light to moderate	1.7	1.6–1.8	1.6	1.5–1.7
Moderate	1.8	1.7–1.9	1.7	1.6–1.8
Heavy	2.1	1.9–2.3	1.8	1.7–1.9
Very heavy	2.3	2–2.6	2.0	1.8–2.2

Table 1: Multiples of RMR for different levels of activity

mass in active populations. Two recent studies support this claim.

In the first, subjects were given isocaloric diets – that is, both groups consumed exactly 2500 calories per day. The difference was that one group ate all their food in two meals, while the other group consumed the same amount spread over six smaller meals. At the conclusion of the study, there was a significant reduction in lean body mass (muscle mass) in the two-meal-a-day group – a very bad thing! This shows that regular eating stabilises blood sugar levels and preserves muscle mass.

The second study involved 60 male and female collegiate athletes, of whom half added a 250-calorie snack after every meal for a total of 750 extra calories per day, compared to the second group who added a non-caloric drink after each meal. At 2 weeks, the snacking group had significantly reduced body fat whilst significantly increasing lean body mass, anaerobic power and aerobic endurance.

There was no change in total weight and, interestingly, no change in total caloric intake. Why was this? The study showed a spontaneous voluntary reduction in meal sizes in the snacking group. The snacks were removed 2 weeks into the study, and subjects were remeasured 4 weeks later. At this stage, the athletes had returned to their pre-study eating patterns AND their baseline values for body fat and muscle mass.

Strategy: emphasise a regular eating pattern of three meals a day with intermediate snacks, all of high-quality natural whole foods rather than processed high-sugar foods. This will result in a stable blood sugar profile, lowered insulin response, fewer food cravings, better concentration, less likelihood of bingeing and a more favourable body composition.

'I want big muscles – should I buy protein powder?'

3 Protein is good, but more protein is not necessarily better.

Dietary protein is an essential component of human nutrition and is responsible for the growth and maintenance of cells and tissues. Supplementation with extra protein in the form of powders and bars is now widespread and represents a highly emotive issue: across five popular bodybuilding magazines, 800 individual performance claims were made from 624 different products. Not all of these were protein powders, but the vast majority were.

Despite the popularity of protein supplements, research studies have thus far not supported the idea that a limitless increase in protein ingestion results in ever-increasing gains in muscle mass.

One recent study showed that in athletes ingesting 2.8g

per kg of body mass per day versus another group ingesting 1.8g per kg, there was an exponential increase in protein oxidation with no further increase in net protein synthesis. In other words, beyond 1.8g per kg per day, there was no further use of the protein by the body to build mass.

A second study corroborates this, finding that 2.6g per kg per day resulted in no further strength or mass benefits above a measly 1.35g per kg per day. In fact, in endurance athletes within this group, excessive protein in the diet actually attenuated the rate of protein synthesis.

Strategy: include a protein source such as an animal food, dairy product or egg at every meal and in most snacks to achieve your daily requirement of protein.

The above approach is decidedly safe and relatively inexpensive, in contrast to simply taking a shake whenever you feel you need more protein.

The upper limit for dietary protein, according to research, is probably 2g per kilo of body mass per day. For a 75kg athlete, this would equate to 150g of protein per day, or in other words:

- 4 eggs – 24g
- 1 glass of milk – 8g
- 1 cup natural yoghurt – 10g
- 4 tablespoons peanut butter – 16g
- 1 chicken breast – 30g
- 1 6oz steak – 42g
- ½ cup cooked black beans – 10g
- ½ cup cottage cheese – 15g

Total: 155 grams, not counting smaller amounts found in bread, rice, vegetables and other foods.



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NUTRITION ESSENTIALS

Using the table, estimate your daily caloric needs.

Divide this total across 3 meals and 2 snacks.

Always include a good balance of nutrients.

Don't be afraid to snack.

Remember that supplements are not compulsory.