

FAT

The fats and oils we get from food provide a concentrated source of energy with double the amount of calories (kilojoules) compared to an equal amount of carbohydrate or protein. Fats and oils are also important sources of fat-soluble vitamins (A, D, E, K) and "essential fatty acids" which are necessary for optimal health and performance.

The average South African diet is however too high in fat and as a result high body fat levels are commonly seen amongst athletes. A higher body fat is only beneficial in very few sports as it can increase flotation, insulation against cold environments, and may potentially provide increased protection against organ damage during contact sports.

For most sports, a high body fat is disadvantageous - excess body fat is "dead weight" which can slow you down, it decreases the ratio of "active: inactive tissue", which ultimately decreases your power to weight ratio.
"Active" tissue is muscle mass which is responsible for power/strength and speed versus "inactive" tissue (fat).

Fat as fuel source during exercise:

Although fat is the most concentrated form of energy, it does not provide an efficient source of fuel for the muscles during exercise. Firstly, the rate at which dietary fat, as well as stored body fat, can be converted into energy for the working muscles is very slow. Instead, carbohydrate is the major energy source during exercise because it provides energy to the muscles at a faster rate, which is especially important to enable high-intensity exercise (e.g. race-pace) – i.e. the higher the intensity or pace, the more carbohydrate you need as fuel. Secondly, even when you perform exercise at a low to moderate intensity, fat can still only provide ~50% of the energy needed, the other 50% still coming from carbohydrate. Unfortunately body carbohydrate stores are limited, and only allows you to sustain hard exercise for 60-90 minutes. Therefore, to maximise exercise capacity and performance, your main dietary focus should be to follow a high carbohydrate, low fat diet on a day-to-day basis (see carbohydrate leaflet).

Ingesting fatty foods during exercise (especially high intensity exercise) is not recommended as it slows down the rate of stomach emptying. This means that the food sits in your stomach for longer, increasing the risk of stomach discomfort, and slowing down the release of energy (specifically carbohydrate energy) to the working muscles. This can have a negative impact on your performance.

WHAT IS THE IDEAL BODY FAT LEVEL ?

Recommended ranges for body fat levels do exist for certain sports, however when determining your personal ideal body fat level, you also need to consider the following:

- The level at which you feel YOU perform best. A very low body fat is not always associated with improved performance – some athletes will perform well with body fat levels above the recommended range.
- Can you maintain good health whilst pursuing the body fat level that you desire? You require a minimum fat intake and level of body fat for good health. Body fat levels below 3-5% for males and 14% for females are regarded as VERY low and are associated with negative health and performance outcomes. Very low body fat levels amongst females can lead to loss of regular menstruation with the negative consequences of increased bone loss and development of bone diseases like osteoporosis.
- Can you reach and maintain this body fat level without unreasonable effort and without compromising other important nutritional goals? Athletes becoming too lean can experience early fatigue, intolerance to cold, and have an increased risk of infection.

It is therefore important that you have realistic and sensible body fat goals. Keep in mind that body fat and body shape is largely determined by your genetic make-up (determined by your parents), something you cannot change – dietary and training strategies can create a certain degree of "remoulding" your body shape, but you

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should ultimately choose a sport that suits your natural physique best!

Is a fat-free diet a good idea?

Drastic / extreme dieting in order to decrease body fat can in itself decrease performance capacity and health.

- A completely fat-free diet is difficult to adhere to, and more importantly, it is neither necessary, nor healthy.
- Deficiencies in either of the fat soluble vitamins, and/or essential fatty acids can develop which will impair health and performance.

ARE ALL FATS "EQUAL"?

All fats (saturated, mono-, and poly-unsaturated fats) are equally rich in energy (calories). Although fats are easily converted and stored as body fat, there is recent evidence that the polyunsaturated fats (found in foods like sunflower oil and fatty fish) are the most easily oxidized (burnt). Therefore, when planning your "fat budget", you should always give preference to the poly-unsaturated fats and also to the "healthy" mono-unsaturated fats (found in foods like olive oil, canola oil and avocado pear) restricting your intake of foods rich in saturated fats like fatty meat, chicken skin, coconut, full cream dairy products, lard and ghee.

Tips to implement a low fat intake:

- Buy and eat lower fat foods (see Table 1). Instead of fatty meats and sausages buy/eat lean cuts of meat, extra lean mince, ostrich meat/mince, skin less chicken and fish; and, instead of full cream dairy products, use low fat, or fat free dairy products.
- Before buying food or drink, read the nutritional information on the label and only buy the item if it fits into your total daily "fat budget" (of course keeping in mind everything else you may consume in that day). Your "fat budget" will vary depending on factors such as your own weight goals, and should also take into account your sport and your position of play. Ideally your fat

requirements should be calculated for you by a sports dietician.

- Use low fat mayonnaise (e.g. Trim, Nola light) or "reduced oil" or "oil free" salad dressings. You can further reduce the fat content of mayonnaise by mixing it with fat free plain yoghurt and/or smooth cottage cheese – add herbs / spices to create a tasty low fat dip (to enjoy with chopped raw vegetables, as a filling for baked potato, or as a dressing for potato / pasta salad).
- Use one high fat spread at a time. For example, have a peanut butter/cheese sandwich with jam/honey/syrup instead of with butter/margarine and get the added bonus of extra carbohydrates.
- Use avocado pear as a spread instead of margarine/butter.
- Use fat free spreads e.g. Marmite/ Bovril/ Fishpaste/ Fat free cottage cheese.
- Use minimal amounts of fat/oil in cooking or food preparation.
- Grill, steam, microwave, cook (stew) rather than fry in large amounts of oil.
- Instead of a creamy sauce, rather have tomato-based sauce, BBQ, Monkeyland, Sweet and Sour sauce.
- Instead of oil, use a stock cube dissolved in a small amount of water to sauté your onions or meat when preparing a stew/stir fry/mince dish. Keep adding small amounts of water to keep from sticking / burning.
- Invest in a non-stick frying pan – it makes low fat cooking much easier!
- Limit your intake of high-fat snack items like crisps, chocolates, biscuits, pastries, dried sausage, high fat energy/breakfast bars e.g. Snacker, Granola bars – Rather go for fruit, dried fruit, fruit rolls, flavoured low fat milk/yoghurt/yogisip, pretzels, lean biltong or ostrich / game biltong, and on occasion fat free jelly-type or hard-boiled sweets (consult with your dietician about the use of these products).

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Ever heard of "Fat loading"?

Imagine if you were able to burn (oxidize) more fat during exercise - you would spare your limited carbohydrate stores and theoretically this would improve your endurance capacity! Scientists have been experimenting with this strategy by "fat loading" ultra-endurance athletes and getting them to eat a very high fat diet for 3-5 days, followed by ~2 days of a high carbohydrate diet in the week prior to an ultra-endurance event (>6 hours).

Research thus far indicates that it is only a select few elite athletes that may benefit from this strategy – it is not a strategy that will work for everyone, and in fact might impair performance since the fat loading phase may deplete critical carbohydrate stores which in turn will impair training and performance capacity.

Note: This strategy should be performed under strict supervision of a sports dietician with extensive knowledge on the topic!

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Note: For further information and advice on supplementation contact your SASC Dietician.

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Table 1: THE FAT CONTENT OF POPULAR FOODS

(consult

High fat items (referring to cooked weights)	Fat content per 100g	Lower-in-fat alternatives	Fat content per 100g
Butter; oil (any type) Low fat spreads, peanut butter; regular mayonnaise, salad dressing	80g;100g 50-60g	Flora extra light spread, Yum-yum lite peanutbutter Avocado pear, Low fat mayo & salad dressing (Still to be used sparingly!)	35g<15g
Sausages, boerewors, dried sausage	30-36g	Chicken sausage	10g
Ribs (mutton/pork/beef, grilled, untrimmed)	35-45g	Lean red meat, pork/beef/mutton (grilled, fat trimmed)	6-8g
Mutton (lamb) & Pork chops (+fat)	23-27g	Mutton (lamb) & Pork chops (fat trimmed)	10-15g
Regular mince	19g	Lean mince & ostrich mince (meat/biltong)	11g & <5g
Viennas; Polony; Salami Lean bacon (fried)	25; 28; 5g 22g	Lean ham & chicken or turkey roll; roast beef (all fat trimmed)	< 5g 7g
White & dark chicken/turkey with skin	10-25g	White & dark chicken/turkey without skin	4-9
Fried, battered fish; tuna in oil	11; 8g	Grilled/steamed fish; tuna in water	<5; <1g
Cream; full cream vs low fat milk/yoghurt; Evaporated Milk	45; 3.5 vs 2g; 7.5g	Low fat Orley whip; fat free milk/yoghurt; Low fat evaporated milk	13g; <1g 3.5g
Gouda, Cheddar, Gruyere, Roquefort, Blue cheese, Parmesan	30-34g	Mozzarella, Feta, Camembert, Brie (use sparingly!) Low fat Edam, Lichten Blanc Ricotta, Fromaige frais, low fat cottage cheese/ cheese wedges & spread; Raskas/Philadelphia fat free cream cheese	21-24g 11-15g 5-8g 0g
Regular & soft serve ice cream	13-16g	Fruit lollies; Fat free sorbet Low fat frozen yoghurt	0g 3-4g
Chocolates; toffee; caramel, fudge	30-36g	dried fruit/jelly & jelly type sweets/hard-boiled sweets, liquorice	<1-2g
Snacker, Granola, Gilly bar SlimSlab, Bokomo Breakfast, PVM Energy bar	23-25g 9-11g	Nougat; Safari fruit bar; Power Bar (Harvest ; Protein Plus)	11.8g;<4g 2g (5; 7g)
Potato crisps; Salti crax etc. Nuts (can be used sparingly)	30-36g 47-75g	Pretzels; Provita / Ryvita crackers	<8g
Hot potato chips; Pies	16; 30g	Oven-baked potato chips; Baked potato; Rice, Pasta	8g <1g

