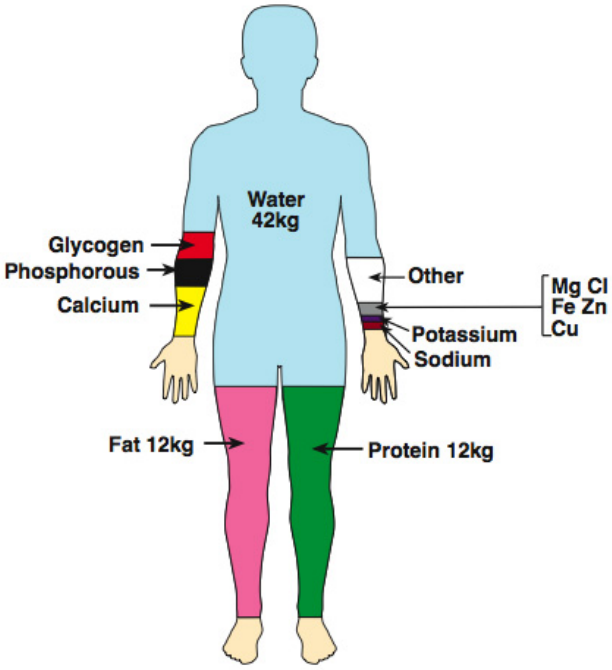
Diet Talk

How Important is food?

How important is nutrition compared to exercise when it comes to weight loss?
There are a few ways to look at it.
- We eat before to give us energy, we train, then we eat afterwards = nutrition is x2 more important
- We put liquid and food in our mouth 5-10x a day vs exercise 5-6x a week = nutrition is x7-11 more important.
Eating is a fairly passive thing to do. It's much easier to not put bad stuff in our mouth than to work hard to burn it off!!!

What are we made of?

Our body is made up of the following basic groups:



Water - We can see from this diagram, we should be consuming water the most. Water for your body is like oil for your car. You need water for all bodily processes, including digestion, waste excretion, circulation and even breathing. Dehydration can lead to sugar cravings, fatigue, and an ill temper marked by edginess and cloudy thinking. As well, dehydration slows down fat-burning significantly and prevents the muscles from taking advantage of the carbs you're eating.

A suggested rule is 1 litre for every 25kg of body weight, then an additional litre of water for every our of exercise. Sometimes when we think we are hungry, we could have a glass of water and it would satisfy us as we were only really thirsty

Protein - The next most important substance that we should consume. It is essential for building and rebuilding muscle which is active useful tissue. Protein is found in all animal products, including red meat, poultry, eggs, dairy, fish, and also to a lesser degree in vegetable sources of grains, legumes, nuts and seeds. Just like carbohydrates, each gram of protein has four calories. However, the complete weight of protein-rich food is not exactly the same as the number of protein grams it contains. For example, 100g of lean fish translates only into around 25g of protein, while 100g of pure protein powder may give you all 100.

	Lean man 70 kg	Obese man 100 kg
Water	60%	47%
Protein	17%	13%
Fat	17%	35%
Remainder	6%	5%

High protein foods are essential for muscle gain and fat loss. Think of these foods as your metabolic stimulators as they help maintain and build metabolically hungry muscles to keep your body lean and strong. If you feel tired right now it may not be due to low carbs, instead you may have low protein. When you body runs low on protein and you start using your own muscle stores, your body goes into slow down (tired mode) to spare more muscle loss. This is also known as starvation mode which will encourage your body to store fat and not use any sugar. We want to avoid this scenario, so we keep our nitrogen levels high and constant through regular protein.

How much protein per day?
The DRI's (Daily Reference Intakes) developed in 1996 by the Food and Nutrition Board, Commission on Life Sciences, National Research Council, to replace the previous RDI (Referenced Daily Intake) which came from RDA's (Recommended Dietary Allowances), established in the 1940's as a minimal requirement to keep solders fighting fit due to food rationing.

The recent DRI suggests protein per day:

Infants	grams	Females	grams
0-6 mo	9.1	9-13 years	34
7-12 mo	13.5	14-18 years	46
Children		19-30 years	46
1-3 years	13	31-50 years	46
4-8 years	19	51-70years	46
Males		> 70 years	46
9-13 years	34	Pregnancy	
14-18 years	52	14-18 years	71
19-30 years	56	19-30 years	71
31-50 years	56	31-50 years	71
51-70years	56		
> 70 years	56		

The Australian Institute of Sport has come out with these requirements, suggesting the long held RDI protein rule was just enough to get by, and no way near enough to improve or grow.

	g per kg lean body weight
Sedentary men and women	0.8-1.0
Elite male endurance athletes	1.6
Moderate-intensity endurance athletes (a)	1.2
Recreational endurance athletes (b)	0.8-1.0
Football, power sports	1.4-1.7
Resistance athletes (continuing to build)	1.5-1.7
Resistance athletes (maintenance)	1.0-1.2

Female athletes ~15% lower than male athletes

(a) Exercising approximately four to five times per week for 45-60 min
(b) Exercising four to five times per week for 30 min at <55% VO2peak
Source: Burke and Deakin, Clinical Sports Nutrition, 3rd Edition, McGraw-Hill Australia Pty Ltd, 2006

Can athletes have too much protein?

Studies have shown that daily protein intakes under 2 g/kg BM in healthy people are unlikely to cause side effects. Less is known about the long-term side effects of protein intakes above 2 g/kg BM. High protein intakes can increase the amount of calcium excreted in the urine. This may cause problems with athletes at risk of weakened bones - for example, female athletes with low energy intakes who are not menstruating. High protein intakes are suggested to accelerate the progression of pre-existing kidney disease. High protein intakes based on the consumption of large amounts of animal foods (e.g. meat and dairy foods) can result in a greater fat intake. High protein intakes may increase fluid requirements. High protein can create a very acidic environment in the body and may elevate uric acid leading to gout.

Complete protein vs incomplete

All animal proteins are complete, including red meat, poultry, seafood, eggs, and dairy. Vegetarians will be happy to know that complete proteins can also be obtained through certain plants, such as soy, spirulina, hemp seed, amaranth, buckwheat and quinoa.

Foods can be combined to make complete proteins like pairing beans with rice or corn. There are other combinations as well. Beans and seeds, beans and nuts, and beans and grains will form a complete protein. When you eat hummus and pita bread, nut butter on whole grain bread, pasta with beans, veggie burgers on bread, split pea soup with whole grain bread, and tortillas with refried beans, you are eating complete proteins. The problem with getting your protein source this way is that it's also very high in carbohydrates.

Fat - We need fat in our diet. As the most concentrated source of energy, it provides nine calories per gram compared with four calories per gram for protein and carbohydrates. Fat may take hours before the fatty acids reach the blood stream, so they may keep from feeling hungry for many hours. The slow-digesting fat lowers the glycemic index of any food you eat, doesn't raise blood sugar levels and even limits the rise of the fat-storing hormone insulin, which you normally get from eating carbs or protein. In other words, eating fat is the only known natural way to curb your hunger and maintain blood sugar levels for many hours longer.

The golden rule with fat is: *quality, not quantity being most important*. Fats you eat can be classified as:
Saturated fats are derived from animal products such as meat, dairy and eggs, and are also found in some plant-based sources such as coconut, palm and palm kernel oils. They are solid at room temperature and melt when heated.
Monounsaturated and **polyunsaturated fats** are two types of unsaturated fatty acids derived from vegetables and plants. These are liquid at room temperature but begin to solidify at cold temperatures. You can find these in olives, olive oil, nuts, peanut oil, canola oil, avocados, safflower, sesame, corn, cottonseed and soybean oils.

Trans fats are actually unsaturated fats that go through hydrogenation, the chemical process that changes liquid oils into solid fats. They are found in commercial cakes, shortenings, spreads, and in some of the convenience foods.

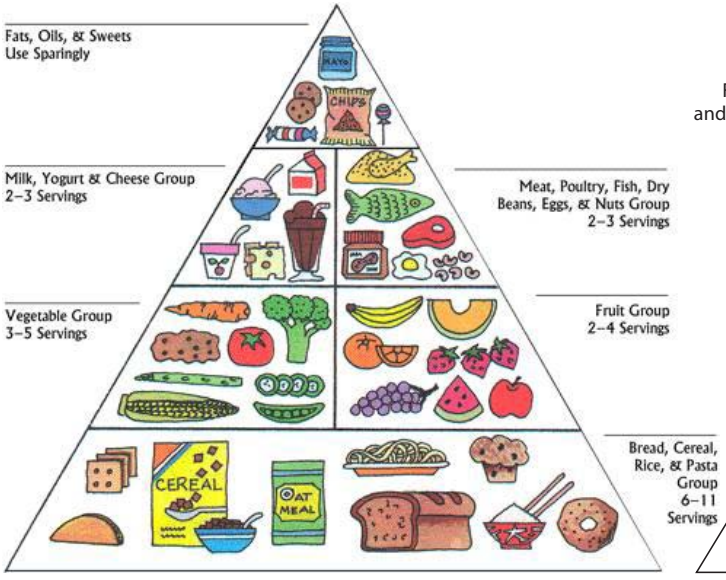
How do you tell a good fat from a bad one? Apart from trans fats, which are probably the worst man-made foods ever created, there are no good fats and no bad fats. You need all of them; some more than others. The best fats come from unsaturated Essential Fatty Acids. Eat more liquid fats and less solid fats and you should be fine.

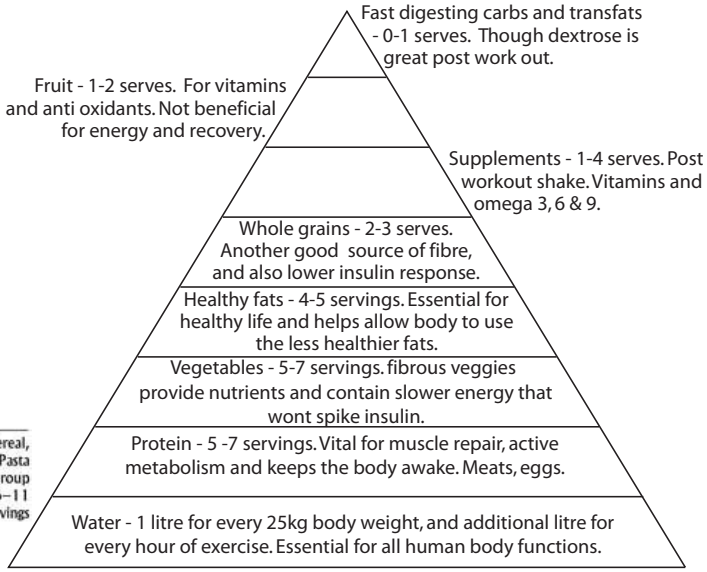
Carbohydrates - Though there is no such thing as an essential carbohydrate, you will always need at least some to keep your body moving and your metabolism high. Carbohydrates provide your body with the energy needed for the workout you need. They are an energy source for your muscles, and without some carbs, you won't be able to perform the type of workouts that promote muscle building. Your brain only functions on glucose so you need it for healthy brain function too.

Carbohydrates are found in sugars, grains, fruit, vegetables, legumes, nuts and dairy, and give you immediate energy providing four calories per gram. This doesn't mean that 100g of cooked pasta will give you 100g of carbohydrates (in fact, only around 25g). But 100g of table sugar will give you 100g of carbohydrates.
There are 2 main groups of carbs - simple and complex. Not all simple carbs are bad. We can greatly benefit from dextrose post work out to replenish glycogen stores. But fructose in fruits is only broken down in the liver to be used for the liver so will not aid in muscle reloading. In fact more than approx 50-60g of fructose per day will see a spill over into your fat stores.

The second group is complex carbohydrates. They come from vegetables, nuts, whole grains etc. They can be either starch based like pasta or white rice which have a higher glycemic index value, or fibrous like sweet potato and lettuce. The latter are also sometimes high in cellulose which cannot be digested and absorbed at all. Your total glycogen stores hold approx 400-600g. They can be 25% depleted from sleep alone, which means a moderate complex carb breakfast will not make you fat.

Food Pyramid?





In 1994, after careful consideration of all of the different dietary factors, the USDA released the commonly known food pyramid that consists of four levels with different types of food on each level. There are claims that the USDA was (and continues to be) unduly influenced by political pressure exerted by food production associations. Food industries, such as the Wheat Board and the Dairy Industry have been accused of influencing the United States Department of Agriculture. The high amount of processed wheat/grain based food seems unusual considering the growing obesity problem. The inclusion of dairy as an essential part of a healthy diet has been questioned by nutritionists.

What about dairy?

Harvard University's landmark Nurses Health Study, which followed 78,000 women over a 12-year period, found that the women who consumed the most calcium from dairy foods broke more bones than those who rarely drank milk. Summarizing this study, the Lunar Osteoporosis Update (November 1997) explained: "T*his increased risk of hip fracture was associated with dairy calcium. … If this were any agent other than milk, which has been so aggressively marketed by dairy interests, it undoubtedly would be considered a major risk factor."*

Why is dairy a problem?

The fat within milk is broken down into unnaturally small molecules that cause all kinds of digestive distress and allergy related problems because they are not recognizable to our bodies for what they are. They wreak havoc on immune systems and create a number of health problems. Dairy is also acidifying to the body, as are meat and wheat products, and these eventually imbalance the body to be too acidic. An acidic body is a body that leaches minerals from the bone marrow to maintain pH. Thus, the bones are robbed of density just to survive. Rather than building bones, this food places them at greater risk for osteoporosis.

3 meals vs 6 meals a day?

The quest to determine whether or not grazing is a better strategy than eating the traditional three meals began 40 years ago. Fabry and colleagues studied 379 men ages 60 to 64 to see whether or not there was a difference in body fat between eating three meals per day and eating five meals per day; they observed that men who ate three meals per day had larger skin folds than did men who ate five or more meals per day (Fabry et al. 1964). Metzner and colleagues also studied the relationship between eating frequency and body fat proportion in adult men and women; similarly, subjects who ate six meals per day were significantly thinner than those who ate two meals per day (Metzner et al. 1977).

These early studies began what appears to be an ongoing quest for a simple answer to a complex question. All in all, eating more frequently has been associated with reduced body fat and improved appetite control, weight control, lipid metabolism and insulin sensitivity (Drummond et al. 1998).

Scientists at the University of Wollongong in Australia found that eating a high-protein meal triggers a 35 percent spike in metabolism that lasts four hours. "Harnessing this power five or six times daily keeps metabolism high, so the body is burning fat at its peak 24/7", says nutrition researcher Tom Venuto, author of The Body Fat Solution (Avery, 2009). And studies at Tufts University at Boston suggest that spreading protein intake over five or six meals is so effective in speeding up metabolism that it results in 32 percent more fat loss than traditional low-carb plans.

In a recent American Journal of Clinical Nutrition editorial, a team of nutrition researchers concluded that whether you are practicing the "three" or "six" meal daily dietary pattern, weight loss ultimately comes down to "how much energy (or calories) is consumed as opposed to how often or how regularly one eats."

For some people 3 meals a day allows for only 3 times to over eat, vs 6 meals = 6 bad food choices. Some people can not eat the right amount of protein needed in just 3 meals especially at breakfast.

So given the tried-and-true equation for weight maintenance: Calories "in" = Calories "out," what this really boils down to is whether eating five or six small meals a day truly helps us to:
- Burn more total calories at the end of the day
- Eat fewer total calories at the end of the day

As long as total caloric and nutrient intake stays the same, then metabolism, at the end of the day, should stay the same as well. One study that carefully demonstrated this, published in 2009 in The British Journal of Nutrition, involved groups of overweight men and women who were randomly assigned to very strict low-calorie diets and followed for eight weeks. Each subject consumed the same number of calories per day, but one group took in three meals a day and the other six. Both groups lost significant and equivalent amounts of weight. There was no difference between them in fat loss, appetite control or measurements of hormones that signal hunger and satiety. Other studies have had similar results.

In order to lose body fat we need to consume less calories then we need.
So we have to have an idea of our basal metabolic rate
- plus calories required to perform exercise and also to repair and recover from it
- plus the TEF of the types of food we eat

Thermic Effect of Food (TEF). It has long been known that when you put food inside your stomach, you get a boost of energy. After each meal, your metabolism goes up soon after you start eating and peaks two to three hours later as your body needs to do a tough job - to process the nutrients you supplied, digest them, metabolise and deliver to the needing tissues. In short, turning food into energy creates heat and burns calories. So, eating itself is thermogenic. Each spoonful of caloric energy boosts your metabolism through the action on hormones, enzymes, and engagement of all body systems.

Not all calories are equal.
TEF of protein is 30%
TEF of carbohydrates is 5-20%
TEF of fat is 0-5%

The FDA's daily referenced values suggest people over 4yrs eat approx 2000cal a day comprised of the following breakdown. 300g carbs, 65g fat, 50g protein. 300g of carbs for an office worker is a lot. 50g of protein is very low. It's not enough for active gym goers. So a diet of 2000 calories made up of just fat will see you absorb 1900 cals, but 2000 cals of just protein yields 1400 cals. That is 500 cals difference.

Supposed **Negative calorie foods** are high in fiber and carbohydrates with very little fat. The truth is there is technically no negative calorie foods. However some countries like the US list soluble fibre as 4 cals per gram despite not obtaining 4 cals from them as they are in absorbable.

Take 100g of celery, a commonly listed negative calorie food for example.
- It contains 3.4g total carbs; 1.6g fibre, 1.8g sugar = 13.6 cals.
- After the initial 20% reduction from TEF we are left with 10.8 cals.
- Then deduct the 6.4 cals from the 1.6g fibre and we are left with 4.4 cals.

So this is a still a plus amount of calories. The most important thing is that if you eat 1kg of celery you will only get 44 cals, but feel very full with each meal, preventing you from over eating higher calorie foods.

Spices like cinnamon are listed as a carbohydrate with 4 cals per 1g though it is cellulose based (from bark) and cannot be absorbed. In fact the effects of cinnamon will speed metabolism and encourage weight loss. So that to an extent is a negative calorie. But you wouldn't eat cinnamon on its own.

Whatever we do keep it consistent

An irregular meal pattern (i.e. 3 meals on one day, 9 meals the next day, 6 meals the next day, etc...) has been shown to induce a significantly lower thermic effect of food than a regular meal pattern (i.e. a consistent 6 meals per day) that has the same total amount of calories.

Digestive times of foods

Vegetables
Raw tossed salad vegetables - tomato, lettuces, cucumber, celery, red or green pepper, other succulent vegetables - 30 to 40 min. digestion. -
Steamed or cooked vegetables
Leafy vegetables - escarole, spinach, kale, collards etc. - 40 min. - Zucchini, broccoli, cauliflower, string beans, yellow squash, corn on cob - all 45 min. digestion time
Root vegetables - carrots, beets, parsnips, turnips etc. - 50 min.
Jerusalem artichokes & leafy, acorn & butternut squashes, corn, potatoes, sweet potatoes, yam, chestnuts - all 60 min. digestion.

Concentrated Carbohydrates - Grains
Brown rice, millet, buckwheat, cornmeal, oats (first 3 vegetables best) - 90 min.
Lentils, limas, chick peas, peas, pigeon peas, kidney beans, etc. - 90 min. digestion time
soy beans -120 min. digestion time
Nuts - Almonds, filberts, peanuts (raw), cashews, brazil, walnuts, pecans etc. - 2 1/2 to 3 hours to digest.

Dairy
Skim milk, cottage or low fat pot cheese or ricotta - approx. 4 to 5 hrs
whole milk hard cheese - 4 to 5 hours digestion time
whey concentrate - 2-3hrs
whey isolate - 1hr
hydrolysed isolate - 5-20 min
BCAA and amino's (glutamine) - 5 -10 min

Animal proteins
Egg yolk - 30 min. digestion time
Whole egg - 45 min.
Fish - cod, scrod, flounder, sole seafood - 30 min. digestion time
Fish - salmon, salmon trout, herring, (more fatty fish) - 45 min. to 60 digestion time
Chicken - 11/2 to 2 hours digestion time (without skin)
Turkey - 2 to 2 1/4 hours digestion time (without skin)
Beef, lamb - 3 to 4 hours digestion time
Pork - 41/2 to 5 hours digestion time

Putting it all together

If consume the right foods at the wrong times then they are the wrong foods. When planning your day consider:
- When you will be most active, when you need energy the most, when you will be working out.
- Then look at the foods digestive times and consider will I have the energy in time from that?
- Will this food be used effectively or will it compete with other foods for preference in usage so therefore be stored as fat?

If you know what you should be eating at different times and you know what is good and what is bad, then you can use the following table.

Date:	**Mon**	**Tues**	**Wed**	**Thurs**	**Fri**	**Sat**	**Sun**
Breakfast	✓	✓	✘	✓	✓	✓	✘
Mid Morning	✘	✓	✓	✓	✓	✓	✓
Lunch	✓	✓	✓	✓	✓	✘	✓
Afternoon	✓	✓	✓	✓	✘	✓	✓
Dinner	✘	✘	✓	✓	✓	✘	✓
Desert	✘	✓	✓	✓	✓	✘	✓
Post Work-out Shake	✓	✓	✘	✓	✓	✓	✓
Snacks	✓	✓	✓	✘	✓	✓	✓
Total per day:	**5**	**7**	**6**	**7**	**7**	**5**	**7**
Total for the week: 44/56							

Charting your progress is a good way to see how you did for the week. You can slowly work towards being stricter and stricter. Forms are available on my website: www.internationalpersonaltraining.com