



Lean Intensive Fitness Training - Articles

Contents

- **Page 2** - Will my muscles turn to fat if I stop training?
- **Page 4** - How to Bulk Up
- **Page 6** - How to get the most from your CV Equipment
- **Page 9** - How To Increase Your Metabolic Rate And Make Your Body Burn More Calories
- **Page 13** - Diet Tips For The Vegetarian Runner
- **Page 18** - Sports Supplements And Ergogenic Aids
- **Page 26** - Macronutrients
- **Page 33** - Hydration
- **Page 36** - Essential Vitamins and Minerals
- **Page 39** - Fat Burning Zone: THE FACTS
- **Page 43** - High- Protein, Low-Carbohydrate Diets
- **Page 46** - The Only Weight Loss Advice You'll Ever Need
- **Page 48** - Swimming Vs Running
- **Page 51** - Exercise and Menopause
- **Page 54** - Proteins and Amino Acids for Vegetarians
- **Page 57** - Importance of Nutrition and Exercise for Multiple Sclerosis (MS) Sufferers
- **Page 62** - The Importance of Vitamin B12



Will my muscles turn to fat if I stop training?

All of us, at one time or another has seen the adverts that promise to turn your fat into muscle, and many people believe that muscle turns to fat if you stop training. Let me ask you a question. If I put a potato in the oven, will it turn into a pizza?

Of course not, they are two different things, as are muscle and fat cells.

Muscles are living structures with the ability to grow, expand repair and shrink. They perform a vital task of skeletal support and movement. Fats are dormant cells, they cannot reproduce or grow and any excess fat has no real function in the body. I know we've all seen the, once Bodybuilder guy, who within a few years of stopping exercise, turned into the Michelin man (see my before & after photos). It's not because he's stopped exercising that he looks fat, it's because he's stopped training but not reduced the intake of food.

When in training, we have a high intake of calories, which is burned because of exercise. A high level of training promotes hypertrophy (muscle growth). If we take in the same amount of calories and do not burn them, the fat will stay in the body. Turning fat into muscle or vice versa is a physical and biological impossibility. The only thing that happens if you suddenly stop training is that your muscles will shrink (atrophy) and fat will start to settle if you don't reduce the calorie intake. If however you do watch how much you eat, then you will only get the shrinkage, however the downside to this is that it takes time for the excess skin, which initially stretched to accommodate the muscle expansion to contract to a normal shape. It's like when someone overweight suddenly loses the pounds, though they become thin, the skin remains flabby for many months or years,

depending on the initial size. Luckily muscle shrinkage take a long time so in most cases the skin gets time to recoup.

The only time you will see a significant change, and what is often mistaken for fat, is if the body was forced to grow at a rapid rate using illegal supplements. In these cases the shrinkage will be far more rapid and the skin appears saggy around the muscle, making it look like fat.

Should you wish to stop training, not that you should, it needs to be done gradually as when you first started training. Your food intake needs to reduce at the same time. There are many old time bodybuilders out there who have done just that, and look amazing, smaller in size than they used to look, but still amazing. For a long and healthy life, you must eat well and exercise regularly and both should be balanced to compliment each other.

Author: Josh - Personal Trainer Leicester



How to Bulk Up

I frequently get asked by many of my clients for advice on how to bulk up. The simple answer is to EAT MORE, but as we all know it's not as easy as it sounds. I see many people who give it a 100% during their workout and still don't manage to gain size well; here are my tips on bulking up. Remember your new eating habits must be accompanied by vigorous training sessions incorporating plenty of Cardio vascular work.

1. Increase the food intake gradually and over a period of time, in a controlled manner. You cannot just start indulging on your favourite foods from day 1. This will help gain weight but also FAT. The objective is to put on size whilst keeping the fat to a minimal.
2. A healthy weight gain is about 2lbs a week so you need to increase your diet to accommodate this. I suggest your normal breakfast, lunch and evening meal, accompanied by two BULK-Up meals (One in between breakfast and lunch and the other between lunch and evening meal.) You will need to weigh these meals out each day, as you will need to increase each of the bulk-up meals by 1 gram per day. The type of foods I would suggest is; Pasta, rice, cereals mixed with nuts and seeds or extra protein from chicken or even a protein shake. Stay away from FATS and ALCOHOL and junk foods altogether and keep the sugars to a low.
3. Keep adding 1 gram per day to your bulk meals until you reach your desired weight
4. Eat healthy and always choose the healthy option incorporating plenty of vegetables, in a variety of colours. Do not increase the protein too much; a healthy guide is between 0.3

and 0.8 grams per pound of body weight.

5. The aim is to gain steady weight so keep to the 2lbs a week weight gain, if you find you're not increasing by this amount then increase the meals accordingly. If you are putting on more than this amount, then reduce the meals.

6. Keep most of the carbohydrate intake during the daytime and keep to a mainly protein and vegetable diet in the evenings.

As with everything results will vary with different somatotypes and every individual, but this should get you on your way.

Author: Josh - Personal Trainer Leicester



How to get the most from your CV Equipment

TREADMILL

1. When using the treadmill for a CV workout, try to have a small incline of about 1-2, this compensates for the natural resistance that you would have if you were running outdoors.
2. Run light on the treadmill, face forwards with head up and arms to the side, close to your waistline and at 90 degrees. This is the most efficient way of running. Each step on the treadmill should be light; you've seen and heard some people running near you who make a big thump every time their feet land on the belt. If you did this every time, you run the risk of getting very painful ankles and knees and will contribute to joint problems later in life. Running light takes a great deal of practice, but it will be worth it in the end, as it will extend your running capability.
3. If you are training for cardio vascular benefits, try short sprints in between the long runs. Sprinting engages more of the fast twitch muscle fibres and improves the CV system.
4. Whilst running keep your chest high and shoulders up, this helps to breathe better and take in more oxygen. If the ribcage is lifted, it will create more room for the lungs to expand.

UPRIGHT BIKE

1. Adjust the seat correctly before you begin the workout, having the seat too high or too low, will reduce the benefits. When you stand next to the bike the seat should be about hip height. Once on the bike, at the lowest position of the leg, the knee should be slightly soft (not locked).

2. Use the foot strap to secure the feet. Position the feet so that the balls of your feet are at the centre of the pedal, this is the most effective position for the calf muscle to exert maximum force against the pedal.

3. Always use a circular motion to pedal and use the foot straps to pull the pedal up whilst the other one is pushing down. Don't just push down on the pedals, work on the circular motion.

4. Work on a range of speed settings and intensities don't just work at the same rate all the time.

CROSS TRAINER

1. This machine where people tend to hunch forward and bend their back. Stand tall and straight, again with back straight and chest lifted.

2. Make sure both feet are level, to the front of the pedals and parallel to each other.

3. Maintain a good posture throughout the exercise so that the waistline remains almost stationary and only the legs do the work.

4. If you are using the hand bars, maintain a push - pull rhythm throughout, don't just hold the bars for the sake of holding them. Hold the bars so that your grip is just above your shoulder height. Grip too high and you will be pulled from side to side, grip too low and you won't be able maintain the push- pull. Your arms should extent through a full range of motion without locking out on the push motion.

To get a really good workout every time, work on the FITT principle, from time to time, increase Frequency, Intensity, Time, and Type.

Please be aware that these tips are designed as a guideline and equipment will vary from gym to gym, so if you are unsure of

any equipment, ask the personal trainers in your gym. Or email me at: josh@leanintensive.com

Author: Josh - Personal Trainer Leicester



How To Increase Your Metabolic Rate And Make Your Body Burn More Calories

By increasing your metabolic rate and burning more calories you can make weight loss quicker and easier, here's how.

Metabolic Rate is the rate at which the body burns up calories. If you consume 2500 calories a day and burn 2500 calories a day will stay at the same weight. If however, consume 2500 calories daily but burning only 2000 will gain weight at the rate of about 1lb a week.

You can do quite a lot to speed up metabolism –Burning calories is dependant on knowing what determines your metabolic rate and what you can do to influence it.

Your body burns calories to provide energy for three primary functions:

1) Basal Metabolic Rate (BMR)

This is the amount of calories you burn just to live – even when you are lying down, doing nothing. BMR accounts for approximately 60% of the calories burned for an average person.

2) Burning Calories for Activity

Every movement takes energy – from lifting your arm to operate the remote control to cleaning the windows. On average a person burns 30% of the calories in this way

3) Dietary Thermogenesis

The 'thermogenic effect' described as meal-induced heat

production – the calories burned in the process of eating, digesting, absorbing and using food. Hence certain foods are known as negative foods. An example of such a food is say, celery. If you eat a large stick of celery, which is approximately 20 calories, it will require the equivalent energy of 120 calories to process and digest it. So in effect you are losing weight and burning calories by eating.

The speed at which you burn calories is influenced by some or all of the factors listed below:

1) Building or Toning Muscle

Increase the amount of muscle in your body. For every extra pound of muscle you put on, your body uses around 50 extra calories a day. In a recent study, researchers found that regular weight training boosts basal metabolic rate by about 15%. This is because muscle is 'metabolically active' and burns more calories than other body tissue even when you're not moving. This is also why it's important to focus on body fat %, rather than weight. Muscle weighs heavier than fat.

Training with weights just 3 times a week for around 20 minutes is enough to build muscle. Not only will you be burning more calories, you'll look better – whatever your weight.

2) Moving More

Although the average person burns around 30% of calories through daily activity, inactive people only use around 15%. Being aware of this fact – and taking every opportunity to move can make quite a dramatic difference to the amount of calories Consumed

Simple things make a great difference

- Swing your legs
- Don't use the internal phone – go in person
- Move your head from side to side

- Tap your feet
- Change position
- Wiggle and fidget
- Pace up and down
- Stand up when you're on the phone
- Use the upstairs loo
- Drum your fingers
- Stand up and stretch Clench and release your muscles
- Park in the furthest corner of the car park

You'll find lots of ways to burn more calories if you set reminders to do so its as simple as putting a note on the fridge to make two trips to the table, or simply displacing items so you have to travel further to retrieve them.

3) Eat Spicy Food

Evidence shows that spices, especially chilli, can raise the metabolic rate by up to 50% for up to 3 hours after you've eaten a spicy meal. So go for that Indian. Drinks containing caffeine also stimulate the metabolism, as does green tea.

4) Aerobic Activity

High-intensity exercise makes you burn more calories for several hours afterwards, as well as the actual amount of calories burned during the exercise or activity

Try vigorous walking, step aerobics, jogging or swimming, 3-4 times a week.

5) Eat Little and Often

There is some evidence to suggest that eating small, regular meals will keep your metabolism going faster than larger, less frequent meals. There are two reasons why meal frequency may affect your metabolism. Firstly, levels of thyroid hormones begin to drop within hours of eating a meal, and metabolism slows. Secondly, it may be that the thermogenic effect of eating several small meals is slightly higher than eating the same amount of calories all at once.

Provided your small meals don't degenerate into quick fix, high fat, high sugar snacks and eating little and often can also help to control hunger and make you less likely binge.

Author: Josh - Personal Trainer Leicester



Diet Tips For The Vegetarian Runner

I have a friend who is training for a marathon, though she's not a strict vegetarian, her diet predominantly is vegetarian. I'm often asked about nutrition for runners, especially vegetarians. Contrary to popular belief, it is possible to support your training with a vegetarian diet though you must realise that training for a demanding event like a marathon will demand an uptake of certain nutrients.

Protein is vital; ensure you get around 0.36 to 0.8 grams of protein per pound of body weight. This is not difficult when you consider that 1 ½ cups of tofu, chickpeas or garbanzo beans contain around 24 grams. Inadequate intake of protein can lead to fatigue and injuries. It is also a contributory factor in amenorrhea (absence of periods) in women. It's also worth remembering that too much protein can be harmful, as excess protein is stored as FAT, so don't go crazy over the protein shakes. As important are Iron, Calcium, vitamin E, Zinc and B6 to B12. So where can you get all these in a natural diet you ask? Here are my 6 healthy diet tips:

1. Eat seeds or foods made from seeds

Including whole grains, many beans, and even tree nuts--contain the crucial mix of nutrients necessary to grow a new plant, which means they are packed with health-boosting compounds. In addition to traditional nutrients like protein and essential fats, seeds contain bioactive compounds, such as phenolic compounds and ferulic acid, which act as antioxidants. Eating a diet with ample plant seeds has been shown to improve health and help maintain a healthier body weight. People who eat whole grains and beans have a lower risk for developing type 2 diabetes and certain cancers, and they tend to have lower cholesterol levels

than people who don't eat nuts and seeds.

2. Eat Almonds Runners should eat a small handful of almonds at least three to five times per week. Nuts, especially almonds are an excellent source of vitamin E, an antioxidant that many runners fall short on because there are so few good food sources of it. Studies have shown that eating nuts several times per week lowers circulating cholesterol levels, particularly the artery-clogging LDL type, decreasing your risk of heart disease. And the form of vitamin E found in nuts, called gamma-tocopherol (a form not typically found in supplements), may also help protect against cancer. Add Almonds to your diet: Add other nuts to salads or pasta dishes, use as a topping for casseroles, or throw them into your bowl of hot cereal for extra crunch. Combine with chopped dried fruit, soy nuts, and chocolate bits for a healthy and tasty trail mix. Almond butter is perfect spread over whole-grain toast or on a whole-wheat tortilla, topped with raisins, and rolled up. Store all nuts in jars or zipper bags in a cool dry place away from sunlight and they'll keep for about two to four months. Storing them in the freezer will allow them to keep an extra month or two.

3. Eat five different coloured fruits and vegetables daily

Fruit and Veg provide many nutrients and essential carbs to fuel your running and are also low in calorific value so helping to maintain a healthy weight. To get the most from your produce, you need to think in terms of colour--yellow, orange, red, green, blue, purple, and every other shade in the spectrum. There are over 400 pigments that light up the produce aisle, and each offers unique health benefits. The rich red in pomegranate comes from anthocyanins, the deep red in tomatoes comes from lycopene, and the bright orange in sweet potatoes comes from beta-carotene. These and other pigments have been shown to lower your risk of cancer, heart disease, and Alzheimer's, while also improving your memory. And since most pigments act as antioxidants, they can help reduce inflammation caused by disease or heavy exercise. But new studies suggest that the pigments in produce need to interact with other colour compounds in fruits or vegetables to maximise their beneficial

effects, which is why it's important to eat a wide variety of colours every day. The results of these studies, also explain why taking a single pigment, such as beta-carotene in supplement form, don't lead to the same health improvements as eating the whole foods and may even increase your risk for some diseases. So try to get as many of your nutrients from actual foods rather than tablet form, however, in certain cases you may need to top up with supplements.

4. Drink Skimmed milk and eat milk products that come from animals

Dairy supplies a runner's hardworking muscles with an ample amount of protein to help speed recovery. Whey protein; the specific type of protein found in dairy foods, also helps to strengthen the immune system. Milk products also contain stearic acid, which is thought to improve blood-cholesterol levels. Ample research also suggests that regular dairy consumption can lower your blood pressure and your risk for heart disease. And for anyone watching his or her weight, studies have shown that dieters who include dairy in their low-calorie plans lose more fat than those who simply cut calories. This is because the molecules in dairy product cling to the fat molecules allowing them to just pass through the digestive system without being absorbed in the body. Milk also provides calcium, which especially in women is of great importance as it promotes healthy bones. Ossification is the method of bone growth; this system is aided by oestrogen and progesterone. Once a woman heads toward the menopause, the production of both of these hormones starts to reduce dramatically. This is one of the reasons why, if bone density is not maintained through good diet and exercise early on in life, women tend to suffer more from osteoporosis (brittle bone), later on.

5. Eat plant foods with their skins intact. Red and white potatoes Apples, black beans to the zucchini, plant's outer skins protect them from UV light, parasites, and other invaders. As a result, those skins are bursting with a wide range of phytochemicals that also protect your health. Grape skins, for example, are high in resveratrol, and onion skins contain quercetin, both of which can

help lower your risk of heart disease and colon and prostate cancer, and boost your immunity. Produce skin is also rich in resistant starches and various types of fibre. These compounds promote the growth of healthy bacteria in the intestines, improve intestinal function (relieving constipation and decreasing haemorrhoid risk), whilst helping curb appetite thus aid in weight control. Studies have shown that fibre from vegetable and fruit skins (which contain both soluble and insoluble fibres) actually blocks absorption of three to four percent of total calories consumed when eaten as part of a high-fibre diet. This is why people who follow a higher-fibre diet (over 35 grams daily) that consists of mainly fruits and vegetables tend to have lower body-fat levels and smaller waist sizes than low-fibre eaters.

6. Eat Whole Grain Breads

Runners need at least three to six one-ounce servings of whole grains per day, and eating 100 percent whole-grain bread (as opposed to just whole-grain bread, which may contain some refined grains and flours) is an easy way to meet this requirement since one slice equals one serving. Whole-grain bread may also help weight-conscious runners. One study showed that women who eat whole-grain bread weigh less than those who eat refined white bread and other grains. Whole-grain eaters also have a 38 percent lower risk of suffering from metabolic syndrome, which is characterized by belly fat, low levels of the good cholesterol, and high blood sugar levels. All this raises the risk for heart disease and cancer. Remember, runners need plenty of carbohydrates. Without going too much into the science on this occasion, energy for activity and to sustain life is made by breaking a substance called ATP (adenosine tri phosphate) into ADP (adenosine di Phosphate) to do this there are three main energy systems that the body draws from; 1) ATP direct from the muscle this is for immediate use and the energy lasts only a second or two, requires no oxygen and has no by products. 2) Phospho creatine; uses the creatine, a natural substance produced by the body to reproduce the ATP and lasts for 3-5 seconds so good for a short sprint. Again uses no oxygen and results in no by products and usually takes about 5 minutes to regenerate the ATP .3) Glycogen, This uses

glycogen produced by breaking down carbohydrates to produce ATP. It uses oxygen and the by-product is lactic acid. Glycogen is also stored in the liver and kidneys as a backup. The more aerobic exercise you do the greater the demand for glycogen and this in turn helps produce larger stores in the liver and kidneys. This produces endless energy so as long as there are carbs to draw on the system carries on working. All three systems work continuously but for sustained energy, the glycogen is the main fuel. This is why runners need a good supply of carbohydrates and need to cross train between high intensity and low, don't just do slow long runs, up the pace from time to time. This will help balance out the slow and fast twitch muscles, a topic for another time. So in conclusion, you can achieve great results in your training, even if you are strictly on a vegetarian diet, providing it's well balanced.

Author: Josh - Personal Trainer Leicester



Sports Supplements And Ergogenic Aids

There are certain sports aids and ergogenic supplements that claim to increase sports potential, where some of these supplements are legal, there are numerous ones that are banned, illegal and totally unethical in my opinion. Most of these supplements have not been properly tested to document the side effects or benefits, but the ones that have, are often hyped by the media and promoted by sports professionals. I've aimed to cover some of these supplements in order for people to make an informed decision before considering any sports aid. So let's look at some of the claims made and weigh up the benefits and side effects.

Let's start with the most known

ANABOLIC STEROIDS:

Whilst there has been no statistical survey compiled in the UK, an estimated one to three million bodybuilders (90% male and 80% female), use some kind of steroids or androgenic substitutes in the US. It is believed by some that the UK is proportionately similar in its use of these substances, and it's not just reserved for bodybuilders; as athletes get stronger, faster, jump higher and run for longer, it's tempting for more and more of them to experiment with these aids.

Anabolic steroids are designed to mimic the male hormone Testosterone, this hormone is the contributory factor in the gender differences in strength and lean muscle mass. The effectiveness of testosterone is lessened when produced synthetically in the form of anabolic steroids, however still assist in lean muscle mass and strength when combined with heavy resistance training... Anabolic steroids are used in a medical

capacity in strengths of 5-20mg. Athletes and bodybuilders take anything between 50-200mg, and they also take a combination of different types (called Stacking), usually followed by an increase in dosage (called Pyramiding).

The positive gains of using steroids, a banned substance by all sporting bodies, are heavily outweighed by the well-documented negative side effects. These include; increased risk of coronary heart disease, alterations to normal hormonal balance leaving the individual infertile, breakdown of the cardiovascular system, breakdown of the immune system, abnormal liver function and acne to name a few.

ANDROSTENEDIONE:

This substance, also known as 'Andro', claims to offer the same androgenic effects as anabolic steroids. Often marketed as; 'One step away from testosterone', without the side effects of steroids. Andro is classed as a food and so bypasses the Food & Drug Administrations rules. It can even be bought in the form of chewing gum. Studies comparing the use of Andro showed insignificant changes in athletes who took the substance verses those given a placebo. The only documented change was the level of HDL (good cholesterol) was reduced leading to a greater risk of heart disease, and an increase in the female hormone serum oestrogen leading to breast development (gynecomastia). Since there is no strict control in the production of Andro, one cannot be sure that nothing has been added to it, it may still contain testosterone.

CLENBUTEROL AND DHEA:

Other common substances often used by athletes, known as prohormones, include Clenbuterol and DHEA. Clenbuterol, a drug often prescribed in Europe for obstructive pulmonary disease, is banned for sporting use in the UK. Studies show that, like anabolic steroids, it can increase lean muscle mass but also has potentially serious side effects. DHEA has been labelled in the media as "the mother of all hormones" and receives much hype in the anti-aging community. Athletes believe that it can also

provide androgenic effects similar to testosterone but there is little research to back up this theory. Although DHEA is available without prescription at this time, it is banned by many Sporting Committees because of the long-term health concerns that have yet to be researched.

AMPHETAMINES:

Also known as "pep pills", amphetamines exert a stimulating effect on the central nervous system. Benzedrine and Dexedrine, two of the most commonly used substances. They increase blood pressure, heart rate, breathing rate, cardiac output and blood glucose. They are said to increase alertness and a feeling of energy, decrease the sensation of fatigue and enhance self-confidence. Amphetamines create similar stimulatory sensations to that of cocaine but the effects last considerably longer. Some of the short-term side effects include headaches, insomnia, hallucinations, convulsions and even heart attack. Longer-term use can lead to uncontrollable movements of the face, paranoid delusions and nerve damage.

This is a banned substance and if athletes are made aware of the well-documented side effects it's unlikely they would consider using them. Ironically, the majority of the research shows that taking amphetamines prior to an event has no advantage. While it may "psyche up" athletes, excessive stimulation and palpitations can severely hinder performance.

EPHEDRINE:

Although another banned substance, ephedrine is widely used by many athletes in a range of sports, from running to weight training. In the UK ephedrine can be found in many cold remedies bought over the counter, and is contained in weight loss (fat burning pills). The use of ephedrine is banned in many countries including the US. There are a few studies that show limited beneficial effects to athletic performance. Thought to be due a reduced perception of exertion, the overall evidence is by no means convincing. Ephedrine use has also been linked with serious health concerns such as heart attack and stroke as it

increases blood pressure and body temperature.

CREATINE:

An organic compound Creatine is found in foods such as meat, poultry and fish. The body can only create a limited amount of creatine on its own so dietary intake becomes important. Nearly all creatine taken in from food becomes incorporated into the body's muscles. A large amount combines with phosphate to form a substance called phosphocreatine and it's this substance that powers muscles during very intense, short-term activity - such as sprints or power lifts.

The body has only a limited store of phosphocreatine, enough to power just 5 to 8 seconds of all-out bursts. Once this has been used, the body must rely on other metabolic systems to produce energy and during intense activity this quickly leads to a build-up of blood lactate and subsequent fatigue. It can take up to 5 minutes for the regeneration process, hence athletes undergoing heavy weight lifting take up to 5 minutes rest time in between sets.

Taking creatine in supplemental form significantly increases intramuscular stores of creatine. The rationale behind taking it as a performance aid is that it will allow athletes to perform a higher level of explosive activity for longer. It should also delay the onset of blood lactate accumulation.

Creatine is probably the most well researched supplement on the market. Numerous studies do confirm that it improves performance in high intensity exercise, particularly in repeated bouts of effort. It has been used successfully by sprinters, football players, and weight lifters and is now becoming more common in other sports. Athletes take as little as 2 to 5 grams daily to build up stores of creatine. There is no evidence to suggest that pre-loading; taking 20-30gm for the first week, then maintaining, has any extra benefit. Excess creatine is just passed through the body.

Maintaining high levels of creatine through supplementation has

lead to reports of some minor negative side effects including abdominal cramping, muscle cramping and diarrhoea. The main concern regards the long-term effect that regular creatine consumption may have on the liver and kidneys. As this time it is still too early to say.

GLUTAMINE:

Glutamine is classed as a nutritional supplement and is considered completely legal and ethical by all sporting bodies (as are all amino acid supplements). It can be found in most health food stores in the form of gels or tablets and is often an ingredient in many commercial protein powders. Due to the lack of research there are no guidelines for doses. Bodybuilders take up to 15mg per day but a more sensible recommendation for athletes trying glutamine is to start at 2-6mg per day and gauge reaction.

While some early research appears promising (particularly in relation to immune function) there is not enough evidence to suggest healthy individuals, even those involved in intense training, should take glutamine as a matter of course.

In the body, glutamine is an important fuel for some cells of the immune system. In situations of stress, such as clinical trauma, starvation, or prolonged, strenuous exercise, the concentration of glutamine in blood is decreased, often substantially. In endurance athletes (such as marathon runners) this decrease occurs alongside temporary immunodepression. Heavy training schedules have also been linked to increase the occurrence of minor infections, particularly in the upper respiratory tract. Several clinical studies have found that oral glutamine can decrease the incidence of illness and infection in endurance athletes or athletes undergoing heavy training.

Glutamine is a non-essential amino acid that serves many regulatory functions in the body. Its use by athletes falls under two categories - to prevent muscle breakdown and to protect the immune system. Some studies have shown that supplemental glutamine can help to prevent protein breakdown (beneficial for

anyone following a strength training program) but the research is by no means conclusive.

CAFFEINE:

As with other stimulants (such as amphetamines) the effect of caffeine is thought to come from a greater tolerance to fatigue rather than an increase in cardiopulmonary variables. It may also help the body to use fat as a source of fuel thus sparing carbohydrate reserves.

Individuals who do not normally drink coffee or try to avoid dietary intake of caffeine may experience undesirable side effects if they take it in supplemental form. It can produce restlessness, headaches, insomnia, irritability and muscle twitching. Caffeine also acts as a potent diuretic, which may cause pre-exercise fluid loss, negatively affecting performance in a hot climate.

Found naturally in coffee beans, tea leaves, cocoa beans and carbonated drinks it stimulates the central nervous system within 30 to 120 minutes of consumption. While not all studies support the beneficial effects of caffeine, ingesting an amount of caffeine equivalent to 2.5 cups of regular, percolated coffee (330 mg) an hour before exercising has been shown to increase endurance performance on a number of occasions.

Supplemental caffeine is taken in tablet form rather than drinking coffee. Lower doses (3-6mg per kg body mass) have shown the same beneficial effects as higher doses with a decreased risk of dehydration. Although caffeine is one of the few legal substances with scientific evidence to back it up, there is no reason for athletes to feel they should take it prior to a game or event and should be extra cautious if they maintain a low-caffeine diet.

SODIUM BICARBONATE:

During all-out exercise lasting between 30 and 60 seconds dramatic alterations take place in the chemical balance of the body's fluids. This is because the body must use anaerobic energy, breaking down glycogen to supply muscles with energy -

the by-product of this process is CO_2 and lactic acid. To defend against an increase in acidity, the body has a buffering system, which includes bicarbonate (which is highly alkaline). In theory, if high levels of bicarbonate can be maintained during exercise it will help to offset the increase in acidity and reduce the limiting effects of lactic acid build up

In comparison to other supplements, sodium bicarbonate is fairly well researched. Although studies have produced conflicting results, many trials have found that taking a bicarbonate solution prior to exercise can increase anaerobic exercise performance. One study into 800-m race performance showed that taking a sodium bicarbonate solution prior to the start decreased race time by a significant 2.9 seconds compared to a placebo. Other studies, while less dramatic, support the benefits of sodium bicarbonate and many studies show no effects at all. There seems to be a wide variation between individuals, which may be related to their level of fitness.

The type of exercise also seems to play a major role. Continuous, all-out activities like sprint swimming or cycling are easier to measure than intermittent sports such as soccer or rugby. However, recent studies have shown that sodium bicarbonate can improve the performance in a multi-sprint test and intermittent sports.

At this moment in time, sodium bicarbonate is considered as food, not a drug, thus is not banned by any sporting governing bodies. A typical dose, 1 to 2 hours prior to exercise is 300 mg per kg of bodyweight. Some reported side effects include stomach cramps, nausea and diarrhoea. These negative effects would minimize and positive benefits gained from taking sodium bicarbonate. It is therefore, not recommended that athletes take sodium bicarbonate as a supplement for the first time just prior to a major event. You may find that it has no effect on you.

My personal belief is that the whole purpose of goal setting or any achievement in training needs solely to be done through determination and hard work and a balanced diet. What's the point in boasting your greatest achievement when that very goal

was reached by using some sort of aid? Granted there some things that the body produces in limited supply, but even they can increase if greater demand is put on the body for them. To me it's like being able to jump higher than someone who is the same height and build as you, but you're making sure that you start off from a 3 foot platform, that's not you being able to jump higher; it's the platform giving you the extra height. So if you want to be bigger, stronger, and faster, do it through will power and determination, then you have a right to say that you've achieved something.

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Macronutrients

All energy comes from three classes of food called macronutrients. These nutrients are better known as carbohydrates, fats and proteins. All three are extremely important to maintain all activity and for general well being.

In a time where we are bombarded with information on what we should or should not eat, with ever-conflicting advice, what do you trust? Thankfully scientific nutrition for sports has not changed in over 15 years and is the one area of nutrition that's not contested. Scientific sports nutrition is a well-researched subject, with proven dietary strategies, used by all professional athletes. So what do we know about macronutrients?

CARBOHYDRATES

Of the three, carbohydrates contain the least amount of energy gram for gram, but are the most essential and most important type of fuel for any sports person

From the shortest and most intense type of exercise, to the long distance endurance race, carbohydrates are the only fuel capable of supplying the body with energy at the speed it requires. In the first few minutes of any activity, it is carbohydrate that almost exclusively meets energy demands. In addition, the ability to repeat a sprint at the end of a game or race, to the same high level as at the start of the game relies, in part, on the body's carbohydrate stores.

During lower intensity activities, the body does use FAT, but utilises the carbohydrate as a catalyst to promote the energy release from the breaking down of the fats. The brain and the central nervous system exclusively use glucose as a source of

fuel.

So what happens to the carbohydrate stores in your body if you skip an important meal like breakfast?

On average, each of us can potentially store up to 2000 calories worth of carbohydrates. An overnight fast (8 to 12hrs) and a low-carbohydrate diet can dramatically lower these stores. Especially in endurance and long distance activities, the body relies on these stores to provide the energy needed, so if the carbohydrate stores are significantly depleted as a result of an overnight fast, you may not be able to complete the activity. More importantly, a carbohydrate-rich diet can more than double carbohydrate stores. The body's upper limit for carbohydrate storage equates to about 15 grams per kilogram (2.2lbs) of bodyweight. So an 80kg (175lb) person can potentially store up to 1200 grams of carbohydrate or 4800 calories worth of energy - all with just a few dietary modifications.

Understanding the different types of carbohydrates and their role in the human body determines a sports persons diet and gives an indication of pre, and post workout meals.

MONOSACCHARIDES

This is the most basic unit of carbohydrate. Examples of monosaccharides include fructose (sugar found in fruit) and glucose (also called blood sugar). Cells can use the glucose found in food directly for energy, while fructose is converted to glucose in the liver.

DISACCHARIDES

“DI” meaning TWO is a Combination of two monosaccharides. Examples of disaccharides are Sucrose or table sugar, the result of combining glucose and fructose and the sugar in milk, lactose - another disaccharide. The collective name for both monosaccharides and disaccharides is simple sugars. Simple sugars are quickly absorbed by the body and provide a rapid source of energy.

Simple sugars such as fruit and energy drinks are a good food

choice to refuel AFTER a long bout of exercise like a race or a marathon when the body's energy stores are low.

POLYSACCHARIDES

As the name suggests, "POLY" meaning many, is a combination of hundreds of monosaccharides, starch and fibre are polysaccharides. Nutritionists often refer to polysaccharides as complex carbohydrates. Examples include bread, potatoes, rice and pasta. It takes longer for the body to break these complex structures down so they release their energy over a longer period unlike simple sugars.

Fibre differs from starch in that it cannot be digested and used for energy. It remains an important dietary component and there is a growing connection between lack of fibre and certain degenerative illnesses. A fibre rich diet is even more so important for female athletes and can reduce the risk of bowel cancer.

Starchy complex carbohydrates are the best choice BEFORE intense activity as a pre-workout meal.

FATS

In comparison to other macronutrients, fats contain double the amount of calories per gram and therefore double the energy. A single gram of fat contains 9 calories, as opposed to the 4 calories contained in a gram of carbohydrates

Fats cannot provide energy for intense or prolonged activity, they are generally used for low-level exercise like walking or jogging, hence many fitness instructors recommend a training zone where the heart rate stays between 50% and 60% of the Maximum heart rate. At this point the body will utilise around 60% fat and 45% carbohydrate as a source of fuel. This training zone is often referred to as the FAT 'BURNING ZONE'. Research has shown however that sustained periods of working out in this zone does not improve health or cardio vascular system and is not recommended even for weight loss. Calorific deficit is the best way to lose weight and improve fitness, by burning more calories than consumed. This is why any good instructor will recommend

a training zone where the heart rate is between 70% to 80% and 80% to 90%, these are often referred to as the ENDURANCE ZONE and PEAK PERFORMANCE ZONE respectively. Fats are there to provide insulation and protection for vital organs such as the heart, liver and kidneys. It also helps to carry vitamins throughout the body.

Not all dietary fats are the same, as with carbohydrates, there are several different types.

SATURATED FAT

Saturated fats are a major contributory factor in coronary disease, some forms of cancer, diabetes, and other degenerative diseases. They are contained in egg yolk, red meat, and butter. Lard cheese and commercially prepares cakes and pastries .A traditional western diet consists of 40% fat on average. The recommended allowance is less than 10%, this along with other factors has lead to an increase in obesity and heart disease in western society.

UNSATURATED FAT

There are two types of unsaturated fats, Monounsaturated and Polyunsaturated. Monounsaturated fats actually reduce the risk of coronary illnesses and are present in things like olive oil, canola oil, avocados, almonds and pecans but even these in excessive quantities are unhealthy. Polyunsaturated fats, although not as harmful as saturated fats don't offer the same protection as monounsaturated.

ESSENTIAL FATTY ACIDS

In recent years, essential fatty acids have received a great deal of media attention. Everywhere we look we're being told about all the Omega oils 3, 6, and 9. These oils are thought to prevent a range of illnesses and are cardio-protective. Of the three different types, omega 3 and 6 need to be consumed within a healthy diet, but the body produces omega 9. Also known as oleic acid, omega 9 is not technically an essential fatty acid as

the body can produce a limited amount, but only when omega 3 and 6 are present. If the diet is low in these, then omega 9 becomes an essential fatty acid and needs to be consumed.

Health benefits of omega oils

- Lowers cholesterol levels, thereby reduces the risk of cardiovascular disease
- Reduces atherosclerosis (hardening of the arteries)
- Reduces insulin resistance, thereby improves glucose (blood sugar) maintenance
- Improves immune function
- Provides protection against certain types of cancer

Food sources of omega 9 fatty acid

- Olive oil - the best source of omega 9
- Olives
- Avocados
- Almonds
- Peanuts
- Sesame oil
- Pecans
- Pistachio nuts
- Cashews
- Hazelnuts
- Macadamia nuts

Omega 3 and 6 can be found in most of the above and also in dark green leafy vegetable, oily fish, pumpkin seeds and walnuts.

CHOLESTEROL

Despite being demonised in recent years, cholesterol is required in many bodily functions. There are two main types of cholesterol, LDL and HDL. LDL or Low Density Lipoprotein is referred to as "BAD" cholesterol as it carries and deposits the cholesterol around the artery walls, increasing the risk of heart disease. HDL on the other hand, also known as High Density Lipoprotein or "GOOD" cholesterol, acts as a scavenger collecting

the bad cholesterol deposits from around the body and transporting it to the liver to be excreted. Many foods contain cholesterol, but it's the high intake of saturated fats that cause the body to synthesize too much bad cholesterol.

PROTEINS

This is a crucial component of an athlete's diet as it is essential for the growth and repair of skin, hair, nails, bones, tendons, ligaments and muscles. It also serves a crucial role in enzyme production and maintaining a strict acid-base balance.

It is viewed that the average person, male or female requires about 0.83 grams per kilo of bodyweight which equates to the equivalent of two chicken breasts in a 70kg person, about 58gm. Competitive athletes especially those involved in heavy weight training consume around 1.2gm to a maximum of 2gm of protein per kilo of bodyweight. This should not be confused with the general population who weight train three to four times a week with moderate intensity. Excess amount of protein provides NO health benefits and is proven to be harmful. Any additional protein is stored by the body as fat.

Good sources of protein are foods such as poultry, low fat milk, nuts and seeds, soy and soy products, some lean red meat and fish. Fast foods and most cheese contain saturated fats, making them unsuitable as a good source of protein.

There has been a recent influx of high protein-low carbohydrate diets, especially within the weight loss industry. While this type of diet may or may not help shed the pounds, it is a fact that a low carbohydrate and high protein diet is NOT suitable for serious athletes and sports people.

There seems to be a rising fear among amateur weight lifters, body-builders and some professional athletes, that if they don't consume large amounts of protein, the body will be forced to breakdown lean muscle mass to provide energy. Though the body uses protein sparingly, generally after about 45 minutes of vigorous exercise, it is still not a good idea to consume excess

amounts of protein. Carbohydrate is the body's preferred choice of fuel, so a rich diet of carbohydrate before, after and during a workout acts as a "sparer" for proteins. Only in the absence of sufficient carbohydrates will the body metabolize significant amounts of proteins for energy production.

Author: Josh - Personal Trainer Leicester



Hydration

When it comes to exercise, hydration is one of the most important aspects of training. On average, a person can lose around 2-3 litres of sweat during a 90-minute intensive session. In hot and humid conditions, in terms of body weight, you could lose as much as 2-3 kg or (4.5-6lb) in the same period of time. This amount of fluid loss is certain to have a negative effect on performance.

In order to compensate for the fluid loss, a person should ideally consume around 200-400ml (7-14 oz) of water or a suitable carbohydrate solution 5 minutes before commencing their session and about 150-250ml every 20 minutes thereafter. Following a hard training session it is important it is essential that the lost fluid be replaced. Water on its own is fine, but you may need a sports drink to replace the depleted energy stores; a high carbohydrate solution may be more appropriate. In certain instances the consumption of water needs to increase beyond the norm. Instances such as when an individual is taking creatine as supplement, in this case the water intake should increase by at least 25- 30% per day.

Choosing the right carbohydrate drink can make all the difference, it can help stabilise blood sugar levels, postpone fatigue and prevent "jelly - like muscles". Too much carbohydrate or excess sugar levels can hinder performance and will result in a negative effect. So drinks like Coca Cola and regular Lucozade which contain around 40% carbohydrate, are not the most suitable choice for hydration prior to or during exercise. Ideally, a good sports drink should contain 6%-8% carbohydrate and a small portion of salt. Intense exercise can result in depleted sodium levels due to sweating, if it gets too low, symptoms such as headaches, nausea and blurred vision may occur. Adding just

a pinch of salt can offset the imbalance.

Sodium is also an electrolyte, which helps the passage of water between body compartments whilst balancing the acid base level of the body. Lack of electrolytes has been associated with post workout muscle cramps. Suitable sports drinks include; Lucozade sport, Gatorade, Exceed, High Five, Isotar and Powerade. All of these contain less than 8% carbohydrates. A suitable consumption level would be 200 to 400ml, 5 minutes prior to a workout followed by 150-250ml for every 20 minutes that follow. Within two hours of finishing the event or workout, one should try to consume around 100 to 200gm of carbohydrates. The deficits of carbohydrates in the muscles need to be replaced as quickly as possible after an intense bout. Consumption of these carbohydrates may not be practical or palatable through food so soon after exercise, hence one of the above mentioned drinks may suffice, but this is possibly the one occasion when a high concentration carbohydrate solution may be preferable.

Isotonic sports drinks are becoming more and more popular, endorsed by many professional athletes. These drinks can be expensive. It is just as easy to make your own isotonic drink. Here's how.

ISOTONIC DRINK

Isotonic basically means that the drink contains electrolytes and as mentioned above, 6-8% carbohydrates. To make your own, just add 200ml of concentrated orange juice (orange squash) to 1 litre of water and add 1.25-1.5 teaspoons of salt.

HYPOTONIC

A hypotonic sports drink, typically contains electrolytes and less carbohydrates, an essential factor in fluid replacement during hot weather. To make your own hypotonic drink, add 100ml of concentrated orange juice to 1 litre of water and add 1.25 – 1.5 teaspoons of table salt.

HYPERTONIC DRINK

Hypertonic drinks, essentially contain a higher level of carbohydrates along with electrolytes again as mentioned above, this is sometime more preferential after a game or a particularly intensive workout. To make your own, just add 400ml of concentrated orange juice to 1 litre of water and add 1.25 – 1.5 teaspoons of salt.

It must be said however, if a well balance diet is maintained then just water to hydrate is sufficient. If the preference is a sports drink, then it should be in line with, and as a part of the total daily consumption levels of nutrition; so incorporated into the daily carbohydrate allowance.

Author: Josh - Personal Trainer Leicester



Essential Vitamins and Minerals

Apart from macronutrients such as carbohydrates, protein and fats, the human body also require adequate amounts of vitamins and minerals. Vitamins are responsible for blood clotting, healthy skin, teeth, bones, neuromuscular functions and much more. A healthy well-balanced diet should provide sufficient quantities of vitamins, regardless of age, physical activity levels or gender. Individuals who regularly undergo intense training will have a natural increase in food intake and therefore the vitamins contained within. Some individuals however do supplement vitamin intake if the natural diet is deficient in them.

There are thirteen different types of vitamins identified and studied to date and if these there are two types; Water Soluble and Fat Soluble. Vitamins B complex and vitamin C are water soluble, vitamin A,D,K,and E are fat soluble.

FREE RADICALS

Free Radicals are highly reactive molecules that are known to cause cell damage and thought to increase the aging process. They are also thought to contribute to heart disease, diabetes and cancer. Free radicals are found in environmental pollution, cigarette smoke, some medication and production of free radicals is even though to increase during exercise. Antioxidant enzymes are the body's elaborate defence system against free radicals, in particular vitamin A-C and E are known antioxidant vitamins that protect against free radicals. Although exercise increases the production of these damaging free radicals, it also increases the levels of antioxidant defence system at the same time. There is research to suggest that a supplement of vitamin E reduces the production of free radicals during exercise, however the overall benefits are as yet unclear. Many years of research has failed to

associate vitamin supplementation with athletic enhancement, where a balanced diet is present in fact some vitamins like C are known to be harmful if taken in excess. It is always recommended that one should maintain a well-balance diet full of fruits and vegetable to sufficiently maintain vitamin levels.

MINERALS

Minerals provide structure for the formation for teeth, healthy bones and regulate acidity levels along with other bodily functions. Minerals also help muscular contraction and help to maintain a healthy rhythmic heart. They account for about 4% of a person's total body mass. Depending on daily requirements, minerals are classed as TRACE or MAJOR. Calcium, Phosphorus, Magnesium, sodium and potassium are major minerals. Trace minerals include, chromium, selenium, zinc and iron.

Although the recommended daily allowance, RDA, of calcium is 800-1000mg for adults and 1200mg for adolescents, the typical intake in a western diet is around 500-700mg and has been known to be a low as 300mg per day. A calcium deficient diet and a lack of regular exercise is one of the greatest contributory factors to a high number of people being diagnosed with osteoporosis (brittle bone disease), in western society. Regular weight bearing exercise promotes bone density.

The RDA for sodium is 1100-3300mg per day, which equates to about 0.5-1.5 teaspoons of table salt. Sodium is found in abundance in processed foods and most people consume around 2 teaspoons from processed foods even in the absence of table salt for seasoning. There have been instances when pre-prepared meals have contained more than 6 times the RDA of sodium, and the same is true of some carbonated drinks. Exceeding the RDA can be potentially harmful with the exception of adding a small amount of sodium to sports drinks in hot weather (approximately 0.25-0.5 teaspoons per litre of water).

Some trace minerals such as iron are important in a balanced diet. Iron helps the blood to carry oxygen around the body and a deficiency in iron can lead to a person being fatigued even during

mild exercise. Some research suggests that there is a greater demand for iron during intense training, however even in elite of athletes a supplement of iron is rarely required if the diet contains iron rich foods.

Author: Josh - Personal Trainer Leicester



Fat Burning Zone: THE FACTS

Almost every piece of CV equipment you see has a graph indicating training zones according to Max Heart Rate (MHR), one of which is Weight management zone or commonly known as the FAT BURNING ZONE. The concept of the fat burning zone appeals to and attracts many exercise enthusiasts; it's even promoted by certain personal trainers.

The origins of the fat burning zone are unclear but it seems that the fitness industry has latched on to a small scientific fact based around low intensity exercise and fuel metabolism.

The characteristics of the fat burning zone are:

- Low to moderate intensity exercise, fuelled predominantly by metabolising fat
- An optimal fat burning zone has been identified at 65% of maximal oxygen consumption (Vo₂max)

Since most gyms don't have the equipment for measuring Vo₂max and given that there is a direct correlation between % Vo₂max and % MHR (maximum heart rate), the fat burning zone can also be reached between 60-70% MHR.

FUEL METABOLISM AND EXERCISE INTENSITY

Advocates of the fat burning zone support a reduction in exercise intensity for the promise of increased fat metabolism. The suggestion of improvement to fitness levels during low intensity however, should be received with scepticism.

Yes the fat will metabolise first during low intensity exercise, but

the body will always utilise the consumed fat before the stored fat. As fats contain more than double the calorific value of carbohydrates (the body's preferred choice of fuel), low intensity will not create a sufficient calorific deficit for weight loss. We all know the only way to lose weight is to ensure that output exceeds input. Regardless of the fuel for that activity, we know that energy expenditure increases in line with exercise intensity. During a 20-minute high intensity workout, 404 kcal are expended as opposed to the 244 kcal during low intensity in the same amount of time. Thus it is clear how the principles of substrate metabolism have been misinterpreted: when it comes to weight loss, it is not the proportion of each fuel metabolized but the total calorie expenditure that is crucial.

THE TRUE FAT BURNING ZONE

The two main components of energy cost during exercise are: the energy expended during the activity itself; which accounts for the most calorific expenditure and the energy expended in recovery while the metabolic rate remains elevated above resting levels. This 'excess post-exercise oxygen consumption' (EPOC) is fuelled by fat.

Intriguingly, not all exercise is sufficient to bring about a meaningful EPOC: it is generally agreed that such exercise must be carried out at more than 70% of VO₂ max or 70-80% MHR. The metabolic disturbance of exercise determines the magnitude and duration of EPOC. In order to recover from exercise, the body undertakes several active, energy-consuming processes for up to an hour afterwards: phosphate is reunited with creatine and ADP. Haemoglobin and myoglobin (oxygen-carrying pigment within the muscle) are re-saturated with oxygen; lactic acid is oxidised or re-synthesised to glycogen; circulation and breathing increase. In addition, the return to homeostasis following high-intensity exercise is further delayed by the demands of glycogen re-synthesis and increased hormonal activity. Interestingly, in the glycogen-depleted state, this prolonged EPOC period is fuelled by lipid as blood glucose is used to replace muscle glycogen.

In a 1992 study, participants cycling for 80 minutes at 29% of VO2 max (55% MHR) experienced an elevated oxygen consumption (and energy expenditure) for 0.3 hours, compared with 3.3 hours for those exercising at 55-65% of VO2 max (69% MHR) and 10.5 hours for those at 75% VO2 max (85% MHR). This post-exercise fat burning zone barely exists after moderate-intensity exercise. Following a 20minute high-intensity workout at 75% VO2 max, an EPOC of approximately 30 kcal has been calculated, so if such exercise were performed five times a week for 52 weeks, the EPOC period alone would amount to 7,800 kcal or the energy equivalent of approximately 1 kg fat.

We can therefore conclude:

1. We can therefore conclude that the fat burning zone is not the optimum exercise intensity for weight management, fitness or performance.
2. Although a greater proportion of energy is derived from fat within the fat burning zone, total energy expenditure is greater with high-intensity exercise.
3. The total energy expenditure, regardless of the source, is paramount for achieving sensible weight loss via negative energy balance.
4. After and during high intensity exercise energy expenditure is greater.
5. The moderate-intensity fat burning zone is unlikely to bring about prolonged excess post-exercise oxygen consumption (EPOC).
6. The prolonged EPOC component is fuelled by fat and may add an additional 30+ kcal to each workout.
7. It is unlikely that aerobic fitness will be maintained or improved within the fat burning zone.
8. Training within the fat burning zone will not bring about the

preferential metabolism of fat during exercise or higher resting metabolic rate enjoyed by endurance-trained subjects.

Author: Josh - Personal Trainer Leicester



High- Protein, Low-Carbohydrate Diets

On numerous occasions I've been asked by my clients, why like some other personal trainers, I don't prescribe a High Protein-Low Carbohydrate Diet to shred the body fat. This article highlights some of the reasons why I cannot condone such practices.

High-protein, low-carbohydrate diets promote weight loss by inducing KETOSIS. This is the same toxic state that diabetics suffer during starvation. Ketosis produces KETONES; these are a by-product of the body not sufficiently breaking down fats.

The official definition of ketosis as given by The Encyclopaedia from NHS Direct Online is:

Ketosis is the presence in the blood of abnormally high levels of acidic substances called ketones. The normal body fuel is glucose. Ketones are produced when there is not enough glucose in the bloodstream, and fats and protein have to be used. When proteins are used excessively as fuels, they are eventually converted to ketones. The real danger in ketosis is that ketones are acidic, and high levels of ketones make the blood abnormally acid.

The ideal way to burn fat is to use carbohydrates as an accelerant, however when the body has insufficient carbohydrates to breakdown into glucose, it is forced to use stored fats and protein as an energy source. Major organs and the brain are forced to utilise ketones as the primary energy source in the absence of the essential carbohydrates. This ketone utilisation by the brain has been linked with subjects feeling lethargic, over tired and depressed, with a loss in strength and stamina.

Among the unfortunate and not-so pleasant side effects of ketosis are: constipation and bad breath. There is a rapid short-term weight loss during the high protein diet; this is in part due to the loss of body fluids as a direct result of the low carbohydrate. The main reason for this is that the body is slowly depleting all the stored glycogen from the liver, kidneys and muscle fibre, along with excreting toxins via the urine. Many people mistake this rapid water loss, which occurs in the first 7 to 10 days as body fat loss. In reality it is fluid loss due to frequent urination and carbohydrate depletion.

Though there has been evidence to suggest that over a six-month period, the high-protein, low-carbohydrate diet promotes rapid weight loss in comparison to a low at diet (published in the New England Medical Journal); there is no long-term evidence to suggest that the weight loss can be maintained. Over a long period the diet may contribute to the onset of chronic conditions such as osteoporosis, cancer and kidney diseases.

This type of diet also promotes cutting out milk and other dairy products, which is essential for maintaining calcium levels. Calcium levels actually drop as a result of the diet as excess urination excretes more calcium from the body.

A high protein diet may also place extra burden on the kidneys. The kidneys are responsible for clearing the body of waste products produced during protein metabolism. Ingesting large amounts of protein places extra strain on the kidneys and may have unfortunate consequences.

Low carbohydrate diets also prohibit starchy vegetables and the fibre that accompanies these vegetables. Fibre reduces cholesterol and facilitates excretion of body waste thereby promoting a healthy colon.

Finally there is no quick fix to weight loss, the simple weight loss equation is: Output must exceed input. So you need to burn more calories than you consume through limiting portion size and exercise. And remember that excess protein turns to fat and is stored by the body as fat, so overloading on it is counter

productive to weight loss. Lets not forget why we take protein supplements; protein is there to repair muscle. If we use the protein as a fuel, muscle repair will suffer and the body will draw energy from the muscle itself, as muscle protein is far quicker for the body to access.

Author: Josh - Personal Trainer Leicester



The Only Weight Loss Advice You'll Ever Need

Most people that come to me are interested in rapid weight loss and most of the time they will have already tried a range of different diets, from low carb to no carb, Atkins to Weight Watchers. As with all diets, they will lose the weight initially, but keeping it off has always been a problem.

Losing weight is really not rocket science, its basic maths. Output must exceed input, 'calorifically speaking'. The best and only way to lose weight is to create a calorific deficit, but for this you will need to know what your resting metabolic rate (RMR) is. This is the amount of calories your body needs to function in its present state, this means that if you did nothing but sleep all day, you would still need to consume a set number of calories to live.

Once the RMR is calculated, you can workout how many calories you need to add for the amount of activity or exercise you do. This gives you the number of calories that you need to maintain your body as it is. Obviously the whole point you're reading this article is because you don't want to maintain your body in its present condition, you want to trim down. To do this you need to reduce the number of calories appropriately and according to the amount of weight you wish to lose.

As a rule of thumb, to lose 1 pound of bodyweight, you would need to create a calorific deficit of 3500cal as this equates to exactly 1 pound of body weight. This deficit can be created with diet alone, but will place your body into starvation mode and it will start storing the fat. As with most people who do diet, weight gain will be rapid as soon as you start eating healthy again.

The best way to create the deficit is through a good exercise programme and making suitable adjustments to your diet. A

healthy rate to lose weight is about 2 pound per week. This in turn means creating a calorific deficit of 7500 cal, so to workout your daily deficit, just divide this by 7 (number of days) this gives you 1042 cal per day. This is why you cannot and should not try to create this deficit by food alone. What you should be looking at doing is dropping 60% through diet and 40% through exercise. So reduce the food intake by 626 cal and burn an extra 416 calories per day through exercise. Of course if you're not in such a rush to lose the weight then you could set a target of losing just 1 pound per week, meaning you only need to create a deficit of 3500 calories.

As mentioned in a previous article (Fat Burning Zone: THE FACTS), the best way to burn calories is through high intensity exercise, not as many people think by working at the FAT BURNING ZONE (low intensity exercise).

Remember these figures: 3500 calories = 1 pound of body weight.

This is all you need to know to lose weight correctly; it really is not rocket science.

Author: Josh - Personal Trainer Leicester



Swimming Vs Running

I get asked for advice on weight loss and exercise regularly and which form of exercise is best for weight loss. More often than not people say to me that they swim everyday and do lots of lengths, so there's no need for them to run on the treadmill. Weight maintenance is about calorie control, calories consumed verses calories burned.

Running and swim training workouts are 2 very effective ways to maintain fitness and promote weight loss. These workouts keep your muscles working constantly, and they can give you a well-toned figure. If you are trying to lose weight, you may want to find out whether running or swimming workouts can help you burn more calories.

There are a number of factors that can affect the effectiveness of running workouts and swim training workouts in regards to burning calories. You have to take these factors into consideration if you want to make an accurate comparison.

PACE AND STROKE

First, the pace at which you are running can affect the amount of calories burned. If you are running at a faster pace, you will be burning more calories. Similarly, if you are swimming with a more aggressive stroke, such as butterfly, you will be using your muscles more rigorously, and this will increase the amount of calories burned.

WIND AND WATER RESISTANCE

Ordinarily, water resistance is stronger than wind resistance, but when you are swimming in a pool, the resistance is consistent. If

you are running outdoors, you will be exposed to unpredictable wind conditions. Strong headwinds or tailwinds have significant effect on your running performance, and you will burn more calories if you are running against a strong wind.

TERRAIN

When you are doing swim training workouts, you do not have to deal with varying terrains. However, running outdoors requires you to overcome different types of terrain, which can range from level concrete walkways to steep and bumpy trails. You will burn more calories if you do your running workouts at a place that has a more diverse terrain.

COMPARING RUNNING WORKOUTS AND SWIM TRAINING WORKOUTS

To ensure that the comparison of running workouts and swim training workouts is accurate, you have to look at the amount of calories burned while you are running on level ground, preferably in an indoor sports facility. Also, the levels of exertion for both types of workouts have to be the same.

If you weigh about 130 lb, you will burn 472 calories in a 1-hour running session that covers 5 miles. However, if you weigh 155 lb or 190 lb, the amount of calories burned will be 563 and 690 respectively. Swimming at a leisurely pace for 1 hour will help you burn 354 calories if your weight is 130 lb. If you weigh 155 lb, you will lose 422 calories, and if you are 190 lb, you will burn 518 calories.

If you are 130 lb, running for 1 hour at a speed of 10 miles per hour will make you lose 944 calories. The same exercise will burn 1126 calories if you weigh 155 lb, and it will burn 1380 calories if you are 190 lb. If you have a weight of 130 lb and you swim freestyle for 1 hour at a fast pace, you will lose 590 calories. However, if you weigh 155 lb, the amount of calories burned will be 704. If you are 190 lb, you will burn 863 calories.

As you can see from the figures above, running is far more effective in burning calories than swimming. As with all exercise,

it's better to do some than none at all, so if swimming is your thing then stay with it.

Author: Josh - Personal Trainer Leicester



Exercise and Menopause

Importance of exercise and diet, pre and post menopause

Health and fitness during the menopause has to begin with diet, and is vital for women of fifty and beyond. Change is inevitable; the good news is that change of life doesn't have to mean change in health or weight.

There are certain aspects of the menopause that demand careful consideration. It can be a double edge sword. Firstly your metabolism is slowing down and you will burn approximately 500 calories per day less than before. Your hormones will be playing havoc with your emotions and cravings of high calorie foods will be overwhelming. So you will constantly want to eat high calorie foods at a time when you need to cut back. The problem with giving into your cravings is that every time you consume the sugary foods you so desire, the resulting hormonal imbalance will send you into a depressive state. This in turn will trigger the craving for more sugary foods. The thing to bear in mind is that during the menopause any excess calories will store directly in the abdominal area. As I said above you will be burning at least 500 calories a day less than before, so even if you did the same amount of exercise and ate the same amount of food, you will gain weight.

On average 3500 calories equates to 1lb in body weight, so if you sustained your current consumption during menopause, you may gain at an average of 1lb per week. So how do we stop this from happening?

Well, by understanding that you are burning fewer calories, you can tweak your diet and exercise program to compensate. So the first thing to remember is this extra 500 calories that you have

inherited. By reducing your intake of calories and increasing your calorific output during exercise, you can balance out the additional calories. By simply eating 250 calories per day less and exercising 250 calories per day extra, you can maintain the weight you are now.

Once you hit the menopause exercise become even more important. It's extremely important to increase on strength training and resistance exercises. As soon as the hormonal imbalances start, bone density becomes vulnerable. The addition of weight bearing exercise will help maintain bone density and reduce the risk of osteoporosis. We all know that calcium helps build strong bones, on average, pre-menopausal women should consume 1000g of calcium per day, post menopause this should in case to 1200-1500g per day. Lots of fresh fruits and vegetables, food low in fat and sodium are part of maintaining a high level of health and fitness. Although calcium is very important, don't be tempted to increase the intake of dairy product. If anything, try to reduce the amount of milk and dairy, you have to remember that cows are mammals and they also produce and store the same hormones as you, also the additional lactose will affect your own hormonal balance.

Soya milk in small quantities has been proven to help minimise the effects of the menopause, so try to replace milk with soya milk. Soya milk fortified with calcium is an excellent alternative to milk. One thing to remember however is that even the intake of soya milk should be limited to no more than 200 ml per day after which it may have a negative effect.

The main thing to remember is that it's not all doom and gloom and that you are in control. Resist the temptation to consume sweet food, although that's what you'll crave, and exercise regularly. Change your eating habits by introducing soya into your diet and lots of green vegetables.

It may be worth considering that the change may not be the only contributory factor to your weight gain, there may be many other reasons why you have been unable to lose weight. One of the most common factors effecting weight management is a slowing of the metabolism due to under active thyroid glands. If the

glands fail to produce sufficient amount of the hormone thyroxine, it may again slow your natural metabolism by as much as 600 calories per day.

The effects of an under active thyroid can however be controlled by introducing additional hormone via tablet form. Unfortunately, once you have been diagnosed with the condition, you will need to take the medication on a permanent basis.

Author: Josh - Personal Trainer Leicester



Proteins and Amino Acids for Vegetarians

Being a vegetarian, I get asked the same question over and over again. "How did you get your size and maintain it without meat protein"?

Let me explain something about protein. It's all to do with Amino Acids; all proteins are made up of amino acids.

A LITTLE AMINO ACID CHEMISTRY

Amino acids are the building blocks of protein. Your body needs them to make the protein structures that build and maintain the tissues in your body.

There are many different amino acids; they all have similar structures, the only difference between them is their side chains. Often referred to as Branch Chains. Many of you will be taking a supplement of BCAA's (Branch Chain Amino Acids).

All proteins, no matter what food they come from, are made up of amino acids, but the number and order of the amino acids that make up them up are different.

A cow's rump or navy beans are different in the arrangements of the chains that make up all the tissues of your body. So whether you eat round steak or baked beans (or anything that contains any protein at all, even a tiny amount), your digestive system breaks it down into amino acids that are absorbed into your blood stream. From there, the amino acids are used to build the proteins that make up your muscles, organs and lots of other tissues.

There are 21 important amino acids, 12 of which are

manufactured by the human body. Another 9, called essential amino acids, must be obtained from food.

These are the essential amino acids:

- Histidine
- Isoleucine
- Leucine
- Lysine
- Methionine
- Phenylalanine
- Threonine
- Tryptophan
- Valine

A complete protein is a protein that contains all of the essential amino acids. Animal proteins are complete, including red meat, poultry, seafood, eggs, and dairy along with soybeans, blue green algae, hempseed, buckwheat, and quinoa. Although the above vegetarian choices are limited to a few, there are other foods that contain what's known as incomplete or complimentary proteins. These include beans, whole grains, nuts, seeds, peas, and corn. Combine two or more incomplete proteins and boom — you've got a complete protein. Enjoy them together in one meal or the combination can be consumed over the same day.

Here are some food combinations that work:

- Beans with whole grains: houmous (contains chickpeas and tahini, which is made from sesame seeds) and pita bread, red beans and rice, chickpea and quinoa, veggie burgers (see recipe page) on a whole-wheat bun, split pea soup with whole-grain bread, lentil barley soup, black beans and polenta (see recipe page) and tortillas with refried beans
- Nuts or seeds with whole grains: sunflower seed butter on crackers, almond butter on toast, peanut noodles
- Beans with seeds or nuts: houmous, salad topped with sunflower seeds and chickpeas

So in conclusion, I can get all the protein and the full range of amino acids from a varied vegetarian diet. A complete protein has all the different amino acids your body requires. You can also complete the range of amino acids by eating a variety of foods. How much protein you need will be covered in another article.

Author: Josh - Personal Trainer Leicester



Importance of Nutrition and Exercise for Multiple Sclerosis (MS) Sufferers

I work with many people who suffer medical conditions, everything from heart conditions to under or over active thyroids. A large number of people I train suffer with MS (multiple sclerosis). I've written this article with them in mind, hopefully it will give you an insight into the illness and provide some useful information.

As with a range of medical conditions, exercise plays a fundamental part of well being for MS sufferers.

SO WHAT IS MS?

Multiple sclerosis is a condition that affects the central nervous system. The extent of the effects varies from person to person. To understand MS we need to understand the central nervous system.

A substance called myelin protects the nerve fibres in the central nervous system, which helps messages travel quickly and smoothly between the brain and the rest of the body.

In an MS patient, the body's immune system designed to protect the body from infections, mistakes the myelin for a foreign object and attacks it. It can destroy or damage the protective myelin coating leaving the nerve exposed and often scarred. In many cases it actually causes nerve damage and the messages to and from the brain to various parts of the body cannot be sent or received. It's this nerve damage that causes the severe disability over time. This is why the effects vary from person to person, depending on the area of the central nervous system that has

been damaged and the parts of the body the specific nerves serve.

MS affects about 100,000 people in the UK most diagnosed between the ages of 20-40. There are no commonly known causes of MS and its not thought to be hereditary however, its thought to be a mixture of environment and genetics. It seems to be more prevalent in the areas that are further away from the equator. It's practically unheard of in places such as Malaysia or Ecuador. It is common in UK, Canada, and New Zealand.

A lack of Vitamin D is thought to be a factor as are smoking, being overweight and viral infections. Poor diet is also a factor to consider, as the main symptoms are the attack on the immune system, which may already be low due to a poor diet. There is no known cure for the illness but the condition can be managed with a combination of medication, exercise and diet.

Everyone with MS, regardless of disability require regular physical activity. Lack of exercise can lead to major problems including joint contractures, increased spasticity, heart problems and constipation. A good exercise program not only prevents problems, but also increases a sense of well-being.

A good exercise program can be broken down into 5 categories:

- Flexibility
- Strengthening
- Cardiovascular workout
- Balance and coordination
- Range of motion

Flexibility is moving the joint through its full range and stretching the muscle and tendon to its full length. These activities decrease muscle tightness and prevent loss of range of motion, which may occur when activity levels are decreased, at times of weakness or spasticity. With decreased flexibility, joint contractures can occur. These can be painful and may also limit the range of motion.

Strengthening involves increasing the power of the muscle and maintaining muscle mass to prevent atrophy; the shrinking of the muscle. A wide range of equipment and activities can help to achieve and maintain muscular strength. These range from weight training, resistance bands, using own body weight and working under the force of gravity or even water.

Cardiovascular workouts help to improve the heart and lung functions. It also helps to increase the amount of activity and exercise one can do. This in turn helps to maintain blood sugars, cholesterol levels and body fat. Walking, swimming cycling or any activity, which increases heart rate, is good for this.

Balance and coordination helps to maintain the efficiency of a movement and reduces unnecessary energy expenditure. Activities can be performed in water, on land, sitting in a chair, using a stability ball and various other things.

Range of motion exercises are designed to improve or maintain the extent to which a joint can move. There are two main ways of achieving this:

- Passive range of motion; this involves the assistance of a therapist or trainer manipulating the joint to its potential.
- Active range of motion; this is how far you are able to move the joint without assistance.

Along with exercise, nutrition plays an important part for people suffering with MS. Getting all the nutrients will help the body to work to its full potential.

A good diet plan will ensure that you receive the correct amounts of:

- Protein for growth, repair and maintaining muscle structure
- Carbohydrates for energy
- Fibre to promote efficient digestion and bowel function
- Vitamins and minerals for numerous processes in the body, including tissue repair, bone strength and the absorption of other nutrients
- Fluids required for optimum working of the body. Water carries nutrients around the body and is used in the various

chemical processes happening in our cells.

Not only is it important to eat the right foods, but also the amount of food in terms of calories you consume is equally important. The generic quantities for men and women are 2500 calories for men and 2000 calories for women. This assumes that you live an active lifestyle. For people who suffer disabling conditions such as MS and are predominantly wheelchair bound, the calorific intake is even more important. The body would require roughly 600 calories less per day than the average person. My recommendation would be around the 1800 calories for men and 1500 calories for women. This is only a guide and should be taken as such. The exact amount would also depend upon your height, how fast your metabolic rate is, and other medical complications and allergies.

SPECIAL DIETS FOR MS

Although there is no clear evidence that a special diet has any significant benefit, some people feel that it has made a difference. The most recognized of these diets include the SWANK diet.

Swank Diet is perhaps the best-known diet associated with MS. It is named after Dr Roy Swank, who developed the diet in the 1940s. This diet involves restricting the amount of fat you can eat: no more than 15 g of saturated fat a day, and between 20-50 g of unsaturated fat. With the Swank, you will also need to limit your intake of red meat and oily fish, although you can eat as much white fish as you like.

Research into this diet shows no definitive benefits. Although a number of studies have been carried out, they have not generally been well designed. They also had very high dropout rates, so without knowing what happened to the people who dropped out of the study it is difficult to get a conclusive result. However, following this or a similar diet is not considered to be harmful in any way or bad for you.

Cutting down on meat and dairy foods to reduce saturated fats might leave a shortfall in protein, so it's important to find alternative sources such as fish, beans and pulses.

Cod-liver oil has a blood-thinning effect and should be taken with caution if you take aspirin, anti-coagulant medications (for example, warfarin) or have a bleeding disorder.

If you have diabetes you should also speak to your doctor before taking cod-liver oil. This diet can be low in energy and unless care is taken to maintain energy intake, it may not be suitable if you have high-energy needs or are underweight.

With adequate exercise, nutrition and controlled medication, the condition can be managed and the debilitating effects may be delayed. I will be posting a separate article highlighting a range of exercises that can be done either sitting down or within the confinements of a wheelchair.

Author: Josh - Personal Trainer Leicester



The Importance of Vitamin B12

The primary functions of vitamin B12 are for:

- The formation of red blood cells
- Cell division
- Nerve structure and function. Production of the myelin sheath around the nerve
- The maintenance of normal blood homocysteine levels, together with folate and vitamin B6 (raised levels are a risk factor in cardiovascular disease).

What are the sources of B12:

This vitally important vitamin contains a trace element (cobalt), hence the name cobalamin.

Cobalamin is produced in the gut of animals and is possibly the only vitamin that we cannot obtain from plants. We cannot get this from sunlight either as we do with vitamin D. plants have no need for vitamin B so they don't store it. Some products such as seaweed, fermented soy, spirulina and brewers yeast and eggs are a reasonable source of B12 but in insufficient quantities.

Vegetarians and vegans are advised to supplement B12. The only issue is that there are not many clean B12 supplements out there that cater for vegans. Being a vegetarian myself I regularly take B complex supplements. One of the best ones I have found on the market is from Arbonne. It comes in spray format for immediate absorption; this is particularly useful if malabsorption is an issue in the stomach. Arbonne do a variety of supplements that are stringently tested and from all vegan sources. In fact I was so impressed with some of the products that I became

an independent consultant for the company. By no means do I make an attempt sell the products. I joined the company so my clients could benefit from discounted rates.

The absorption of B12 is complex and involves several steps – each of which can go wrong. Causes of B12 malabsorption include:

- Intestinal dysbiosis
- Leaky gut and/or gut inflammation
- Atrophic gastritis or hypochlorhydria (low stomach acid)
- Pernicious anemia (autoimmune condition)
- Medications (especially PPIs and other acid-suppressing drugs)
- Alcohol
- Exposure to nitrous oxide (during surgery or recreational use)

How much, and what kind, does an adult need?

According to the National Institutes of Health (NIH), the average daily U.S. Recommended Dietary Allowance (RDA) is:

- People age 14 and older, 2.4 mcg;
- For adult and adolescent pregnant females, 2.6 mcg
- And for adult and adolescent lactating females, 2.8mcg.

People over 50 years of age should consume vitamin B12-fortified foods, or take a vitamin B12 supplement - 25-100 mcg per day has been used to maintain vitamin B12 levels in older people.

Doctors often recommends taking 50 mcg as part of a B-Complex that contains a full spectrum of B vitamins, including biotin, thiamin, B12, riboflavin and niacin.

B12 deficiency is not isolated to vegans and vegetarians, a large proportion of omnivores also suffer from the condition.

In general, the following groups are at greatest risk for B12 deficiency:

- Vegetarians and vegans
- People aged 60 or over
- People who regularly use PPIs or acid suppressing drugs
- People on diabetes drugs like metformin
- People with Crohn's disease, ulcerative colitis, celiac or IBS
- Women with a history of infertility and miscarriage

Anyone interested in looking at what Arbonne has to offer can visit my site and become a preferential client to take advantage of discounts.

<http://www.arbonne.com/pws/SubodhJoshi/tabs/home.aspx>

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