



Blood Sugar Levels vs Calorie Counting

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Most people who start a health and fitness regime fail. Not only fail, but fail badly – many end up heavier than they started. No one disputes that standard diets don't work. But why don't they work?

For the purposes of this article, let us ignore the multiple and complex factors in the metabolism of an average human, and stick to the basics. On this basic level, there are a few vital principles that must be understood.

1. If you take in less calories than you use, you will lose weight. This weight loss can be from fat or muscle. Naturally, if you take in more calories than you use, you will gain weight.
2. Your energy needs differ every day and are made up of three factors – around 70% is your Basal Metabolic Rate, or BMR (the energy you use whilst resting, dependent on your lean mass/muscle, changes very little each day without extreme changes in environment); around 10% is from Thermogenesis (heat production, changes a lot each day depending on what foods you eat, how cold you are etc); and around 20% is from Specific Dynamic Activity (movement, changes a lot each day depending on what foods you eat).
3. Your body is either in a build up (anabolic) mode, or a breakdown (catabolic) mode. There is no 'middle' zone and you will be switching between anabolism and catabolism at various different points during the day.
4. Your body still operates as it did in caveman times. It will defend its fat stores to improve survival chances in times of starvation and, upon sensing a deficiency of food, will adjust metabolism to match food intake. Hence your cold hands on the days you don't eat much. This negates the impact of dieting.

Unfortunately, most diets and diet clubs only take notice of Principle Number One. This is a very narrow-minded view as it ignores the complex systems that make up or biological structure. Blindly persevering towards an end destination of a Calorie Deficit at the end of the day is, in the main, a very pointless exercise as our bodies have a built-in 'fat defense' system to help us survive in leaner times; this must be taken into account if you are going to work around it, and get results beyond the first week or two of a diet (until the fat defense system activates). Generally speaking, any extreme change - be it a drop or increase in food intake, temperature or activity levels – will necessitate a change in the body's function. Bearing in mind Principle Four, it is extremely important to maintain a normal body function if you are going to lose fat. Unfortunately, diets that blindly calorie-count almost always see your body going through sustained starvation (a very stressful infliction on the system) and this is the perfect recipe for kicking in the Fat Defense/Metabolism Adjustment.

These diets are normally poorly arranged to direct a particular calorie intake over a 24 hour period. Although I accept that you need to have some period to measure intake by, a whole day is simply too long a spell to work to, and you can significantly overeat at breakfast and be hungry at lunch – here you will be building fat stores at 7am and then breaking down muscle at 12noon, both of which will have negative impacts on your body composition. A 24 hour clock will simply not cater for switches in our metabolic functions that happen from hour to hour.

Some weight-watching clubs (you know who you are!) issue 'points' to different foods with the motto 'no food is a sin'. You can actually fit in with the ethos of this eating plan by starving yourself all day until 7pm, when you use up your 15 points in one go on a well-earned plate of Mars Bars. From 7am-7pm, you have kicked-in your fat defenses (Principle Four) and so have created the tiniest of calorie deficits. Then from 7pm-bedtime, you have caused a massive calorie excess, which will result in definite fat gain. So traditional dieting can actually make you fatter! Not to mention the problems caused by hunger, like nervous system stress, poor mood and concentration. To illustrate the problems with this approach, imagine you are restricting yourself to 10,500 calories per week (a typical level for calorie-counting dieters). Because you have eaten 2 takeaway pizzas on Monday, Tuesday and Wednesday, each with garlic bread and Coke, you have now reached your limit. Would you now not eat until the following Monday? This is exactly what is happening in the diets of many people, the only difference is this 168-hour rhythm has been replaced with a 24-hour timescale.

Naturally, monitoring your food intake on an hourly or 3-hour basis is also quite inconvenient. But there is no need anyway. The only time you will get the results you need is if you deliver the right balance of food to ensure that you are in a Catabolic(breakdown) mode, as per Principle Three, but without activating your Fat Defences. This occurs when your body is put into a state of stress, which results in the release of cortisol; this cortisol release then activates your fat-storage (lipogenic) enzymes.

So what controls whether we are building up fat or muscle stores or breaking them down? This is all controlled on the say-so of a number of hormones that circulate throughout our body, such as testosterone, growth hormone and glucagon. However, the most powerful effector is insulin. Insulin is intrinsically linked to our blood sugar levels. The amount of glucose (blood sugar) in your bloodstream is constantly varying. It is increased by food intake, released mainly from your intestines into the bloodstream, and decreased by muscle cells that 'grab' energy to replace that which they have used up in the process of living. If your blood sugar becomes too high, insulin is released and this will bring down your Blood Sugar Level – however, this energy has to go somewhere and your body 'cleverly' stores it as fat. (Some insulin is always required however, and in a normal situation it is mediated within the blood stream by its opposing hormone, glucagon). In any case, these sharp rises in insulin – 'insulin spikes' - are undesirable. Throughout the course of the day, your Blood Sugar Level will go up and down and its level dictates the activity of your metabolism. So it is very important to become at one with!

Whilst the levels of antioxidants, metallo-enzymes and specific balance of protein/fats/carbs have dramatic effects on the way your body processes energy, it is important to understand the metabolic behavior instigated by your Blood Sugar Levels. Whilst there is naturally less defined borders between some zones, there are four distinct

zones that you will fluctuate through.

(NOTE: Although this is often not the case, the following outline assumes that muscles are recovering from exercise and that there is a sufficient supply of proteins/fats/carbs, and each cells is not suffering from any metabolic obstruction or micronutrient deficiency.)

Excessive Anabolic Zone (Build-up Zone) – your blood sugar is too high. Your muscles have plenty of energy available to work with and build in size and strength, but there is too much energy on top of what is required for this and so your body will release Insulin to reduce the level. Result: Fat and Muscle Storage.

Moderate Anabolic Zone (Build-up Zone) – your blood sugar is above the level required for maintenance of living function. This moderate excess gives the muscles plenty of energy to work with and build in size and strength. Result: Muscle Storage.

Moderate Catabolic Zone (Breakdown Zone) – your blood sugar is below the level required for maintenance of living function. This moderate deficit means the body has to ‘dip into’ its spare energy stores, fat stored under the skin, but there is enough energy to maintain normal metabolic function. Result: Fat Breakdown.

Excessive Catabolic Zone(Breakdown Zone) – starvation. Your blood sugar is too low. This severe deficit means the body has to steal energy from its stores, but because your body is now in a starvation state it tries to preserve its long-term fuel source for as long as possible it will burn more muscle than fat. From a caveman perspective, the choice to break down muscle preserves the most valuable resource, fat – which improves capability to walk to the next village/source of nourishment, therefore improving survival chances. Result: Fat and Muscle Breakdown. Increase in fat storage enzymes.

Clearly, the two moderate zones will improve body composition, whereas the two extreme zones will be detrimental to body composition. Moderate Catabolism is extremely beneficial to anyone looking to burn fat. If you stay within this Moderate Catabolic Zone (Fat Burn Zone) all day you will cause your body to ‘skim off the top’ of its fat reserves – the fat stored beneath the skin, also called subcutaneous fat. On a minute by minute basis, you are not using a lot of fat, but over the course of a day/week/month, this all adds up to significant progress.

Is this concept that much different from the calorie-counting plans? In terms of the desired end result, no – you still achieve a calorie deficit (the target, mentioned as Principle One), but the difference is that you are not ‘guessing by numbers’ and instead responding to your body as you go along, without activating your body’s Fat Defences. By providing your body with sufficient proteins/omega 3s/micronutrients required to maintain a full metabolic rate, but only providing the carbohydrates it actually needs, you will constantly be running at an energy deficit and so achieve a finite calorie shortfall at the end of the day. Most importantly, this will have been done in a healthy way that improves body composition, as the reserve-energy sources broken down will be almost exclusively fat. Remember that spending hours carefully counting calories will see you disrupt your body’s metabolic function, when in reality you just need to keep your blood sugar at a level where you will be

breaking down energy stores, but without starving. A more general summary of how to spend the maximum amount of time in this Zone is to ensure that you are 'Never Hungry, Never Full' – a phrase that all of my clients will no doubt recognize. This means 4-6 small meals/snacks in a day, not 'three square meals'.

Balancing your blood sugar levels involves more than just eating smaller meals. You can create an insulin spike with a small meal! Problems occur when you eat something that destabilizes the amount of energy in the bloodstream. If you consume sugary or processed food – be it anything from chocolate and sweets to white bread and white rice – it is broken down extremely quickly in your digestive system and, as a result, released into your blood stream too quickly. Your Blood Sugar Level rises rapidly (pushing it towards the top of your Excessive Anabolic Zone) and, in response, a surge of insulin is released; this avoids sending the body into a sugar-induced coma and takes the energy out of the bloodstream. But this energy is dumped as fat around the body, and you are now in a Catabolic zone once again. This is referred to as a Sugar Spike (due to the swift up-down effect it has on your Blood Sugar Levels) and is best avoided as, on top of the extra fat you have now stored subcutaneously, you will now be more tired, more hungry and will need to eat again sooner – a double whammy. It is a good idea to stick to foods that do not cause a sugar spike, and to make sure all your carbohydrates are consumed in the presence of fats, proteins and fibre.

So what foods should we be eating? Generally real and natural foods, with plenty of proteins, good fats (eg seeds, nuts and oils) and complex carbohydrates, as these are broken down slower. All foods are broken down and released into your blood stream at varying speeds, and the slower this happens the more stable your Blood Sugar Levels will stay..

The other way problems occur is when we simply eat too much in one meal, thinking we are hungrier than we really are. Due to unnatural eating patterns and processed junk that now regularly replaces food in our diets, most (but not all) of the population have a very poor appetite control function. There are numerous physical, mental and emotional factors that can influence the appetite of an individual, some beyond the scope of this article, but two important physical aspects should be understood. When your stomach is full, it communicates this message with the brain, which in itself turns off the appetite. So a feeling of fullness in the stomach is important. But this is itself more of an indication of whether you are hungry or not – a more real measurement is fed back more centrally by your Blood Sugar Levels. The concentration of glucose here is measured by your hypothalamus, which then sends an appropriate hormonal signal to let you know if you are 'full' or 'starving'.

This means it should be very easy to judge how much or how little energy you need to move up a zone or avoid slipping down a zone, but the feedback is not instant. Food has to be broken down in the stomach and absorbed through the intestines before it has an impact in your bloodstream; this typically takes 15-25 minutes. To improve the accuracy of these hunger indicators, you could try drinking water with each meal to avoid inaccuracy from the physical sensation in the stomach; to counteract the delayed reaction in your Blood Sugar Levels, you should try eating the French way – this means very small courses separated by 15-20 minute breaks, avoiding eating a big plate of food and then being overcome by bloating ('Xmas Day Syndrome').

Once you have understood the basics, you have removed one more obstacle in your way of progress. Making sure you are well-nourished with vitamins and minerals and creating a more caveman balance to your protein/fat/carb intake complete the starting points for getting trim. Essentially, what works within this scientifically-based plan is the exact target of the calorie-counting plans, but by overcoming the pitfalls it avoids the ineffectiveness that comes with disrupting the metabolic functions of our bodies, bodies that have been carefully sculpted by evolution to produce what we have today – a perfect survival machine. Unfortunately, our lifestyles are so out of sync with the daily struggle and sustained hunt for food that they became so adapted to that our biological systems now appear to malfunction. Meanwhile, whilst we continue to drive everywhere and sit behind a desk for eight hours a day, obesity remains rampant.

Appetite, hunger and survival are, by nature, very closely linked. Modern lifestyles have separated the link to some degree but our bodies still function in exactly the same way. It is by understanding the basic sciences involved in the mechanisms that control these necessities to life that we can establish what methods work for fat loss and what methods do not. Keep it naturally moderate, whilst using the basic principles and progress will follow on its own accord. The harder you push it, the more likely you are to take the body into an unhelpful reaction, so settle for realistic but steady improvements. It makes the difference between long-term success and short-term disappointment.

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