

Macronutrients and your physique: A primer

I'm writing this as a basic guide to nutrition and how it can affect your physique, combined with proper training. Many people are familiar with CICO (Calories in, Calories out) as the primary focus of gaining or losing weight. But your overall physique results depend on a lot more than just increasing or decreasing calories. We need to understand how different nutrients affect our bodies.

Disclaimer: I am not a nutritionist or dietician. I'm just someone who has been exercising religiously for over ten years, and done tons of research on the subject in my spare time in order to make personal improvements. I've included as many citations and I could find on short notice, but please feel free to validate anything I say through further research on your own. In fact, I actively encourage it and would love if you send me any contradictory material you may find. We're all in this together, so pooling our knowledge is for the best! I wish that I had a document like this when I first starting exercising, as I would have seen progress so much more quickly. Hindsight being 20/20, I'm writing this so that you, the reader, can get a leg up. I'll update this document as necessary with any corrections or additional information that I think it could use!

Bad concepts and habits you may have

First, I want to gently disabuse people of a few notions that you may have in mind.

One: "Toning". I hate that word, because people use it as a way to push off resistance training (weightlifting) and think they can develop the look they want without doing so. Toning is really just having a lower body fat percentage and a larger amount of muscle. To have 'toned' arms, you need more muscle in them and a lower body fat percentage. Simple, right? Trust me when I say that you won't get "too big" unless you're intentionally doing so. Resistance training is necessary to build muscle. Lifting weights will not make you 'big' unless you are dedicated to doing so. You can stop increasing your dietary intake wherever you become happy with your body.

Two: There is no such thing as spot fat reduction. Everyone is predisposed to storing more fat in certain areas - this is ACTUALLY genetically decided, unlike everything the FA movement talks about. For example: I store fat most in my lower abs and hips. Therefore, this is the fat that takes longest to go away, because that's where most of it is. My shoulders and chest get crazy vascular during a cut, but it takes forever for my lower abs to come through. A buddy of mine stores the most in his lats, so he has a totally flat stomach early in his cut but it takes him forever to get back and shoulder striation. The takeaway from this is that you'll likely (I'm guilty of this too) be fatter than you think you are. Nothing to feel guilty of, but learning is the only way to improve!

Three: Don't be afraid of the number on the scale. Getting the look you want requires two processes - bulking and cutting. Your body is generally either in an anabolic (attempting to increase size) or catabolic (attempting to reduce size) state. This is not 100% definitive, but is a decent general guide to go by. The exception to this is "newbie gains" wherein your body will be sort of 'shocked' into increasing muscle mass while losing fat early on, based on your

exercise and nutrition. After this brief period wears off, you join the rest of us in either bulking or cutting. While cutting (which you've probably been doing without attaching the word to it), you're attempting to lose fat while preserving muscle. While bulking, you're attempting to build muscle while minimizing fat gain. A clean bulk is just that. A dirty bulk is maximizing muscle gain without a care for how much fat you put on. You cycle between a bulk and a cut in order to put on the muscle mass and then remove the fat in order to 'reveal' the muscle underneath. Because muscle is more dense than fat, you often end up weighing MORE than you did originally, but looking 100x better. It is my experience (as a generalization) that guys don't worry much about this, but women often do. This is my favorite picture to show women:

[Example](#)

She actually weighs more in the after picture, and there's no argument that she looks 100% better. I've edited that for her privacy, by the way, but she is a very well-known fitness model.

Calories, Macronutrients, and Micronutrients

Calories = energy. Eat above your maintenance level (at a surplus), you gain weight. Eat below (at a deficit), you lose weight. Simple, right? Sort of. The way you look after gaining or losing is entirely dependent on your macronutrient intake and workout routine. Your body only really needs certain amounts of protein, carbohydrates, and fats.

First thing is first -

1g protein = 4 calories

1g carbohydrates = 4 calories

1g fat = 9 calories

1lb body fat ~ 3500 calories

Got it? Good. Those numbers will be relevant as you begin to work on your physique.

Your body does a few interesting things with macronutrients based on exercise. While exercising at up to 65-75% of your max heart rate, your body will first utilize glycogen in the muscles and liver (created by carbohydrates) and, upon depleting this, will fall back onto body fat to process for energy. This is why you should do weightlifting work BEFORE cardio, unless you're in a fasted state (early morning before eating). You want maximum strength in order to perform best at resistance training (deplete your glycogen stores), and want the cardio to burn the maximum amount of fat. ([Max Heart Rate Calculator](#))

Have you ever seen a runner's body? They may be lean, but they don't have that 'sexy, toned' look that gym junkies do. We guys tend to crave the chiseled abs, thick chest, and boulder shoulder deltoids. Women, on the other hand, tend to gravitate towards having a flat stomach, defined legs, round glutes, and slim but defined arms. Runners not having some or all of these aspects is due to a mixture of diet, routine, and nutrition, mostly centered around protein. Upon depleting the glycogen stores in your muscles and liver and operating above 75% of your maximum heart rate, your body is desperate for energy. It will burn fat, yes, but it will also begin attacking your muscle fibers. We don't like this when trying to build muscle, so stay away from this zone (heart rate citation available in this book: [Everything Total Fitness](#)).

For simplicity's sake:

65-75% of Max Heart Rate = ideal fat-burning zone

75%+ for extended periods = danger of utilizing muscle for energy

Protein is your muscle building block. When doing a weightlifting routine, you are actually tearing the muscle fibers, and protein is the macronutrient that rebuilds the muscle, ideally bigger and better (based on how much you ingest and how hard you work out – we'll get to that number later). Most runners don't do much weightlifting, don't eat enough protein (they need carbs for glycogen, so that's what they're craving), and do their cardio at too high of a % of their maximum heart rate. As a result, they end up with the 'runner's body'. For some, this is a goal – they just want to be slim. No worries, not everyone wants the same thing.

Now, you want to set yourself a goal weight and body fat percentage. I would browse your favorite physiques and find an ideal bfat% ([Examples here](#)), then math out what the weight would be for you (a little more info on how to figure out the goal weight would be helpful). That number is the new amount in grams of protein that you'll be taking in each day to maintain or cut. The actual studied ratio is .8g of protein per lb of lean body mass, but most people just round up to 1 and at the total body weight, to be safe. Excess protein is processed by the liver and kidneys and converted to amino acids, ketones, and glucose (and also excreted), but conversion into triglycerides for storage (ie: fat) doesn't generally happen. Hence why, if you're going to eat too much of anything, you might as well make it protein. All the same, no need to overdo it. ([Protein, fats, and carbs](#))

Next up is fat. .5g/lb of body weight is generally the recommended minimum if you're not going into stage prep (bodybuilding). So just divide your goal body weight in half and that's your new amount of grams of fat per day. Fat is necessary for hormonal balance and cognitive function, so you don't want to keep it any lower than that for too long. In guys, for example, going too low will temporarily wipe out your libido and testosterone. You want to focus on taking in monounsaturated and polyunsaturated fats. Trans fats do nothing for your hormones and should be avoided as much as possible, while saturated fats are good in small quantities, but should be kept at a lower level, as they tend to increase cholesterol. ([Types of fats and what they do](#))

So far:

1g protein/lb goal body weight

.5g fat/lb goal body weight

With me? Good. Carbs are next.

Calculate your TDEE for your goal weight ([Total Daily Energy Expenditure Calculator](#)) (don't lie to yourself about activity level – most people are sedentary). This is the amount of calories required to maintain that weight. Math out the calories you bring in from protein and fat (see above), and subtract that from your TDEE. The remaining value is the calories you will take in from carbs. Divide by 4 (per the above ratios) to get the amount of carbs you'll eat to maintain per day.

Almost done with math, I promise. Now, for how this applies to bulking and cutting.

Bulking

Pretty simple; excess fat intake is stored as fat (duh), and is the easiest macro to make do so, as it has over double the calories per gram as the other two. Excess carbohydrates (that are not converted to glycogen to be stored in the muscles) are also stored as fat. People that get fat are eating far too much of one or both of these. So, when bulking, you take your newfound macros and TDEE, and add calories, but not too many, or you end up with a dirty bulk. If you remember from above, this is how you start getting fat. We'll use a surplus 300 calories as an example. You'll want to eat 1.1-1.2g protein per pound while bulking, as this gives us a nice excess, but won't put too much strain on the kidneys. I don't like adding too much fat (calorie content), so let's go ahead and do protein and carbs. Let's say, by way of example, you add 25g protein (100cal) and 50g carbs (200cal). On a lean bulk, you'll eat this excess to gain muscle mass while minimizing fat gain. Eventually, you'll plateau, and have to increase the number again. It's up to you to decide when your bulk is over. The human body is **ONLY CAPABLE** of putting on a maximum of .5lb of muscle **PER WEEK** (2lb/month). If you're putting on more than this, the excess is fat and water weight. Finding the perfect balance is what's so difficult about a lean bulk.

Cutting

When cutting, you'll reduce the protein to the minimum .8g/lb (or 1g/lb) and lower the carbs as far as you're willing to go. On my cut, I do 50g carbs per day (yes, it's miserable – not everyone can or will want to do this), with a refeed of 300g once per week to boost glycogen stores. Bodybuilders like to call this a suicide cut, for obvious reasons. Keep in mind that as long as you're operating at a deficit (below your TDEE), you'll lose weight. You don't have to be as drastic as myself.

Genetics

Let's talk a little bit about things that are actually genetically determined. Many people say that whether you end up fat or not is one of these. Not true at all. You are in absolute control of every aspect of your body, from the amount of muscle to the amount of fat, and all of the various systems involved. It's just that changing them takes time and dedication. Here are some things that are genetically determined:

1. Where you are naturally inclined to store fat. I discussed this at the beginning of this document!
2. Muscle bellies. Whether you have short or long muscle bellies will determine what your muscles look like as they grow. A great example is the bicep. If the muscle is attached to the tendon up high, you'll have a bit of a gap between where your elbow ends and where the bicep begins. Having said that, you'll also have a higher 'peak' when you flex the muscle. The opposite is true for a long muscle belly. It attaches very low on a tendon, near to the bone, and creates a much larger looking muscle at rest, though with a smaller peak. ([Muscle bellies](#))

3. How many abs you have. The 6 pack is common, but some people have 4, 8, 10, or even 12 separate abdominal muscles. You'll only know once you build them up and burn off the fat covering them.

4. Whether your abs are symmetrical or asymmetrical. They either line up or alternate, depending on your genes.

So, as you can tell, there are some things about your physique that are genetically determined, but whether or not you are fat is not one of them.

FFMI vs. BMI

I love this. Everyone hears about how the BMI, or Body Mass Index, 'isn't accurate for everyone', and then assumes that they're one of the outliers. The reality is that very, very few people are outliers – only the largest, most lean bodybuilders really stand to be considered overweight or obese on that scale. We're talking a very small percentage of the population, and you know them when you see them. BMI only requires your height and weight to calculate, and the formula is as follows:

$$BMI = (\text{Weight in Pounds} / (\text{Height in inches} \times \text{Height in inches})) \times 703$$

[BMI Calculator](#)

A better indicator of health is the FFMI, or Fat-Free Mass Index. This is a relatively new index that tracks an individual's lean body mass in relation to their height and weight and "also addresses one of the criticisms of BMIs which is that two persons with different weights and heights can have the same BMI but different fat/ muscle amounts" [citation below]. FFMI requires your height, weight, and also body fat percentage to calculate, and formula for FFMI is as follows:

$$FFMI = (Lean / 2.2) / ((Height\ in\ ft \times 12.0 + in) \times 0.0254)^2 \times 2.20462$$

The generally agreed-upon maximum natural FFMI for men is 25, while for women it is 22. While there are genetic outliers that can surpass these numbers naturally, anything higher is generally indicative of steroid use.

Something fun to do is find your highest genetic potential! Take your height, put in 10% body fat for men, 15% for women, and then adjust the weight until you hit 25 or 22, depending on your gender. These percentages are widely considered to be maintainable year-round without losing muscle mass. You now know what you would weigh at your highest maintainable potential!

[FFMI Calculator](#)

Alcohol

I'm often asked about the effect that alcohol has on your calorie intake and macronutrients. Alcohol, in and of itself, is generally considered to be 'empty calories'. Why, you ask? Because alcohol itself has no nutritional value, and your body treats it like a poison. This means that your body prioritizes metabolizing and processing it out of your system above other things (your macros). As a result, this adds to your calorie intake for the day. I used to be a bar manager for a long period of time, and love to have a drink sometimes – I'm certainly not against it. But you need to factor it in just as you would food for the day, especially if your drinks are mixed or higher calorie (beer). It just so happens that there's a website for these things! ([Get drunk, not fat](#))

Cheat meals

Guys and girls, I don't want you to read this post and think that everything you put in your mouth needs to be perfect. But I really want to stress the importance of a 'cheat meal' versus a 'cheat day'. Having pizza once a week (and not to crazy excess) is just fine. Losing control for the entire day can undo a whole week's worth of work. There are plenty of great things that you can make or buy that fit happily into your daily macros that will make you feel like you're not too restrictive, just get creative! One of my favorite things to buy is Halo Top ice cream. Super low calorie and tastes waaaaaay better than the rest. Fits perfectly within my goals, quite frequently

Micronutrients

Okay, so we've talked a lot about macros in this post, but something that needs to be mentioned is/are micronutrients. We're talking about vitamins, minerals, and things like sugar and sodium. Most of the necessary ones are going to be found in your daily food intake, so long as you're taking in fresh, wholesome food like lean meats, veggies, starches, etc. But let's say you're seriously cutting, and being very restrictive with your diet. It's crucial that you take a multivitamin. Your body needs these micronutrients to perform optimally, and going without can cause you some serious problems in the long run. Also, try to keep sugar intake to a minimum – that stuff really isn't good for you in large quantities and is effectively extra carbohydrates.

Rest

Something I should mention here is the importance of rest. People, if you aren't getting enough sleep or not taking time off from exercise, you are doing yourself a disservice. Get at LEAST 6 hours of sleep per night. Your sleep cycle is roughly 1.5 hours long, with 7.5 hours being optimal rest (5 cycles). Sleep is crucial for recovery, and your muscles, tendons, and ligaments need time off from training in order to recover and rebuild. Be smart, listen to your body, and rest.

Side notes

A few things I want to make note of before I finish this post. First, if you are not lifting weights regularly, you will not see the increase in muscle mass and will not progress towards that 'toned' look that most people so desperately crave. You aren't tearing the muscles so you have nothing to rebuild. The same is true if you don't eat enough protein. Remember this: Nutrition is just as important, if not more so, than being in the gym, but they go hand in hand. This is the difference between the instagram model's body and the runner's.

Also, that TDEE you calculated is your GOAL TDEE at your GOAL weight. It will require multiple bulking and cutting cycles to attain this, and your yearly calculations on macronutrients and calories should be adjusted for your progress. It's a great number to keep in mind, but not the only one you should be factoring in. Two years is a pretty solid time frame to start looking more like the way you really want to, but you have to stay committed.

Some anecdotal evidence from my own time working on my diet and routine. Too much protein does actually appear to have some adverse effects. One, your kidneys strain to process the excess protein, causing mild symptoms of rhabdomyolysis. This can cause blood in the urine, obviously something you want to avoid. Be sure to eat enough protein while being careful not to take in too much - I hit this level at about 1.5g/lb and scaled back to 1.2g/lb. You also want to keep yourself hydrated to help keep your kidneys at peak efficiency. This is something that I struggled with personally, as my rate of coffee and, therefore caffeine consumption, spikes during cuts. Caffeine is a diuretic, and should always be treated as such. Stay hydrated - it's important.

Be honest with yourself

I can write all of this information up, I can talk to you all day, teach you everything I know, but ultimately you and you alone are accountable to yourself and your loved ones. You're the only one that can make positive (or negative) changes in your life, so be honest with yourself. If you eat that cookie, record it. Resolve to eat less carbs later in the day. If you skip the gym one day, go on the day that was supposed to be your rest day. Build a sense of discipline into your life, and don't let peer pressure affect you. Most people are incredibly uneducated on the subjects of nutrition and exercise, and truly have no idea how a body functions. I hope that what I've written here today is a solid foundation for you, and I actively encourage you to go read more about all of these concepts! There is a ton of detail out there, so consider this a very basic primer. Best of luck, and feel free to reach out to me with questions!

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