

NUTRITION FUNDAMENTALS


AN INTRODUCTORY NUTRITION HANDBOOK FOR NOVICE-
INTERMEDIATE LIFTERS AND NEW TRAINERS



Written by: Danny Matranga, BS.c CSCS

TABLE OF CONTENTS

.....

Aout This Book	3
Why People Diet	4
The Big Three	5
Energy Balance	6-7
Macros	8
	
Protein	9
Carbs	10
Fat	11
Macro Cheat Sheet	12
Fiber	13
Vitamins	14
Minerals	15



How to Calculate Your Macros	16
A Note on TDEE	17
TDEE calculation + Surplus/Deficit	18
Calculating Macros	19
Tips/Tricks	20
Flexible Dieting	21
Supplements	22
Disclaimer	23
Works Cited	24



ABOUT THIS E-BOOK

- To introduce and explain foundational nutritional concepts like energy balance, macronutrients, micronutrients, nutrient timing and more.
- To illustrate the benefits of proper nutrition on performance, longevity and well-being.
- To share valuable nutrition insights from my years coaching REAL people, both in-person and online, as straightforwardly and concisely possible

WHY PEOPLE "DIET"



The weight loss industry eclipsed 70 million dollars as of 2018 - a staggering figure. Wanting to lose weight has no doubt been the primary reason people implement dietary change. With the advancement of nutritional science, however, people are beginning to see food as much more than just something that makes us gain weight or lose weight. Here are just a few of the other reasons people have told me they are changing their eating habits:

- **To lose fat (historically and still number one).**
- **To gain muscle.**
- **To optimize physical performance.**
- **To improve an autoimmune issue.**
- **To curtail inflammation.**
- **For ethical reasons (veganism).**
- **To attempt to optimize performance.**
- **Because their friend is doing it.**
- **Because they want to "try something new"**
- **Because they saw a documentary on Netflix.**



LET'S TALK ABOUT THREE



As mentioned on page four, the reasons people are changing their diets nowadays are seemingly endless. That being said, and with respect to the many nuances of nutritional science, we will only be covering three nutritional protocols:

- **Nutrition for Fat Loss**
- **Nutrition for Muscle Gain**
- **Nutrition for Performance**

ENERGY BALANCE

Energy balance is defined as "the relation between intake of food and output of work (as in muscular or secretory activity) that is positive when the body stores extra food as fats and negative when the body draws on stored fat to provide energy for work." From a BODY COMPOSITION standpoint, **calories are king and macronutrients (protein, carbs, and fat) are queen** (more on those on page 8).

To put it succinctly, positive energy balance is a state of having a higher calorie input than needed - the resulting calories will be stored as tissue (fat and muscle).

Negative energy balance is a state of having a calorie intake below what is required for bodyweight maintenance. Body fat is used as fuel for various functions while in negative energy balance, otherwise known as a calorie deficit.

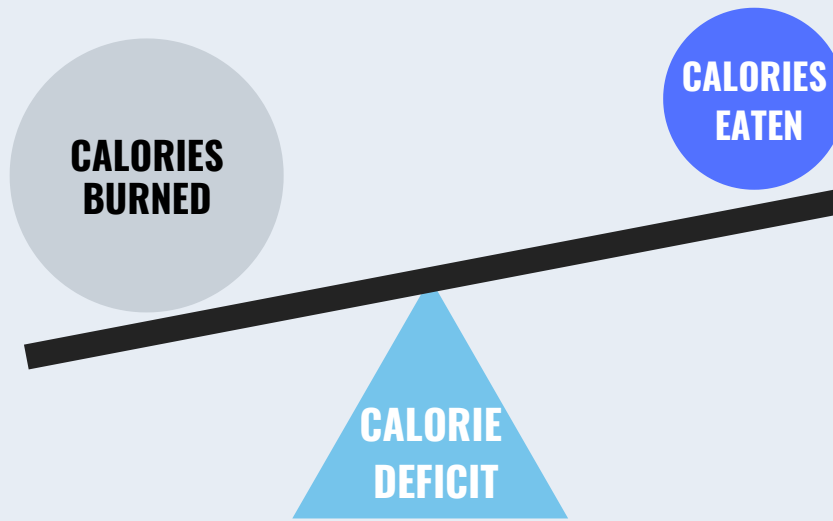
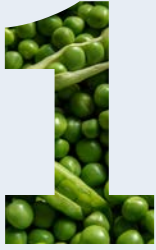
To achieve peak physical performance, it is recommended athletes avoid being in a calorie deficit. The more fuel you have to do and recover from work, the better - so long as body composition stays within a range that is optimal for the individual's sport.

For those looking to be leaner, a calorie deficit will be required for fat loss.

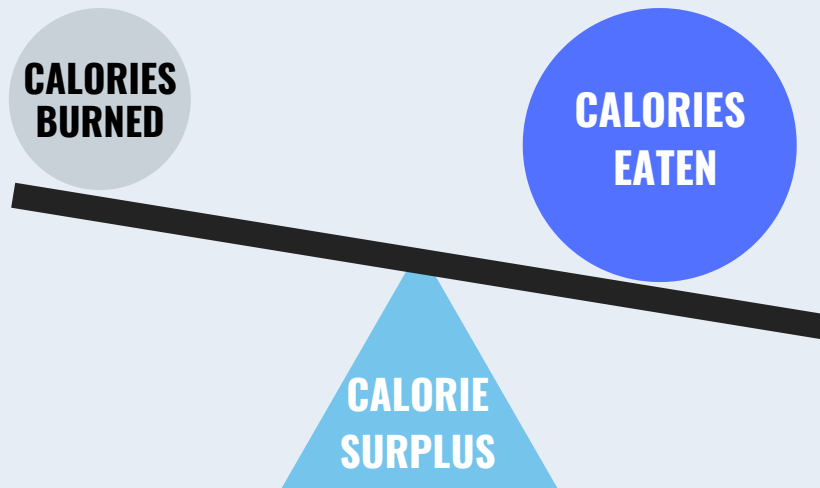
Muscle can be gained at any calorie intake, but it is easier in a mild calorie surplus. I have had the best luck with clients with a mild surplus of 300-500 calories. Gaining muscle in a deficit or at maintenance is much easier for new lifters. From my experience, it is VERY sub-optimal for intermediate to advanced lifters. It is for this reason many people alternating cycles of "bulking" and "cutting".

Remember, any large scale change in the physique requires changes in energy balance to some degree. Let's review the energy balance with some visuals on the next page. We will cover macros on page 8.

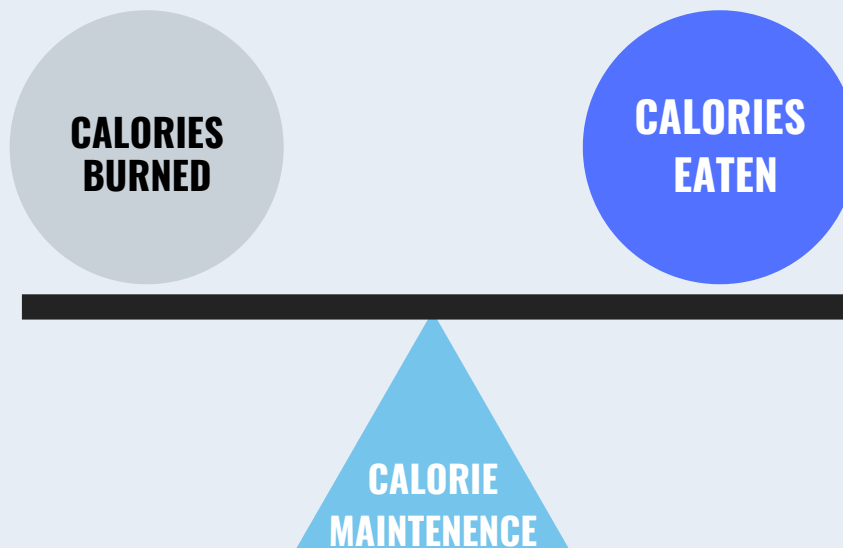




Energy balance illustrating a calorie deficit, tipping the scale in favor of weight loss.



Energy balance illustrating a calorie surplus, tipping the scale in favor of tissue gain.



Energy balance illustrating calorie maintenance. Bodyweight will be maintained.

MACRONUTRIENTS



PROTEIN

Protein is a macronutrient essential in the development of muscle tissue. Protein is comprised of valuable amino acids. There are 20 amino acids in total, each one with various unique roles in the body. We typically get our protein from animal products, like meat and dairy, though it is also present in other sources, such as nuts and legumes. Protein also plays a role in maintaining things like skin, hair, nails, digestive health, joint health - to name a few. When working with new clients I often find they drastically undereat protein. Protein has 4 calories/gram.



FAT

Fats do many different things within the body. They play a vital role in protecting cells and brain and are integral in the absorption of certain vitamins. Dietary fats are often referred to as lipids. Some of the more common fats or fat derivatives you will here referenced in regards to nutrition are Omega 3,6, and 9, Triglycerides, cholesterol, saturated fats, monounsaturated fats, trans fats, and MCT's. Some of these fats are very beneficial to health, wellness, and performance (omega 3's, for example). Others must be monitored to ensure ratios are kept in healthy ranges (omega 6, triglycerides, and cholesterol). Some are compounds we know to have negative health impacts in large amounts (trans fats). There are many considerations when selecting fat sources for a nutritional protocol/diet. Fat has 9 calories/gram.



CARBOHYDRATE

Dietary carbohydrates are carbohydrates present in food, including sugars, starches, cellulose and gums. Carbohydrates serve as a major energy source of animal diets. Dietary sugars come from various natural and non-natural sources, including fruits, honey and corn syrup. All ingested starchy carbohydrates are eventually broken down into glucose. Carbohydrates are tremendous for fueling workouts and recovery, when timed properly. Despite their recent demonization, carbohydrates are a fine part of most diets and can be extremely nourishing. Carbohydrate has 4 calories/gram.

PROTEIN GUIDELINES AND SOURCES



Resistance training has some unique nutritional requirements for optimal performance. Protein plays the chief role. The JISSN recommends 1.4-2.0 grams/kg as a minimum range for protein consumption amongst athletes [1]. In America, you will often hear lifters needing to eat 0.7-1.0 grams of protein to optimize muscle protein synthesis.

This is not to say some people won't do better with more, while others may need less. These are just ranges.

I have found protein to be the most commonly under eaten of the macronutrients amongst most of the general population. Beyond simply building muscle, protein can create satiety and help with fullness for those dieting and looking to lose body fat.

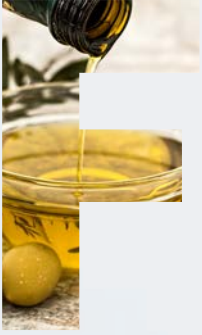
When designing a macronutrient prescription for YOURSELF or a CLIENT, you should ALWAYS start with protein. The range I have had the best luck with 0.8-1.2 grams/lb of bodyweight - lower on the range for heavier individuals is recommended.

For those clients or individuals who are very overweight. I use 0.7-1.0 gram/lb of lean body mass, NOT body weight.

Protein sources I regularly consume/keep around the house are:

- steak/red meat
- ground turkey
- chicken breast
- cold water fish
- eggs
- yogurt products
- whey/vegan protein powder

FAT GUIDELINES AND SOURCES



Fats, or lipids, are vital for maintaining many key systems within the body. Beyond being integral for the health of our brain and cell membranes, they play an integral role in the production of hormones like testosterone and estrogen - to name a few. When designing a diet for optimal gains, protein must be adequate. The remainder of dietary calories can come from a blend of carbohydrates and fats.

When calculating fat, I aim for a range of 20%-70% of total calories. The lower end of this range I have found to be great for people in glycolytic sports. The middle of this range is excellent for people looking to eat a balanced, easy to follow diet. The higher-end range works well for those who are sensitive to high levels of dietary carbohydrate.

I often have clients set the range at around 0.3-05 grams/lb of lean body mass when looking to generate a rough starting place for grams/fat per day.

Fat sources I regularly consume/keep around the house are:

- grass fed butter
- ghee
- olive oil
- nuts
- avocado



CARBOHYDRATE GUIDELINES AND SOURCES



Carbohydrates are vital for recovery and managing the stress of training. They can also improve workout quality by providing energy to perform glycolytic (carbohydrate dependant) work.

Once protein and essential fat have been established, the amount of carbohydrates and additional fat an individual consumes should come down to a few individualized factors:

1. Energy systems used in training (are you an endurance athlete, or a powerlifter?)
2. Recovery needs of the individual.
3. Calorie needs of the individual.
4. Personal preference when it comes to food selection.

Carbohydrates play a vital role in replenishing muscle glycogen (a process known as glycogen repletion). When glycogen stores are full, muscles hold more water and can appear more full. This is why people often complain of looking "flat" when they are low-carb and or dehydrated.

Carbohydrates are usually classified as "complex" or "simple". Complex carbohydrates require more digestive energy to convert to glucose (due to the size of the carbohydrate molecules and their fiber content). Simple carbohydrates or sugars are more easily broken down into sugars than complex carbohydrates.

Most carbohydrates will markedly raise insulin compared to fat. Specific proteins also have a profound ability to raise insulin. While each individual will have a different insulin response to certain foods/carbohydrates, simple carbohydrates will usually spike insulin more so than complex carbohydrates.

Carbohydrate sources i regularly consume/keep around the house are:

- Rices
- Quinoa
- Potatoes
- Whole grain/sprouted grain breads
- Whole grain/sprouted grain cereals
- Oatmeal
- Flax Muffins
- Ponecorn

PROTEIN

Chicken Breast
Lean Fish
Lean Beef
Protein Powders
Egg Whites

beans
yogurt
quinoa

bacon
whole eggs
steak
cheese

nut butters
protein bar
pizza
tacos

french fries
avocados
pastries

Ghee
Olive Oil
Chia Seed
Nuts
Seeds
Coconut Oil
Grass Fed
Butter

Rice
Bread
Potato
Cereal
Fruit
Veggies

CARBOHYDRATES

FAT

FIBER



Fiber can be soluble or insoluble, but most individuals have a harder time getting enough insoluble fiber. Insoluble fiber that is particularly valuable for feeding the important microbes in our gut and maintaining proper digestion and excretion. Getting the right amount of fiber is crucial to long term health, but getting too much can be equally problematic.

Getting the right amount of fiber can help with managing cholesterol and preventing heart disease [2], helping maintain bowel regularity, and long term health of the digestive system [3].

Considering most people simply do not eat enough plant matter as it is, increasing vegetable intake is a great way to kill two birds with one stone - getting both fiber and valuable nutrients found in plants.

The American heart association recommends people get between 25-30 grams of fiber per day. I have found, anecdotally, men need a little more than 25-30, so to make things easy for my clients I shoot for:

Women: 30 grams/day
Men: 35-40 grams/day

When it comes to fiber sources, I like to keep it simple. I keep the following around in house:

- Green Veggies
- Berries
- Beans
- Nuts
- Avocados
- Whole Grains
- Bran Products
- Fiber Supplements

VITAMINS



Vitamins are a group of organic compounds the human body needs in specific amounts to be able to survive. There are 13 essential vitamins. Of the 13, 9 are soluble in water (these are the (8) b Vitamins and Vitamin c) and 4 are soluble in fat (Vitamins A, D, E, and K).

Each Vitamin plays a plethora of roles in the body affecting everything from enzymatic processes to hormone production. A deficiency in any one of these Vitamins can affect performance and wellness. Having too much of any Vitamins can be an issue as well - but this is less common.

Going over each vitamin, the symptoms of deficiencies, and the symptoms of toxicity is highly recommended. But, with respect to the depth of that topic - I will not touch on that in this book.

Just know that it is highly advisable to try to hit AT LEAST the RDI (reference daily intake) for each of the Vitamins listed below. Get them from whole foods if possible, and supplement as needed:

- **Vitamin A (retinol)**
- **Vitamin B1 (thiamin)**
- **Vitamin B2 (riboflavin)**
- **Vitamin B3 (nicotinamide)**
- **Vitamin B5 (pantothenic acid)**
- **Vitamin B6 (pyridoxal phosphate)**
- **Vitamin B7 (biotin)**
- **Vitamin B9 (folic acid)**
- **Vitamin B12 (cobalamin)**
- **Vitamin C (ascorbic acid)**
- **Vitamin D (cholecalciferol)**
- **Vitamin E (alpha tocopherol)**
- **Vitamin K (menadione)**

fat
soluble

water
soluble

MINERALS



Minerals are inorganic substances required by the body in small amounts for proper function. Minerals support the development of things like muscle and bone, are vital for nerve function, and even play a role in things like hormone production and heart health.

There are two primary types of minerals, macrominerals and trace minerals

Macrominerals, as the name implies, are those required by the body in large amounts.

Trace minerals are those required by the body in smaller amounts.

You will hear a lot of numbers floated around as to just how many macrominerals there are. Some sources say 5, some 6, and some 7. I like 7. Here is a list of the ESSENTIAL nutrients (both macrominerals and trace minerals) the body needs.

Macrominerals:

- Calcium
- Sodium
- Phosphorus
- Potassium
- Chlorine
- Sulfur
- Magnesium

Trace Minerals

- Iron
- Zinc
- Chromium
- Cobalt
- Copper
- Fluorine
- Iodine
- Selenium
- Molybdenum

I find it easiest to get minerals into my diet from things like pink salt, nuts, greens, shellfish, and organ meats.

HOW TO CALCULATE YOUR MACROS

If you remember on pages 5,6, and 7, you will recall people have **THREE** primary fitness nutrition goals:

1. Eating to lose fat
2. Eating to gain muscle
3. Eating to perform

We also established that the first goal fat loss requires a calorie deficit. Both goals two and three above, muscle gain and performance, will likely be optimized by remaining in a mild calorie surplus.

This makes things simple.

For almost every single client, you will be working with this framework at some point. When it comes time to make a calorie and macronutrient-based plan of eating for yourself - you must piece together the following things:

1. The TDEE (total daily energy expenditure)
2. The amount of the deficit or surplus.
3. The actual macro breakdown.

Over the course of the next few pages I will share my favorite methods for doing all three of these things.

Before diving into all of that stuff though I would like to remind you a diet is only effective when adhered to. If you are making macronutrient-based dieting protocols for yourself or clients, that's great. All diets will be useless unless adhered to. Habits and discipline are the backbone of all fitness (and dieting) success. Start there.

A NOTE ON TDEE

Before calculating TDEE, I would like to say the following. I have never been 100% accurate in the over 1000 or more times I have done this calculation. Why? Easy - all TDEE is, is an estimate. While the formulas you will read about in a minute are VERY accurate for most people - they are never exact. So, with that being said, be willing to make adjustments based on the feedback you are receiving from your body or your client.

When calculating for total daily energy expenditure (TDEE) we are looking to establish the total calories burned by that individual in a given day, INCLUDING activity. TDEE is NOT BMR (base metabolic rate) or how much the body burns at rest.

TDEE is comprised of FOUR primary things:

1. BMR (base metabolic rate)
2. Exercise expenditure (calories burned from exercise)
3. NEAT (non-exercise activity thermogenesis) [think fidgeting, walking, tapping your foot]
4. Thermic Effect of Food (the energy required to digest food)

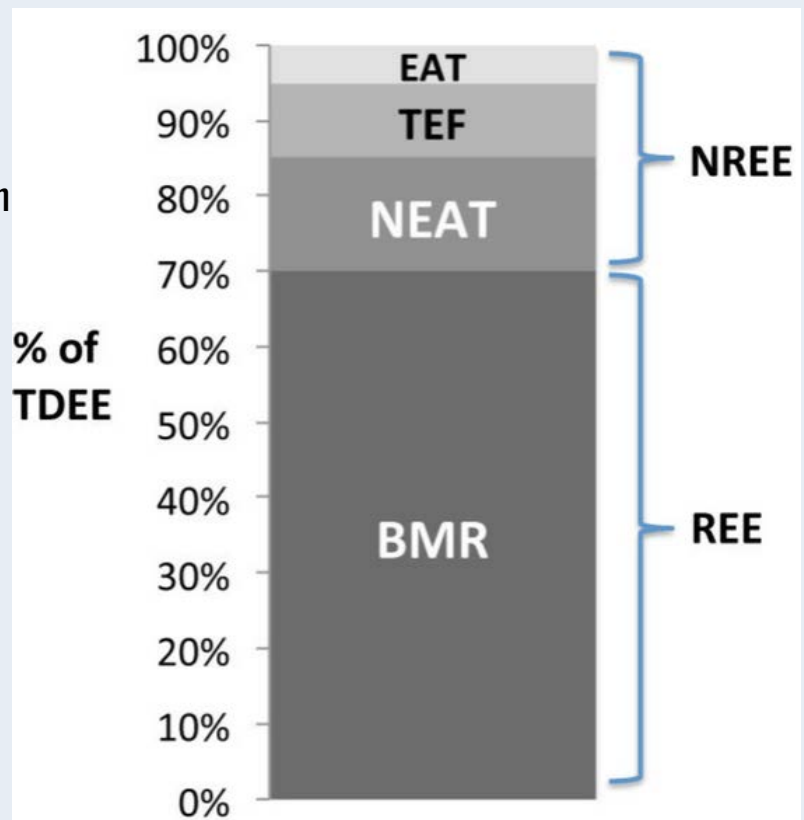


The components that make up TDEE do not vary from person to person. What does change is the actual percentage of TDEE each component comprises. NEAT has the most significant variation [4]. Person to person NEAT differential is a big reason why people appear to have so-called "fast/slow" metabolisms.

TEF does not vary much.

BMR and Exercise expenditure vary a lot depending on the person's size.

These are factors that estimation cannot fully represent with 100% accuracy. This is why it is important to be flexible. That being said, here are the best ways to calculate TDEE with confidence.



CALCULATING TDEE

When calculating TDEE I always use an online calculator to run one of the three formulas for BMR:

- **Mifflin St. Jeor**
- **Harris-Benedict**
- **Katch-McCardle**

These online calculators will calculate **BMR**. They generate the TDEE by taking the newly calculated BMR estimate and multiplying it by an "activity multiplier" - this accounts for **SOME** of the individual variances in the activity. My favorite calculator so far can be found at <https://legionathletics.com/macronutrient-calculator/>. It does the activity multiplier part for you.

So yes, that's right, my **FIRST** stop is an online calculator. At this point I have one estimated TDEE.

THIS IS THE PERSON'S MAINTENANCE CALORIES.

But I do not stop there.

Whether it's another online calculator, the Aragon Method, a simple multiplication method (e.g. BW x12-14 = approximate caloric intake for fat loss), I always double-check. What I am looking for is two numbers that are relatively close. At least close enough to invoke my confidence. Once I have a number I am comfortable with I move on to step two. Creating a change in energy balance.

DEFICIT/SURPLUS

When starting with a client, I often keep them at maintenance for a while. 75% of people who I've worked with are already eating well above that. I'm not a huge fan of drastic change.

Once maintenance has been established, apply a deficit or surplus depending on the client's goals:

- **Fat Loss:** Maintenance Calories (-) 300-500 calories/day.
- **Muscle Gain/Performance:** Maintenance Calories (+) 300-500 calories/day.

You can do more of a deficit or surplus if you like, but I always recommend starting small.

The number you have now is the number you will use to calculate your macros.

CALCULATING MACROS

Before we get started let's talk about the caloric weight of each macro (see page 8 for a refresher).

As stated earlier on page 9, when calculating macros "**ALWAYS START WITH PROTEIN**"

For illustrative purposes, I will talk about this through the lens of a 180-pound lifter looking to make some lean muscle gains. I calculated his **TDEE to be 2700 calories and added a 300 calorie surplus**. He will be aiming for **3000 calories per day**.



For lifters and those looking for fat loss, I will usually set protein somewhere between **0.7-1.0 grams/lb** of bodyweight. So, for a 180-pound lifter, protein intake would be between 126-180 grams/day. If I had this lifter eating 180 grams/protein, that would be **720 calories/day from protein**. I will then subtract 720 from 3000. This leaves him with 2280 calories.



Next we establish **FAT** intake. Fat is an **essential nutrient**. So I need to give the client at least essential levels of fat to survive and not feel terrible. I like **0.3-0.5 grams/lb**. I like to split the difference. For our 180-pound lifter, we will multiply (180 x 0.4). That winds up being 72 grams of fat/day. Fat has 9 calories/gram, so the lifter will eat **648 calories/day from fat**. 2280 - 648 = 1632. 1632 is the number we will use to generate carbohydrate intake.



The last step is easy. **Simply take the remaining calories, 1632 in this case, and divide that number by four** (4 is the number of **calories per gram of carbohydrate**). We are left with 408. The lifter will have 408 grams of carbs to use for training and recovery.

Your last step is to **reverse engineer that entire equation** and make sure it adds up. I do the following (protein in grams + carbs in grams x 4) + (fat in grams x 9) = calorie intake goal. This looks like (180 + 408 x 4) + (72 x 9) = 3000. If all that adds up, you have nailed your macro prescription.

TIPS & TRICKS

FROM THE TRENCHES

Once you have established macros, you have a few options as to how to track them. You can take the total number of each macronutrient and try to divide them evenly across the desired amount of meals that best suits personal preference.

The method I like best is to ensure that the pre and post-training meal includes at least 20 grams of protein and 40 grams of carbs (that's 20 & 40 before AND after), with the rest of the macros being "hit" in a flexible manner as the day goes on.

For clients who prefer a lower carbohydrate approach to dieting, I make a special point to include carbohydrates around training.

If a client likes to train **FASTED** early in the morning, I recommend a higher protein and carbohydrate intake with their final meal to ensure they have high availability of fuel for training.

If protein is hard to hit for a client (which it often is for general populations, individuals), shakes and bars are an option. **BUT**, they should be used as a last resort.

For individuals looking to gain weight, but struggling to hit their calorie total for the day, liquid calories can be a godsend. I recommend nutrient-dense smoothies in this case.

For those who feel hungry dieting on a lower number of calories, I like to implement a strategy to increase the intake of high fiber, high volume green veggies. Vegetables can increase perceived satiety [5].



FLEXIBLE DIETING

Flexible dieting refers to a dieting strategy that touts no foods as being off-limits. For a long time, flexible dieting was also known as "if it fits your macros" or IIFYM for short. The two have become distinctly different over the years with IIFYM becoming its own style of eating altogether.

Flexible dieting champions the power of choice and freedom. Common flexible dieting guidelines follow the 80/20 rule. This is to say that 80% of one's calories should be sourced from whole, minimally processed, nutrient-dense foods, and the remaining 20% can come from any food the consumer likes - so long as calories and macro targets are respected.

In contrast, IIFYM largely champions simply hitting macronutrient targets regardless of where those macros come from. It is for these reasons I prefer flexible dieting although the nuts and bolts are mostly identical.

Advocates of flexible dieting often report:

- Better dietary adherence due to not feeling deprived.
- Increased participation in social events due to lack of extreme dietary rigidity.
- Increased enjoyment of food preparation due to unlimited food selection criteria.
- Lack of bingeing due to not having to truly say "no" to any one food or group of foods.

It is for these reasons when I work with clients on dieting this is the **ONLY** strategy I recommend. It is not the only strategy I use, but it is my preference to start here and work toward a more intuitive approach to eating.





SUPPLEMENTS

Supplements are a huge part of the fitness industry. The two are inextricably linked. As of 2016, supplements represented a whopping 120+ billion dollar industry. To put this in perspective, in the same year, the health club industry was valued at only 80 billion. In my opinion, 85-90% of supplements are unnecessary. Those that I have found to be truly worth taking and that are supported by both scientific data and reputable anecdotes are listed below:

- Vitamin D3 *
- Creatine Monohydrate*
- EPA/DHA (fish oil)*
- Protein Supplements or Essential Amino Acid Supplements*
- Caffeine*
- Magnesium*
- Vitamin C*
- Highly Branched Cyclic Dextrin (intra-workout carbohydrate)*
- Ashwaghandha*
- Beta Alanine*

*Dosages will vary based on individual's goals and nutritional needs.

DISCLAIMER

Any and all documents included or exchanged between Daniel Matranga and the Client/Recipient are the intellectual property of Coach Danny Matranga LLC and are not to be copied, sold, published, posted, or redistributed either in part or in full without expressed written consent. Any violations of this will be prosecuted to the fullest extent of the law. Daniel Matranga is not a doctor or registered dietitian. The contents of this document should not be taken as medical advice. It is not intended to diagnose, treat, cure, or prevent any health problem - nor is it intended to replace the advice of a physician or medical specialist. Always consult your physician or qualified health professional on any matters regarding your health. Use of the information in this program is strictly at your own risk. Daniel Matranga and or Coach Danny Matranga LLC will not assume any liability for any direct or indirect losses or damages that may result, including, but not limited to, economic loss, injury, illness, or death.



Thank you for taking the time to read the ideas inside this E-Book and I wish you the best in your fitness endeavors. Sincerely, Coach
Danny Matranga, CSCS

WORKS CITED

1. Jäger1, Ralf, et al. "International Society of Sports Nutrition Position Stand: Protein and Exercise." *Journal of the International Society of Sports Nutrition*, BioMed Central, 20 June 2017, jissn.biomedcentral.com/articles/10.1186/s12970-017-0177-8#Sec33.
2. Zhou, Quan, et al. "Beneficial Effect of Higher Dietary Fiber Intake on Plasma HDL-C and TC/HDL-C Ratio among Chinese Rural-to-Urban Migrant Workers." *International Journal of Environmental Research and Public Health*, MDPI, 29 Apr. 2015, www.ncbi.nlm.nih.gov/pmc/articles/PMC4454936/.
3. Harvard Health Publishing. "Rethinking Fiber and Hydration Can Lead to Better Colon Health." Harvard Health, www.health.harvard.edu/diseases-and-conditions/rethinking-fiber-and-hydration-can-lead-to-better-colon-health.
4. von Loeffelholz C, Birkenfeld A. The Role of Non-exercise Activity Thermogenesis in Human Obesity. [Updated 2018 Apr 9]. In: Feingold KR, Anawalt B, Boyce A, et al., editors. *Endotext* [Internet]. South Dartmouth (MA): MDText.com, Inc.; 2000-. Available from: <https://www.ncbi.nlm.nih.gov/books/NBK279077/>
5. Houchins, J A, et al. "Effects of Fruit and Vegetable, Consumed in Solid vs Beverage Forms, on Acute and Chronic Appetitive Responses in Lean and Obese Adults." *International Journal of Obesity* (2005), U.S. National Library of Medicine, Aug. 2013, www.ncbi.nlm.nih.gov/pmc/articles/PMC3582731/.