

Welcome To The Course: What You Will Learn

Part 1: Introduction

Course structure explained

Lesson overview

What you will learn

Part 2: Fundamentals (Recap)

Calories and bodyweight

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Macronutrients (protein, fat and carbohydrates): how much of each

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Meal timing and meal frequency: when and how often we should eat

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Calories and bodyweight

Macronutrients (protein, fat and carbohydrates): how much of each

Meal timing and meal frequency: when and how often we should eat

Foods: the best sources of protein, fat and carbohydrates

Part 3: Advanced Dieting

The different TDEE formulas

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Basal metabolic rate and how to calculate it

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How is food turned into energy: glycolysis, lipolysis and gluconeogenesis

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Basal metabolic rate and how to calculate it

How is food turned into energy: glycolysis, lipolysis and gluconeogenesis

The building blocks of nutrients: amino acids, glucose and glycogen, essential fatty acids

Part 4: Advanced Fat Loss

The different phases of a diet: preparation phase, dieting phase, recovery phase and transition phase

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Refeeds and reverse dieting

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Crash diets - can they break your metabolism?

Part 5: Advanced Muscle Growth

The different muscle growth factors

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Bulking diets: the dirty bulk, the regular bulk and the lean bulk

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Bulking diets: the dirty bulk, the regular bulk and the lean bulk

Intra workout carbs: should consume carbs during your workout?

Part 6: Diets Explained

Famous diets explained

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Famous diets explained

Niche diets explained: the blood type diet, the metabolic diet, the carb cycling approach

Part 7: Avoiding Common Diseases

How to improve acid reflux and constipation

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What to eat to avoid diabetes & leaky gut syndrome

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What to eat to avoid diabetes & leaky gut syndrome

Causes, symptoms and cures

Part 8: Dieting FAQs

Are grains good or bad?

Is organic food healthier than normal food?

Should you separate protein and carbs?

Is fructose bad for you?

Let's Get Started ;-)

Nutrition Priorities

Nutrition Priorities

- 1.) Calories
- 2.) Macronutrients
- 3.) Meal Timing
- 4.) Foods
- 5.) Supplements

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Calories Summary

***A Calorie is the amount of energy
needed to raise the temperature of
1 liter of water by 1 degree Celsius***

Calories

Large Calories

Also known as food calories or kilocalories (usually spelled with an uppercase C)

→ what you will find on food labels

Small calories

The calories most researchers use

→ 1 large calorie = 1000 small calories

Calorie Balances

Negative Calorie Balance

Calorie Balances

Negative Calorie Balance

Neutral Calorie Balance

Calorie Balances

Negative Calorie Balance

Neutral Calorie Balance

Positive Calorie Balance

Macronutrient Summary

Protein

Protein makes all life possible

Made up of amino acids, which provide the structure for tissue

1 gram = 4 calories

Dietary Fats

Essential for hormone production, brain function and other body processes

Main categories: saturated, unsaturated, or trans fats

1 gram = 9 calories

Carbohydrates

Source of energy for our body and muscles (esp. during high intensity activity)

Non-essential → you could survive without carbs

1 gram = 4 calories

The Roles Of Protein In The Body

Repairing body tissue (muscle tissue, ligaments, organs, bones, hair & skin)

Supporting the immune system

Causing biochemical reactions like digestion, energy production & blood clotting

Creating hormones that act as chemical messengers

Ideal Daily Protein Intake

General health: 0.4 - 0.5 g/lbs bodyweight (0.88 - 1.1 g/kg)

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General health: 0.4 - 0.5 g/lbs bodyweight (0.88 - 1.1 g/kg)

Muscle growth: 0.8 - 1 g/lbs bodyweight (1.75 - 2.2 g/kg)

Fat loss: same as for muscle growth

The Roles Of Fat In The Body

Fat is an essential macronutrient → body needs some fatty acids to survive

Necessary for hormone production

Keeps your skin and hair healthy

Helps absorb vitamins A, D, E, and K (fat-soluble vitamins)

Insulates your body and keeps you warm

Types of Fat

Two main types: saturated and unsaturated fats

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Unsaturated fats lower your LDL cholesterol level

→ **Mono-unsaturated fats (olive and canola oil)**

→ **Polyunsaturated fats (safflower, sunflower, corn, soy oil)**

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Trans fats: form when vegetable oil is infused with hydrogen → avoid

Ideal Daily Fat Intake

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It can make sense to increase fat intake when bulking

Carbohydrates

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→ sugar molecules that are a union of carbon, hydrogen, and oxygen (CHO)

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Any glucose not used is stored in your liver and muscles as glycogen or as fat

Types of Carbs

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Types of Carbs

3 types of carbohydrates:

- 1) Monosaccharide – one sugar molecule (simple)
- 2) Disaccharide – two sugar molecules (simple)
- 3) Polysaccharide – several sugar molecules (complex)**

Glycemic Index

= measures the speed with which carbohydrates are converted to glucose

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Foods that digest quickly are higher on the index and foods that digest slowly are lower on the index

Glycemic Index

Low GI Foods (55 or less): Oatmeal, Sweet potato, corn, beans, peas, legumes and lentils, Most fruits and non-starchy vegetables

Medium GI (56-69): Whole wheat, rye and pita bread, Quick oats, rice, couscous

High GI (70 or more): White bread or bagel, Corn flakes, puffed rice, bran flakes, instant oatmeal, Russet potato, pumpkin, popcorn, melons and pineapple

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Simple rule: If you are eating whole, unprocessed carbs, consider them a good, but if the carb has been processed it's a "bad" carb.

Do Bad Carbs Make You Fat?

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As long as you include quality carbs in your diet you will be fine

Ideal Daily Carb Intake

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Optimal intake depends on a variety of factors → we estimate it using your bodyweight and training intensity

Ideal Daily Carb Intake

Light Workouts	1 - 1.25g per lb
Moderate Workouts	1.25 - 1.5g per lb
Hard Workouts	1.5 - 1.75g per lb

Light workouts: 30 minutes or less or less than 10 working sets

Moderate workouts: between 30 and 60 minutes or more than 10 working sets

Hard workouts: anything more intense than moderate workouts

Meal Timing Summary

When & How Often To Eat Protein

Old advice → eat 6 meals throughout the day to avoid muscle breakdown

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Goal: create a continual supply of amino acids into the bloodstream

→ what matters is protein digestion

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Today we know that this is unnecessary and don't have to eat every 3 hours

Goal: create a continual supply of amino acids into the bloodstream

→ what matters is protein digestion

Factors that influence protein digestion:

1) protein type, 2) meal size, 3) fat & fiber

When & How Often To Eat Carbs

Meal frequency doesn't really matter when it comes to carbs

→ stick to whatever fits best into your routine

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This allows you to lift more weight and refill glycogen stores afterwards

When & How Often To Eat Fat

Avoid large amounts of fats is right before your workout

→ fat slows down the digestion of carbs and proteins

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You can use fat to time meals over long intervals

Pre- & Post-Workout Meals

Eat a good amount of carbs and protein before and after your workout

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Recommendation:

0.2 – 0.25 g/lbs (for both carbs and protein) before your workout and the same amount after your workout

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Around 3 to 4 hours in between the pre and post workout meals

Sample Meals

Up to 1 hour before workout:

- Oatmeal with whey protein
- Large chicken sandwich with whole grain bread
- 2 or more hard-boiled eggs on an avocado toast
- Whole grain pasta with some sort of protein

Sample Meals

Snacks 30min or less before your workout:

- Banana with whey protein shake
- Protein bar

Food Sources Summary

Protein Sources Ranked

Whey Protein

Eggs

Meats

Poultry

Fish and Seafood

Soy Protein and Quinoa

Combined Plant Sources

Plant Sources

Protein Quality

Bioavailability: percentage of the protein that is actually absorbed into the bloodstream

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→ **in general, protein quality ranks from animal sources to plant sources (but the differences are small)**

Supplement Summary

Recommended Fitness Supplements

1. Protein Powder

→ max. 30% – 50% of your daily protein intake

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2. Creatine

→ 3 – 5 grams per day

Recommended Health Supplements

1. Vitamin D

→ 1,000 to 2,000 IU per day

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2. Omega 3 fatty acids

→ 1 – 3 grams per day

Recommended Immunity Supplements

1. Zinc

→ 10mg per day

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→ 10mg per day

2. Astragalus

→ 1300 mg of astragalus root extract per day

Meal Planning Summary

Example

Measurements: 25 years, 6" (182 cm), 160 lbs (72.5 kg)

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TDEE: 2100 - 2300

Calories for muscle growth: 2500 - 2750

Calories for fat loss: 1700 - 1900

Macronutrients

Protein: 0.8 – 1 gram per pound of body weight

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Carbs: remaining calories

Calculations

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Daily carbs: $2500 - 512 - 625 = 1363$ calories = 340 grams (→ 1 gram of carbs has 4 calories)

Diet Set Up

Daily calories: 2500

Daily protein: 128g

Daily fat: 70 g

Daily carbs: 340 g

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Daily protein: 128g

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→ **start with these values and then play around with carbs and fat to figure out your ideal intake**

Finding The Right Foods

Calorie and macronutrient values → scan your food with myfitnesspal

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Come up with 2 to 5 meals that you plan throughout the day

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Optional: add supplements

The Different TDEE Formulas

The 3 Formulas

The Harris-Benedict formula

The Mifflin-St Jeor formula

The Katch-McArdle formula (requires body fat percentage)

How They Work

Step 1: Calculate Basal Metabolic Rate (BMR)

Step 2: Add a certain number of calories on top, depending on exercise

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20% of calories for physical activity

10% for digestion of food (aka thermogenesis)

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→ **Unless you know your body fat percentage, use the Mifflin-St Jeor formula**

How To Quickly Estimate TDEE

For active men: multiply your weight in pounds by 14 or 15

For inactive men: multiply your weight in pounds by 13

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For inactive men: multiply your weight in pounds by 13

For active women: multiply your weight in pounds by 11 or 12

For inactive women: multiply your weight in pounds by 10

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Example: active man weighs 180 pounds

→ 180×14 and 180×15 = TDEE between 2520 and 2700 calories

Harris-Benedict Equation

BMR:

For men: $BMR = 66.5 + (13.75 \times \text{weight in kg}) + (5.003 \times \text{height in cm}) - (6.775 \times \text{age in years})$

For women: $BMR = 655.1 + (9.563 \times \text{weight in kg}) + (1.85 \times \text{height in cm}) - (4.676 \times \text{age in years})$

Mifflin-St Jeor Equation

BMR:

For men: $\text{BMR} = 10 \times \text{weight (kg)} + 6.25 \times \text{height (cm)} - 5 \times \text{age (years)} + 5$

For women: $\text{BMR} = 10 \times \text{weight (kg)} + 6.25 \times \text{height (cm)} - 5 \times \text{age (years)} - 161$

Katch-McArdle Equation

For Men & Women:

$$\text{BMR} = 21.6 * \text{Fat Free Mass} + 370$$

Where Fat Free Mass = Weight – (Body Fat Percentage * Weight)

Activity Multiplier

Sedentary (little or no exercise): $TDEE = BMR \times 1.2$

Lightly active (exercise 1-3 days/week): $TDEE = BMR \times 1.375$

Moderately active (exercise 3-5 days/week): $TDEE = BMR \times 1.55$

Very active (exercise 6-7 days a week): $TDEE = BMR \times 1.725$

The Factors That Influence Your TDEE

4 Most Important Variables

BMR: Basal Metabolic Rate (70% of total calories burned per day)

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BMR: Basal Metabolic Rate (70% of total calories burned per day)

EAT: Exercise Activity Thermogenesis (5% of total calories burned per day)

NEAT: Non Exercise Activity Thermogenesis (10 to 15% of total calories burned per day)

TEF: Thermic Effect of Food (10% of total calories burned per day)

How To Optimize EAT

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 - **Find something you enjoy and can stick to for the long term**
- (I recommend 3x/week resistance training & 1-2x/week cardio)**

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How To Optimize NEAT

Stick to your daily routine even when dieting

→ avoid unconsciously reducing your physical activity

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Optional: Add more physical activity to your daily life

How To Optimize TEF

TEF makes up 10% of calories burned → but it differs between macronutrients

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Protein: 20% - 30%

Carbs: 5% - 15%

Dietary fat: 5% - 10%

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Protein: 20% - 30%

Carbs: 5% - 15%

Dietary fat: 5% - 10%

→ **But don't just eat protein**

Protein

Protein Overview

Main function: building & repairing tissue

Potential energy: 4 calories per gram

Ideal intake for general health: 0.4 - 0.5 g/lbs of bodyweight

Ideal intake for muscle growth & fat loss: 0.8 - 1 g/lbs of bodyweight

Ranked by: bioavailability & amino acid profile

Mouth

When you chew your food well you leave more surface area for digestion

This makes it easier for your GI tract to absorb nutrients

Stomach

Food lands here after you have swallowed it

Will be mixed with stomach acids to kill bacteria

Hydrochloric acid and pepsin will break the central peptide bonds in proteins

→ protein is divided into smaller molecules called peptides

Small Intestine

Bicarbonate buffer neutralizes acidic stomach acids

Pancreas releases more digestive enzymes into small intestine so the peptides can be further broken down

Hydrolysis: A water molecule is placed between two amino acids, which in turn breaks their bond

Amino acids are then absorbed by the small intestine and carried to bloodstream

Amino Acids

Categories

Single amino acids

Peptide: chain of 2 to 50 amino acids

Protein: chain of more than 50 amino acids

Amino Acid Groups

Essential (can't synthesized & must come from food): histidine, isoleucine, leucine, lysine, methionine, phenylalanine, threonine, tryptophan, valine

Nonessential (can be synthesized): alanine, asparagine, aspartic acid, glutamic acid

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Conditional (only essential in times of illness and stress): arginine, cysteine, glutamine, tyrosine, glycine, ornithine, proline, serine

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Branched Chain Amino Acids (BCAAs): leucine, valine, and isoleucine

Amino Acids & Plant Based Foods

Lysine: quinoa, black beans, soy

Tryptophan: spinach, asparagus, almonds

Methionine: avocado, oats

Phenylalanine: lima beans, peanuts, pumpkin seeds

Protein & Energy Metabolism

Gluconeogenesis =
“the making” (genesis)
“of new” (neo)
“sugar” (gluco)

Carbohydrates

Carbs Overview

Main function: energy for high intensive activity

Potential energy: 4 calories per gram

No minimum intake for general health

- Light Workouts: 1 - 1.25 g/lbs of bodyweight
- Moderate Workouts: 1.25 - 1.5 g/lbs of bodyweight
- Hard Workouts: 1.5 - 1.75 g/lbs of bodyweight

Carbohydrate Types

Monosaccharide: one sugar molecule (e.g. glucose or fructose in fruit)

Disaccharide: two sugar molecules (e.g. table sugar)

Polysaccharide: multiple sugar molecules (e.g. pasta, potatoes or rice)

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→ **Mono- & Disaccharides are simple sugars and Polysaccharides are complex sugars**

Mouth

Digestion always starts here

Enzymes in saliva start breaking down sugars in carbohydrates

Stomach

Food lands here after you have swallowed it

Will be mixed with stomach acids to kill bacteria

Then it will be passed onto the small intestine

Small Intestine

Small intestine releases enzymes to break down sugars into monosaccharides (= single sugars)

Once broken down into single molecule sugars, carbs are absorbed along the upper and lower parts of small intestine

Villi absorb carbohydrates and send them to the bloodstream

Colon

Anything that hasn't been fully digested is broken down by bacteria

After it passes the colon and is then eliminated with your stools

Glucose & Glycogen

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Glucose is the simple sugar that most carbohydrates are broken down into

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The body cannot use most carbohydrate foods in their normal state

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100g stored in the liver and 400g in the muscles → enough for 90 minutes of endurance exercise

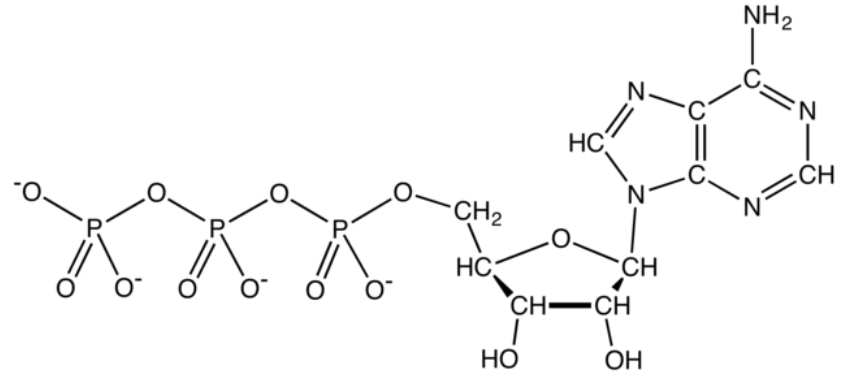
Aerobic & Anaerobic Glycolysis

Adenosine Triphosphate (ATP)

Primary energy molecule

When muscles contract cells break down ATP which releases energy

→ Problem: Cells can only store enough ATP to fuel a few seconds of maximal contraction

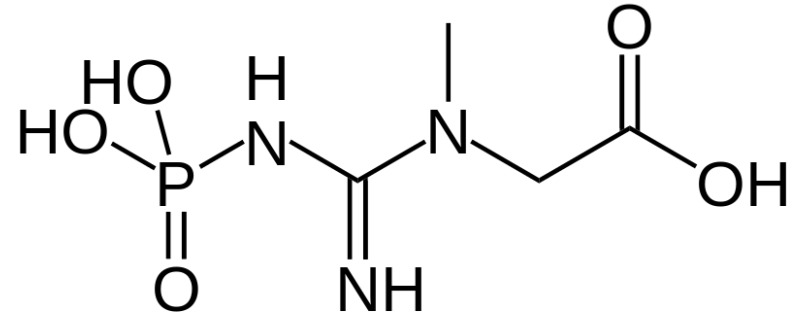


Creatine Phosphate

In short term more ATP can be synthesized by breaking down creatine phosphate

Creatine phosphate serves as rapid energy reserve

When you supplement creatine you saturate creatine phosphate stores



Aerobic vs Anaerobic Energy Metabolism

Even with full creatine phosphate stores you can only perform maximal contractions for 10 - 15 sec

For anything longer than 15 sec the body needs to find other fuel sources

→ aerobically (“with air”) vs anaerobically (“without air”) energy metabolism

Aerobic vs Anaerobic Glycolysis

Aerobic Glycolysis

Glucose → pyruvate → ATP

Highly efficient: 1 glucose molecule → 32 ATP molecules

Problem: slower and requires oxygen

Aerobic vs Anaerobic Glycolysis

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Problem: slower and requires oxygen

Anaerobic Glycolysis

Does not require oxygen → energy can be released a lot faster

Faster but less efficient: 1 glucose molecule → 2 - 3 ATP molecules

Dietary Fat

Fat Overview

Main function: energy, hormone production & vitamin absorption

Potential energy: 9 calories per gram

Minimum for general health: around 0.3 grams per pound of fat-free mass

→ 15 to 20% of daily calories for most people

Fat Overview

= Chain of carbon atoms that are linked to hydrogen atoms

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Saturated fats: all hydrogen atoms are linked to carbon atoms (solid at room temperature)

Unsaturated fats: not all hydrogen atoms are linked to carbon atoms (liquid at room temperature)

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= Chain of carbon atoms that are linked to hydrogen atoms

Saturated fats: all hydrogen atoms are linked to carbon atoms (solid at room temperature)

Unsaturated fats: not all hydrogen atoms are linked to carbon atoms (liquid at room temperature)

Monounsaturated fats: one unsaturated chemical bond

Polyunsaturated fats: more than one unsaturated chemical bond

Mouth

Breaks down food and mixes it with saliva

Traces of lipase can be found in your saliva

After you swallow the food, it reaches your stomach and will be mixed with stomach acids to kill bacteria

Small Intestine

When chyme enters the small intestine, the pancreas secretes more lipase

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Fat molecules are hydrophobic → they don't dissolve in water

Bile molecules binds to water and to fat → prevent the fat from sticking together

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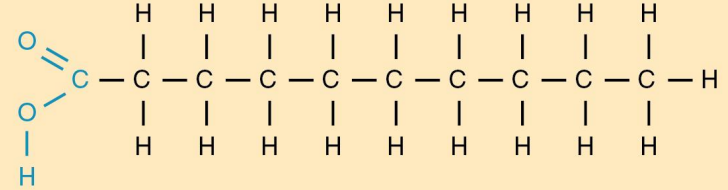
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Omega 3, Omega 6 & Essential Fatty Acids

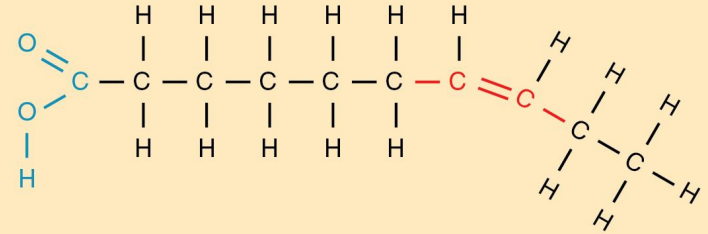
Fatty Acids

Consist of a chain of carbon atoms,
with hydrogen atoms attached to it

(a) Saturated



(b) Unsaturated

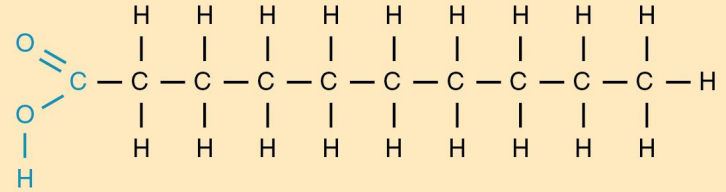


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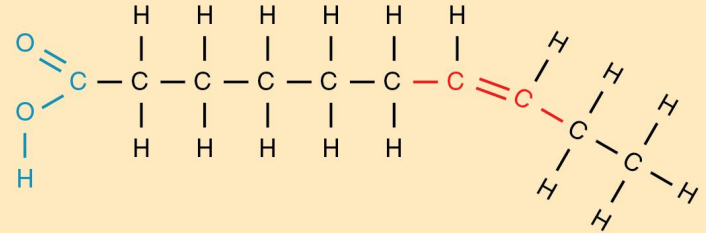
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Saturated fatty acids: contain maximum number of hydrogen atoms (all bonds are “saturated”)

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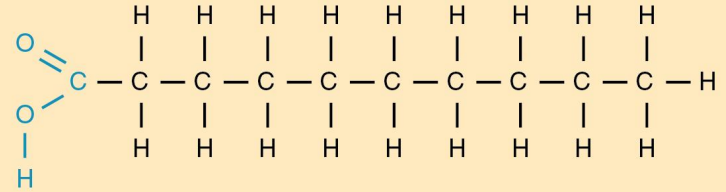
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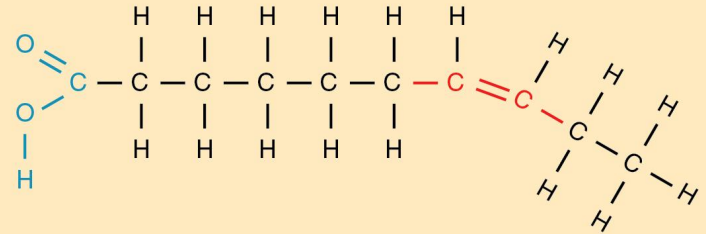
Saturated fatty acids: contain maximum number of hydrogen atoms (all bonds are “saturated”)

Unsaturated fatty acids: some of the hydrogen atoms are missing (some bonds are “unsaturated”)

(a) Saturated



(b) Unsaturated



Essential Fatty Acids

Cannot be synthesized by human body

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Unsaturated fatty acids → Polyunsaturated fatty acids → Essential fatty acids

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Two types: omega-3 and omega-6 fatty acids

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Two types: omega-3 and omega-6 fatty acids

Omega refers to placement of double bond in the fatty acid molecule

Omega-3: first double bond placed 3 carbon atoms away from omega end

Omega-6: first double bond placed 6 carbon atoms away from omega end

Omega 3 Fatty Acids

EPA (Eicosapentaenoic Acid)

DHA (Docosahexaenoic Acid)

ALA (Alpha-linolenic Acid)

Omega 3 Fatty Acids

DHA (Docosahexaenoic Acid)

22-carbon-long omega-3 fatty acid

Found in fatty fish, seafood and fish oil

Serves as a structural component in cell membranes

Support development of the nervous system

Omega 3 Fatty Acids

ALA (Alpha-linolenic Acid)

18-carbon-long omega-3 fatty acid.

Found in flax seeds, chia seeds, walnuts and respective oils

Mainly an energy source

Can be converted into EPA and DHA → but process is highly inefficient

Only 5% to 10% of ALA gets converted into EPA and 0.5% into DHA

Omega 6 Fatty Acids

Most common omega-6 fat is linoleic acid → can be converted into arachidonic acid (ARA)

Promotes inflammation → necessary for wound healing process

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Promotes inflammation → necessary for wound healing process

Modern western diet contains more inflammatory promotion omega-6 fatty acids than necessary

Ideal omega 3 to omega 6 ratio unclear → but most people consume too many omega 6 fatty acids

Fish Oil Supplements

Reduction of triglyceride levels

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Early studies showed that fish oil helps maintain a healthy heart → recent studies did not confirm this

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Recommended intake

Heart health: 1 gram/day

Soreness: up to 6 grams/day

Dietary Fat & Energy Metabolism

Fat & Energy Metabolism

Lipolysis: process by which fats are broken down for energy

Body signals fat cells to separate free fatty acids and glycerol and release them into your bloodstream

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How do fatty acids get turned into energy?

→ **Beta oxidation helps create Adenosine triphosphate (ATP)**

Alcohol: The 4th Macronutrient

Calorie Values

Carb = 4 calories per gram

Protein = 4 calories per gram

Alcohol = 7 calories per gram

Fat = 9 calories per gram

Alcohol

Weekly dosage:

98 grams (7 drinks) for women and 196 grams (14 drinks) for men

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Dosages over 1g/kg bodyweight are linked to negative side effects

Stick to 2 to 3 drinks in one night

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Dosages over 1g/kg bodyweight are linked to negative side effects

Stick to 2 to 3 drinks in one night

It takes about 1 hour to break down 10g of alcohol

Common Drinks

Type Of Drink	Alcohol Content	Time To Break Down
White Wine (150ml)	17g	1 hour 41 min
Red Wine (150ml)	18g	1 hour 47 min
Beer (schooner)	23g	2 hour 19 min
Vodka (30ml)	9g	53 min
Whiskey (30ml)	10g	1 hour

Lose Fat Or Build Muscle: What To Do First?

Who Should Bulk First?

Men: below 15 % body fat (12% or lower would be even better)

Women: below 23% body fat

Who Should Bulk First?

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→ the lower your current body fat percentage, the more fat you can gain and still look good

Examples



Who Should Cut First?

Men: above 15 % body fat

Women: above 23% body fat

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Men: above 15 % body fat

Women: above 23% body fat

- **once you have reached the bulking range you can switch to a calorie surplus**
- **always do resistance training during your cut**

The Different Phases Of A Diet

The Different Phases

Preparation phase

Dieting phase

Maintenance and recovery phase

Optional: The transition phase

Preparation Phase

Make sure you are:

At maintenance level calories or above

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Fully recovered from the training you're already doing

Preparation Phase

Make sure you are:

At maintenance level calories or above

Fully recovered from the training you're already doing

Currently doing less than the most you can do

Dieting Phase

Mini cut:

- 2 - 6 weeks of cutting at a very drastic calorie deficit
- only recommended for people with a lot of diet experience

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Normal diet:

- **8 - 16 weeks of cutting 20% below your TDEE**
- **allows you to lose around 1 pound per week**
- **ideal for most people**

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- 2 - 6 weeks of cutting at a very drastic calorie deficit
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- 8 - 16 weeks of cutting 20% below your TDEE
- allows you to lose around 1 pound per week
- ideal for most people

Slow cut:

- **16-24 weeks of cutting 10% to 15% below your TDEE**
- **for people who don't want to make big changes to their lifestyle**

Maintenance Phase

Helps avoid rebounding to your old weight

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Slowly increase calories until you reach your new maintenance level

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Brings hormones back to normal levels (esp. cortisol)

Settling Point Theory Explained

Minnesota Starvation Study

Volunteers were put on a very low calorie diet while being quite active

→ they reached body fat percentages of about 5%

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Volunteers were put on a very low calorie diet while being quite active

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Observations:

- Obsession with food
- After study many ate themselves beyond their initial body fat level

Implications Of Settling Point Theory

Sustainable lifestyle changes will increase your chances of success

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Set realistic goals

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Set realistic goals

Stick to a moderate calorie deficit instead of crash dieting

Reverse Dieting Explained

Example

End of diet: 2000 calories per day

Example

End of diet: 2000 calories per day

Start reverse diet: 2150 calories per day

1 week later: 2300 calories per day

2 weeks later: 2450 calories per day

Example

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Start reverse diet: 2150 calories per day

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And so on until you reach your maintenance level

→ keep in mind that your new TDEE is lower than old TDEE

Macronutrients During Refeed

Raise either carbs, fats or a combination of the two

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Then add fat until total fat intake is 20 to 25% of daily calories

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Then add fat until total fat intake is 20 to 25% of daily calories

After that simply add more carbs until you reach your TDEE

Refeeds Explained

Refeed Benefits

Regulates your hunger and therefore reduces your risk of binge eating

Increases your energy and motivation because of the added calories

Increases leptin levels

How Often To Do A Refeed

Every Week: <10% body fat (guys) or <20% (girls) and/or dieting for months

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Every Week: <10% body fat (guys) or <20% (girls) and/or dieting for months

Every 2 Weeks: >10% body fat (guys) or >20% (girls) and/or just started dieting

Refeed Protocol

Calorie limit: $\frac{1}{3}$ higher than normal calorie intake

→ example: dieting at 1800 calories → 2400 calories for refeed day

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Macronutrients:

Protein: keep the same (0.8 to 1 g/lbs)

Fat: around 20% of daily calories

Carbs: all the remaining calories

Best Strategies & Supplements To Reduce Hunger

Caffeine Protocol

3x per week (workout days): 2 - 5 mg per kg

3x per week (work days): 1 - 2 mg per kg

1x per week (rest day): 0 mg

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→ if you have never taken caffeine before start with a lower dose

→ **take caffeine with l-theanine**

5-Hydroxytryptophan (5-HTP)

Can help increase feelings of fullness

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→ hunger reducing effects work especially well for carbohydrate cravings

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Consume 250 - 300 mg, 30 minutes prior to a meal

The Different Stages Of Fitness Transformations

Two Unrealistic Mindsets

Overly optimistic: wants “the secret” to getting fit quickly

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Overly optimistic: wants “the secret” to getting fit quickly

Overly pessimistic: wants to lose just a bit of weight but worries that you have to give up everything

„Building a slightly above average physique is easy but building an amazing physique is hard.“

Stage 1: Untrained

Body fat percentage: above 20% (men), above 30% (women)

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Pro:

- Requires no effort

Stage 1: Untrained

Body fat percentage: above 20% (men), above 30% (women)

Pro:

- Requires no effort

Con:

- Poor health
- Low energy and strength
- Lower life expectancy

Stage 2: Beginner

Body fat percentage: 15% - 20% (men), 25% - 30% (women)

Stage 2: Beginner

Body fat percentage: 15% - 20% (men), 25% - 30% (women)

Pro:

- More energy
- Better sleep
- Motivation

Con:

- No experience

Stage 3: Intermediate

Body fat percentage: 10% - 15% (men), 20% - 25% (women)

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Body fat percentage: 10% - 15% (men), 20% - 25% (women)

Pro:

- Better health markers
- Look fitter and stronger
- Gained training and dieting experience

Stage 3: Intermediate

Body fat percentage: 10% - 15% (men), 20% - 25% (women)

Pro:

- Better health markers
- Look fitter and stronger
- Gained training and dieting experience

Con:

- **Progress slows down**
- **Can't always eat junk food at social situations**

Stage 4: Advanced

Body fat percentage: <10% (men), <20% (women)

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Pro:

- **Feel pride about your achievements**

Stage 4: Advanced

Body fat percentage: <10% (men), <20% (women)

Pro:

- Feel pride about your achievements

Con:

- Easy to become obsessed with looks
- A lot of time required to meal prep and train
- Less time for friends and family

PSME: The Science-Based Crash Diet That Works

Protein Sparing Modified Fast (PSMF)

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Goal: maintain muscle mass while losing fat as fast as possible

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Two phases: intensive phase (4 - 6 months) & refeeding phase (6-8 weeks)

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Goal: maintain muscle mass while losing fat as fast as possible

Invented in the 70s to help extremely obese patients

Two phases: intensive phase (4 - 6 months) & refeeding phase (6-8 weeks)

If you use it as a lifestyle diet, you will only follow it for a few days (max 2 weeks)

Foods That Aren't Allowed

High-calorie vegetables (avocados, beans, potatoes , tomatoes, carrots)

Fruits

Nuts, seeds, or chocolate

Juice or other calorie-containing beverages

Grains, cereals, or other high-carb foods

Fast food or sweets

Added oils

Guidelines

No cheat meals

Total daily calories: 30% of your maintenance level

→ example: you normally eat 2,500 calories → 750 calories during PSMF

Eat mostly lean protein (chicken breast, lean beef)

100 calories of low calorie veggies (zucchini, squash, broccoli, leafy greens)

Guidelines

Over 15% (men) or 25% (women) body fat

This shouldn't be your first diet

No history of yo-yo dieting, eating disorders or binge eating

How To Implement A PSME

Step 1: Eat 1 - 2 grams of protein per pound of lean body mass
→ you need an estimate of your current body fat level

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→ you need an estimate of your current body fat level

Protein per lbs/lean body mass	Body fat % (men)	Body fat % (women)
2g	<15%	<25%
1.5g	16% - 25%	25% - 35%
1g	>25%	>35%

How To Implement A PSME

Example:

220-pound man (20% body fat → 1.5 g/lbs per lbm)

$220 \times 0.8 = 176$ pounds of lean body mass

$176 \times 1.5 = \mathbf{264}$ grams of protein per day

How To Implement A PSME

Step 2: Eat 100 calories of low-calorie vegetables

Good options: Zucchini, Broccoli, Cauliflower, Squash, Leafy greens, Kale, Collard greens, Asparagus, Cabbage, Pickles, Cucumbers

Can You Break Your Metabolism?

Starvation Mode & Metabolic Damage

Starvation Studies & Metabolism

Adaptive thermogenesis happens slowly and over weeks or months

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Minnesota starvation study → metabolic rates dropped by 40%

Starvation Studies & Metabolism

Adaptive thermogenesis happens slowly and over weeks or months

Minnesota starvation study → metabolic rates dropped by 40%

Once participants went back to maintenance, their metabolisms sped up again

How To Get Six Pack Abs: Step-By-Step

Step 1: Reduce Belly Fat

Smart and consistent calorie deficit

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Smart and consistent calorie deficit

→ **20% - 25% below TDEE**

→ **around 1 pound per week of fat loss**

Step 2: Optimize Macronutrients

Protein: 0.8 - 1 gram per pound of body weight

Fat: 15 - 25% of daily calories

carbs: remaining daily calories

Step 2: Optimize Macronutrients

Protein: 0.8 - 1 gram per pound of body weight ← **most important**

Fat: 15 - 25% of daily calories

carbs: remaining daily calories

Step 3: Control Hunger

Optimal body fat: 12% or lower for men and 18% or lower for women

Step 3: Control Hunger

Optimal body fat: 12% or lower for men and 18% or lower for women

Build your diet around high-volume, low-calorie foods

Step 3: Control Hunger

Good protein sources:

- Egg whites
- Lean beef & chicken breast
- Non fatty fish (e.g. tuna)

Step 3: Control Hunger

Good carb sources:

- Beans and legumes
- Cruciferous vegetables (broccoli, cauliflower, cabbage, brussels sprouts)
- Whole grains
- Fruits (instead of candy)

Step 3: Control Hunger

Good fat sources:

- Avoid most oils
- Focus on solid sources (eggs, meats, fish, avocados, nuts & seeds)

Step 3: Control Hunger

Sample Meal:

Combine vegetables with some sort of protein

→ Vegetable mix with beans and chicken (optional: avocado)

Step 3: Control Hunger

Sample Meal:

Combine vegetables with some sort of protein

- Vegetable mix with beans and chicken (optional: avocado)
- **Always have diet meals ready when you start your diet**

Hydration

A low water intake leads to water retention

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Your urine should always be light yellow

Women: 2.7 liters (= 3/4ths of a gallon) per day

Men: 3.7 liters (= a gallon) per day

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→ **Add 1 liter per hour of exercise**

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Men: 3.7 liters (= a gallon) per day

→ Add 1 liter per hour of exercise

Watch your sodium-potassium balance

Essential Fatty Acids

Omega 3s and 6s need to be derived from food

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Omega 3s and 6s need to be derived from food

I try to get 1 - 3 grams of fish oil per day

Algae is an option for vegan athletes

Diet Tracking

Don't get stressed when you overeat one day

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Don't get stressed when you overeat one day

Think of your calorie balance as a bank account

- **Every day that you're in a calorie deficit you pay money into the account**
- **Every day that you're not in a calorie deficit you take money out of the account**

Diet Tracking

Don't get stressed when you overeat one day

Think of your calorie balance as a bank account

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What matters is the bank balance at the end of the week

Ab Training

The primary driver of muscle growth is progressive overload

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→ **most traditional ab exercises don't let you increase the resistance**

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→ most traditional ab exercises don't let you increase the resistance

The best ab exercises:

- **Ab crunch machine**
- **Cable crunches**

Week 1

Monday - Ab Crunch Machine (3 sets)

Tuesday -

O

ff

Wednesday - Cable Crunch Obliques (2 sets each side)

Thursday - Off

Friday - Ab Crunch Machine (3 sets)

Weekend - Off

Week 2

Monday - Cable Crunch Obliques (2 sets each side)

Tuesday -

O

ff

Wednesday - Ab Crunch Machine (3 sets)

Thursday - Off

Friday - Cable Crunch Obliques (2 sets each side)

FAQ

How Many Reps Should I Do?

Stick to 10 - 12 reps per set

How Much Rest Between The Sets?

90 seconds between sets

Should I Increase The Resistance Over Time?

Increase the resistance on both exercises from workout to workout → go with the smallest increments (5 lbs or 2,5 kilos)

The Muscle Growth Priorities

Muscle Growth Priorities

1. Genetics
2. Progressive overload & volume
3. Calorie surplus
4. Protein intake
5. Rest, recovery & stress management
6. Body-fat percentage
7. Everything else

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3. **Calorie surplus ← diet related**
4. **Protein intake ← diet related**
5. Rest, recovery & stress management
6. **Body-fat percentage ← (diet related)**
7. Everything else

The Different Types Of Bulking Diets

How To Set Up A Dirty Bulk Step-By-Step

Dirty Bulking Benefits

Easy to reach and maintain calorie surplus

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You don't have to track calories / macronutrients

Dirty Bulking Drawbacks

Easy to put on too much fat

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Dirty Bulking Drawbacks

Easy to put on too much fat

Isn't healthy in the long run

It's possible to not get enough protein

Makes you feel sluggish and tired after a while

Optimal Rate Of Weight Gain

Beginner (first year of lifting): 3% of body weight per month

Intermediate (1 - 3 years): 2% of body weight per month

Advanced (more than 3 years): 1% of body weight per month

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Example: You weigh 160 lb and are a weight training beginner

→ try to gain 5 lbs per month ($160 \text{ lbs} * 0.03$)

How To Set Up A Regular Bulk Step-By-Step

How To Set Up A Regular Bulk Step-By-Step

Optimal Rate Of Weight Gain

Beginner (first year of lifting): 2% of body weight per month

Intermediate (1 - 3 years of lifting): 1% of body weight per month

Advanced (more than 3 years of lifting): 0.5% of body weight per month

Setting Up A Regular Bulk

1. Calculate your Total Daily Energy Expenditure (TDEE)
2. Add a certain percentage/number of calories to your TDEE to get a calorie surplus
3. Calculate your ideal macronutrients
4. Fill your macros with (mostly) healthy foods

The Perfect Calorie Surplus

Muscle: 1 lbs takes 2500 calories (5500 for 1 kg)

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→ $3000 = (2500/2) + (3500/2)$ → 100 calories per day

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One pound of weight gain requires a surplus of around 3000 calories

→ $3000 = (2500/2) + (3500/2)$ → 100 calories per day

But you also need a buffer to compensate possible NEAT increases

→ 130 additional calories per day to gain 1 pound per month

Example

Weight training beginner

Weight: 150 pounds

TDEE: 2200

→ ideal rate of weight gain is 2% of body weight per month → 4.5 pounds

Example

Weight training beginner

Weight: 150 pounds

TDEE: 2200

→ ideal rate of weight gain is 2% of body weight per month → 4.5 pounds

130 calories x 4.5 = 585 calories on top of your tdee

Total daily intake: 2785 calories

How To Set Up A Lean Bulk Step-By-Step

Optimal Rate Of Weight Gain

Beginner (first year of lifting): 0.5% - 1% of body weight per month
(not recommended)

Intermediate (1 - 3 years of lifting): 0.25% - 0.5% of body weight per month

Advanced (more than 3 years of lifting): 0.1% - 0.25% of body weight per month

Optimal Rate Of Weight Gain

Figure out your daily maintenance calories & ideal macronutrient split

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Increase the weights at the gym to implement progressive overload

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Increase the weights at the gym to implement progressive overload

Continue until your training fails to progress → increase your intake by 100 - 200 calories

The Difference Between Fitness Diets & Healthy Diets

Diet Priorities: Fitness

1. Calories
2. Macronutrients
3. Meal timing
4. Foods
5. Supplements

Diet Priorities: Health

1. Calories
2. Foods ← changed position
3. Macronutrients ← changed position
4. Meal timing ← changed position
5. Supplements

Intra-Workout Carbs: Do You Really Need Them?

Workouts & Muscle Glycogen

Endurance athletes rely more on muscle glycogen than strength athletes

It takes around 90 min of endurance exercise to fully deplete glycogen stores

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It takes around 90 min of endurance exercise to fully deplete glycogen stores

A normal muscle building workout uses only about 40% muscle glycogen

And your glycogen levels don't need to be refilled right away

High-Carb, Low-Fat Diet: Benefits & Drawbacks

3 Possible Diet Setups

1. High carb & low fat diet
2. High fat & low carb diet
3. Moderate carb & moderate fat diet

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→ **protein should always be high**

High-Carb & Low-Fat

Macronutrient split: 50% - 60% carbs / 10% - 20% fat / 20% - 40% protein

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Pro:

- carbs from whole grains and vegetables are healthy
- high carb intake improves performance

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- carbs from whole grains and vegetables are healthy
- high carb intake improves performance

Con:

- **most people consume junk carbs**
- **low fat content can lead to suboptimal hormone production and vitamin absorption**

High-Fat, Low-Carb Diet: Benefits & Drawbacks

High-Carb & Low-Fat

Macronutrient split: 20% or less carbs / 50% or more fat / 30% or less protein

High-Carb & Low-Fat

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Pro:

- rules out most junk food
- can stabilize hunger
- helps with low insulin sensitivity

High-Carb & Low-Fat

Macronutrient split: 20% or less carbs / 50% or more fat / 30% or less protein

Pro:

- rules out most junk food
- can stabilize hunger
- helps with low insulin sensitivity

Con:

- often leads to lack of energy and poor workout performance
- hunger can also increase

Moderate-Fat, Moderate-Carb Diet: Benefits & Drawbacks

High-Carb & Low-Fat

Macronutrient split: 40% carbs / 30% fat / 30% protein

High-Carb & Low-Fat

Macronutrient split: 40% carbs / 30% fat / 30% protein

Pro:

- allows for more food choices
- no macronutrient is restricted
- improves taste and fullness

High-Carb & Low-Fat

Macronutrient split: 40% carbs / 30% fat / 30% protein

Pro:

- allows for more food choices
- no macronutrient is restricted
- improves taste and fullness

Con:

- carb intake might not be enough for very active athletes

Carb Cycling Explained

Carb Cycling Protocol

High-carb days

2 - 2.5 g/lbs of body weight (4.5 - 5.5 g/kg)

→ 50% of calories from carbs

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→ 50% of calories from carbs

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0.5 g/lbs of body weight (1 - 1.5 g/kg)

→ 20% of calories from carbs

No carb days

50 grams max

→ less than 10% of calories from carbs

When Carb Cycling Makes Sense

Case 1:

When you are dieting and train with heavy weights

→ increase food intake on gym days

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Case 1:

When you are dieting and train with heavy weights

→ increase food intake on gym days

Case 2:

When you follow a ketogenic diet

→ increase carb intake before workout (= targeted ketogenic diet)

Acid Reflux & Dieting

Acid Reflux

Gastroesophageal Reflux Disease (GERD)

When you swallow food it passes down the food pipe to the stomach

If esophageal sphincter does not close correctly, stomach content can leak back up into the food pipe, causing GERD

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Gastroesophageal Reflux Disease (GERD)

When you swallow food it passes down the food pipe to the stomach

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If symptoms occur more than twice a week for longer than 3 weeks your doctor will define it as chronic

Symptoms

Heartburn

Nausea after eating

Constant sore throat

Hiccups

Burping

Weak coughing

Changes to the voice (including hoarseness)

Food regurgitation

Lifestyle Changes

Smoking and chewing tobacco

Avoid tight clothing and tight-fitting belts.

Don't lie down or bend over within the first 15-30 minutes after eating

Don't chew gum or suck on hard candy

Foods To Avoid

High fat foods

Caffeine

Chocolate

Onions

Peppermint

Carbonated drinks

Alcohol

Citrus and tomato products

Fruits And Vegetables

Avoid citrus fruits and juices from citrus fruits

Focus your diet on less acidic fruits (bananas, melons, apples, and pears)

Limit your consumption of sauces or toppings that are high in fat or other irritants like tomatoes or onions

Lean Proteins

Check how your stomach reacts to eggs → if eggs are a problem, stick to the whites and stay clear of the higher fat yolks

High fat meals and fried foods decrease LES pressure and delay stomach emptying
→ choose lean meats that are grilled, poached, broiled or baked

Carbohydrates

Stick to complex carbs like oatmeal, whole grains, rice, and couscous

Potatoes and other root vegetables are also fine

Avoid adding onion and garlic during preparation

Fat

Favor unsaturated and healthy saturated fats over trans fats

Good examples: avocados, nuts and seeds, fatty fish, grass fed animal products

How To Eat Correctly

Keep good posture during and after a meal → sit up while eating and avoid lying flat for a minimum of two hours after eating a meal

Avoid eating immediately before bed → digestion increases the amount of gastric acid in the stomach

Avoid eating a full meal less than three hours before going to bed

Constipation & Dieting

Constipation

As food passes through your colon, your body absorbs the water from it, and what's left forms into stool

When bowel slows down, your colon draws too much water → stools get dry and hard to pass

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Unusual for any one specific food to cause constipation

Lifestyle Changes

- Drink a glass of water right after you wake up
- Do some light exercise such as walking after breakfast.
- Park at the end of the parking lot
- Take a 20-minute walk during your lunch break
- Get enough sleep
- When you have the urge, use the bathroom right away
- Keep a bottle of water with you at all times.

Eat More Fiber

Dietary fibre = a type of carbohydrate that cannot be digested by enzymes

Fiber helps with regular bowel movement because it forms a gel-like substance in the GI tract

Gradually add more fiber to your diet

Men should get 30 grams of fiber per day and women around 20 to 25 grams

High Fiber Foods

- Whole wheat bread
- Fruits (e.g. berries, apples, oranges, bananas, pears, raisins, figs, prunes)
- Bran flakes
- Shredded wheat
- Popcorn
- Vegetables (e.g. broccoli, spinach, sweet potatoes, carrots, squash, avocado, peas)
- Beans and lentils
- Oatmeal
- Flaxseed
- Nuts

Limit Or Avoid

- Dairy products
- Red meat
- Processed carbs
- Frozen dinners
- Most junk and fried foods

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→ watch your intake of greasy food like french fries, doughnuts, onion rings

Diabetes & Dieting

Diabetes

Occurs when your blood glucose levels are chronically too high

→ type 1 and type 2 diabetes

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→ type 1 and type 2 diabetes

Type 1 diabetes: body does not make insulin at all (diagnosed in children and young adults)

Type 2 diabetes: body makes insulin but doesn't use it well (often diagnosed in middle-aged and older people)

How Common Is Diabetes

In the US almost 10 percent of the population have diabetes

It affects 1 in 4 people over the age of 65 (90% - 95% of cases in adults are type 2 diabetes)

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Before diabetes, there is a period where blood sugar levels are high but not high enough to be diagnosed as diabetes → prediabetes

There are things you can do to reduce the risk of diabetes

How To Avoid Diabetes

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Build a diet around mostly whole food quality carbs and little to no refined carbs

Weight Loss And Diabetes

The majority of type 2 diabetes patients are overweight

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For every kilogram (2.2 lbs) of weight you lose, your risk of diabetes is reduced by 16%

Leaky Gut Syndrome Explained

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How easily substances pass the intestinal wall is called intestinal permeability

Leaky gut syndrome → tight junctions of intestinal walls become loose → toxins and bacteria pass from the gut into the bloodstream

Idea: bacteria and toxins cause widespread inflammation and possibly trigger a reaction from the immune system

Evidence On Leaky Gut Syndrome

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Intestinal permeability does exist in certain chronic diseases (e.g. diabetes, celiac disease, crohn's disease, food allergies and irritable bowel syndrome)

But it's unclear if leaky gut is the cause or a symptom

Leaky Gut: Symptom Or Disease?

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There is not enough evidence to prove that leaky gut is the underlying cause of chronic diseases but it does seem to play a role

How To Improve Gut Health

Limiting your refined carb intake

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**Eat fermented foods if your stomach can handle them
(e.g. yogurt, kimchi, sauerkraut, kefir, kombucha)**

Alternatively you can also take probiotic supplement

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Eat plenty of high-fiber foods