# Welcome

We know how complex the topics of training and nutrition are. Most people get overwhelmed by all the information in the internet. But the good news is that if we follow some basic principles we are going to see results. We extracted these principles from tens of research papers. Then incorporated them in mathematical models and algorithms that tailors your workout routines.

We are trying to make the app as simple as possible. Asterius covers a lot for you by building your routines, helping you progress with the weights and the nutrition. Every routine is personalized by your physical parameters, workout durations and even aesthetic goals.

# It is important to know why

Unfortunately, the fitness industry had become an easy tool for generating money by lies and scams. A lot of “gurus” and “fitness models” make tons of money by exploiting the insecurities and the feelings of the people. That’s how a lot of us can end up spending our money to only become even more confused.

One of the main purposes of Asterius is to teach you. We will explain to you the basic training concepts and the biological principles behind it. Do not worry! It is not rocket science. On every screen of the app you will see this circle. You can move it around. Press it learn more about the current things on the screen and the science behind them. At the bottom you can check the scientific references.

# Sex difference

Testosterone is the main muscle building (anabolic) hormones in the human body. Males have as much as 15 times the testosterone of women. Males also have approximately twice as much muscle as females.

This means that males will generally be bigger than females. But both sexes are equally prone to muscle growth. The main workout principles apply both males and females.

Gender differences in strength and muscle fiber characteristics

Miller, A.E.J., MacDougall, J.D., Tarnopolsky, M.A. et al. Europ. J. Appl. Physiol. (1993) 66: 254.

# Body parameters

USA and UK have different measuring systems, called Imperial. It uses inches (in) and pounds (lbs) to measure height and weight. Most other parts of the world use Metric system with centimeters (cm) and kilograms (kg). Select your measuring units and Asterius will cover the rest.

Your body measurements are especially important for your food and nutrition. They are also a very rough estimation for the body composition and the fat index.

# Fitness experience

As we train, we grow stronger. In order to progress we need to lift heavier, and progress steadily in our reps and sets count. People with more fitness experience need to do more work to make progress.

Luckily, beginners progress a lot faster. This is important for the motivation and the confidence. There is nothing better than seeing your body evolve every week.

# Workout frequency and duration

After workout our bodies have increased synthesis of proteins that heals and increases the size of our muscles. This process lasts roughly between 36 and 48 hours.

Research shows that splitting the workout volume gives better results. Asterius does that based on your workout frequency. That’s why if you once or twice per week you get one workout and if you train five or six times you will have three different workouts. This way you will be able to train every group at least twice per week, which is better than once. Rotate between your generated workouts every time you hit the gym.

If we train more often or for longer duration, we will be able to do more overall training sets. The amount of training sets we do is called training volume. The volume is the most important factor for muscle growth. We will tell you more about it later. But for now, know that the more overall time you are able to spend in the gym, the more results you will get.

# Preferred muscles

There are many exercises that we can do to develop our bodies. But we all have different body compositions and aesthetic preferences. Some of us naturally have bigger arms, others – bigger backs. There are more than 20 different muscle groups that we can target. Isolation exercises are these exercises that target specific muscle groups or parts of muscles. By pressing on the human model, you can select which are your most important muscles to train. When Asterius generates your routine, it will incorporate these isolation exercise.

If you are man you probably want biceps, triceps, chest, back, abs, legs, EVERTYTHING! If you are woman, you may want glutes, legs, abs, chest and so on… But as you can imagine there is no point in performing ONLY isolation exercises. It will be very time consuming and not efficient.

So, choose wisely only the most important muscles you want to specifically isolate.

If you train 1-2 times per week, go for 1 or 2 selected muscles

If you train 3-4 times per week, you can pick 3 or 4

If you train 5-6 times per week, choose 5 or 6

And don’t worry! You will train everything. Your routine will be balanced and science-based.

# Routines

Your workout is full-body based. It is going to be pretty effective.

Your first workout is targeting the upper part of your body. The second workout is for the lower body and your core muscles.

Asterius has generated 3 workouts for you – push, pull, legs. In the first, you train your chest, triceps and shoulders. In the second – back and biceps. And the third workout focuses on your legs and core.

The goal of this project is to be as simple and as effective as possible. There are hundreds of exercises out there. Asterius provides the most effective ones that are proven to give results. Less than 50 exercises are added in the database. But each one of them is very specific. By sticking to the basics, we are able to focus on our form and progress.

You can edit your workouts by pressing on them. You can adjust your working volume for every muscle. You can easily and reorder the exercises in the workouts.

# One complex machine

Our body is a complex machine. This machine can do many things like pushing, pulling and lifting. It is made of many parts that work together in groups. These parts are our muscles.

Every exercise targets different muscles at different rate. If we bench press, we are using the muscles of our chest, shoulders and triceps. But if we want to isolate our triceps, we can do triceps pushdown. We can perform the bench press with more weight than the triceps pushdown, because the bench press activates more muscles at once.

Let’s say that the triceps is doing 1/3 of the work for the bench press. And the triceps does all the work for the triceps pushdown. That means, one set of well performed pushdowns is equal to the work of 3 sets of bench presses for the triceps.

# Workout volume

The factor that determines our muscle growth is the overall workout volume. It can be measured by the amount of sets per muscle group. But keep in mind that most exercises train multiple muscles at once.

If we don’t do enough volume, our muscles won’t have enough stimulus to grow. But if we do too much sets, we will overtrain our muscles which will stop the progress and might even injure us. We need to avoid injuries at all cost, because they are the biggest setback.

# The exercises

The body model shows all muscles that can be targeted with exercises. The brighter the muscle, the more volume it will get. If you press on a muscle, you will see all exercises that train it.

You can see all the major muscles that the exercise targets. Every muscle is active at different rate for the different exercises.

If you press on the exercise name, YouTube will be opened with the best explanatory videos on how to perform it.

# Edit the volume

Keep in mind that some muscles are bigger than others and need more volume. If you see muscle getting fully bright, do not add more volume to it. Try not to make your workouts much longer than hour and a half.

You can use the scrollbar below every exercise to edit the amount of sets.

If you want to remove particular exercise, make its sets 0.

If you want to reorder, press on view workout and use the arrows.

Schoenfeld BJ, Ratamess NA, Peterson MD, Contreras B, Sonmez GT, Alvar BA.  
Effects of different volume-equated resistance training loading strategies on  
muscular adaptations in well-trained men. J Strength Cond Res. 2014  
Oct

Mangine GT, Hoffman JR, Gonzalez AM, et al. The effect of training volume and intensity on improvements in muscular strength and size in resistance-trained men. Physiological Reports. 2015

# Log workouts

You can select any date on the calendar. On the bottom you can see all of your workouts. If you press the play button, you will start logging that workout on the selected date. The first time you hit the gym log Workout A. Next time log Workout B and so on. Simply cycle trough your routine.

If you press on the workout, you will open it for editing.

# Generate workouts

By pressing the generate button you will be able to generate new routine, just like you did in the beginning.

# Custom workouts

You can make your custom workout from scratch by pressing on the custom button.

# Weight logging

Good way to track your progress is by tracking your weight. Asterius keeps your results and regulates your nutrition based on your weight.

The graphic represents the changes in your weight for the selected period of time. Keep in mind that the data presented on the graphic represents a line that shows all the changes of your measurements in the selected period of time.

For best results measure our weight as often as possible. One good approach is to:

* Measure your weight in the morning after you have been to the toilet
* Measure your weight before going to bed
* Sometimes, if you are at home, you can weight yourself in the middle of the day

# Your weight is not constant

Some days we will be lighter, others – heavier. Our weight is changing even throughout the day. If we eat more or drink more water, we will be heavier. If we have been out partying, we will be dehydrated and lighter.

Women are even more prone to changes in weight due to their periods.

Asterius estimates the average value of your weight for the week to regulate the nutrition. That’s why you need to try to measure yourself more frequently.

Orsama AL, Mattila E, Ermes M, van Gils M, Wansink B, Korhonen I. Weight

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Facts. 2014

# Nutrition

What you eat is essential for accomplishing your fitness goals. Following a strict and rigid diet is not needed. It is a myth that some foods build muscles, other makes you lose fat and so on. Research shows that the most important factor is the overall calories and macronutrients (proteins, fats, carbohydrates). This approach is way more easier and less exhausting.

# Calories

Our bodies need energy to survive. That energy comes from food in the form of calories (kCal). The calories needed to keep our body functions working and to maintain our weight is called TDEE (Total Daily Energy Expenditure).

Asterius calculates your BMR (Basal Metabolic Rate) by using formula called The Mifflin St Jeor Equation. It uses your age, weight and height to estimate how much calories your body is burning at rest.

But we are constantly doing something. Working out, walking, playing games and even staying up burns additional calories. That’s why the TDEE is calculated by using your BMR and your activity level (lifestyle). This is the number of calories you need to eat to keep your weight the same.

Each one of us has different goals. Some people want to lose more fat, others want to build more muscle. Asterius gives you the option to choose your goal. Base on that your calories are either increased for weight gain, or reduced for weight loss.

# Macronutients

Protein is essential for our bodies. It provides building blocks of our muscles – the amino acids. Research suggests that 1.8 gr of protein per kg body mass is beneficial for our muscle gains. If we are in caloric deficit (eating less calories to lose weight), it would be better to eat 2 or more gr of protein per kg body mass.

Fats are essential for our hormones and health. Different sources suggests that 15-30% of our calories must be consumed in the form of fats. Fats are also important for our health and nervous system, that’s why Asterius estimates 30% of your calories in the form of fats.

Carbohydrates are the main source of energy. They can be useful for our workouts performance. But carbs are not essential. Humans can live without consuming any carbohydrates. After calculating the basic amounts of protein and fats, Asterius calculates the rest of the calories in the form of carbs.

This is how many calories each one of the macronutrients provides:

1 gr protein = 4 kCal

1 gr fat = 9 kCal

1 gr carbohydrate = 4 kCal

# Supplements

You have seen that everyone in the fitness industry is trying to sell you supplements. Have you ever wondered why? People want to believe that taking a magical pill will solve their problems. Well, that is not the case. There are no shortcuts. If we want something, it will come to us. But we need to work hard, smart and consistently for it. Most of the substances in most supplements are not proven to have any effects at all. It is simple marketing.

Even though the results may not be magical, there are some supplements that might be beneficial for your results and your overall health.

* Creatine - 5 gr per day is shown to improve overall strength.
* Omega 3 is form of essential fatty acids. Western diets do not provide enough omega 3. Supplementing with it is beneficial for the health, nervous system and can even help build muscle.
* Magnesium – this mineral is very important for our nervous system and recovery. Western diet might not be able to provide enough magnesium to our bodies.
* Caffeine – cup of coffee contains 80-100 mg of caffeine. If you don’t drink coffee you can buy caffeine capsules. 100-200 mg of caffeine before workout will increases energy, focus and endurance.
* Citrulline malate – 6-8 gr of this supplement half an hour before workout improves athletic performance. It increases the blood flow to the muscles, causing metabolic stress. This is also known as “muscle pump”.
* Vitamin D – we make vitamin D when we go out during the sunny days. But in the winter in some countries there is not enough sunlight. That’s why it may be beneficial to supplement vitamin D in the winter.

We recommend you research these supplements yourself. There are tons of great posts and articles about them on Reddit, Quora and other sites.

# Our advice

Our nutrition is important not only for our fitness, but for the overall health and wellbeing. It is vast and complex topic that is highly researched. Asterius can calculate the needed macronutrients. But the food provides micronutrients too – vitamins and minerals. We highly recommend eating whole foods and healthy foods – vegetables, fruits, salads, meats, fish, eggs and dairy.

Processed sugars, simple carbohydrates (bread, pasta, cookies, juices, soda) and fast food are bad for your body. Try to avoid them as much as possible. We know that eating these foods is very addictive. This is because they raise the levels of dopamine in the brain just like some drugs do. But if we stick to better quality food for a while, our body will adapt to it and the cravings will stop.

Our nutrition is complex topic. Every person is different with different genes and metabolism. We cannot cover every aspect. But our experience has shown us that having rough calories and macronutrient guidance is very beneficial. Combining it with eating high quality whole foods and supplements can do wonders!

There are many types of diets out there. Ketogenic, paleo, vegan and others are examples. There are techniques for fat loss and appetite suppression like intermittent fasting. These are topics that we may cover in the future with new features of the Asterius app. For now, we recommend you do your research and try what works for you and what does not. Fueling our bodies with good food is important for our physique, our brains and for being healthy and awesome!

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# Our muscles

Our muscles are made of two fiber types

Type 2 or “Fast” fibers are stronger and bigger. They generate bigger power output in heavy lifts but get exhausted first. That is why our first sets should be the heaviest.

Type 1 or “Slow” fibers are less powerful and smaller. These fibers generate less power, but for longer periods. They become more active when we lift lighter for more reps.

Research shows that most muscle growth can be made around the 8-12 repetitions range. Our first sets must be performed with the heaviest weight. In the 6-7-8 reps range. Then we can slowly reduce the weight and increase the weight for the next sets. This approach gives few benefits:

In the beginning our nervous system and type 2 fibers are not exhausted. We are able to lift heavy weights thus adopting our bodies to bigger loads and volume.

When we perform the heavy lifts, our fast fibers get exhausted and to work get transferred to the slow ones. By reducing the weight and increasing the reps in the next sets, we will be able to focus more on the form of the exercise. It is safer to lift lighter weight when fatigued. Also doing reps in the upper range (10-14 reps) increases the blood flow to the muscles and creates “muscle pump”.

# Warm-up sets

If you perform hard compound exercise that involves a lot of muscles, your first set can be warm-up set. It will prepare, stretch the muscles and focus you on the movement. It is important to focus your attention on the form of the exercise and to think about the muscles you train. If you decide to do warm-up set, select light weight and do 15-20 reps. You don’t have to log it, because it is not crucial for main workout volume.

# How many reps and how heavy?

Stop your first sets at least one rep before failure! Research shows that training to failure is not necessary. It can exhaust you and even injure you. By saving your energy, you will be able to do more work in the next sets and generate more overall volume.

Let’s use the bench press for an example. Here it is one way of structuring the sets:

Set 1: 6 reps x 100 kg (220 lbs)

Set 2: 8 reps x 90 kg (200 lbs)

Set 3: 10 reps x 80 kg (176 lbs)

Set 4: 13 reps x 73 kg (160 lbs) – the last set uses lighter weights and can be performed to failure

Of course, your values will not be the same. But the idea is to start with the heavier weight and lower reps. Then increase the sets and reduce the weight. Try to stay around the 8-12 reps range.

# Logging and progressing

For every exercise in your workout you can log sets. Every set will appear on the graphic as you log it. The more weight you lift, the higher the box of the set will appear. The more reps you do, the bigger the box will be. This is very easy and innovative way to track your progress. All performed sets will appear on the graphic. And you can press on it to open previous workouts where you had done this exercise.

By performing resistance training the muscles adapt to the intensity. For progress to take place, the workout intensity has to grow steadily. Try to increase the weight across all sets slowly, workout after workout. You can also increase the reps for particular set. But keep in mind the principles above. Focus on heavy weight in the first sets and focus on repetitions in the final ones.

The process of lifting heavier weights every workout is called progressive overload.

# Rest intervals

Research has not yet found a clear winner between smaller and bigger rest interval Since the most important factors are the overall workout volume and the progressive overload, we recommend resting as much as it is needed. If you don’t rest enough, you might not be able to perform the needed reps for progress. And if you rest too much, you are just wasting your time. So just rest until you recover your breath and feel ready to perform the next set. Try to lift more every workout and don’t worry about the rest.

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