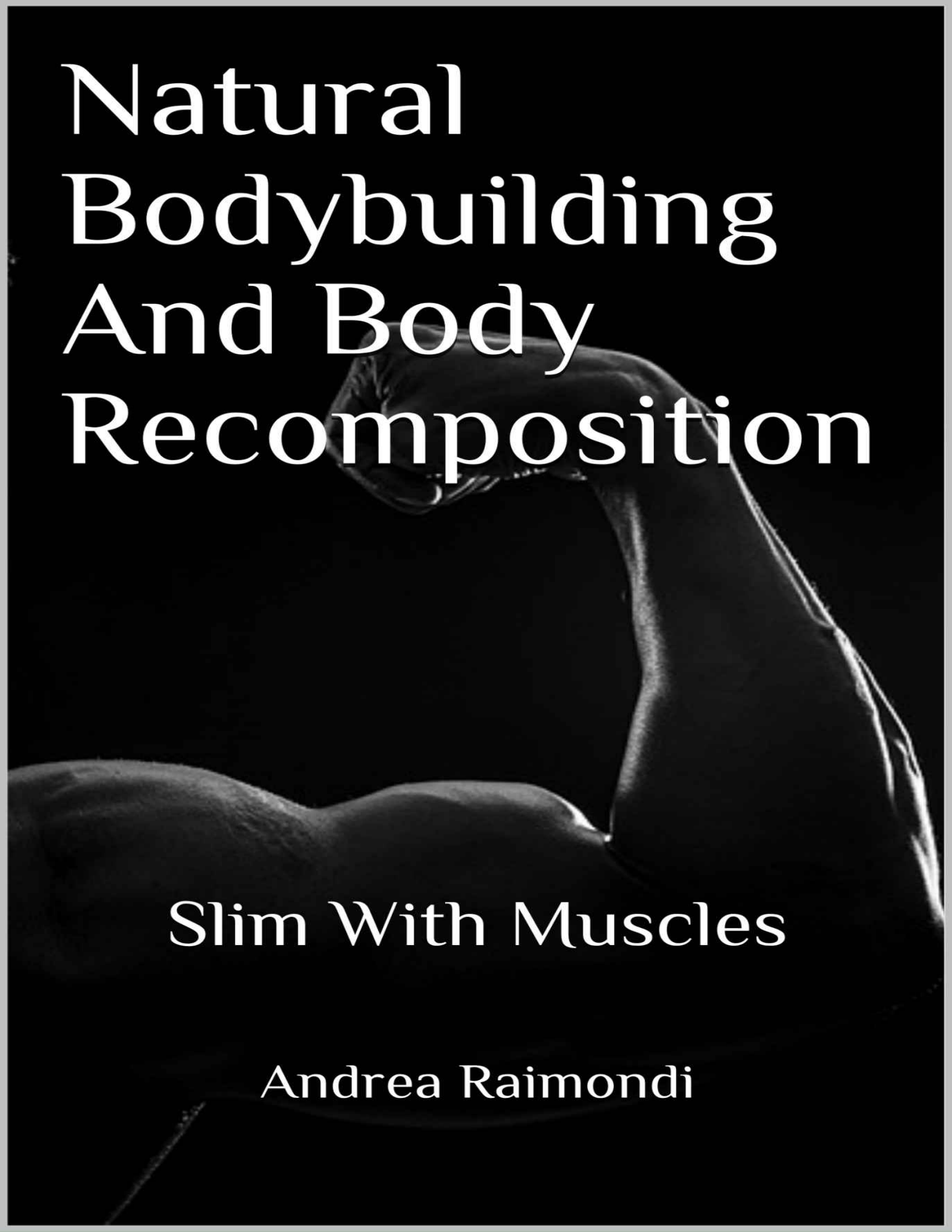
Natural Bodybuilding And Body Recomposition



Slim With Muscles

Andrea Raimondi

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AND BODY RECOMPOSITION

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FREE contents about fitness and body recomposition

FOREWORD

This book is not intended to be a scientific manual or only for professionals, although it is based on the study of scientific material and on the main manuals of muscle and nutrition.
It wants to be a compendium of what I have learned in these years of training and study. It wants to be of help to those who approach the world of bodybuilding or body recomposition. In these pages you will find everything you need to reach your goals without proposing miraculous solutions or extraordinary results of the latest scientific research, which we have also studied, but you will find what is essential to plan the path that will guide you towards weight loss or building of muscle mass. Then it's up to you to understand the concepts and apply them to your case. As stressed several times in the book, each of us is unique and the right diet and training routine must be tailored to the particularity of each person. Routine, because training and proper nutrition must become a habit, a part of yourself. This is fitness.

Anyone wishing to help to plan their routine or want some advice on nutrition and training can write to me at info@fitnessedintorni.it or visit my website http://www.fitnessedintorni.it or instagram @fitnessedintorni.it and can also subscribe to www .pt-manager.com where you may create your own workout cards and keep track of your workouts and create your own food diary. See ya!

INTRODUCTION

Through exercise, muscle work done against progressively more demanding overload leads to an increase in muscle mass and an increase of muscle cell's cross-section, known as hypertrophy.

But why do muscle cells grow and how do they grow?

Although it is a great research topic, scientists still do not fully understand how the muscle gradually adapts to the stimuli given by overload.

What is muscle hypertrophy?
Muscle hypertrophy is an increase in muscle mass and the cross section of the muscle itself.
The increase in muscle volume is due to the increase in size (not length) of individual muscle fibers.
The muscles adapt to the regular and progressively greater load to which they are subjected through, in our case, physical exercise, with loads that exceed their pre-existing capacity.
The muscle becomes more efficient in transmitting forces through the levers of the various joints.
With constant and progressive training, therefore, the functions of the muscle itself improve and therefore improves the movement and stability of the body in space.
In this way, the size and quantity of contractile proteins present within each muscle fiber increase and consequently also strength increases.
We will try to review the main topics and principles concerning training for hypertrophy by proposing a setss of cards and dietary advice that lead to a body recomposition aimed at obtaining as a result a decrease in fat and an increase in muscle mass. And the same procedure is even more valid for those who intend to lose weight because exercise with overloads proves to

be the best way to free the body from excess fat kilograms and at the same time improve their own image.

CHAPTER 1

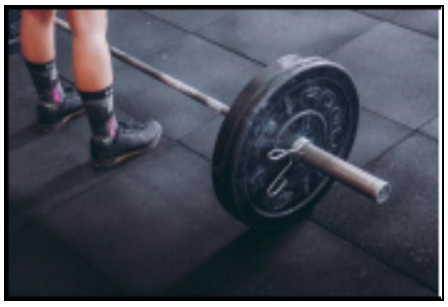
Theory of hypertrophy development

Homeostasis. This is the main feature of the human body, that is the tendency to maintain a constant condition and indeed to save as much energy as possible in carrying out any type of bodily activity, with the aim of ensuring the survival of the body itself.
In fact, any change in the external world that somehow affects the body puts into action mechanisms that seek and, under normal conditions, guarantee the return to the initial stage. So when we introduce molecules in the form of food, the body begins a setss of transformations, movements, biochemical processes that have the purpose of returning the body-system to a situation of equilibrium. This equilibrium is fundamental to allow life: think of blood pH level which is constantly maintained at the optimal level through reactions and counter-reactions based on what we eat. For example, the management of carbohydrates, which represent the main energy source, in the form of simple sugars in our body: an excessive level of sugar in the blood triggers a whole setss of biochemical reactions with the release of insulin which allows to stabilize the level blood glucose.
So if you want to increase muscle mass, you have to force the body to get out of homeostasis, you have to break homeostasis and reach a new level of balance in which the body has and manages a greater amount of muscle.

This new level is reached through physical exercise. But not a physical exercise carried out in a casual way but aimed at the purpose we have set.

We will see in the rest of the book what are the variables we have to deal with and that are to be exploited to maximize the exercise aimed at hypertrophy up to the proposal of a training plan that allows us to achieve our goal.
Of course, without constant practice and without detecting in a timely manner what we do during a single workout, the further the goal will remain.
In no field like that of training, theory must be put into practice and verified in reality.
To get out of homeostasis, the body must therefore be subjected to a stress that produces an adaptive response to the stress itself.

Specifically, the neuromuscular system must be subjected to a stress that overloads the initial capacity of the single muscle or of the specific muscle district. The response to this stress generates a setss of neural and muscular adaptations.
Neural improvements, that is the efficiency in the execution of movements, manifest themselves over time by repeating the same gestures, this repetition leads to an increasingly fluid execution and this leads, under the appropriate load, to hypertrophic muscle adjustments. In fact, muscle growth is produced by increasing the size and number of contractile proteins, actin and myosin, present in the muscle itself. These proteins are responsible for muscle movement and form filaments that, during muscle contraction, slide over each other and, overlapping, causing the shortening of myofibrils and, consequently, of the muscle fiber. Therefore, at the base of the muscular contraction there is the sliding of the actin filaments on those of myosin.
The increase in muscle mass must be maintained over time by making the body believe that the extra muscles are needed to deal with the surrounding world and therefore the muscles must increase to allow it to stay alive.



Muscle physiology

We all have the idea that if stimulated continuously, the muscles grow in volume but few have the precise idea of what happens inside the muscle when it contracts.
Without going into too much detail if we contract a muscle, let's say the biceps, we notice a “fleshy” part, the muscular belly that is attached on both ends through the tendons which keep the muscle anchored to the skeleton.
If we cut that muscular fleshy part right in the middle we will see a bunch of chord-like structures that make up the inside of the muscle belly called bundles. These bundles are made up of myocytes (muscle cells / fibers) which are long, thin and run the full length of the muscle belly.
Within these myocytes are myofibrils which also run along their length. Myofibrils are simply a set of proteins that allow us to generate the force necessary to move the load while we train.
What interests us most is the classification of the types of existing muscle fibers; these are of two types called type I fibers and type II fibers.
Type I fibers, also called slow twitch fibers, are resistant to fatigue and therefore suitable for activities that require greater muscular endurance. To reach the maximum tension of these fibers it takes time and therefore they are not suitable for developing maximum strength.Type II fibers, also known as rapid contraction, because they are able to activate in a shorter time (we are always talking about milliseconds) and are recruited when an explosive force is needed. Unlike type I fibers they have less resistance. Under the microscope they appear white while the type I fibers have a red color due to the presence of capillaries which explains their longer relative duration, being more oxygenated.

This subdivision into the types of fibers varies from muscle to muscle and from individual to individual.
Knowing the composition of the type of fibers in a muscle for a given individual is useful to be able to define more precisely how to train, i.e. whether to prefer a more prolonged (with greater sets and repetitions) or shorter duration (with higher loads).
Of course, it should not be forgotten that a muscle is made up of a mix of the two types of fibers and therefore it is necessary to understand which type of fiber is prevalent. It is necessary, through appropriate

measurements, to understand if a muscle can bear a long and lighter work or a short and intense one.
The increase in muscle mass is essentially an adaptation to external stimuli imposed on the skeletal-muscular system through resistance training.
This adaptation leads to the improvement of nerve responses and an increase in the recruitment of muscle fibers. The human body is a machine built to save energy so initially some contractile fibers are recruited. With the prolongation of the exercise other fibers are activated and coordination between the various muscle groups is improved. All of this happens over time. The increase in muscle fibers or the increase in their size occurs thanks to a positive protein balance, given by the difference between how many proteins are destroyed and how many are synthesized through the diet. This is why it is advisable to introduce more protein in the diet if you intend to increase muscle mass.
We must say that introducing a greater amount of protein must be accompanied by increased activity otherwise the calories introduced in excess will be partly diverted to the energy reserves made up of fat cells, the triglycerides.Here, too, it is essential to coordinate the right diet with a correct and subjective management of the training load.The aforementioned protein balance is conditioned to a certain extent by the neuroendocrine system, that is, by the production of certain hormones that can influence protein synthesis as a result of training stimuli.Among these we have IGF1, a hormone similar to insulin, produced by muscle contraction. Another hormone that affects protein synthesis is the famous growth hormone (GH) which affects the functioning of IGF1, as well as Testosterone, by strengthening it. The latter is an hormone that acts directly on the increase of muscle mass, as shown by numerous studies.Insulin is also a hormone that plays a role in increasing muscle mass, although mostly on the side of allowing the reduction of protein catabolism.In summary, it has been shown that physical exercise is able to increase the release of anabolic hormones and therefore muscle growth.I refer to specialized studies those who want to deepen this interesting topic, we are interested in knowing that the right training and the right diet, in terms of calories introduced and type of macronutrients, pushes the body to adapt itself by increasing muscle mass and to reduce (in case of caloric deficit) the fat component in the body.

Energy systems

How does the human body produce the energy to live and to contract muscles?

All life forms need energy to grow, move and maintain. Thousands of energy-requiring processes continually occur within cells to meet the demands of life. Energy can take many forms in biological systems, but the most useful energy molecule is known as adenosine triphosphate (ATP).

There are four different energy systems that generate ATP during exercise. In the context of physical activity, the contribution of each of these systems is determined by its intensity and duration.

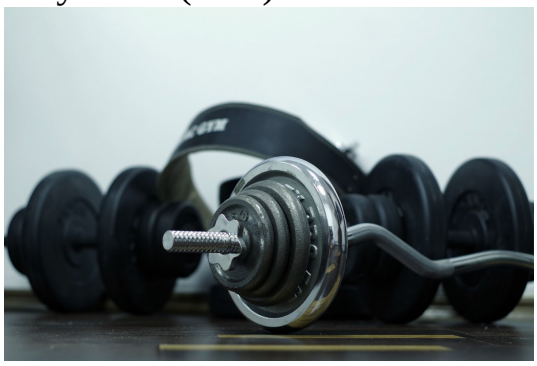
The four energy systems of the body are:

the anaerobic alactacid system or phosphagen system, with the use of energy substrates such as adenosine triphosphate (ATP) and phosphocreatine (PC);

the anaerobic lactacid or glycolysis system, with the use of energy substrates such as glycogen and glucose, given by carbohydrates;

the aerobic glycolytic system, with the use of energy substrates such as glycogen / glucose;

the aerobic lipolytic system with the use of energy substrates such as free fatty acids (FFA).



What interests us is that the use of the source constituted by body fats is activated following a prolonged and non-maximal effort. Hence the importance of including aerobic training sessions in case you need to lose weight, perhaps by adopting training techniques such as the so-called "circuit" one which allows you to increase oxygen consumption during training with overloads. However, we must keep in mind that all energy systems work simultaneously to produce or

restore energy supplies.

CHAPTER 2

Mechanisms of hypertrophy

Muscle tissue is mainly composed of water, about 70% and proteins about 25%. But it is the latter, as mentioned in the previous chapter, that allows the muscles to contract.
We must not think of our body as a static entity on a biochemical level: it is just the opposite.
Every moment the body breaks down molecules and reassembles them at the cellular level, the same goes for proteins.

It is the constant destruction and reconstruction of proteins thanks to the mechanisms that we will see in this chapter to allow the development and quantity of muscle development; that is, it depends on the balance between protein destruction and reconstruction.
If the balance is positive, new muscle mass will be built (anabolism), otherwise it will be impoverished (catabolism).

However, the process of muscle growth and protein growth does not take place in the training phase, when the muscle protein consumption is greater, but during rest.
After the training period (or muscle activation) it appears that protein synthesis (creation of new proteins) can remain active for 48 hours or more.

It is necessary to always keep in mind that when it comes to training or other aspects concerning human physiology, genetics plays a not secondary role in determining the biochemical response of the individual in the interaction with the environment, with the muscular effort imposed in our case.

In order for the anabolic or catabolic protein process to be activated, there must be intracellular impulses with activation or suppression of certain substances and enzymes that interact within or between cells.
Concretely and visibly, the main mechanisms relating to muscle growth following physical activity are the following: muscle mechanical tension, metabolic stress and muscle damage.

We see them in more detail in the following paragraphs.

2.1 Mechanical tension

The effort sustained by the muscles during training with loads is considered the main factor in their development. The stress undergone by the muscular system generates the phenomenon of mechanotransduction. It is the way by which mechanical movements are converted into chemical activity which in turn activate the anabolic processes.

Up to a certain threshold, the greater the load, the greater the adaptive response of the body.

This threshold also varies according to the time in which the muscles are under tension so you must always evaluate both the aspect of adequate load and the time of lifting the load, trying to find the right mix between the two factors.

In this case also we must not think in one direction: when dealing with human physiology all the factors interact with each other.

Beyond that threshold, other mechanisms come into play that generate more strength, in a workout over the years, but not greater muscle growth.

Therefore, not only the load lifted is important in the training strategy for hypertrophy but also other factors which must be taken into consideration to shape the training planning so it can be as productive as possible.

2.2 Metabolic stress

It is a mechanism that occurs because of training. It produces an increase in the amount of water inside the trained muscle which leads to the activation of a setss of chemical reactions that stimulate protein synthesis and the reduction of breakdown of proteins.

Exercise leads to an increase in metabolites within the muscle such as lactate and inorganic phosphates. Some studies show that this mechanism is generated more as a result of anaerobic glycolysis which occurs with activities that last from 15 to 120 seconds .

This is what happens when you perform sets and repetitions that lead to muscle failure and therefore have a sufficient duration to start the process described above.

In order to carry out an exercise of a certain duration, weights lifted must not reach the maximum. It is the technique used in bodybuilding in which you train not with maximum loads but with loads capable of making the setss last for 10-12 repetitions.

Some studies show that in this way all muscle fibers are activated by means of metabolic stress.

Metabolic stress induces hypertrophy through the production of anabolic **myokines**, a substance similar to hormones, with the increase in the amount of intracellular water and with the increase in anabolic hormones such as **GH**

2.3 Muscle damage

It is caused by micro tears in the muscle following intense exercise, caused by the breakdown of contractile proteins and the sarcolemma, the connective membrane that surrounds the muscle fibers. These tears activate the repair mechanism that starts the body's process of adapting to a future greater effort.
Although muscle growth is not always signaled by post-workout pain, because with the passing of experience the body adapts to the efforts and produces greater resistance to muscle pain, it has been hypothesized that muscle damage may be one of the causes of hypertrophy. Muscle damage leads to inflammatory processes and the subsequent cellular repair through the accumulation of muscle proteins. The body would react to a stressful situation by producing more than is needed for a mere repair of the damage suffered, thus preparing the way for muscle growth.

To maximize muscle growth, a training methodology is needed that knows how to work with all these factors that lead to hypertrophy and weight loss, by managing their components correctly.
From all this it appears that it is not enough to base one's protocol on the increase of loads, which creates muscle damage. It is necessary to use the increase in mechanical tension, with the increase in the number of repetitions **and** the metabolic stimulus through the reduction of recovery between the various sets.

CHAPTER 3

Training variables

3.1 Volume

The **volume** parameter represents the total amount of work done in a training session, or over a certain period of time. It is defined as the sum of the repetitions performed during the training session, or rather as the sum of the repetitions performed with a certain load: n.set * n.reps * Kg load. Clearly the greater the volume, the heavier a training session for the same time.
For example 3 sets of 10 repetitions with 50kg are equal to 1500kg of volume. Adding up the volume done for each exercise of a given session will give you the total volume of the session.
Studies confirm that greater volume produces greater metabolic stress and greater hypertrophic response.
Therefore, by modifying one of the parameters of volume, its quantity is changed. If it is true that, assuming to lift 10 kg, the same volume is obtained with 10 sets of 10 repetitions or with 5 sets of 20 repetitions, at the level of muscle fatigue is not the same thing. Because with more sets is greater the possibility of muscle recovery (with the same rest time between one set and another) and the metabolism can rebuild the energy consumed in the movement of muscles.

Therefore, in addition to the load, the duration of the **recovery** times must also be considered.
The **load** is the other variable that constitutes the volume and is a variable directly related to hypertrophy, as practically all studies show, greater load corresponds to greater development.
To create our training plans, we already have these variables available: the number of sets, the duration of the rest between one set and another, the number of repetitions and the load.
There is an inverse physical correlation between the lifted load and the number of repetitions: the higher the load, the lower the number of repetitions. It is a trivial and obvious equation to everyone. The load with which we can perform only one repetition, using a correct joint movement,

is indicated with 1RM, representing the maximum limit, the load capacity of a given person. Below this limit and therefore with lower loads we can perform more than one repetition.

In general, scientific and practical evidence states that to train **strength** you must use loads of 80-90-100% of 1RM, to train **hypertrophy** loads of 65% to 80% of 1RM.

3.2 Frequency

The frequency parameter indicates how many times the training sessions are carried out, usually taking the week as a reference. We can also talk about training frequency for a single muscle group when evaluating how many times a particular muscle group has been trained.

The micro cycle represents the period within which all muscle groups are trained. For convenience, the duration of a week is also taken as a reference. In this time frame we can define training days and rest days between workouts.

Research has shown that higher training frequencies lead, all other conditions being equal, to improvements in muscle mass. It is often discussed which is the best frequency, what is ultimately the recovery time needed between one session and another to maximize hypertrophy. In recent years, some research has been produced on this topic but there is still no precise scientific evidence on the optimal duration of recovery between one workout and another: some researches come to the conclusion of the need to allow at least 48 hours to pass between one session and another. Other researchers say it would be better to wait at least 72 hours. Usually the more or less pre-filled cards provide for 3 weekly workouts with one or more days of rest between workouts, especially in the case of **full-body** workouts. With this cadence all the muscles of the body are trained at least three days a week. Or, for more advanced athletes, **split routines** are used in which not all muscle groups are trained in a single session but the muscles to be trained are separated, such as between muscles of the upper body and muscles of the lower body, being able in this way to increase the number of training sessions. Split routine allows also a greater variety of exercises for the trained muscles, for the same amount of time, compared to a routine that uses the full body method.

In any case, some authors highlight how resilience depends very much on the genetics of an individual. Again, several attempts and a greater scientific approach are needed to optimize efforts in terms of hypertrophy: not only affects the frequency with which you train but how you train, which muscles need more work because they tire less quickly, because they are mainly composed of slow-twitch fibers or because they have a greater recovery capacity.

3.3 Load (Intensity)

Load is one of the main variables that generate muscle hypertrophy. It defines the weight in kilograms raised during the repetitions.
It is a variable based on the level of training of the subject and his strength and in order to be used in the preparation of the various training protocols it must be understood in a relative sense, as a percentage of the maximum load lifted in a given exercise, as a percentage of the **1RM**. Indirectly provides a measure of the intensity of the effort sustained during training.
The maximum repetition is indicated with "1RM". Researchers formulated some hypotheses concerning the value of the maximum repetition without having to establish it directly by testing. Tables have been compiled that relate the number of repetitions performed with a given load in order to establish the maximum load of a subject.
If, for example, a maximum of 10 repetitions are performed with 50kg, based on the table I have entered below, this corresponds to 75% of 1RM so the maximum load of this person in that particular exercise should be 67 kg.
Beyond the formulas used, which may change over time with new research or studies, the table is convenient for our purposes to create personalized training workouts thus providing a starting point to record the progress of our efforts towards the desired goals.

3.4 Type of exercises

Varying the exercises is essential for muscle development because it allows you to train different parts of the muscle, especially for those muscles that have different insertion points on the skeleton. If we take for example the deltoid or the trapezius or the pectoral, these have different insertions and conformations such that they are more activated by performing a given movement. For the pectoral group, for example, the central areas of that muscle will be stressed more with the flat bench, while with the inclined bench the upper areas will be stressed more. In general an area of the muscle is affected in a different way according to the movement of a given exercise.

One of the main distinctions in the type of exercises is between multi-joint and single-joint exercises.

The former involve several muscle groups during their execution because the movement involves several joints at the same time, while the latter involve only one joint. Multiarticular exercises such as the squat are usually more demanding on a systemic level and can be used more in those phases where greater metabolic activation is required.

3.5 Progression

Setting a progression in the training variables is essential to maximize the hypertrophic results of the training itself, always bearing in mind, however, that the right volume and load must be guaranteed during the training sessions. A progression concerns the change of one of the main training variables such as increasing the number of sets or repetitions or the load used between one microcycle and another or between one mesocycle and another.

For example, if in the first microcycle we held 3 setss for 12 repetitions using 15kg as maximum weight, in the following microcycle we can increase the setss, keeping the other parameters constant, so we will perform 5 sets for 12 repetitions with 15 kg, or we can increase the weight lift while holding the number of sets and reps, for example we will do 3 sets for 12 reps with 17kg.

To check if you can maintain progression in your workouts, it is essential to keep a training diary in which we can write down exercises, loads, sets, repetitions, recovery times and notes on the perception of effort. It will be possible to verify in practice whether our training is going in the desired direction.

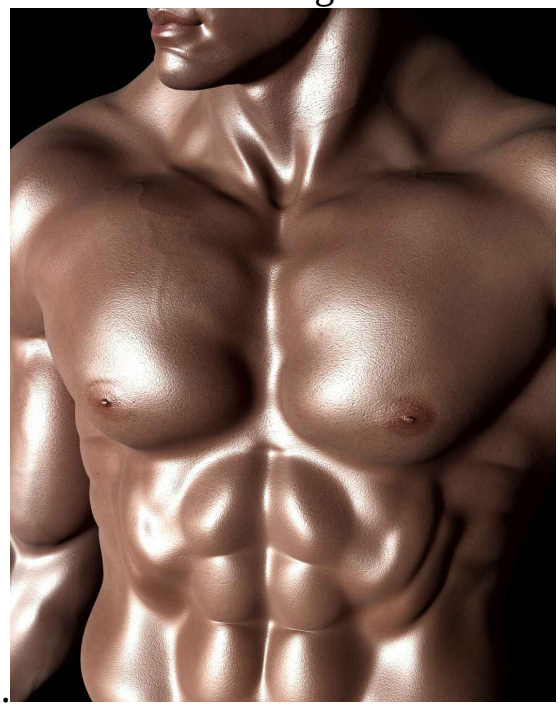
3.6 TUT (Duration of repetition)

TUT is the acronym for Time Under Tension, it indicates the duration of the muscle movement during a repetition. It is expressed in seconds.
If we think about the movement performed during a repetition, we notice that this can be broken down into 4 phases: a phase in which we move the weight by lifting it (called eccentric phase), a phase in which we reach maximum extension (or maximum contraction) and the movement stops (isometric stop) and then returns to the starting position by lowering the load (concentric phase), to finally stop the movement (isometric stop in shortened position) before starting the next repetition.
For each of these moments it is possible to modify its duration: raising and lowering the load more slowly or faster, increasing or decreasing the duration of the pause between the two movements.
It is commonly used to express these four phases with figures such as 3141 which respectively indicate the duration in seconds of the eccentric phase, the duration of the stop in the extended position, the duration of the concentric phase, the duration of the stop in the shortened position.
Since there is no certain scientific evidence on the optimal time for the various phases of repetition, over time different schools of thought have been formed: there are those who affirm that it is the fast repetition that guarantees maximum muscle development and those who affirm the opposite, by aiming on a slow or very slow lift and return speed.

 From our point of view, as for the other variables, it is necessary to experiment which is the best speed for a given person. In any case, it is essential to vary the stimuli in the various mesocycles from the point of view of the speed of execution also, keeping the only rule, to always keep a controlled movement and with an execution as clean as possible, focusing on the muscle you are training.
We therefore have another arrow in our bow to try to stimulate muscle development and vary the stimuli to push the body to seek a new homeostasis at a higher level than the previous one in terms of muscle mass.

3.7 Rest between sets

Even with this training variable it is possible to influence the results of muscle development because decreasing the pause time between one setss and the next increases the metabolic stress and the hormonal and protein synthesis responses that we highlighted in the first chapter.
Therefore, with the same volume and intensity, minor pauses between sets lead to an accumulation of substances pro hypertrophy, but also to a greater accumulation of fatigue.
The relationship between effort and fatigue must therefore be correctly measured. The experience in training and keeping track of the work done by noting the responses of one's body, are highlighted using some physical parameters and some measurements, which we indicate in a subsequent chapter and can indicate the right mix between effort and fatigue f or a given person.



3.8 Training techniques

We present here a setss of specific methodologies for resistance training developed over the years by practice in the gym.
There are no studies that demonstrate which methodology is to be preferred over another, but even in this case we can use these techniques as a tool that we can use to produce variability in training.
The fact remains that to obtain an increased muscle mass you need time, consistency, and a training plan that guarantees the correct increase in training stimuli. If you need help to optimize your training you can send me an email at info@fitnessedintorni.it

CIRCUIT TRAINING
Circuit training involves the execution of a certain number of exercises, completing a setss for each exercise and moving on to the next without rest between one setss and another. At the end of the established exercises, rest is performed. At the end of rest time resumes with the first exercise foreseen in the training plan. Canceling the rest between one exercise and another increases cardio-vascular work, increases metabolic stress and the aerobic phase. For these reasons it can be used in programs aimed at weight loss.
It can be used among others in the following ways:
• Organizing the entire training session in a single circuit to be repeated a set number of times.
• Setting the training session with 2 or more mini-circuits, perhaps divided by muscle areas.

PYRAMIDALS
Training with the pyramid method is based on the principle of providing an increase in the weight lifted with each setss. The greater load and the fatigue that gradually accumulates in the trained muscle leads to a decrease in the number of repetitions.
For example:
1st set: 12 reps (50% 1RM)
2nd setss: 10 repetitions (increasing kg)
3rd setss: 8 repetitions (increasing kg)

4th setss: 6 repetitions (increasing kg)
5th setss: 4 repetitions (increasing kg)
You may continue with other sets by reducing the load and increasing the reps
6th setss: 10 repetitions (decreases the kg)
7th setss: 12 repetitions (decreases the kg)

DESCENDING PYRAMIDALS

In this case we start with a high weight and we perform a few repetitions and with each repetition we remove the weight and increase the repetitions.
For example:
1st set: 85% 1RM X 5 reps (or to muscle failure)
2nd set: 80% 1RM X 6 reps (or to muscle failure)
3rd set: 75% 1RM X 7 reps (or to muscle failure)
4th set: 70% 1RM X 9 reps (or to muscle failure)

BULGARIAN METHOD (heavy / light)

It consists in performing a setss to exhaustion with a high load and a range of repetitions ranging from a minimum of four to a maximum of six; once concentric exhaustion is reached, the weight to be lifted will be unloaded by 20-30% and you will continue to push until muscular exhaustion.

It is important to minimize the dwell time between the two sets, as if we were in theory carrying out a single set which includes an unloading of the weight lifted.

The purpose of the first part of the setss, that is the heavy setss, is to recruit a large number of white fibers and try to bring them to exhaustion.

With the second part of the setss, the one carried out after unloading the weight, it will be possible to continue working the fibers not yet recruited, also leading to exhaustion.

For this purpose, the unloading of the weight from the tool is decisive, which must be such (from 20 to 30% of the initial load) as to allow the work to be continued for the necessary time, performing at least 6 to 8 repetitions, to totally exhaust the availability energy of the fibers involved.

REST PAUSE

With this technique you perform a limited number of repetitions (6 or 8) with a high weight (90% 1RM).

Reached exhaustion, rest for 15-20 seconds and perform a repetition, another rest of 15-20 seconds and do another repetition, continuing for another three or more repetitions.

REPETITIONS 1 and 1/4

With this technique, one repetition is performed. At the end of the lifting phase, a second repetition is performed but not for the entire arc of the movement as usual but for a partial arc (usually a quarter of the movement), repeating the procedure for the number of repetitions provided.

It is therefore a question of stopping in the final position of the movement and going back by ¼ of the movement and performing the partial repetition.

FORCED REPETITIONS

This is a method that involves the help of a training partner who, after muscle failure has been reached, helps to complete a certain number of other repetitions by lifting the weight.

21 (7 + 7 + 7)
This technique involves performing 21 consecutive repetitions for each setss by dividing them into three different movements: 7 repetitions by lifting the load up to mid-movement, 7 repetitions with full range of motion and 7 repetitions from the intermediate to the final position of maximum contraction.
There may be different variations based on the moment in which the complete movement is performed, which can be performed at the beginning, in the middle or at the end of the setss.

BULLDOZER setsS
This method consists in completing a predetermined number of repetitions, usually from 30 to 50, stopping each time you reach muscle failure and then resuming the setss until you reach the established number of repetitions. Clearly, the longer the setss goes on, the more rest must increase between one partial setss and another.

INTERRUPTED setsS
This method involves performing 5 repetitions with a weight equal to 80% 1RM and then rest for 20 seconds, perform another 5 repetitions with the same weight, rest another 20 seconds and perform other repetitions until failure. After a 3 minute break, do a new setss.

SUPER SLOW
This method involves performing the repetitions in the slowest and most controlled way possible, for both the eccentric and concentric phases, for example, 10 seconds for the concentric phase and 5 seconds for the eccentric phase.

STRIPPING
With this technique, a certain number of repetitions are performed with a high load and the weight is gradually decreased by performing the maximum possible number of repetitions at each load change. For example, we start with 80% 1RM for 5-6 repetitions, unload the weight (10-15%) and when muscle exhaustion is reached, unload again and do repetitions until muscle exhaustion.

SUPERSET

It involves performing two exercises one after another, performing a setss of one and a setss of the other and resting only at the end of the two setss. These are the main variants:

Superset for antagonist muscles. In this variant the two exercises to be performed in superset refer to two antagonistic muscle groups, for example: Pectoral – Back or Biceps – Triceps or Quadriceps – Femoral.

Superset for same muscle group: The two exercises to be performed in superset refer to the same muscle group.

Usually the superset consists of a basic multi-joint exercise and a secondary one which is usually an isolation exercise. A classic example would be for pectoral muscles: Barbell flat bench pushes + Dumbbell incline bench pushes. Or for the lats: Lat-machine tractions + Pulley.

TRISET

Technique similar to supersets, but the exercises to be performed are three, usually of the same muscle group. It allows a great muscular exhaustion. This technique is usually used on large muscle groups that can support these types of work such as the pecs, lats, quadriceps.

CHAPTER 4

Programs for hypertrophy

Major muscle groups

We review in this chapter the main muscle groups of the human body.

Muscles of the back
Chest muscles
Muscles of the abdomen
Shoulder muscles
Muscles of the arms
Leg muscles

The best exercises with free weights and machines will be illustrated for each of them.
The difference between the types of exercises is quite evident.
Bodyweight exercises use the weight of your body as a load. Free weight exercises use tools such as barbells and dumbbells. Exercises with machines use the classic equipment that we find in the gym.
The main difference between exercises with free weights and with machines consists in that with the first the movements do not have a fixed execution trajectory, which instead occurs using machines. Which require a more precise movement if we want it and which is more concentrated on the target muscle.
Certainly with each of these types you can get results. These always depend on this respect, for example with free-body, we will look for a progression in the number of sets and repetitions, not being able to increase your body weight between one set and another.
This principle of progression is also valid for the other types of exercises, to which we can add in these cases the variable of the load to be used also. So in addition to increasing (or decreasing) the number of sets and repetitions we can increase (or decrease) the weights lifted.
Which one is better? This is a useless question.

Everyone can have their own preferences for one exercise or another but in view of the need to vary the type of exercises and to hit the muscle in a different way, to avoid as much as possible the adaptation of the body to the stimuli to which it is subjected, it is good to use, when possible, a plurality of types of exercise. What I want to emphasize here is the fact that even with the few tools available you can improve your body. So there are no excuses: even in periods of lockdown or with closed gyms we must not give up and always strive towards the goal of improving our fitness.

Of course, always with knowledge and following a given progression: it makes no sense to vary your training routine every week. However, between one mesocycle and the next, it is good to vary, for example, the type of exercise and the individual exercises that affect a certain muscle district.
The exercises and their variations from this point of view are almost infinite.
In any case, it is good to remember that the muscles and joints to which the first are connected are always the same. It is better to identify some exercises or their variants without necessarily looking for novelty, but rather, as mentioned, try to ensure a progression of training stimuli in one's routine.
With this in mind, it is essential for those who want to train, to know the motor patterns of the joints whose muscles act as motors.

Muscles of the back

The back muscles are the muscles located in the posterior region of the trunk, in the area between the neck and buttocks. They can be divided into two sub-categories, which have different functions and characteristics: the deep and superficial muscles.
The deep layer of the back musculature is composed of the so-called erector spinae muscles, long muscle bundles that extend from the lower back to the cervical, including, among others, the multifidus, the iliocostal and the longissimus. These muscles, together with the interspinous and inter-transversal muscles, have the important function of extending the back, keeping it erect and stabilizing the vertebrae especially during the movements of the trunk and limbs. They are muscles not visible except in the lumbo-sacral area, where two cords of muscle tissue can be seen.

The superficial layer is instead composed of muscles such as the latissimus dorsi muscle
, the largest muscle in the human body. It originates at the level of the pelvis, the thoracic-lumbar belt, the thoracic vertebrae and the ribs to insert at the level of the crest of the minor tubercle. It is a fundamental muscle in movements such as climbing, as it is an extensor, adductor and internal rotator of the shoulder, as well as an extensor of the trunk and an anteversion of the pelvis.
Always in the most superficial area of the back we have the rhomboid muscles divided into small and large, which are located in the center of the back and which move from the medial margin of the scapula to the lower cervical and upper thoracic vertebrae.
These muscles allow the shoulder to be brought closer to the spine and are also stimulated during the pulling, rowing and climbing movements as synergistic as the latissimus dorsi.
The trapezius, formed by three portions, one upper, one middle and one lower, which covers the upper part of the back with an origin at the level of the nape, cervical and thoracic vertebrae, to insert on the shoulder blade and collarbone. It extends the cervical and allows the scapula to be moved with elevation and cranial rotation (superior), adduction (middle) and depression (inferior).

The quadratus lumborum muscle, on the other hand, is a small muscle located from the pelvis to the last rib and the lumbar vertebrae, which allows you to extend and tilt the spine.

Exercises for the back muscles

All exercises such as tractions, pull downs and lat machines that reproduce the movement of climbing and all pulling exercises such as pulley, rowing and body row.

Chest muscles

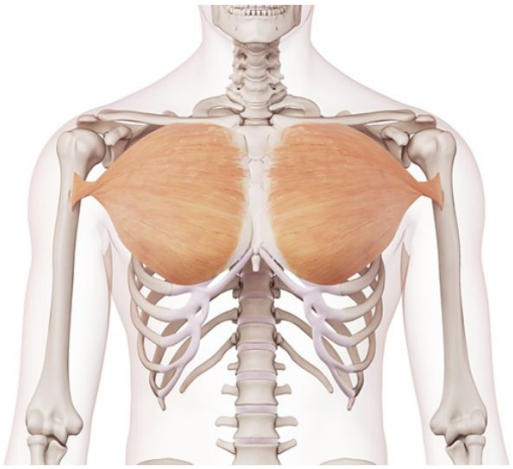
In this area, the main muscles are the pectoralis major and the pectoralis minor

The pectoralis major originates with its muscle bundles at the level of the anterior border of the clavicle with its clavicular portion, at the level of the sternal bundle and costal cartilages with its sternocostal portion and at the level of the rectus sheath with its abdominal portion.

All the fibers converge to anchor with a cross insertion on the crest of the greater tubercle of the humerus. The muscular belly of the pectoralis major entirely covers the pectoralis minor, placed under it.

These muscles have the function of adduction, flexion thanks to the claveal bundles, extension from the position of maximum flexion mainly by means of the sternocostal and abdominal bundles and internal rotation of the humerus.

The pectoral is made up of three different portions: the clavicular one, the sternocostal one and the abdominal one.
The different direction of the fibers of these three portions determines the anatomical functions of the pectoral muscles:
with the clavicular bundles: adducts, flexes the humerus;
with the sternocostal bundles: adducts the humerus;
with the abdominal bundles: adducts, and extends the humerus from the position of maximum flexion (starting with the arm above the head).



Pectoralis minor

Pectoralis minor originates on the third, fourth and fifth ribs and is inserted at the level of the scapula, on the choroid process. It is therefore a muscle that allows the movements of the rib cage and scapula. It is located immediately under the pectoralis major muscle, which covers it.

It allows for depression, caudal rotation and anterior tilt of the scapula. It acts as a secondary muscle in inspiration.

Examples of exercises to train and develop the chest are: the flat bench with barbell or dumbbells, crosses with dumbbells, push ups, the incline bench.

Abdominal muscles

The muscle group of the abdominal area is composed of a setss of different muscles that work in synergy and that are superimposed on each other: the rectus abdominis muscle, the most famous and the most superficial, which originates from the costal cartilages and from the xiphoid process of the sternum and with an insertion at the level of the pubic crest of the pelvis, it has a vertical course with its fibers. It is not possible to recruit only the upper part or only the lower part through appropriate exercises or movements.

During a flexion of the trunk, for example, by performing a classic crunch or a reverse crunch, the rectus abdominis always activates in its entirety;

the transverse abdominal muscle, the deepest, which with its origins at the level of the thoracolumbar fascia, inguinal ligament, iliac crest and costal cartilages and with its insertion at the level of the lunate line and abdominal aponeurosis. The transverse has the fibers with a transversal course;

the external oblique muscle, more superficial, with its origins at the level of the 5-12 costal interval and with its insertions at the level of the iliac crest and abdominal aponeurosis, the external oblique has a vertical course with its fibers more external, which are inserted on the iliac crest, and oblique course with the fibers having insertion on the aponeurosis moving from top to bottom and from back to front; this muscle allows to reverse the pelvis, it flexes and tilts the trunk laterally, rotates the trunk.

the internal oblique muscle, deeper, with its origins from the iliac crest and the thoracolumbar fascia and its insertions at the level of the abdominal aponeurosis and the last three ribs, the internal oblique has an opposite trend to the external oblique muscle, from below up and from front to back.

This muscle compresses the viscera, flexes and rotates the trunk, tilts the trunk.

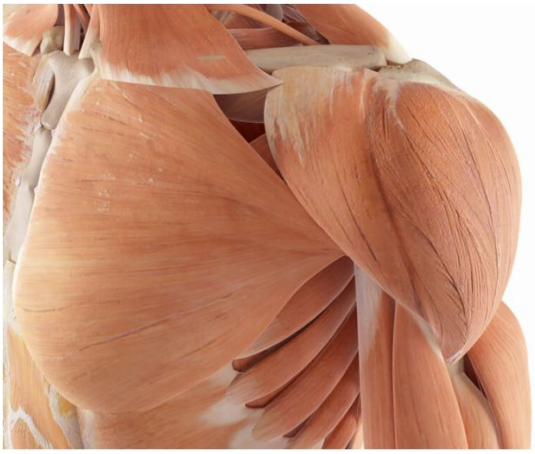
More generally, the first function of the whole of the abdominal muscles is the compression of the viscera, which, without adequate containment given by any bone structure, need this specific muscular apparatus to be adequately supported.

The rectus abdominis is a muscle that flexes the spine and reverses (turns backwards) the pelvis and is the protagonist in all the exercises generally proposed in the gym, Crunch above all, but also cross Crunches (which are

erroneously referred to as exercises with focus on oblique muscles), Reverse Crunches, Plank, AB Wheel and Sit-ups.

Shoulder muscles

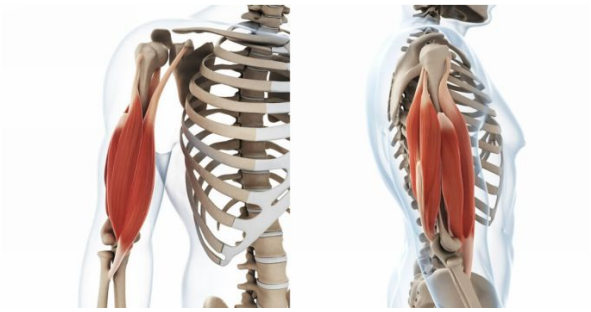
The main shoulder muscle to train is the deltoid which is usually divided into anterior, lateral and posterior. It moves the joint complex of the shoulder.
The deltoid covers and protects the main joints of this anatomical district.



It abducts the shoulder, flexes and lets the internal rotation of the shoulder (anterior portion), extend and let the external rotation of the shoulder (posterior portion).
Main exercises are: lateral raises, front raises, rear raises, military press

Arms muscles

The arm muscles are located starting from the shoulder and from the humerus to the bones of the forearm, ulna and radius.
The arm muscles move the scapulo-thoracic, scapulo-humeral joint and the elbow.
We can distinguish shoulder flexor and elbow flexor muscles, located in front of the arm, and shoulder extensor and elbow extensor muscles, located behind of the arm.
Between the flexor muscles of the elbow and shoulder we have the biceps, made up of two distinct heads. The long head originates from the supraglenoid tubercle of the scapula. The short head originates from the choroid process of the scapula. The two distinct heads come together and are inserted with a common tendon at the level of the tuberosity of the radius. The brachial biceps as a whole is the most important flexor of the elbow but it is also a muscle that causes flexion of the shoulder and anterior tilt of the scapula (with its short head).
The main exercise for this muscle is the curl in its many variations.



The main muscle of the back of the arm is the brachial triceps, it is divided into three distinct heads. The long head originates at the level of the subglenoid tubercle of the scapula, the medial head and the lateral head instead originate from the posterior aspect of the humerus respectively medially and laterally to the sulcus of the radial nerve.
This muscle extends the shoulder and extends the elbow.

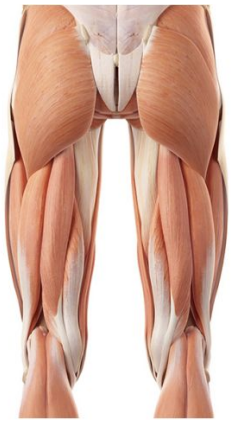
Main exercises:
French press with barbell or dumbbell
Parallel dips
Push-ups with tight arms
Kick back with handlebar,
Push down
Muscles of the forearm
The brachioradialis, between the forearm muscles, participates in the flexion of the elbow.
The brachioradialis is a muscle that originates on the humerus and is inserted on the radius.
Exercises: Reverse grip curl
Wrist flexions with dumbbells
Wrist rotations with dumbbells

Leg muscles

We divide the muscles of the legs into anterior and posterior, between the muscles that are located in the front of the thigh. Certainly the quadriceps femoris is the best known muscle. It is made up of four different muscle bellies: the rectus femoris and the vastus, medialis and lateralis.
The four heads are inserted with a common tendon at the level of the patella and through the patellar tendon to the tibia.
Its contraction allows you to extend the knee and flex the hip.
For these muscles there are multiarticular or monoarticular exercises. The former activate the quadriceps through the simultaneous movement of multiple joints such as squats, lunges, step-ups, leg presses, among others. In this type of exercise, the quadriceps contracts as a knee extensor together with muscles such as the gluteus maximus or the posterior hamstrings, which also extend the hip at the same time. Single-joint exercises, on the other hand, activate the quadriceps by moving only the knee joint, such as the leg extension.

In the rear part of the thigh are the hamstrings, among these we find the hamstring muscle, the semitendinosus muscle and the semimembranosus muscle. The hamstring muscles are so called because they all originate from the ischium of the pelvis and are inserted in different points on the leg (crural).

This group of muscles allows you to extend the hip, reverse the pelvis and flex the knee. The hamstring rotates the knee externally, semitendinosus and semimembranosus rotate the knee internally. Among the exercises for this muscle group we can mention: Squats, deadlifts, lunges, step-ups, which are multi-joint, while the leg curl allows you to isolate the hamstring.



Calf. These muscles are anchored on the bones of the leg in numerous points including the distal femur, tibia, fibula and foot bones and we can distinguish them in dorsiflexor muscles of the ankle, located anteriorly on the leg and plantar flexor muscles of the ankle, located posteriorly on the leg.

From our point of view, the main calf muscles we will deal with are located in the back of the leg and are the soleus muscle and the gastrocnemius muscle which together form the calf. The soleus is a muscle that originates posteriorly on the tibia and fibula. The gastrocnemius instead originates with two distinct heads (the twins) above the medial and lateral condyle of the femur. These two muscles join and enter through the tendon of Achilles on the heel. They allow a plantar flexion movement of the ankle and allow supination and inversion of the foot also.

Among the exercises to train the calves we remember the standing calf raise and their variants with machines or with free weights.

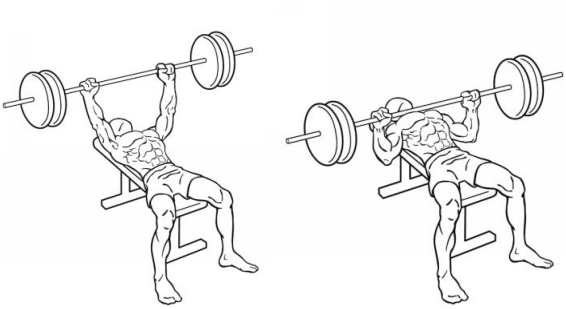
4.1 Exercises

CHEST

Free weight

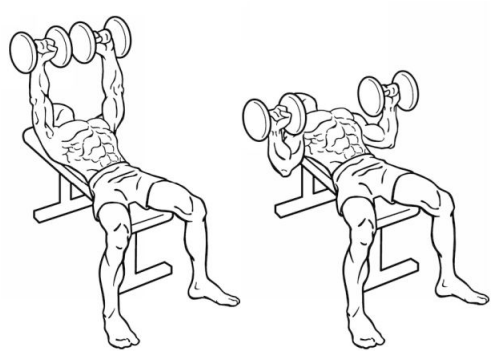
Bench Press

Execution: Lie down on a flat bench, grip the barbell with hands aperture corresponding to the width of the shoulders; lower the bar slowly until it touches the middle part of the chest; push the bar to full arms extension without lifting your shoulders off the bench. You can replace the barbell with dumbbells.



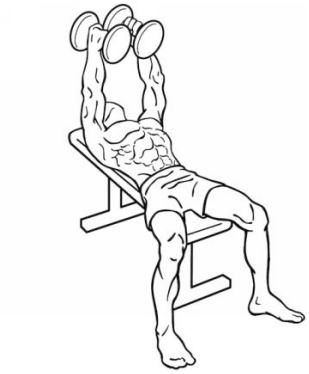
Incline bench press

Execution: Lie on a bench inclined at 45 or 60 degrees, grip the barbell with a grip corresponding to the width of the shoulders; lower the bar slowly until it touches the upper chest; push the bar to full extension without lifting your shoulders off the bench. You can replace the barbell with dumbbells.



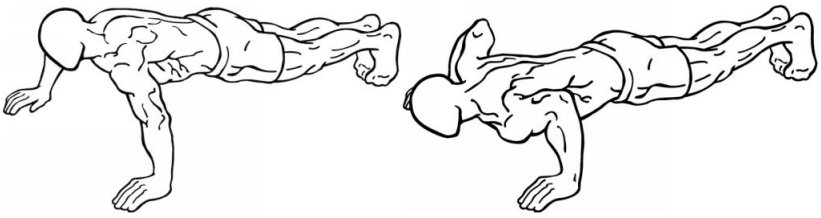
Dumbbell flyes

Execution: Lie down on a flat bench, hold two dumbbells with a neutral grip (with the palms of your hands facing each other); slowly lower the dumbbells while keeping the elbows locked to chest level; return to the starting position slowly still keeping the elbows locked.



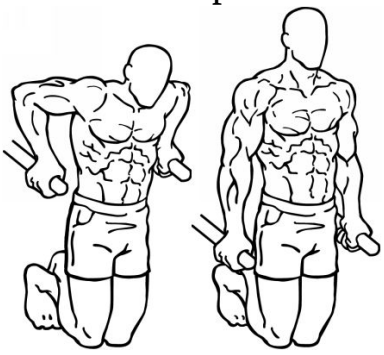
Push-up

Execution: Lie on the ground with your arms slightly wider than your shoulders; lift your body without bending your back or knees. By increasing or decreasing arm distance you can work your triceps (tight grip) or shoulders (wide grip)



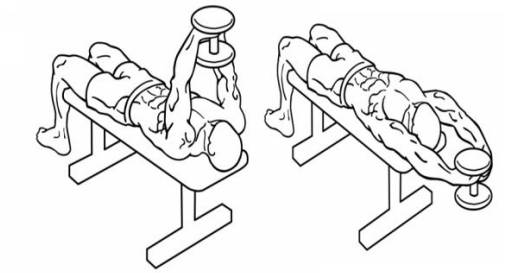
Parallel bars dip

Execution: Grasp the bars with shoulders blocked; bend the elbows until the forearms are parallel to the floor; return to the starting position.



Bent arm pullover

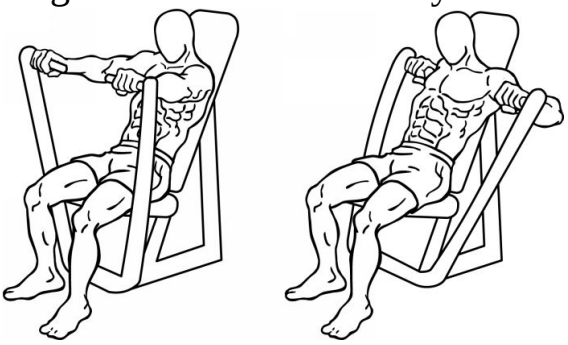
Execution: Lying on a flat bench with the head on the edge move a dumbbell vertically; keeping the elbows partially bent, slowly lower the weight behind the head, while inhaling, until the weight reaches the height of the head; return exhaling to the starting position.



Machine

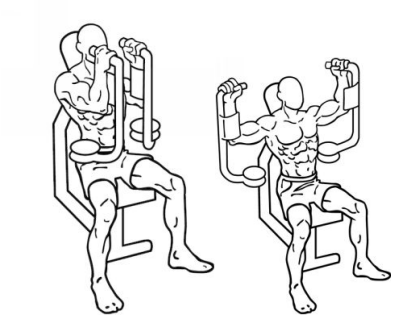
Chest press

Execution: Arrange the machine seat until your hands are at shoulder height. Push the bars slowly while exhaling; return to the starting position.



Pectoral Machine

Execution: Grasp the grips, move the bars slowly until the arms come together while exhaling; return to the starting position.



BACK

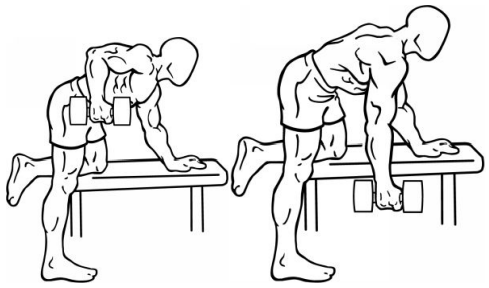
Free weight

Chin up

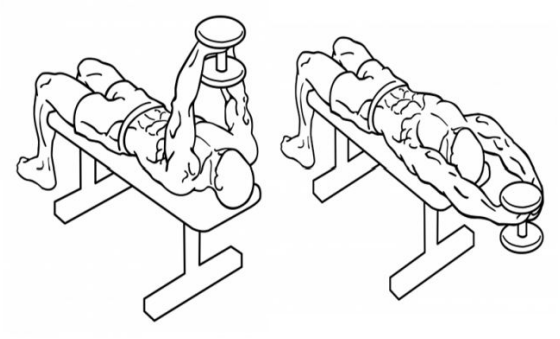
Execution: Grasp the bar with a prone grip at a width of about 15 cm greater than the shoulders; Raise the body until the chin touches the bar; lower the body slowly towards the starting position.

One arm dumbbell row

Execution: Hold a dumbbell with a neutral grip; Rest the opposite hand and knee on a bench; lift the dumbbell vertically by lifting the elbow as high as possible.

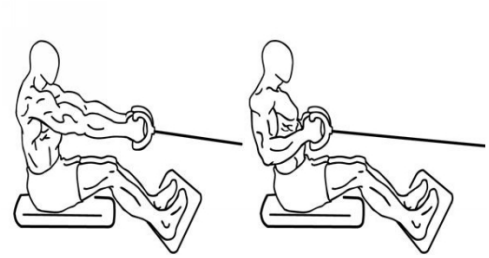


Pull over
Execution: Lying on a flat surface with the head on the edge, support a handlebar vertically; keeping the elbows half-bent, slowly lower the weight behind the head while inhaling, until the weight reaches the height of the head; return exhaling to the starting position.

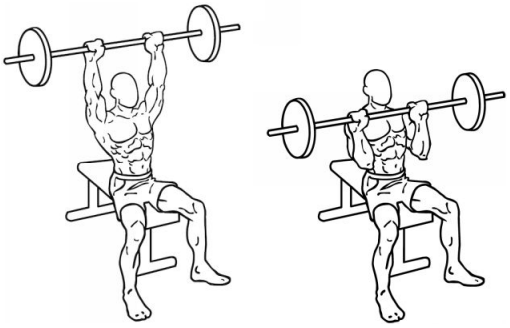


Machine
Lat machine front pull down
Execution: Grip the bar with a prone grip about 15 cm wider than that of the shoulders; Lower the bar until reaching the upper part of the chest, squeeze the back muscle; slowly return to the starting position.

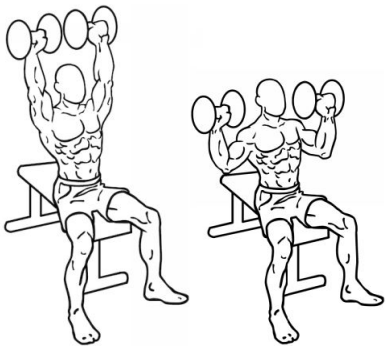
Low pulley Cable seated row
Execution: Sitting to the machine, grip the handle with a prone grip; pull the handle towards your chest while keeping your back straight; return to the starting position.



SHOULDERS
Free weight
Military press
Execution: Sitting on a bench, hold a barbell with a prone grip and with an opening slightly higher than the shoulders. Lower the bar until it reaches the chest in the collarbone area; slowly return to the starting position.

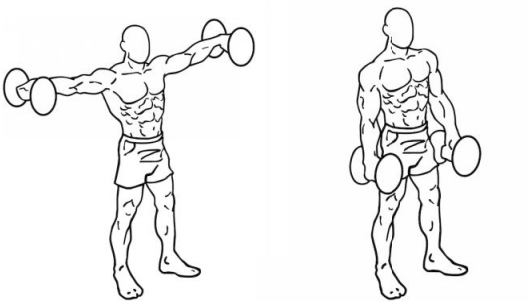


Dumbbell shoulder press
Execution: Sitting on a bench, two dumbbells are grasped at the sides of the head in pronation; rise to almost complete extension by approaching them slightly; slowly return to the starting position.



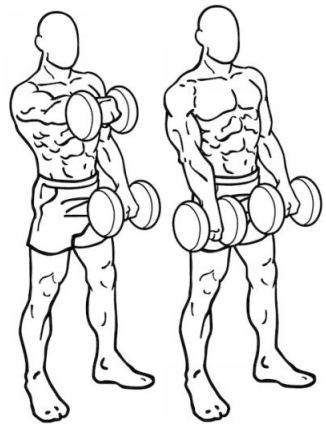
Dumbbell lateral raise

Execution: While standing, hold two dumbbells to the sides of the body. The arms are raised sideways and slowly until they reach shoulder height; slowly return to the starting position.



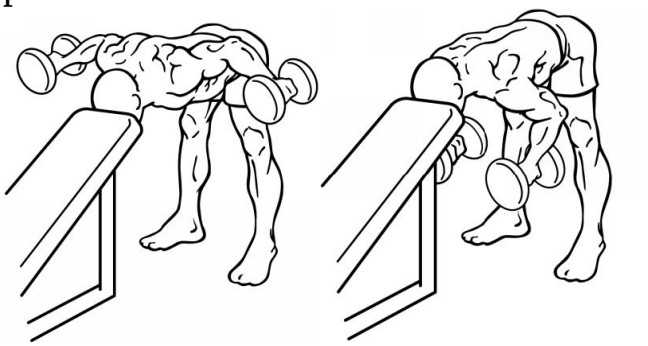
Dumbbell front raise

Execution: While standing, grasp two dumbbells holding them over the front of the thighs. The arms are raised frontally up to the height of the head. Slowly return to the starting position.



Dumbbell rear lateral raise

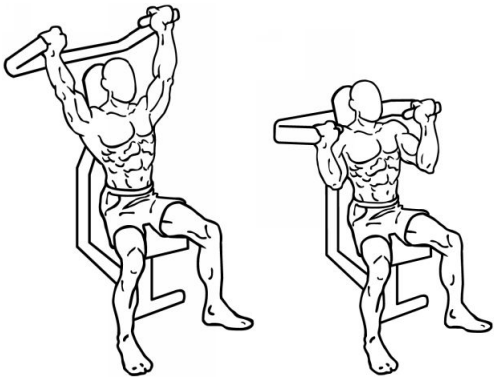
Execution: Standing with the trunk almost in a horizontal position, hold two dumbbells keeping the elbows slightly bent; the dumbbells are raised laterally until they reach the height of the trunk; slowly return to the starting position.



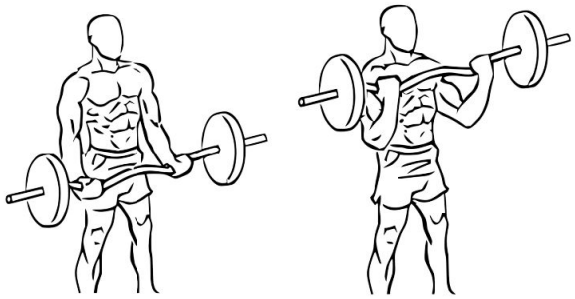
Machine

Shoulder press

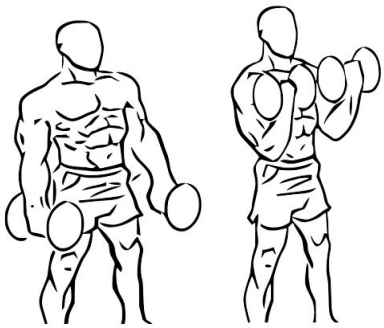
Execution: Sitting with the handles at shoulder height, the bars are pushed almost to the maximum extension of the elbow; slowly return to the starting position.



BICEPS
Free weight
Barbell curl
Execution: Standing, legs slightly apart, grip the barbell in front of the thighs; the barbell is raised slowly, keeping the shoulders still and moving only the elbow joint; return to the starting position.



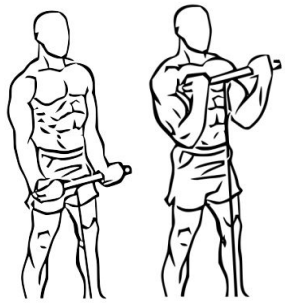
Dumbbell curl
Execution: Standing with legs slightly apart or sitting on a bench, the dumbbells are held at the sides of the body with a neutral grip; the dumbbells are raised slowly, keeping the shoulders still and moving only the elbow joint; return to the starting position.



Machine

Cable curl

Execution: Standing in front of the low cable with the legs slightly apart, the bar is grasped in front of the trunk in supination (palms facing each other), with a handle slightly higher than the shoulders; raise the cable slowly keeping the shoulders still; return to the starting position.

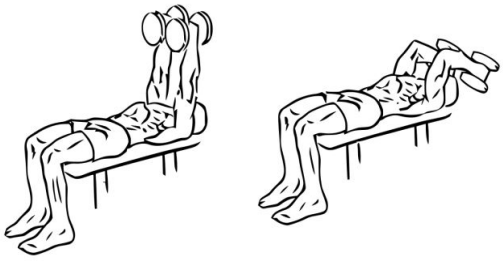


TRICEPS

Free weight

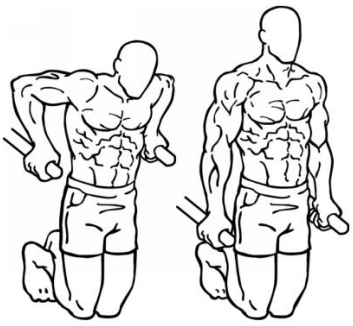
DB lying triceps extension

Execution: Lying on your back on a bench with your feet flat on the ground, grab the dumbbells with your hands in a neutral position with your elbows extended frontally in front of your eyes; slowly bring the dumbbells towards the sides of the head by bending the elbows; slowly return to the starting position.



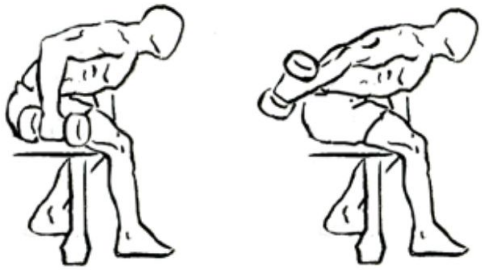
Dip

Execution: Holding the parallels with a tight grip lift yourself until your arms are fully extended, go down vertically slowly bending the elbows, until your arms are parallel to the floor; return to the starting position.



Dumbbell kickback

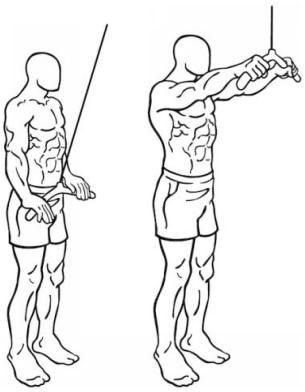
Execution: Holding a dumbbell in one hand, rest your free hand on a bench. Begin with the upper arm parallel to the floor and your elbow bent 90 degrees. Raise the dumbbell upward, straightening your arm until your elbow locks out.



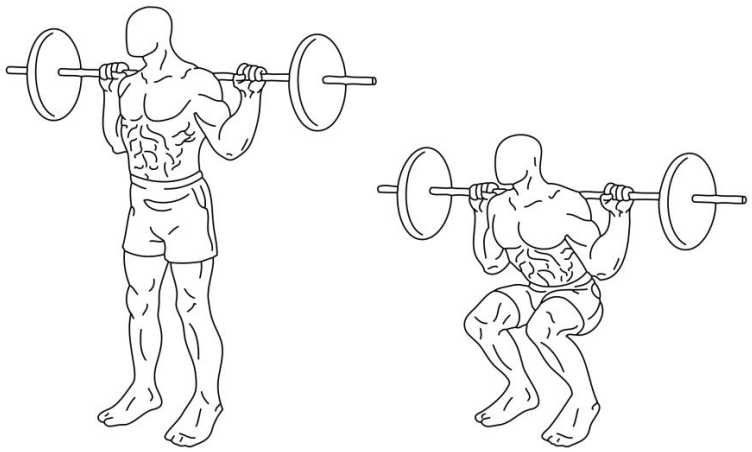
Machine

Triceps Push-down

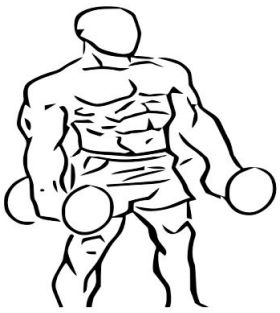
Execution: Standing in front of the high cable, grasp the bar at a distance similar to or less than that of the shoulders; the bar is lowered without moving the elbows which are closed and close to the trunk; return to the starting position.



LEGS
Free weight
Squat
Execution: Standing with the legs slightly apart, the barbell is grasped and placed over the trapezius and deltoid; go down by bending the knees until the thighs are parallel to the ground, without raising the heels; return to the starting position.

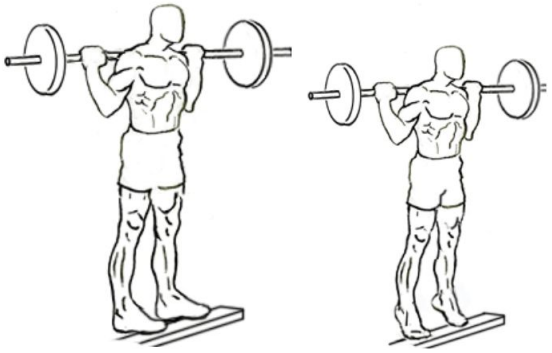


Lunges Lunge
Execution: Standing with two dumbbells in the hand in a neutral position, take a long step forward, bringing the knee closer to the ground; return to the starting position.



Standing calf raise

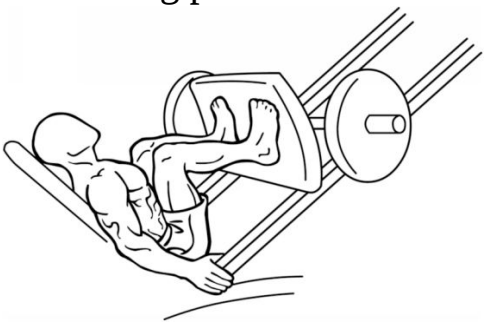
Execution: Standing with the front part of the foot resting on the edge of a step at a distance similar to the shoulders, perform a flexion of the sole of the foot; return to the starting position.

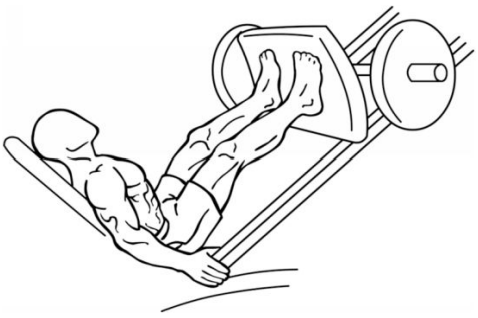


Machine

Leg press

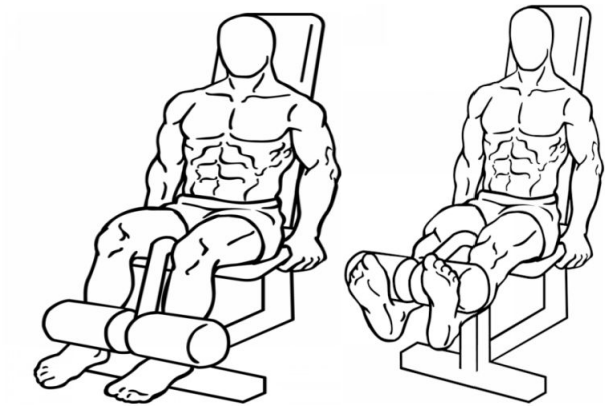
Execution: Sitting at the machine with the back well supported, place the feet on the platform open slightly higher than that of the hips; go down until you bring the thighs closer to the trunk without raising the pelvis; return to the starting position.





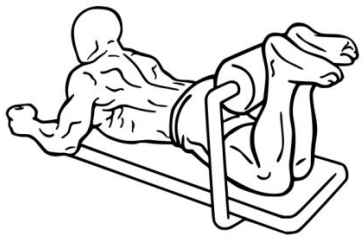
Leg extension

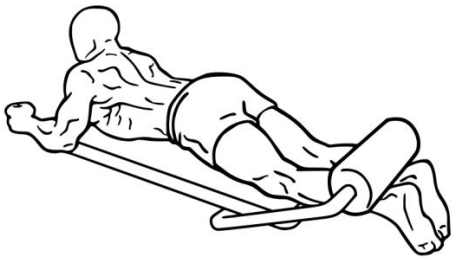
Execution: Sitting on the bench with the top of the ankles under the stops; raise the weight about 90 degrees until the legs are extended; slowly return to the starting position.



Leg curl

Execution: Lie down on the machine bench, place your heels under the machine stops and lift the weight; return to the starting position.

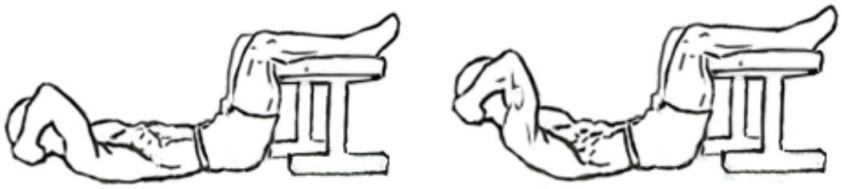




ABDOMINALS

Crunch

Execution: Lying on the back with the legs resting on a bench, the shoulders are raised with a contraction of the abdominals with a short and controlled movement, the lumbar area is always resting on the ground; return to the starting position.

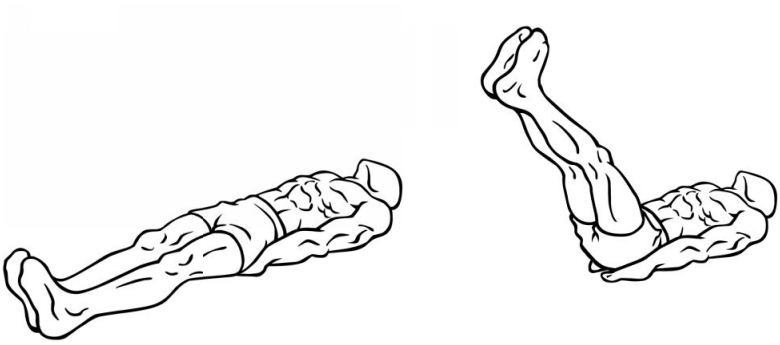


Sit ups

Execution: Sitting on a bench inclined of about 45 degrees with the legs under the supports, the trunk is raised with the contraction of the abdominals; return to the starting position.

Reverse Crunch

Execution: Lying on the back with the hands on the sides of the body under the buttocks, raise the pelvis and bring the legs up with vertical movements, raising the lumbar area with each repetition; return to the starting position.



In my method, the time available for training is a fundamental component, which is why I propose to perform one or at most two exercises for each muscle group gradually increasing the lifted weight.
It is clear that if a muscle group performs different joint functions, different exercises must be used or alternated for each movement.
If we take the case of the shoulders, for example, we will perform a setss of military presses and one of lateral raises or rear raises.
But in general I prefer only one exercise per muscle group because all sectors of the muscle are involved in each movement performed.
Certainly during the mesocycles there will be variations in the type of exercise to ensure the necessary variability in this aspect also.
In any case, the type of exercise is the variable that has the least impact on muscle mass if one is able to guarantee the due increase of the main training variables which consist, as we have seen, in weight, in volume of training (sets and repetitions) and in rest time between sets.
My advice, in creating your training routines, is to train at least 5 times a week in multi-frequency, i.e. training the same muscle district several times a week with 30/40 minute sessions. In some periods, in case of muscles that need more development, the forces can be concentrated on those muscle groups by performing two or more exercises in the sessions dedicated to them.

4.2 Periodization

Periodizing means planning a training program by managing the training variables with the aim of ensuring an optimal response from the body in relation to the goal you want to achieve.
Based on the theory of general adaptation syndrome, it is assumed that the body subjected to the stress of exercise reacts by increasing protein synthesis and other metabolic mechanisms that lead to the overcompensation of the proteins of the muscles, thus initiating the process of increase and strengthening of the capabilities of the muscles themselves.
But over time the muscle, if subjected to the same stimulus, slows down or stops growth precisely due to the body's ability to adapt. Hence the need to vary the training stimuli by altering the training variables to ensure the desired compensatory response. Periodizing also means inserting the single training session within a cycle of sessions.
Usually we speak of macrocycle, mesocycle and microcycle.
The microcycle can be considered a single week of sessions, the mesocycle groups a setss of microcycles and a set of mesocycles constitutes the macrocycle.
The art of bodybuilding and body recomposition essentially consists in planning (and executing!) Micro, meso and macrocycles are functional to the acquisition of muscle mass, obviously without forgetting the role of proper nutrition.
It is clear that the optimal solution consists in finding the training plan tailored to each individuality but in any case a correct planning will prevent the body from getting used to the training stress, as we said, because it is able to make changes in training variables: intensity, volume, rest intervals, frequency, exercise selection, effort required.
Hence the need to periodize muscle stimuli.
Three types of periodization can be identified: **traditional** or linear periodization, non-linear or **wavy** periodization and **inverse** periodization.
In traditional periodization there is an inverse relationship between volume and intensity, alternating mesocycles with high volumes and low intensity to mesocycles with low volumes and high intensity (load).
So we pass from a period of high volumes to one of low volumes by increasing the intensity. This can lead to an increase in metabolic stress and lead in some cases (but this ultimately applies to the high-level athlete) to

the threshold of overtraining. To overcome the problems of metabolic stress induced by traditional periodization and to maintain a greater hypertrophic state (the volume, as we know, is one of the factors of hypertrophy), several changes have been proposed to the traditional approach. Some of these approaches propose varying volume and intensity within the same mesocycle, alternating high-volume weeks with high-intensity weeks. The inverse periodization leads to the insertion of a period of hypertrophy, i.e. increasing the volume and reducing the load, at the end of a macrocycle.

At present, however, there is no scientific evidence on which is the best approach for hypertrophy, as it ultimately depends on the individual response to the set of factors that govern hypertrophy, i.e. it will never be possible to reproduce the same conditions on one person who uses the traditional periodization approach first and then the wave periodization approach.
Ultimately, the individual response given by one's genetics counts, all other conditions being equal. How many muscle fibers of type I and type II an individual have in his muscles. Someone will get more muscle development from high volume and low intensity, others from high intensity and low volume.
The magic and skill of the trainer consists in using and manipulating the training variables to find the best solution for the individual, ensuring a condition that does not reach overtraining.

In general we can for convenience keep in mind the following values to create our workout plans.
Metabolic phase or unloading
setss: 2/3
Reps: 20/25
Load up to 60% 1RM

Hypertrophy phase
setss: 3/4
Reps: 6/12
Load at 60% -80% 1RM

Strength phase
setss: 4/5
Reps: 3/5
Load at 85% -100% 1RM

We can build on these parameters the periodization of the mesocycle or microclicle by varying volume and weight. We can also decide inside the mesocycle to adopt full body strategies or strategies based on split routines. With full body training, all the main muscle groups are trained in each session, with split routines only certain areas are trained in each session (upper body / lower body or a mix of the two). The choice depends on the time available and the individual's training skills.
Full Body example
at each session
Bench press
Pulley or lat machine
Curl
Pull down
Squat or leg press
leg curl
calf
crunch

High / low split example
alternating between sessions
day A
Bench press
Pulley or lat machine
Curl
Pull down

day B
Squat or leg press
leg curl
calf
crunch

An example of **traditional periodization** can consist of the following mesocycles:
4 weeks full body general conditioning with three sessions per week
4 weeks full body hypertrophy with three sessions per week
4 weeks full body strength with three sessions per week

An example of **wavy periodization** can be the following:
3 weeks full body general conditioning with three sessions per week
1 week full body hypertrophy with three sessions per week
1 week full body strength with three sessions per week
1 week full body general conditioning with three sessions per week
1 week full body hypertrophy with three sessions per week
1 week full body strength with three sessions per week
or
3 weeks general conditioning with split routine on four days a week

2 week hypertrophy with split routine on four days a week

2 week strength with split routines on four days a week

1 week general conditioning with split routine on four days a week

2 week hypertrophy with split routine on four days a week
2 week strength with split routines on four days a week

or again we can use split routines in the microcycle by dividing the week into days of hypertrophy and days of strength and after 4-6 weeks introduce a week of rest.
As you can see, keeping in mind the fixed points discussed above, we can create infinite combinations in microcycles and mesocycles based on the individual response.
In this regard, it is necessary to keep track of the trends of the various sessions and then note the work done in terms of setss, repetitions and weight used as well as the recovery time. To better understand how the body responds to training, it is also necessary to take note of some parameters such as weight, temperature, circumferences, heart rate. Elements that will be analyzed in chapter 7.

Training protocols

Below you will find the detail of my training protocol lasting a total of 32 weeks, 8 months of training, at the end of which it is possible to continue, resuming a certain phase, up to an year of training. This macrocycle is divided into four phases: an initial or adaptation phase lasting 8 weeks suitable for those who have just started training or for those who resume activity after a period of rest. This is followed by an 8 weeks strength phase in which we try to increase overall strength. After the strength phase, very expensive for the body, follows a recovery phase lasting 4 weeks. The last mesocycle of the protocol consists of the hypertrophy phase lasting 12 weeks, in which the workouts will be aimed at gaining muscle mass. At the end of the period of hypertrophy it is good to insert a recovery period of another 4 weeks and then restart with a cycle of strength or with another cycle of hypertrophy based on your specific goals.

Break-in phase (8 weeks)

This phase is designed for those who have never trained with weights or for those who have not trained for a long time.
Those who have been training for at least 6 months can use this phase as a preparation for the next ones or start directly with the strength phase.
The protocol provides for an 8 week mesocycle divided into two sections.
There are three days of training each week.
The first section has the main purpose of learning the movements for the various exercises. All major muscle groups are trained in each session.
They are "Full body" workouts in which the weight does not have to be heavy and the repetitions are quite high, from 15 to 20 per set, with rests of about 1 minute between sets.
It is important to start very gradually to allow the body to adapt to the effort without incurring injuries or annoying pains that can block your desire to train.
Always do one or two sets of warm-ups with a low load before each exercise.
Every week increase the maximum weight used in the training setss.
Phase two, also with full body sessions and lasting four weeks, includes weeks with light loads and others with heavier loads.
Throughout the initial phase, but more generally during training, you must try to maintain a "clean" movement, focusing on the muscle you are working on.
Keep an execution speed (TUT) of 2 seconds during the concentric phase and 2 seconds in the eccentric phase.
About the weight to be lifted: it varies according to your initial state of form and experience as well as your initial strength. To make the use of the cards universal, I adopted the system relating to the maximum repetition, or rather the maximum number of repetitions that you can perform with a given weight. For example, if 3 sets @ 8-10RM is indicated, it means that you must use a weight that allows you to perform a maximum of 10 repetitions correctly and not less than 8, if then in another card for the same exercise that number is lower, I.e. find @ 5-7RM means that with the weight used you can perform a maximum of 7 repetitions, I.e. The load is heavier than the first indication.

Initial phase. Section 1. Week 1
Perceived effort level 6

DAY	MUSCLES	EXERCISES
Monday	Full Body	Dumbbell bench press [3 sets @ 15-20RM] Dumbbell military press [3 sets @ 15-20RM] Dumbbell bent over row [3 sets @ 15-20RM] Dumbbell curl [3 sets @ 15-20RM] Cable pushdown [3 sets @ 15-20RM] Leg curl [3 sets @ 15-20RM] Squat [3 sets @ 15-20RM] Crunch [3 sets @ 15-20RM] Calf raise [3 sets @ 15-20RM]
Tuesday	Rest	
Wednesday	Full Body	Dumbbell bench press [3 sets @ 15-20RM] Dumbbell military press [3 sets @ 15-20RM] Dumbbell bent over row [3 sets @15-20RM] Dumbbell curl [3 sets @ 15-20RM] Cable pushdown [3 sets @ 15-20RM] Leg curl [3 sets @ 15-20RM] Squat [3 sets @ 15-20RM] Crunch [3 sets @ 15-20RM] Calf raise [3 sets @ 15-20RM]
Thursday	Rest	
Friday	Full Body	Dumbbell bench press [3 sets @ 15-20RM] Dumbbell military press [3 sets @ 15-20RM] Dumbbell bent over row [3 sets @ 15-20RM] Dumbbell curl [3 sets @ 15-20RM] Cable pushdown [3 sets @ 15-20RM] Leg curl [3 sets @ 15-20RM] Squat [3 sets @ 15-20RM] Crunch [3 sets @ 15-20RM] Calf raise [3 sets @ 15-20RM]
Saturday	Rest	
Sunday	Rest	

Initial phase. Section 1. Week 2
Perceived effort level 7

DAY	MUSCLES	EXERCISES
Monday	Full Body	Dumbbell bench press [3 sets @ 15-20RM] Dumbbell military press [3 sets @ 15-20RM] Dumbbell bent over row [3 sets @ 15-20RM] Dumbbell curl [3 sets @ 15-20RM] Cable pushdown [3 sets @ 15-20RM] Leg curl [3 sets @ 15-20RM] Squat [3 sets @ 15-20RM] Crunch [3 sets @ 15-20RM] Calf raise [3 sets @ 15-20RM]
Tuesday	Rest	
Wednesday	Full Body	Dumbbell bench press [3 sets @ 15-20RM] Dumbbell military press [3 sets @ 15-20RM] Dumbbell bent over row [3 sets @ 15-20RM] Dumbbell curl [3 sets @ 15-20RM] Cable pushdown [3 sets @ 15-20RM] Leg curl [3 sets @ 15-20RM] Squat [3 sets @ 15-20RM] Crunch [3 sets @ 15-20RM] Calf raise [3 sets @ 15-20RM]
Thursday	Rest	
Friday	Full Body	Dumbbell bench press [3 sets @ 15-20RM] Dumbbell military press [3 sets @ 15-20RM] Dumbbell bent over row [3 sets @ 15-20RM] Dumbbell curl [3 sets @ 15-20RM] Cable pushdown [3 sets @ 15-20RM] Leg curl [3 sets @ 15-20RM] Squat [3 sets @ 15-20RM] Crunch [3 sets @ 15-20RM] Calf raise [3 sets @ 15-20RM]
Saturday	Rest	
Sunday	Rest	

Initial phase. Section 1. Week 3
Perceived effort level 8

DAY	MUSCLES	EXERCISES
Monday	Full Body	Dumbbell bench press [3 sets @ 15-20RM] Dumbbell military press [3 sets @ 15-20RM] Dumbbell bent over row [3 sets @ 15-20RM] Dumbbell curl [3 sets @ 15-20RM] Cable pushdown [3 sets @ 15-20RM] Leg curl [3 sets @ 15-20RM] Squat [3 sets @ 15-20RM] Crunch [3 sets @ 15-20RM] Calf raise [3 sets @ 15-20RM]
Tuesday	Rest	
Wednesday	Full Body	Dumbbell bench press [3 sets @ 15-20RM] Dumbbell military press [3 sets @ 15-20RM] Dumbbell bent over row [3 sets @ 15-20RM] Dumbbell curl [3 sets @ 15-20RM] Cable pushdown [3 sets @ 15-20RM] Leg curl [3 sets @ 15-20RM] Squat [3 sets @ 15-20RM] Crunch [3 sets @ 15-20RM] Calf raise [3 sets @ 15-20RM]
Thursday	Rest	
Friday	Full Body	Dumbbell bench press [3 sets @ 15-20RM] Dumbbell military press [3 sets @ 15-20RM] Dumbbell bent over row [3 sets @ 15-20RM] Dumbbell curl [3 sets @ 15-20RM] Cable pushdown [3 sets @ 15-20RM] Leg curl [3 sets @ 15-20RM] Squat [3 sets @ 15-20RM] Crunch [3 sets @ 15-20RM] Calf raise [3 sets @ 15-20RM]
Saturday	Rest	
Sunday	Rest	

Initial phase. Section 1. Week 4
Perceived effort level 6

DAY	MUSCLES	EXERCISES
Monday	Full Body	Dumbbell bench press [3 sets @ 15-20RM] Dumbbell military press [3 sets @ 15-20RM] Dumbbell bent over row [3 sets @ 15-20RM] Dumbbell curl [3 sets @ 15-20RM] Cable pushdown [3 sets @ 15-20RM] Leg curl [3 sets @ 15-20RM] Squat [3 sets @ 15-20RM] Crunch [3 sets @ 15-20RM] Calf raise [3 sets @ 15-20RM]
Tuesday	Rest	
Wednesday	Full Body	Dumbbell bench press [3 sets @ 15-20RM] Dumbbell military press [3 sets @ 15-20RM] Dumbbell bent over row [3 sets @ 15-20RM] Dumbbell curl [3 sets @ 15-20RM] Cable pushdown [3 sets @ 15-20RM] Leg curl [3 sets @ 15-20RM] Squat [3 sets @ 15-20RM] Crunch [3 sets @ 15-20RM] Calf raise [3 sets @ 15-20RM]
Thursday	Rest	
Friday	Full Body	Dumbbell bench press [3 sets @ 15-20RM] Dumbbell military press [3 sets @ 15-20RM] Dumbbell bent over row [3 sets @ 15-20RM] Dumbbell curl [3 sets @ 15-20RM] Cable pushdown [3 sets @ 15-20RM] Leg curl [3 sets @ 15-20RM] Squat [3 sets @ 15-20RM] Crunch [3 sets @ 15-20RM] Calf raise [3 sets @ 15-20RM]
Saturday	Rest	
Sunday	Rest	

Initial phase. Section 2. Week 5
Perceived effort level 6

DAY	MUSCLES	EXERCISES
Monday	Full Body	Dumbbell bench press [3 sets @ 15-20RM] Dumbbell military press [3 sets @ 15-20RM] Low pulley row [3 sets @ 15-20RM] Dumbbell curl [3 sets @ 15-20RM] Cable pushdown [3 sets @ 15-20RM] Leg curl [3 sets @ 15-20RM] Leg extension [3 sets @ 15-20RM] Crunch [3 sets @ 15-20RM] Calf raise [3 sets @ 15-20RM]
Tuesday	Rest	
Wednesday	Full Body	Dumbbell bench press [3 sets @ 15-20RM] Dumbbell military press [3 sets @ 15-20RM] Low pulley row [3 sets @ 15-20RM] Dumbbell curl [3 sets @ 15-20RM] Cable pushdown [3 sets @ 15-20RM] Leg curl [3 sets @ 15-20RM] Leg extension [3 sets @ 15-20RM] Crunch [3 sets @ 15-20RM] Calf raise [3 sets @ 15-20RM]
Thursday	Rest	
Friday	Full Body	Dumbbell bench press [3 sets @ 15-20RM] Dumbbell military press [3 sets @ 15-20RM] Low pulley row [3 sets @ 15-20RM] Dumbbell curl [3 sets @ 15-20RM] Cable pushdown [3 sets @ 15-20RM] Leg curl [3 sets @ 15-20RM] Leg extension [3 sets @ 15-20RM] Crunch [3 sets @ 15-20RM] Calf raise [3 sets @ 15-20RM]
Saturday	Rest	
Sunday	Rest	

Initial phase. Section 2. Week 6
Perceived effort level 7

DAY	MUSCLES	EXERCISES
Monday	Full Body	Dumbbell bench press [3 sets @ 10-12RM] Dumbbell military press [3 sets @ 10-12RM] Low pulley row [3 sets @ 10-12RM] Dumbbell curl [3 sets @ 10-12RM] Cable pushdown [3 sets @ 10-12RM] Leg curl [3 sets @ 10-12RM] Leg extension [3 sets @ 10-12RM] Crunch [3 sets @ 10-12RM] Calf raise [3 sets @ 10-12RM]
Tuesday	Rest	
Wednesday	Full Body	Dumbbell bench press [3 sets @ 10-12RM] Dumbbell military press [3 sets @ 10-12RM] Low pulley row [3 sets @ 10-12RM] Dumbbell curl [3 sets @ 10-12RM] Cable pushdown [3 sets @ 10-12RM] Leg curl [3 sets @ 10-12RM] Leg extension [3 sets @ 10-12RM] Crunch [3 sets @ 10-12RM] Calf raise [3 sets @ 10-12RM]
Thursday	Rest	
Friday	Full Body	Dumbbell bench press [3 sets @ 10-12RM] Dumbbell military press [3 sets @ 10-12RM] Low pulley row [3 sets @ 10-12RM] Dumbbell curl [3 sets @ 10-12RM] Cable pushdown [3 sets @ 10-12RM] Leg curl [3 sets @ 10-12RM] Leg extension [3 sets @ 10-12RM] Crunch [3 sets @ 10-12RM] Calf raise [3 sets @ 10-12RM]
Saturday	Rest	
Sunday	Rest	

Initial phase. Section 2. Week 7
Perceived effort level 7

DAY	MUSCLES	EXERCISES
Monday	Full Body	Dumbbell bench press [3 sets @ 8-10RM] Dumbbell military press [3 sets @ 8-10RM] Low pulley row [3 sets @ 8-10RM] Dumbbell curl [3 sets @ 8-10RM] Cable pushdown [3 sets @ 8-10RM] Leg curl [3 sets @ 8-10RM] Leg extension [3 sets @ 8-10RM] Crunch [3 sets @ 8-10RM] Calf raise [3 sets @ 8-10RM]
Tuesday	Rest	
Wednesday	Full Body	Dumbbell bench press [3 sets @ 8-10RM] Dumbbell military press [3 sets @ 8-10RM] Low pulley row [3 sets @ 8-10RM] Dumbbell curl [3 sets @ 8-10RM] Cable pushdown [3 sets @ 8-10RM] Leg curl [3 sets @ 8-10RM] Leg extension [3 sets @ 8-10RM] Crunch [3 sets @ 8-10RM] Calf raise [3 sets @ 8-10RM]
Thursday	Rest	
Friday	Full Body	Dumbbell bench press [3 sets @ 8-10RM] Dumbbell military press [3 sets @ 8-10RM] Low pulley row [3 sets @ 8-10RM] Dumbbell curl [3 sets @ 8-10RM] Cable pushdown [3 sets @ 8-10RM] Leg curl [3 sets @ 8-10RM] Leg extension [3 sets @ 8-10RM] Crunch [3 sets @ 8-10RM] Calf raise [3 sets @ 8-10RM]
Saturday	Rest	
Sunday	Rest	

Initial phase. Section 2. Week 8
Perceived effort level 7

DAY	MUSCLES	EXERCISES
Monday	Full Body	Dumbbell bench press [3 sets @ 15-20RM] Dumbbell military press [3 sets @ 15-20RM] Low pulley row [3 sets @ 15-20RM] Dumbbell curl [3 sets @ 15-20RM] Cable pushdown [3 sets @ 15-20RM] Leg curl [3 sets @ 15-20RM] Leg extension [3 sets @ 15-20RM] Crunch [3 sets @ 15-20RM] Calf raise [3 sets @ 15-20RM]
Tuesday	Rest	
Wednesday	Full Body	Dumbbell bench press [3 sets @ 15-20RM] Dumbbell military press [3 sets @ 15-20RM] Low pulley row [3 sets @ 15-20RM] Dumbbell curl [3 sets @ 15-20RM] Cable pushdown [3 sets @ 15-20RM] Leg curl [3 sets @ 15-20RM] Leg extension [3 sets @ 15-20RM] Crunch [3 sets @ 15-20RM] Calf raise [3 sets @ 15-20RM]
Thursday	Rest	
Friday	Full Body	Dumbbell bench press [3 sets @ 15-20RM] Dumbbell military press [3 sets @ 15-20RM] Low pulley row [3 sets @ 15-20RM] Dumbbell curl [3 sets @ 15-20RM] Cable pushdown [3 sets @ 15-20RM] Leg curl [3 sets @ 15-20RM] Leg extension [3 sets @ 15-20RM] Crunch [3 sets @ 15-20RM] Calf raise [3 sets @ 15-20RM]
Saturday	Rest	
Sunday	Rest	

Strength phase 8 weeks

This phase is also divided into two mesocycles of four weeks each, in which you train with high loads and low repetitions, the rests between one setss and the next are lengthened up to 2-3 minutes.
In the first mesocycle you train three days a week in full body, in the second at least four but with split routines.

Strength phase. Section 1. Week 1
Perceived effort level 8, add weight each set.

DAY	MUSCLES	EXERCISES
Monday	Full Body	Bench press [3 sets @ 5-6 RM] Military press [3 sets @ 15-6 RM] Low pulley row [3 sets @ 5-6 RM] Dumbbell curl [3 sets @ 5-6 RM] Cable pushdown [3 sets @ 5-6 RM] Leg curl [3 sets @ 5-6 RM] Squat [3 sets @ 5-6 RM] Crunch [3 sets @ 15-20RM]
Tuesday	Rest	
Wednesday	Full Body	Bench press [3 sets @ 5-6 RM] Military press [3 sets @ 15-6 RM] Low pulley row [3 sets @ 5-6 RM] Dumbbell curl [3 sets @ 5-6 RM] Cable pushdown [3 sets @ 5-6 RM] Leg curl [3 sets @ 5-6 RM] Squat [3 sets @ 5-6 RM] Crunch [3 sets @ 15-20RM]
Thursday	Rest	
Friday	Full Body	Bench press [3 sets @ 5-6 RM] Military press [3 sets @ 15-6 RM] Low pulley row [3 sets @ 5-6 RM] Dumbbell curl [3 sets @ 5-6 RM] Cable pushdown [3 sets @ 5-6 RM] Leg curl [3 sets @ 5-6 RM] Squat [3 sets @ 5-6 RM] Crunch [3 sets @ 15-20RM]
Saturday	Rest	
Sunday	Rest	

Strength phase. Section 1. Week 2
Perceived effort level 8, add weight each set.

DAY	MUSCLES	EXERCISES
Monday	Full Body	Bench press [3 sets @ 3-5 RM] Military press [3 sets @ 3-5 RM] Low pulley row [3 sets @ 3-5 RM] Dumbbell curl [3 sets @ 3-5 RM] Cable pushdown [3 sets @ 3-5 RM] Leg curl [3 sets @ 3-5 RM] Squat [3 sets @ 3-5 RM] Crunch [3 sets @ 15-20RM]
Tuesday	Rest	
Wednesday	Full Body	Bench press [3 sets @ 3-5 RM] Military press [3 sets @ 3-5 RM] Low pulley row [3 sets @ 3-5 RM] Dumbbell curl [3 sets @ 3-5 RM] Cable pushdown [3 sets @ 3-5 RM] Leg curl [3 sets @ 3-5 RM] Squat [3 sets @ 3-5 RM] Crunch [3 sets @ 15-20RM]
Thursday	Rest	
Friday	Full Body	Bench press [3 sets @ 3-5 RM] Military press [3 sets @ 3-5 RM] Low pulley row [3 sets @ 3-5 RM] Dumbbell curl [3 sets @ 3-5 RM] Cable pushdown [3 sets @ 3-5 RM] Leg curl [3 sets @ 3-5 RM] Squat [3 sets @ 3-5 RM] Crunch [3 sets @ 15-20RM]
Saturday	Rest	
Sunday	Rest	

Strength phase. Section 1. Week 3
Perceived effort level 8, add weight each set.

DAY	MUSCLES	EXERCISES
Monday	Full Body	Bench press [3 sets @ 1-3 RM] Military press [3 sets @ 1-3 RM] Low pulley row [3 sets @ 1-3 RM] Dumbbell curl [3 sets @ 1-3 RM] Cable pushdown [3 sets @ 1-3 RM] Leg curl [3 sets @ 1-3 RM] Squat [3 sets @ 1-3 RM] Crunch [3 sets @ 15-20RM]
Tuesday	Rest	
Wednesday	Full Body	Bench press [3 sets @ 1-3 RM] Military press [3 sets @ 1-3 RM] Low pulley row [3 sets @ 1-3 RM] Dumbbell curl [3 sets @ 1-3 RM] Cable pushdown [3 sets @ 1-3 RM] Leg curl [3 sets @ 1-3 RM] Squat [3 sets @ 1-3 RM] Crunch [3 sets @ 15-20RM]
Thursday	Rest	
Friday	Full Body	Bench press [3 sets @ 1-3 RM] Military press [3 sets @ 1-3 RM] Low pulley row [3 sets @ 1-3 RM] Dumbbell curl [3 sets @ 1-3 RM] Cable pushdown [3 sets @ 1-3 RM] Leg curl [3 sets @ 1-3 RM] Squat [3 sets @ 1-3 RM] Crunch [3 sets @ 15-20RM]
Saturday	Rest	
Sunday	Rest	

Strength phase. Section 1. Week 4
Perceived effort level 7.

DAY	MUSCLES	EXERCISES
Monday	Full Body	Bench press [3 sets @ 10-12 RM] Military press [3 sets @ 10-12 RM] Low pulley row [3 sets @ 10-12 RM] Dumbbell curl [3 sets @ 10-12 RM] Cable pushdown [3 sets @ 10-12 RM] Leg curl [3 sets @ 10-12 RM] Squat [3 sets @ 10-12 RM] Crunch [3 sets @ 15-20RM]
Tuesday	Rest	
Wednesday	Full Body	Bench press [3 sets @ 10-12 RM] Military press [3 sets @ 10-12 RM] Low pulley row [3 sets @ 10-12 RM] Dumbbell curl [3 sets @ 10-12 RM] Cable pushdown [3 sets @ 10-12 RM] Leg curl [3 sets @ 10-12 RM] Squat [3 sets @ 10-12 RM] Crunch [3 sets @ 15-20RM]
Thursday	Rest	
Friday	Full Body	Bench press [3 sets @ 10-12 RM] Military press [3 sets @ 10-12 RM] Low pulley row [3 sets @ 10-12 RM] Dumbbell curl [3 sets @ 10-12 RM] Cable pushdown [3 sets @ 10-12 RM] Leg curl [3 sets @ 10-12 RM] Squat [3 sets @ 10-12 RM] Crunch [3 sets @ 15-20RM]
Saturday	Rest	
Sunday	Rest	

Strength phase. Section 2. Week 5
Perceived effort level 8, add weight each set.

DAY	MUSCLES	EXERCISES
Monday	Upper Body	Bench press [3 sets @ 6-8 RM] Military press [3 sets @ 6-8 RM] Dumbbell flyes [3 sets @ 6-8 RM] Lat machine [3 sets @ 6-8 RM] Dumbbell curl [3 sets @ 6-8 RM] Cable pushdown [3 sets @ 6-8 RM]
Tuesday	Lower Body	Leg curl [3 sets @ 6-8 RM] Squat [3 sets @ 6-8 RM] Calf raise [3 sets @ 6-8 RM] Crunch [3 sets @ 15-20RM]
Wednesday	Rest	
Thursday	Upper Body	Bench press [3 sets @ 6-8 RM] Military press [3 sets @ 6-8 RM] Lateral raises [3 sets @ 6-8 RM] Lat machine [3 sets @ 6-8 RM] Dumbbell curl [3 sets @ 6-8 RM] Cable pushdown [3 sets @ 6-8 RM]
Friday	Lower Body	Leg curl [3 sets @ 6-8 RM] Squat [3 sets @ 6-8 RM] Calf raise [3 sets @ 6-8 RM] Crunch [3 sets @ 15-20RM]
Saturday	Rest	
Sunday	Rest	

Strength phase. Section 2. Week 6
Perceived effort level 8, add weight each set.

DAY	MUSCLES	EXERCISES
Monday	Upper Body	Bench press [3 sets @ 3-5 RM] Military press [3 sets @ 3-5 RM] Dumbbell flyes [3 sets @ 3-5 RM] Lat machine [3 sets @ 3-5 RM] Dumbbell curl [3 sets @ 3-5 RM] Cable pushdown [3 sets @ 3-5 RM]
Tuesday	Lower Body	Leg curl [3 sets @ 3-5 RM] Squat [3 sets @ 3-5 RM] Calf raise [3 sets @ 3-5 RM] Crunch [3 sets @ 15-20RM]
Wednesday	Rest	
Thursday	Upper Body	Bench press [3 sets @ 3-5 RM] Military press [3 sets @ 3-5 RM] Lateral raises [3 sets @3-5 RM] Lat machine [3 sets @ 3-5 RM] Dumbbell curl [3 sets @ 3-5 RM] Cable pushdown [3 sets @ 3-5 RM]
Friday	Lower Body	Leg curl [3 sets @ 3-5 RM] Squat [3 sets @ 3-5 RM] Calf raise [3 sets @ 3-5 RM] Crunch [3 sets @ 15-20RM]
Saturday	Rest	
Sunday	Rest	

Strength phase. Section 2. Week 7
Perceived effort level 9, add weight each set.

DAY	MUSCLES	EXERCISES
Monday	Upper Body	Bench press [3 sets @ 2-3 RM] Military press [3 sets @ 2-3 RM] Dumbbell flyes [3 sets @ 2-3 RM] Lat machine [3 sets @ 2-3 RM] Dumbbell curl [3 sets @ 2-3 RM] Cable pushdown [3 sets @ 2-3 RM]
Tuesday	Lower Body	Leg curl [3 sets @ 2-3 RM] Squat [3 sets @ 2-3 RM] Calf raise [3 sets @ 2-3 RM] Crunch [3 sets @ 15-20RM]
Wednesday	Rest	
Thursday	Upper Body	Bench press [3 sets @ 2-3 RM] Military press [3 sets @ 2-3 RM] Lateral raises [3 sets @2-3 RM] Lat machine [3 sets @ 2-3 RM] Dumbbell curl [3 sets @ 2-3 RM] Cable pushdown [3 sets @ 2-3 RM]
Friday	Lower Body	Leg curl [3 sets @ 2-3 RM] Squat [3 sets @ 2-3 RM] Calf raise [3 sets @ 2-3 RM] Crunch [3 sets @ 15-20RM]
Saturday	Rest	
Sunday	Rest	

Strength phase. Section 2. Week 8
Perceived effort level 7, add weight each set.

DAY	MUSCLES	EXERCISES
Monday	Upper Body	Bench press [3 sets @ 10-12 RM] Military press [3 sets @ 10-12 RM] Dumbbell flyes [3 sets @ 10-12RM] Lat machine [3 sets @ 10-12 RM] Dumbbell curl [3 sets @ 10-12 RM] Cable pushdown [3 sets @ 10-12 RM]
Tuesday	Lower Body	Leg curl [3 sets @ 10-12 RM] Squat [3 sets @ 10-12 RM] Calf raise [3 sets @ 10-12 RM] Crunch [3 sets @ 15-20RM]
Wednesday	Rest	
Thursday	Upper Body	Bench press [3 sets @ 10-12 RM] Military press [3 sets @ 10-12 RM] Dumbbell flyes [3 sets @ 10-12 RM] Lat machine [3 sets @ 10-12 RM] Dumbbell curl [3 sets @ 10-12 RM] Cable pushdown [3 sets @ 10-12 RM]
Friday	Lower Body	Leg curl [3 sets @ 10-12 RM] Squat [3 sets @ 10-12 RM] Calf raise [3 sets @ 10-12 RM] Crunch [3 sets @ 15-20RM]
Saturday	Rest	
Sunday	Rest	

Recovery phase 4 weeks

In this mesocycle we increase the repetitions by decreasing the maximum weight used, this gives the body the time it needs to recover after the strength phase, which was a period of intense work. At the same time, we reduce the recovery time between one set and the next to increase metabolic work. This procedure can also be used in protocols for definition or slimming in combination with a low-calorie diet.

Recovery phase. Week 1
Perceived efford 7, rest 30-45’’ between sets

DAY	MUSCLES	EXERCISES
Monday	Full Body	Dumbbell bench press [3 sets @ 15-20RM] Dumbbell military press [3 sets @ 15-20RM] Low pulley row [3 sets @ 15-20RM] Dumbbell curl [3 sets @ 15-20RM] Cable pushdown [3 sets @ 15-20RM] Leg curl [3 sets @ 15-20RM] Leg extension [3 sets @ 15-20RM] Crunch [3 sets @ 15-20RM] Calf raise [3 sets @ 15-20RM]
Tuesday	Rest	
Wednesday	Full Body	Dumbbell flyes [3 sets @ 10-12RM] Lateral raises [3 sets @ 110-12RM] Low pulley row [3 sets @ 10-12RM] Dumbbell curl [3 sets @ 10-12RM] Cable pushdown [3 sets @ 10-12RM] Leg curl [3 sets @ 10-12RM] Leg extension [3 sets @ 10-12RM] Crunch [3 sets @ 10-12RM] Calf raise [3 sets @ 10-12RM]
Thursday	Rest	
Friday	Full Body	Dumbbell bench press [3 sets @ 15-20RM] Dumbbell military press [3 sets @ 15-20RM] Low pulley row [3 sets @ 15-20RM] Dumbbell curl [3 sets @ 15-20RM] Cable pushdown [3 sets @ 15-20RM] Leg curl [3 sets @ 15-20RM] Leg extension [3 sets @ 15-20RM] Crunch [3 sets @ 15-20RM] Calf raise [3 sets @ 15-20RM]
Saturday	Rest	
Sunday	Rest	

Recovery phase. Week 2
Perceived efford 6-7, rest 30-45’’ between sets

DAY	MUSCLES	EXERCISES
Monday	Full Body	Dumbbell bench press [3 sets @ 15-20RM] Dumbbell military press [3 sets @ 15-20RM] Lat machine [3 sets @ 15-20RM] Dumbbell curl [3 sets @ 15-20RM] Cable pushdown [3 sets @ 15-20RM] Leg curl [3 sets @ 15-20RM] Leg press [3 sets @ 15-20RM] Crunch [3 sets @ 15-20RM] Calf raise [3 sets @ 15-20RM]
Tuesday	Rest	
Wednesday	Full Body	Dumbbell flyes [3 sets @ 10-12RM] Lateral raises [3 sets @ 110-12RM] Low pulley row [3 sets @ 10-12RM] Dumbbell curl [3 sets @ 10-12RM] Cable pushdown [3 sets @ 10-12RM] Leg curl [3 sets @ 10-12RM] Leg extension [3 sets @ 10-12RM] Crunch [3 sets @ 10-12RM] Calf raise [3 sets @ 10-12RM]
Thursday	Rest	
Friday	Full Body	Dumbbell bench press [3 sets @ 15-20RM] Dumbbell military press [3 sets @ 15-20RM] Lat machine [3 sets @ 15-20RM] Dumbbell curl [3 sets @ 15-20RM] Cable pushdown [3 sets @ 15-20RM] Leg curl [3 sets @ 15-20RM] Leg press [3 sets @ 15-20RM] Crunch [3 sets @ 15-20RM] Calf raise [3 sets @ 15-20RM]
Saturday	Rest	
Sunday	Rest	

Recovery phase. Week 3
Perceived efford 6-7, rest 30-45’’ between sets

DAY	MUSCLES	EXERCISES
Monday	Full Body	Dumbbell bench press [3 sets @ 15-20RM] Dumbbell military press [3 sets @ 15-20RM] Low pulley row [3 sets @ 15-20RM] Dumbbell curl [3 sets @ 15-20RM] Cable pushdown [3 sets @ 15-20RM] Leg curl [3 sets @ 15-20RM] Leg extension [3 sets @ 15-20RM] Crunch [3 sets @ 15-20RM] Calf raise [3 sets @ 15-20RM]
Tuesday	Rest	
Wednesday	Full Body	Dumbbell flyes [3 sets @ 10-12RM] Lateral raises [3 sets @ 110-12RM] Low pulley row [3 sets @ 10-12RM] Dumbbell curl [3 sets @ 10-12RM] Cable pushdown [3 sets @ 10-12RM] Leg curl [3 sets @ 10-12RM] Leg extension [3 sets @ 10-12RM] Crunch [3 sets @ 10-12RM] Calf raise [3 sets @ 10-12RM]
Thursday	Rest	
Friday	Full Body	Dumbbell bench press [3 sets @ 15-20RM] Dumbbell military press [3 sets @ 15-20RM] Low pulley row [3 sets @ 15-20RM] Dumbbell curl [3 sets @ 15-20RM] Cable pushdown [3 sets @ 15-20RM] Leg curl [3 sets @ 15-20RM] Leg extension [3 sets @ 15-20RM] Crunch [3 sets @ 15-20RM] Calf raise [3 sets @ 15-20RM]
Saturday	Rest	
Sunday	Rest	

Recovery phase. Week 4
Perceived efford 7, rest 30-45’’ between sets

DAY	MUSCLES	EXERCISES
Monday	Full Body	Dumbbell bench press [3 sets @ 15-20RM] Dumbbell military press [3 sets @ 15-20RM] Lat machine [3 sets @ 15-20RM] Dumbbell curl [3 sets @ 15-20RM] Cable pushdown [3 sets @ 15-20RM] Leg curl [3 sets @ 15-20RM] Leg press [3 sets @ 15-20RM] Crunch [3 sets @ 15-20RM] Calf raise [3 sets @ 15-20RM]
Tuesday	Rest	
Wednesday	Full Body	Dumbbell flyes [3 sets @ 15-20RM] Lateral raises [3 sets @ 15-20RM] Low pulley row [3 sets @ 15-20RM] Dumbbell curl [3 sets @ 15-20RM] Cable pushdown [3 sets @ 15-20RM] Leg curl [3 sets @ 15-20RM] Leg extension [3 sets @ 15-20RM] Crunch [3 sets @ 15-20RM] Calf raise [3 sets @ 15-20RM]
Thursday	Rest	
Friday	Full Body	Dumbbell bench press [3 sets @ 15-20RM] Dumbbell military press [3 sets @ 15-20RM] Lat machine [3 sets @ 15-20RM] Dumbbell curl [3 sets @ 15-20RM] Cable pushdown [3 sets @ 15-20RM] Leg curl [3 sets @ 15-20RM] Leg press [3 sets @ 15-20RM] Crunch [3 sets @ 15-20RM] Calf raise [3 sets @ 15-20RM]
Saturday	Rest	
Sunday	Rest	

Hypertrophy phase 12 weeks

In this phase we will seek maximum muscle development. It is divided into three mesocycles of four weeks.
Medium to high loads will be used to allow 6 to 12 repetitions; rest between sets will be 60-90 seconds.
The repetitions must always be performed in full control of the movement.
The first mesocycle is in full body over three days. The second and third mesocycles are based on a 5-day split routine.
The weight will be increased after each week excluding the last week of each mesocycle to allow adequate recovery without losing muscle tone.

Hypertrophy phase. Mesocycle 1. Week 1.

DAY	MUSCLES	EXERCISES
Monday	Full Body	Dumbbell bench press [3 sets @ 10-12RM] Dumbbell military press [3 sets @ 10-12RM] Low pulley row [3 sets @ 10-12RM] Dumbbell curl [3 sets @ 10-12RM] Cable pushdown [3 sets @ 10-12RM] Leg curl [3 sets @ 10-12RM] Leg extension [3 sets @ 10-12RM] Crunch [3 sets @ 10-12RM] Calf raise [3 sets @ 10-12RM]
Tuesday	Rest	
Wednesday	Full Body	Dumbbell flyes [3 sets @ 10-12RM] Lateral raises [3 sets @ 10-12RM] Lat machine [3 sets @ 10-12RM] Dumbbell curl [3 sets @ 10-12RM] Cable pushdown [3 sets @ 10-12RM] Leg curl [3 sets @ 10-12RM] Leg extension [3 sets @ 10-12RM] Crunch [3 sets @ 10-12RM] Calf raise [3 sets @ 10-12RM]
Thursday	Rest	
Friday	Full Body	Dumbbell bench press [3 sets @ 10-12RM] Dumbbell military press [3 sets @ 10-12RM] Low pulley row [3 sets @ 10-12RM] Dumbbell curl [3 sets @ 10-12RM] Cable pushdown [3 sets @ 10-12RM] Leg curl [3 sets @ 10-12RM] Leg extension [3 sets @ 10-12RM] Crunch [3 sets @ 10-12RM] Calf raise [3 sets @ 10-12RM]
Saturday	Rest	
Sunday	Rest	

Hypertrophy phase. Mesocycle 1. Week 2.

DAY	MUSCLES	EXERCISES
Monday	Full Body	Dumbbell bench press [3 sets @ 8-10RM] Dumbbell military press [3 sets @ 1 8-10RM] Low pulley row [3 sets @ 8-10RM] Dumbbell curl [3 sets @ 8-10RM] Cable pushdown [3 sets @ 8-10RM] Leg curl [3 sets @ 8-10RM] Leg extension [3 sets @ 8-10RM] Crunch [3 sets @ 8-10RM] Calf raise [3 sets @ 8-10RM]
Tuesday	Rest	
Wednesday	Full Body	Dumbbell flyes [3 sets @ 8-10RM] Lateral raises [3 sets @ 8-10RM] Lat machine [3 sets @ 8-10RM] Dumbbell curl [3 sets @ 8-10RM] Cable pushdown [3 sets @ 8-10RM] Leg curl [3 sets @ 8-10RM] Leg extension [3 sets @ 8-10RM] Crunch [3 sets @ 8-10RM] Calf raise [3 sets @ 8-10RM]
Thursday	Rest	
Friday	Full Body	Dumbbell bench press [3 sets @ 8-10RM] Dumbbell military press [3 sets @ 1 8-10RM] Low pulley row [3 sets @ 8-10RM] Dumbbell curl [3 sets @ 8-10RM] Cable pushdown [3 sets @ 8-10RM] Leg curl [3 sets @ 8-10RM] Leg extension [3 sets @ 8-10RM] Crunch [3 sets @ 8-10RM] Calf raise [3 sets @ 8-10RM]
Saturday	Rest	
Sunday	Rest	

Hypertrophy phase. Mesocycle 1. Week 3.

Si aumentano i carichi e si riducano le ripetizioni, sempre con il massimo controllo del movimento. Recupero tra un set e l'altro di 60''.

DAY	MUSCLES	EXERCISES
Monday	Full Body	Dumbbell bench press [3 sets @ 6-8RM] Dumbbell military press [3 sets @ 6-8RM] Low pulley row [3 sets @ 6-8RM] Dumbbell curl [3 sets @ 6-8 RM] Cable pushdown [3 sets @ 6-8RM] Leg curl [3 sets @ 6-8RM] Leg extension [3 sets @ 6-8RM] Crunch [3 sets @ 6-8RM] Calf raise [3 sets @ 6-8RM]
Tuesday	Rest	
Wednesday	Full Body	Dumbbell flyes [3 sets @ 6-8RM] Lateral raises [3 sets @ 6-8RM] Lat machine [3 sets @ 6-8RM] Dumbbell curl [3 sets @ 6-8RM] Cable pushdown [3 sets @ 6-8RM] Leg curl [3 sets @ 6-8RM] Leg extension [3 sets @ 6-8RM] Crunch [3 sets @ 6-8RM] Calf raise [3 sets @ 6-8RM]
Thursday	Rest	
Friday	Full Body	Dumbbell bench press [3 sets @ 6-8RM] Dumbbell military press [3 sets @ 6-8RM] Low pulley row [3 sets @ 6-8RM] Dumbbell curl [3 sets @ 6-8 RM] Cable pushdown [3 sets @ 6-8RM] Leg curl [3 sets @ 6-8RM] Leg extension [3 sets @ 6-8RM] Crunch [3 sets @ 6-8RM] Calf raise [3 sets @ 6-8RM]
Saturday	Rest	
Sunday	Rest	

Hypertrophy phase. Mesocycle 1. Week 4.

Lower the weights, increase repetitions, rest 45-60''

DAY	MUSCLES	EXERCISES
Monday	Full Body	Dumbbell bench press [3 sets @ 10-12RM] Dumbbell military press [3 sets @ 10-12RM] Low pulley row [3 sets @ 10-12RM] Dumbbell curl [3 sets @ 10-12RM] Cable pushdown [3 sets @ 10-12RM] Leg curl [3 sets @ 10-12RM] Leg extension [3 sets @ 10-12RM] Crunch [3 sets @ 10-12RM] Calf raise [3 sets @ 10-12RM]
Tuesday	Rest	
Wednesday	Full Body	Dumbbell flyes [3 sets @ 10-12RM] Lateral raises [3 sets @ 10-12RM] Lat machine [3 sets @ 10-12RM] Dumbbell curl [3 sets @ 10-12RM] Cable pushdown [3 sets @ 10-12RM] Leg curl [3 sets @ 10-12RM] Leg extension [3 sets @ 10-12RM] Crunch [3 sets @ 10-12RM] Calf raise [3 sets @ 10-12RM]

Thursday	Rest	
Friday	Full Body	Dumbbell bench press [3 sets @ 10-12RM] Dumbbell military press [3 sets @ 10-12RM] Low pulley row [3 sets @ 10-12RM] Dumbbell curl [3 sets @ 10-12RM] Cable pushdown [3 sets @ 10-12RM] Leg curl [3 sets @ 10-12RM] Leg extension [3 sets @ 10-12RM] Crunch [3 sets @ 10-12RM] Calf raise [3 sets @ 10-12RM]
Saturday	Rest	
Sunday	Rest	

Hypertrophy phase. Mesocycle 2. Week 5.

DAY	MUSCLES	EXERCISES
Monday	Pettorali, dorsali, gambe, addome	Dumbbell bench press [4 sets @ 10-12RM] Dumbbell flyes [4 sets @ 10-12RM] Low pulley row [4 sets @ 10-12RM] Leg curl [4 sets @ 10-12RM] Crunch [4 sets @ 10-12RM]
Tuesday	Spalle, gambe, addome	Military press [4 sets @ 10-12RM] Lateral raises [4 sets @ 10-12RM] Rear lateral raises [4 sets @ 10-12RM] Leg extension [4 sets @ 10-12RM] Leg Press [4 sets @ 10-12RM] Calf raise [4 sets @ 10-12RM] Crunch [4 sets @ 10-12RM]
Wednesday	Braccia, addome	Dumbbell curl [3 sets @ 10-12RM] Cable pushdown [3 sets @ 10-12RM] Crunch [4 sets @ 10-12RM]
Thursday	Pettorali, dorsali, gambe, addome	Dumbbell bench press [4 sets @ 10-12RM] Dumbbell flyes [4 sets @ 10-12RM] Lat machine [4 sets @ 10-12RM] Leg curl [4 sets @ 10-12RM] Crunch [4 sets @ 10-12RM]
Friday	Spalle, gambe, addome	Military press [4 sets @ 10-12RM] Lateral raises [4 sets @ 10-12RM] Rear lateral raises [4 sets @ 10-12RM] Leg extension [4 sets @ 10-12RM] Leg Press [4 sets @ 10-12RM] Calf raise [4 sets @ 10-12RM] Crunch [4 sets @ 10-12RM]
Saturday	Rest	
Sunday	Rest	

Hypertrophy phase. Mesocycle 2. Week 6.
Increase weights, rest 60-90’’

DAY	MUSCLES	EXERCISES
Monday	Pettorali, dorsali, gambe, addome	Dumbbell bench press [4 sets @ 8-10RM] Dumbbell flyes [4 sets @ 8-10RM] Low pulley row [4 sets @ 8-10RM] Leg curl [4 sets @ 8-10RM] Crunch [4 sets @ 15-20RM]
Tuesday	Spalle, gambe, addome	Military press [4 sets @ 8-10RM] Lateral raises [4 sets @ 8-10RM] Rear lateral raises [4 sets @ 8-10RM] Leg extension [4 sets @ 8-10RM] Leg Press [4 sets @ 8-10RM] Calf raise [4 sets @ 8-10RM] Crunch [4 sets @ 15-20RM]
Wednesday	Braccia, addome	Dumbbell curl [4 sets @ 8-10RM] Cable pushdown [4 sets @ 8-10RM] Crunch [4 sets @ 8-10RM]
Thursday	Pettorali, dorsali, gambe, addome	Dumbbell bench press [4 sets @ 8-10RM] Dumbbell flyes [4 sets @ 8-10RM] Lat machine [4 sets @ 8-10RM] Leg curl [4 sets @ 8-10RM] Crunch [4 sets @ 15-20RM]
Friday	Spalle, gambe, addome	Military press [4 sets @ 8-10RM] Lateral raises [4 sets @ 8-10RM] Rear lateral raises [4 sets @ 8-10RM] Leg extension [4 sets @ 8-10RM] Leg Press [4 sets @ 8-10RM] Calf raise [4 sets @ 8-10RM] Crunch [4 sets @ 15-20RM]
Saturday	Rest	
Sunday	Rest	

Hypertrophy phase. Mesocycle 2. Week 7.
Increase sets using high weights, rest 60-90’’

DAY	MUSCLES	EXERCISES
Monday	Pettorali, dorsali, gambe, addome	Dumbbell bench press [5 sets @ 8-10 RM] Dumbbell flyes [5 sets @ 8-10 RM] Low pulley row [5 sets @ 8-10 RM] Leg curl [5 sets @ 8-10 RM] Crunch [4 sets @ 15-20 RM]
Tuesday	Spalle, gambe, addome	Military press [5 sets @ 8-10 RM] Lateral raises [5 sets @ 8-10 RM] Rear lateral raises [5 sets @ 8-10 RM] Leg extension [5 sets @ 8-10 RM] Leg Press [4 sets @ 8-10RM] Calf raise [5 sets @ 8-10 RM] Crunch [4 sets @ 15-20RM]
Wednesday	Braccia, addome	Dumbbell curl [5 sets @ 8-10RM] Cable pushdown [5 sets @ 8-10RM] Crunch [4 sets @ 15-20RM]
Thursday	Pettorali, dorsali, gambe, addome	Dumbbell bench press [5 sets @ 8-10 RM] Dumbbell flyes [5 sets @ 8-10 RM] Lat machine [5 sets @ 8-10 RM] Leg curl [5 sets @ 8-10 RM] Crunch [4 sets @ 15-20 RM]
Friday	Spalle, gambe, addome	Military press [5 sets @ 8-10 RM] Lateral raises [5 sets @ 8-10 RM] Rear lateral raises [5 sets @ 8-10 RM] Leg extension [5 sets @ 8-10 RM] Leg Press [4 sets @ 8-10RM] Calf raise [5 sets @ 8-10 RM] Crunch [4 sets @ 15-20RM]
Saturday	Rest	
Sunday	Rest	

Hypertrophy phase. Mesocycle 2. Week 8.
Lower weights, increase repetitions, rest 45-60’’

DAY	MUSCLES	EXERCISES
Monday	Pettorali, dorsali, gambe, addome	Dumbbell bench press [4 sets @ 15-20RM] Dumbbell flyes [4 sets @ 15-20RM] Low pulley row [4 sets @ 15-20RM] Leg curl [4 sets @ 15-20RM] Crunch [4 sets @ 15-20RM]
Tuesday	Spalle, gambe, addome	Military press [4 sets @ 15-20RM] Lateral raises [4 sets @ 15-20RM] Rear lateral raises [4 sets @ 15-20RM] Leg extension [4 sets @ 15-20RM] Leg Press [4 sets @ 15-20RM] Calf raise [4 sets @ 15-20RM] Crunch [4 sets @ 15-20RM]
Wednesday	Braccia, addome	Dumbbell curl [3 sets @ 15-20RM] Cable pushdown [3 sets @ 15-20RM] Crunch [4 sets @ 15-20RM]
Thursday	Pettorali, dorsali, gambe, addome	Dumbbell bench press [4 sets @ 15-20RM] Dumbbell flyes [4 sets @ 15-20RM] Lat machine [4 sets @ 15-20RM] Leg curl [4 sets @ 15-20RM] Crunch [4 sets @ 15-20RM]
Friday	Spalle, gambe, addome	Military press [4 sets @ 15-20RM] Lateral raises [4 sets @ 15-20RM] Rear lateral raises [4 sets @ 15-20RM] Leg extension [4 sets @ 15-20RM] Leg Press [4 sets @ 15-20RM] Calf raise [4 sets @ 15-20RM] Crunch [4 sets @ 15-20RM]
Saturday	Rest	
Sunday	Rest	

Hypertrophy phase. Mesocycle 3. Week 9.
Superset and triset. Rest di 60-90’’

DAY	MUSCLES	EXERCISES
Monday	Pettorali, dorsali, gambe, addome	Dumbbell bench press [4 sets @ 8-10 RM] superset con Dumbbell flyes [4 sets @ 8-10 RM] Low pulley row [4 sets @ 8-10 RM] Leg curl [4 sets @ 8-10 RM] Crunch [4 sets @ 15-20 RM]
Tuesday	Spalle, gambe, addome	Military press [4 sets @ 8-10 RM] triset con Lateral raises [4 sets @ 8-10 RM] e Rear lateral raises [4 sets @ 8-10 RM] Leg extension [4 sets @ 8-10 RM] superset con Leg Press [4 sets @ 8-10RM] Calf raise [4 sets @ 8-10 RM] Crunch [4 sets @ 15-20RM]
Wednesday	Braccia, addome	Dumbbell curl [4 sets @ 8-10RM] Cable pushdown [4 sets @ 8-10RM] Crunch [4 sets @ 15-20RM]
Thursday	Pettorali, dorsali, gambe, addome	Dumbbell bench press [4 sets @ 8-10 RM] superset con Dumbbell flyes [4 sets @ 8-10 RM] Lat machine [4 sets @ 8-10 RM] Leg curl [4 sets @ 8-10 RM] Crunch [4 sets @ 15-20 RM]
Friday	Spalle, gambe, addome	Military press [4 sets @ 8-10 RM] triset con Lateral raises [4 sets @ 8-10 RM] e Rear lateral raises [4 sets @ 8-10 RM] Leg extension [4 sets @ 8-10 RM] superset con Leg Press [4 sets @ 8-10RM] Calf raise [4 sets @ 8-10 RM] Crunch [4 sets @ 15-20RM]
Saturday	Rest	
Sunday	Rest	

Hypertrophy phase. Mesocycle 3. Week 10.

DAY	MUSCLES	EXERCISES
Monday	Pettorali, dorsali, gambe, addome	Dumbbell bench press [5 sets @ 8-10 RM] superset con Dumbbell flyes [5 sets @ 8-10 RM] Low pulley row [5 sets @ 8-10 RM] Leg curl [5 sets @ 8-10 RM] Crunch [4 sets @ 15-20 RM]
Tuesday	Spalle, gambe, addome	Military press [5 sets @ 8-10 RM] triset con Lateral raises [5 sets @ 8-10 RM] e Rear lateral raises [5 sets @ 8-10 RM] Leg extension [5 sets @ 8-10 RM] superset Leg Press [4 sets @ 8-10RM] Calf raise [5 sets @ 8-10 RM] Crunch [4 sets @ 15-20RM]
Wednesday	Braccia, addome	Dumbbell curl [5 sets @ 8-10RM] Cable pushdown [5 sets @ 8-10RM] Crunch [4 sets @ 15-20RM]
Thursday	Pettorali, dorsali, gambe, addome	Dumbbell bench press [5 sets @ 8-10 RM] superset con Dumbbell flyes [5 sets @ 8-10 RM] Lat machine[5 sets @ 8-10 RM] Leg curl [5 sets @ 8-10 RM] Crunch [4 sets @ 15-20 RM]
Friday	Spalle, gambe, addome	Military press [5 sets @ 8-10 RM] triset con Lateral raises [5 sets @ 8-10 RM] e Rear lateral raises [5 sets @ 8-10 RM] Leg extension [5 sets @ 8-10 RM] superset con Leg Press [4 sets @ 8-10RM] Calf raise [5 sets @ 8-10 RM] Crunch [4 sets @ 15-20RM]
Saturday	Rest	
Sunday	Rest	

Hypertrophy phase. Mesocycle 3. Week 11.
Increase weight. Rest 90-120’’

DAY	MUSCLES	EXERCISES
Monday	Pettorali, dorsali, gambe, addome	Dumbbell bench press [4 sets @ 6-8 RM] superset con Dumbbell flyes [4 sets @ 6-8 RM] Low pulley row [4 sets @ 6-8 RM] Leg curl [4 sets @ 6-8 RM] Crunch [4 sets @ 15-20 RM]
Tuesday	Spalle, gambe, addome	Military press [4 sets @ 6-8 RM] triset con Lateral raises [4 sets @ 6-8 RM] e Rear lateral raises [4 sets @ 6-8 RM] Leg extension [4 sets @ 6-8 RM] superset con Leg Press [4 sets @ 6-8 RM] Calf raise [4 sets @ 6-8 RM] Crunch [4 sets @ 15-20RM]
Wednesday	Braccia, addome	Dumbbell curl [4 sets @ 6-8 RM] Cable pushdown [4 sets @ 6-8 RM] Crunch [4 sets @ 15-20RM]
Thursday	Pettorali, dorsali, gambe, addome	Dumbbell bench press [4 sets @ 6-8 RM] superset con Dumbbell flyes [4 sets @ 6-8 RM] Lat machine [4 sets @ 6-8 RM] Leg curl [4 sets @ 6-8 RM] Crunch [4 sets @ 15-20 RM]
Friday	Spalle, gambe, addome	Military press [4 sets @ 6-8 RM] triset con Lateral raises [4 sets @ 6-8 RM] e Rear lateral raises [4 sets @ 6-8 RM] Leg extension [4 sets @ 6-8 RM] superset con Leg Press [4 sets @ 6-8 RM] Calf raise [4 sets @ 6-8 RM] Crunch [4 sets @ 15-20RM]
Saturday	Rest	
Sunday	Rest	

Hypertrophy phase. Mesocycle 3. Week 12.
Lower weight. Rest 60-90’’

DAY	MUSCLES	EXERCISES
Monday	Pettorali, dorsali, gambe, addome	Dumbbell bench press [4 sets @ 15-20RM] Dumbbell flyes [4 sets @ 15-20RM] Low pulley row [4 sets @ 15-20RM] Leg curl [4 sets @ 15-20RM] Crunch [4 sets @ 15-20RM]
Tuesday	Spalle, gambe, addome	Military press [4 sets @ 15-20RM] Lateral raises [4 sets @ 15-20RM] Rear lateral raises [4 sets @ 15-20RM] Leg extension [4 sets @ 15-20RM] Leg Press [4 sets @ 15-20RM] Calf raise [4 sets @ 15-20RM] Crunch [4 sets @ 15-20RM]
Wednesday	Braccia, addome	Dumbbell curl [3 sets @ 15-20RM] Cable pushdown [3 sets @ 15-20RM] Crunch [4 sets @ 15-20RM]
Thursday	Pettorali, dorsali, gambe, addome	Dumbbell bench press [4 sets @ 15-20RM] Dumbbell flyes [4 sets @ 15-20RM] Lat machine [4 sets @ 15-20RM] Leg curl [4 sets @ 15-20RM] Crunch [4 sets @ 15-20RM]
Friday	Spalle, gambe, addome	Military press [4 sets @ 15-20RM] Lateral raises [4 sets @ 15-20RM] Rear lateral raises [4 sets @ 15-20RM] Leg extension [4 sets @ 15-20RM] Leg Press [4 sets @ 15-20RM] Calf raise [4 sets @ 15-20RM] Crunch [4 sets @ 15-20RM]
Saturday	Rest	
Sunday	Rest	

After the 12 weeks of the hypertrophy protocol and having checked our physical form with respect to the desired goals, we can continue with the metabolic adaptation protocol for a four-week mesocycle. These four weeks can lead to an increase in muscle definition when conducted with a calorie deficit. Or we can decide to stop training for 2-3 weeks and then restart with a phase of strength or hypertrophy. This stop period could coincide with the summer holidays in which you reach the maximum of muscle development and your condition.

4.7 AEROBIC ACTIVITY

As someone may have noticed, I have not included in my program specific times in which to perform an aerobic activity such as running or jumping rope or the treadmill. In order to build muscle mass, aerobic activity is useless.
On the other hand, it can be useful in cases of weight loss or muscle definition that may follow a so-called "mass" phase, because it allows, in the case of activity prolonged for a certain time, to consume more calories than weight lifting. And obviously the more km you run, the greater the energy consumption. A moderate speed run is usually recommended, making sure you keep your heart rate between 65% to 80% of your maximum heart rate.
This maximum heart rate can be obtained in a rough but indicative way with the following formula:
FCMax = 220 - age.
The minimum time of aerobic activity usually recommended is at least 20 minutes per session. This may have a benefit in terms of physical condition and metabolic improvement.
In any case, you do not lose weight while doing physical activity but through a calorie deficit over time. Aerobic activity helps this process because it increases the consumption of calories and therefore allows the aforementioned caloric deficit to be increased.
To get an idea of the role of aerobic activity in weight loss, we can use some useful formulas developed over time by sports science researchers: Energy expenditure (KCal) = 1kcal x kg of weight x km traveled (Arcelli formula). For example 1kcal x 75kg (weight) x 10 Km = 750kcal consumed. Science has established the percentages of carbohydrate and fat used as a function of the percentage of maximum heart rate, through the respiratory quotient and the Vomax. A heart rate below 80% of the maximum heart rate leads us to burn an average of 70% of carbohydrates and 30% of fat. Going back to our example, to know the amount of kcal of fat burned we need to calculate 30% of 750 kcal, which is 225 kcal. One gram of fat corresponds to 9 kcal but in the human body the fat mass (adipocyte) is combined with water for which 1kg of body fat represents about 7,000 kcal and not 9,000 kcal. So in practice 1 gram of body fat

corresponds to 7kcal. In practice, in the training session of our example 225kcal / 7 = 32.2 g were consumed. of fat. For example, to lose 3 kilos and 220 grams (32.2 grams * 1000 grams (1Kg)), while keeping all other parameters unchanged, you have to run for 10,000 km. It is clear that to obtain results in terms of weight loss, one cannot ignore a diet that generates a caloric deficit, compared to the energy consumption that one is used to, that is protracted over time. And this is true regardless of the type of diet in vogue in a given historical period. You can also lose weight by eating more carbohydrates if your overall calorie intake is lower than your energy consumption.

CHAPTER 5

Nutrition and hypertrophy

To build muscle it is essential to supply the body with the elements that can provide energy for the growth process.
Life in general is based on the production and consumption of energy to carry out any activity.
To generate more muscle cells, the body needs to have enough elements and energy to do. Also, energy must be used for muscle building. For this, first of all, we need the reason for muscle growth to take place.
This growth drive is produced by training aimed at hypertrophy as we have tried to describe in previous chapters.
Ultimately, it is the presence of a positive energy balance between intake and consumption that promotes muscle growth through exercise. So the right energy intake is needed.
This is another factor that makes bodybuilding a "scientific art".
At a molecular level, caloric restriction triggers a setss of synthesis processes that have as a final result a decrease in protein synthesis and after a certain threshold, based on the homeostatic needs of the human body, it can lead to processes of catabolism (destruction of resources) which limits the increase in muscle fibers, both in number and in size.
Conversely, greater availability of energy and therefore of nutrients allows and stimulates the anabolic process of growth.
Of course, constant exercise and a caloric surplus are necessary with an increase in training effort, to not increase the adipose layer compared to the lean mass.
Knowing your energy balance plays an important role, starting from knowing how many kilocalories you consume in a day or a week.
For this purpose, various methods for calculating energy consumption have been proposed over the years.
These formulas are based on some parameters, including weight, height, age, activity level, to arrive at the definition of a number in kilocalories that indicates the number of calories to be consumed to maintain the same level of activity without gaining or losing weight.

Energy consumption can be expressed through the TDEE (Total Daily Energy Expenditure) parameter which represents the total number of calories burned in a given day and it is the sum of four factors:

- basal metabolic rate
- thermic effect of food
- non-exercise activity thermogenesis
- exercise activity thermogenesis

Basal metabolic rate can be derived from the following formula:
Female BMR = 655 + (9.6 x weight in kg) + (1.8 x height in cm) - (4.7 x age in years)
Male BMR = 66 + (13.7 x weight in kg) + (5 x height in cm) - (6.8 x age in years)
Multipliers are used to apply to the calories of the basal metabolic rate to approximate the other items that made the TDEE. These multipliers are based on the amount of daily physical activity.
For more details see chapter 7.

The usefulness of calculating this parameter lies not so much in its scientific accuracy but in the fact that it allows us to define a starting point on which to base the strategy to achieve our goals, whether they are weight loss or muscle mass gain.
Then scientifically, we can manipulate the components of nutrition and exercise to increase or decrease the calorie intake and/or energy consumption to achieve the expected results.
Together with the energy balance, it is important to identify the right subdivision of macronutrients to try to reach our goal.
Macronutrients are divided into:

= Proteins
= Carbohydrates
= Lipids

The macronutrients listed above provide the compounds necessary for survival, compounds from which the energy necessary for the body is obtained to perform its many voluntary and involuntary functions.
The main energy source of the human body is made up of carbohydrates (sugars of different types or fibers), and they are the preferred source of

energy for the body because it is the least expensive to obtain through digestive biochemical processes.

Carbohydrates are an essential part of our diet because the body draws most of its vital energy from their assimilation.

During digestion, so-called complex carbohydrates that consist of more than one sugar are broken down into various types of monosaccharides by digestive enzymes and are then absorbed. With the increase in the amount of glucose in the blood, the endocrine system responds by increasing the glycemic response by putting into circulation quantities of insulin capable of bringing the system back into balance.

The body uses glucose directly as an energy source in the muscles, brain, and other cells, which is why carbohydrates represent the main energy source because it is the one most easily obtainable by the body, in the sense that it is obtained directly with the absorption of monosaccharide carbohydrates from the small intestine and which are then inserted into the bloodstream to the cells that require them; or through suitable transformations, they can be converted into glycogen and stored in the liver and muscles as a rapidly available energy source. A caloric surplus can also be retained in the body as energy reserves even in the form of fat (triglycerides), which will be used in the absence of an adequate supply of sugars.

Carbohydrates provide around 4 kilocalories per gram

Proteins perform a structural and also energetic function by providing 4kcal. per gram. They are present both in foods of animal origin, mostly of high biological value, and of vegetable origin, proteins of medium or low biological value. Proteins are molecules formed by the combination of twenty amino acids, nine of which are defined as "essential" because the body is unable to produce them

phenylalanine
isoleucine
histidine

leucine
lysine
methionine
threonine
tryptophan
valine

Among the essential amino acids, there are isoleucine, leucine, and valine. These have the particularity of being picked up directly by the muscles without passing through the liver, where they can then be used to repair damaged protein structures or to produce energy.
Proteins also perform a structural function of the building and/or repairing damaged tissues, so it is important to guarantee an adequate protein intake in case you want to increase muscle mass. We must not forget their role in muscle contraction and the transport of substances between one cell and another or within individual cells.
Proteins also provide energy to the extent of 4 kcal. per gram.
Fats like proteins have different roles within the body for example they provide energy (9kcal. Per gram) and in the form of triglyceride cells they act as a reserve of energy, they also have a structural function because they are components of cell membranes and are part of the substances that coat the fibers. The adipose tissue acts as a thermal insulator for the body, and they are also essential for the absorption of fat-soluble vitamins such as vitamins A, D, E, K.
I want to emphasize the fact that the macronutrients taken in excess, since they cannot be stored directly in the body, are transformed into sugars which, in turn, are transformed into fats (triglycerides). If the latter is not consumed by the body, they will increase adipose deposits.
The various procedures called "body recomposition" are nothing more than methods that cycle the intake of carbohydrates by combining them with a specific workout, in an attempt to push the body to use fat as a source of energy supply.
These procedures must have a certain duration over time, usually, they must exceed three weeks, providing for a minimum carbohydrate intake of 40-50 grams per day and at the same time increasing the intake of proteins and fats.

We often hear about nutrient timing, i.e. when to take proteins or other macronutrients to maximize their effect on hypertrophy, but there is currently no certain scientific evidence on this topic so the general rule applies, in case of weight loss or a definition phase, to create a calorie deficit to decrease body fat deposits, favoring an adequate supply of proteins.

Even concerning food supplements, the most disparate theories are often heard. We must never forget that we live in a society based on commodities and their universal equivalent. Food supplements are an industry that must constantly find and renew its outlet markets, often inducing needs that are not useful for weight loss or body recomposition. Integrating means adding and, as can be understood by studying in-depth human biochemistry and physiology, everything the body needs to grow is found or built through proper nutrition. Everything that goes beyond physiological needs is disposed of through the body's waste processes. And this applies to an excess of protein or vitamin or other components. The only supplement that can guarantee certain results is the use of substances such as steroids that lead to changes in the normal functioning of the endocrine glands, thus leading to the formation of muscle masses that cannot be obtained with simple exercise and nutrition. There is no scientific evidence at least when I’m writing that establishes whether a given element has a precise effect on weight loss or mass supply, other than, for example, in the case of protein powder, to increase the quantity of protein intake without having to eat kilograms of meat. What is clear is that the use of weighted exercise over time leads to an increase in muscle mass for a whole set of mechanisms that we have tried to outline in the first chapters of this book.

Having a body of a certain type as proposed by magazines and social media depends, with the same training, on individual genetics, on how much your biochemical system responds to the production of hormones, on the type of muscle fibers, and your bone structure.

If you want to overcome your genetic limits, you must use substances that alter your natural constitution, which has been done and is regularly done by those who have made their body the source of their income: bodybuilding champions, models, actors, fall into this category.

This is not meant to be a moralistic discourse, on the contrary, I believe that everyone is free to experiment with their own body if it does not harm other people. In many books, an intake of creatine, protein powder, and some

microelements such as vitamins and fatty acids such as omega 3 is indicated as optimal. Although all these elements can be taken directly with the diet, it is clear that a supply of protein powder allows you to reach the required amount of your diet without having to eat huge quantities, for example, of meat. The fact remains that without continuity and adequate training for muscle development and with the right diet, no results are obtained. Integration precisely integrates and often it is only a psychological question of self-suggestion the fact that a given substance can make people "push" more; it is just a question of marketing.

CHAPTER 6

Motivation

Building a muscular body takes time, it takes dedication, it takes patience. You have to find the strength within yourself to train even when everything tells you to let it go. After all, we all have dozens of distractions. Many things tell us to choose the most comfortable way and the body itself tends to inaction. To choose the most comfortable way.

We need motivation and a positive mental approach. In fact, as in all other aspects of life, the role of the mind is fundamental to achieving any result. You must have the will not to give up your training routine.And the will must also be trained through a positive mental focus. But what does it mean? It means going beyond the difficulties of the moment and looking at the final goal, at building muscle mass, at the physique you want to have, and always believing that it is achievable. For this, it is necessary to set goals and plan the path to achieve them.

Set goals

Having a goal is like seeing a lighthouse during an offshore storm. It allows you to stay on course towards what you want to be or become. This is why it is important to establish what you want to achieve: more muscles? less fat? It is also important to give yourself a reasonable time to get it: I can't think of putting on 20 kg of muscle in a year of training, I can't think of losing 20 kg in a month without some decompensation. And it is better to set the goal precisely: I want to lose 10 kg in six months, I want to have 5 kg more muscle in a year. In this way, it will be easier to measure whether the direction taken is the correct one, the one that leads to the achievement of the goal. It will be easier to measure progress or stalls and take action accordingly. Once the goal has been established, this must always be remembered at every training session, whenever you don't want to train, and even when you don't seem to get the desired results. You must never stray from your goal. In defining the goal, it is necessary to go into details, break down the goal into many smaller, more easily achievable phases, create

monthly, weekly, daily routines. This way you can set measurable goals for each period, for example losing 0.5 kg per week means 12 kg in 6 months, and focus on achieving this weekly goal. You must always remember that in body recomposition the time factor counts, you must give your body time to adapt to the new situation and give it time to break homeostasis. You must want to achieve the goal, so ask yourself what you REALLY want to achieve. And everything will become easier. Then take action, prepare a training plan, and follow it consistently. The confidence gained in seeing constant small improvements will give you the strength and energy to continue towards the goal.

Maximum concentration

When training, you should focus on the movement you are doing, feel which muscle is contracting, check if the posture is correct, in short, you must try to be focused on yourself.

Continuous experimentation

You have created your own plan or used one of those provided in the book and you follow it faithfully, with constancy and discipline, but may it happen that in a training session you feel more tired or bored from the usual routine? It is time to try something new, try an exercise that you haven't done for a long time or that you have never done, change the load, increase or decrease the repetitions.

This way can help you resume your usual pattern in the following days with greater vigor.

Because it is important to complete the training schedule for the set period without constantly changing exercises: you need to build willpower to stay fixed on the established course.

Push hard

We can combine it with concentration: the more concentrated you are, the more you can push hard: completing a work session that is training does not mean you must break the muscle fibers every time; it means giving your best for how you feel that day: if you feel tired because you slept little or ate badly, give your best in those conditions, but never give up, never give up on the planned training.

CHAPTER 7

Measurements and indices

Why take the measure.

In any area of human activity, the measurement of some parameters allows you to know the starting point and define the goal to be achieved. In our case, when talking about body recomposition or changes in the body, some measurements help us understand if our nutrition and training efforts are going in the right direction.

Starting from elementary measurements such as weight, body temperature, heartbeat, or the circumferences of some areas of the body, we can later define some indices that give an idea of the general state of a subject and/or if we are indeed moving towards the established goal.

Bodyweight

It is one of the simplest measures to detect but it is subject to many variables. It is preferable to take it in the morning as soon as you get up and make an average of the weekly data because weight changes are influenced by different factors: how much you ate the day before or how much fluids you lost. It cannot be established in advance whether the increase or decrease is due to the purchase or loss of lean or fat mass. However, it is easy to use.

Height

It is self-explanatory, useful for building some other indexes.

Temperature

Taken 10 minutes after getting up, measured 3 or 4 times, and then averaged. It is especially useful in a phase of caloric restriction to check if the metabolism is active or starts to stall. If we notice a decrease in temperature and the weight does not drop, it means that we must resort to a break in the diet until the temperature starts to rise again.

Heartbeat

To be measured every morning, before getting out of bed and also after 15 minutes, then averaging the two data.

This data allows us to understand if the body is approaching a phase of temporary fatigue (overreaching) and allows us to understand when to insert a week of discharge, with lighter workouts. When the heartbeat increases compared to the initial readings by 15-20 beats, it is the signal that is the moment for discharge.

Circumferences: waist, abdomen, hips, thigh

To be detected in the morning as soon as you wake up every 7 or 14 days. Every 7 days if you are following a weight loss plan, 14 in a bulking phase, because changes in the waistline are quicker to see in a slimming phase, while the purchase of lean mass is slower.

These are the measurements I recommend:

Rib cage

Left and right arm flexed

Left and right leg

Life

Forearm

Waist

The line above the navel about 2 cm.

The line at the navel level

The line below the navel about 2 cm.

The three measurements at the abdominal level allow you to check whether the weight loss plan is correct because in many cases the weight loss proceeds from the upper abdomen towards the lower one. While if we are running into a phase of catabolism this is evident first in the limbs, hence the need to monitor the forearms and calves as well.

For example, if the limbs but not the abdomen decrease the measurements while the scale goes down, it can mean that the body draws energy from the lean mass at the expense of the fat one in a period of caloric restriction.

7-fold plicometry

With the skin folder we have an approximate measurement of subcutaneous fat and can be used to monitor the progress of efforts towards weight loss. These are the usual "holds":

Abdomen

Iliac

Flank

Triceps

Subscapularis

Leg

They can be used to derive indices even if their detection is subject to the imprecision of the taken by the detector. For this, it is usually recommended to use an average of three measurements for each point.

Fasting blood sugar

This parameter, to be measured in the morning on an empty stomach, allows us to understand if the body triggers a form of insulin resistance, that is if the nutrients are no longer captured in the muscles.

This measure can be especially useful in a bulking phase to understand when it is time to stop the high-calorie diet and decrease calories to improve cellular receptivity and limit the number of nutrients that end up in fat cells. Values should be between 60 and 100 mg/dl.

INDICES

With some of the measures acquired, through mathematical formulas, some indices can be obtained that allow you to understand the fitness level and consequently monitor the progress of the path taken.

TDEE

TDEE is the acronym for Total Daily Energy Expenditure.

It is the total number of calories burned on a given day and is the sum of four key factors:

basal metabolic rate

thermic effect of food

non-exercise activity thermogenesis

exercise activity thermogenesis

Basal metabolic rate (BMR)

Basal metabolic rate refers to the number of calories burned by the body each day to allow the body to survive.

BMR is the number of calories the body should consume in 24 hours at full rest.

Thermal effect of food (TEF)

When we eat food, our body has to spend energy to digest the food we eat which corresponds to about 10% of the energy introduced but it depends on the type of food ingested.

Non-exercise activity thermogenesis (NEAT)

Non-training activity thermogenesis (NEAT) constitutes the number of calories consumed during daily movement that is not classified as training.

NEAT is highly variable from person to person and can play a rather large or small role in your overall TDEE depending on how physically active your work or daily events are.

Thermal effect of training (TEA)

The thermal effect of training is the number of calories burned as a result of physical exercise. Similar to NEAT, the thermal effect of training depends a lot on the effort made in a given training session so it is a parameter influenced by many variables.

The TDEE is the sum of these four values, so to put the parameters in a mathematical equation, for simplicity, here is the formula for calculating the TDEE:

TDEE = BMR + TEF + NEAT + TEA

When all these numbers are added together, you get an estimate of the number of calories needed daily to maintain your current weight for the same physical activity.

Researchers have developed a setss of models for calculating BMR, and one of the most used and simplest to calculate is the Harris-Benedict equation, which takes into account age, height, and weight.

BMR women = 655 + (9.6 x weight in kg) + (1.8 x height in cm) - (4.7 x age in years)

Male BMR = 66 + (13.7 x weight in kg) + (5 x height in cm) - (6.8 x age in years)

For example, if we take a 40-year-old male who is 175 cm tall and weighs 80 kilos we will have:

BMR = 66 + (13.7 x 80) + (5 x 175) - (6.8 x 40)

BMR = 66 + 1096+ 875 - 272

BMR = 1765 kcal.

Based on these values, the subject needs to consume about 1765 calories to stay alive without moving.

The other components of the TDEE calculation can be estimated through a setss of parameters that have been identified by scholars over time, the most used is a setss of "activity multipliers", called Katch-McArdle multipliers.

To calculate the approximate TDEE, simply multiply these activity factors by the BMR, defined based on the amount of movement performed by the subject on average:

Sedentary (little or no exercise + desk work) = 1.2

Slightly active (light exercise 1-3 days a week) = 1,375

Moderately active (moderate exercise 3-5 days a week) = 1.55

Very active (heavy training 6-7 days a week) = 1,725

Extremely active (very heavy exercise, hard work, training 2 times a day) = 1.9

So if for example, the subject is "Slightly Active" to calculate the approximate TDEE just multiply the BMR by 1.375. This gives us:

TDEE = 1.375 x BMR

TDEE = 1.375 x 1765

TDEE = 2.427 kcal.

In this case, to maintain the current weight, the subject must introduce about 2,400 kcal per day.

Knowing the TDEE allows us to have a starting point from which to plan the path to follow to achieve the set goals and to be able to set up a food plan in a more precise way.

If you want to lose fat, we now know that we need to introduce less kcal than the current TDEE.

Knowing that 1 kg of fat corresponds to about 7,000 kcal, we should reduce the calorie intake by about 1,000 kcal per day to lose one kg of fat in a week. But during the slimming process not only fat mass is lost but also liquids and lean mass, for this reason, other measures must also be taken and studied, such as the measurement of circumferences or skin folds.

LBW (Lean Body Weight) lean body weight, is used for obtaining the percentage of body fat. The weight and measurement in centimeters of the abdominal circumference are used for this purpose.

With this index we can have an estimate of the amount of body fat, subtracting the lean mass from the total weight and then calculating a simple proportion. It is useful for monitoring the progress of the weight loss process.

Several formulas have been proposed for this index, here I show that of Wilmore and Behnke

LBW = 44.636 + 1.0817 (wt) - 0.7396 (c)

where wt stands for Body weight (in Kg.) and c stands for Abdomen circumference in centimeters.

Once the weight of the lean mass has been obtained, simply subtract it from the total weight to have an estimate of the fat mass and from this obtain its percentage relative to the total weight, that is

BF = Weight - LBW all measures in kg. where BF the fat mass in kg. Hence the fat percentage corresponds to 100 * BF / Weight

Ideal weight

The result of these mathematical formulas represents the ideal theoretical weight of the subject according to the author who proposed it. Below we present just a few.

Lorenz formula

This formula for calculating the ideal weight takes neither age nor skeletal structure into account, but it is widely used. Furthermore, it is not suitable for long-limbed and brachy type subjects.

Ideal weight Men = height in cm - 100 - (height in cm - 150) / 4

Ideal weight Women = height in cm - 100 - (height in cm - 150) / 2

Broca's formula

This formula for calculating the ideal weight is the simplest but takes into account only the height; the greatest limits lie in the non-correspondence of the ideal weight for medium-high stature.

Ideal weight for males = height in cm - 100

Ideal weight for females = height in cm - 104

Wan der Vael formula

This formula considers height only:

Ideal weight Men = (height in cm - 150) x 0.75 + 50

Ideal weight Women = (height in cm - 150) x 0,6 + 50

Berthean formula

Ideal weight = 0.8 x (height in cm - 100) + age / 2

Perrault's formula

This formula takes into account age and height

Ideal weight = Height in cm - 100 + age / 10 x 0.9

BMI Body mass index

It is a generic indicator to define the physical state of a person concerning an ideal average based on the age, weight, height, and sex of the subject.

This is the calculation: BMI = weight in kg / (height in meters * height in meters)

Below are the tables with the reference values for men and women.

Tabella con i valori del peso forma in base all'età

Età	Sottopeso	Normopeso	Sovrappeso	Adiposità	Adiposità grave
18 - 24	< 20	20 - 25	25 - 30	30 - 40	> 40
25 - 34	< 21	21 - 26	26 - 31	31 - 41	> 41
35 - 44	< 22	22 - 27	27 - 32	32 - 42	> 42
45 - 54	< 23	23 - 28	28 - 33	33 - 43	> 43
55 - 64	< 24	24 - 29	29 - 34	34 - 44	> 44
65+	< 25	25 - 30	30 - 35	35 - 45	> 45

Men

Women

Tabella con i valori del peso forma in base all'età

Età	Sottopeso	Normopeso	Sovrappeso	Adiposità	Adiposità grave
18 - 24	< 19	19 - 24	24 - 29	29 - 39	> 39
25 - 34	< 20	20 - 25	25 - 30	30 - 40	> 40
35 - 44	< 21	21 - 26	26 - 31	31 - 41	> 41
45 - 54	< 22	22 - 27	27 - 32	32 - 42	> 42
55 - 64	< 23	23 - 28	28 - 33	33 - 43	> 43
65+	< 24	24 - 29	29 - 34	34 - 44	> 44

Functional assessment

With functional assessment, we can monitor the performance of a subject and then evaluate whether the program is progressing in the desired direction. As far as bodybuilding is concerned and to set the training schedules, some tests are important that allows you to know the maximum in a given exercise. As we saw in Chapter 4, the training tables take into account the percentages of load compared to the maximum load in a given exercise. Furthermore, performing the tests at the end of each mesocycle can testify to the increase or decrease in strength of an athlete and therefore allows you to correct the variables of training or nutrition.

1RM test

5 are performed by establishing which maximum weight it was possible to lift by the subject, increasing the weight with each lift.

Brzycki's formula

With this formula, the maximum of the subject can be obtained indirectly through the number of repetitions performed with a given load.

1 theoretical RM = lifted load / [1.0278 - (0.0278 x repetitions performed)]

This is just one of the many formulas proposed by the scientific literature for calculating the ceiling. From our point of view, it can be useful as an index of the subject's physical capacity.

Heart rate

This parameter can be useful for monitoring the state of fatigue and also for setting various training programs. Starting from the approximate calculation of the maximum heart rate given by 220 - age, we can derive the optimal heart rate percentages based on the goal you have:

For cardiovascular training, 70-80% of the HR Max

For weight loss 60-70% of the HR Max

For moderate activity, 50-60% of the HR Max

For a more precise calculation, the Karvonen formula can be used, which takes into account the resting heart rate. In this way, the reserve heart rate is obtained, which is multiplied by the percentage of work you want to keep and added to the resting heart rate provides the heart rate to keep during physical activity, as per the following formulas.

Reserve HR (HRris) = HRmax - Resting HR

relative intensity = HRris and% HRris + resting HR

CHAPTER 8

Examples of body recomposition, i.e. how to use indexes

The purpose of body recomposition, in practical terms, is to reduce the percentage of fat mass and increase the percentage of lean mass, that is, of the muscles.

Hence the need to combine adequate nutrition and proper training.

As far as training is concerned, it is essential to guarantee a progression in the variables that we have described in the chapter dedicated to them, however, depending on the phase of the protocol in which we are: if we are in a phase of reduction of fat mass then in a period of the caloric deficit it is useless to try to set up strength training, with high loads. Instead, it is necessary to set up a workout that stimulates calorie consumption and increases metabolic efficiency.

On the other hand, as regards the food or energy side, the number of kcalories introduced are initially calculated, keeping a food diary on the food eaten for one or two weeks, and then TDEE is calculated.

The initial phase of all protocols requires that this caloric level is reached and stabilized for a certain time.

To do this, certain amounts of macronutrients are usually set to be kept fixed, especially proteins and fats. These quantities are related to the lean mass (e.g. 3g protein/kg lean mass; 0.8 g. Fat/kg lean mass) and it acts on the caloric intake of carbohydrates which are the main energy source of the human body.

The idea is that by depriving or strongly reducing the intake of carbohydrates over time, the stocks of glucose present in the liver and muscles are reduced and these will be replaced as an energy source by the catabolism of the energy stocks present in the body in the form of fat cells. This generates a setss of biochemical reactions that, on the one hand, make the body more receptive to the supply of sugars during the so-called "refills" of carbohydrates and on the other, allow you to use more fat reserves. I am not here to dwell on the fact that each of us has a certain percentage of "physiological" fat given by his genetics and therefore it may

be easier for a person to move the adipose deposits than for another one. With constancy, commitment, and the right approach, anyone can push their body (and mind) to change.

To scientifically set up a body recomposition procedure it is essential to have as much data as possible available. Some of this data is useful to be collected daily, such as temperature and heart rate in the morning. Other such as weight, others such as circumferences, every week. It is also essential to take note of what you eat during the day to estimate the weekly caloric intake.

Based on these data, we can calculate some of the indices seen in the previous chapter that will serve us to better monitor progress towards the goal.

It must always be kept in mind that changes in the body are not immediate but occur for more or less long periods: to see the effects of the work done, you have to wait from 20 to 30 days. In practice, there is little point in fasting one day and then binging the next; what matters is the weekly average of calories eaten. Calories must be related to a minimum level such that by exceeding this caloric level over time, the body tends to accumulate energy in the form of fat and on the contrary introducing fewer calories than the minimum level, fat reserves are used to keep the body alive.

For this reason, over time, the calculation of the TDEE has been introduced, which defines the total amount of energy, in calories, consumed by the body to maintain a given level of activity (i.e. energy consumption) including the necessary energy to keep the body alive.

It is therefore clear that this "basic" or "minimum" energy level depends above all on how much energy is consumed on average during a day: those who perform hard work will have, with the same physical conditions (height, age, sex) a higher TDEE level in regard of those who work in front of a computer. Furthermore, stress levels also influence these parameters, but for the moment the reference component concerns the greater or lesser physical effort.

The starting point of all argumentation regarding a body recomposition starts from the assumption of resetting the body, bringing the average daily consumption to the level of the right TDEE.

Once this caloric level has been reached and stabilized, you can begin to work on the food variables, to introduce a caloric deficit, if you want to lose weight, or a caloric surplus if you want to increase lean mass. In this second case, the challenge is to increase the weight by using the muscular component over the fat component of the weight gain. And it is precisely here that science must merge with experience because the response of an organism to the modification of certain variables is not the same as the response of another one. With this, we are talking about the famous genetic factors on which little we can do. But be careful not to exaggerate this concept. If even genetically the composition of our muscles (in slow-twitch and fast-twitch fibers) is different from person to person and the percentage of genetic fat differs from individual to individual, this does not mean that with the right commitment and adequate work anyone can improve their physical state. Surely this is possible especially for those starting from scratch, that is, from overweight situations or with little or no practice with training.

If this path is constantly monitored, detecting some measures at least weekly, it allows promptly to intervene by modifying the appropriate food or training variables.

We can divide a body recomposition based on its duration. We will have a short-term recomposition (a few months) or a long-term one (one or more years).

The short-term recomposition can be suitable for those who are little or not trained at all and perhaps want to lose fat mass: in a few months, it can radically change appearance; while the long-term recomposition implies a greater commitment and a will that already has to be trained. This does not mean that it can be used by those who are now starting their journey towards the construction of a new body.

Within these two protocols, it is possible to identify some fundamental phases that differ above all in the duration for which the related parameters must be extended.

It is essential to always have under control the main measures that we can easily detect: temperature, weight, circumferences, caloric intake.

It will be enough to keep a diary of measurements, foods, and workouts.

For both short-term and long-term recomposition, we start with detecting the daily consumption of kilocalories and calculating your TDEE.

The average between the two caloric values is calculated to obtain a starting value with which to set the start of the path.

Short-term body recomposition.

The duration of this procedure depends on the starting point, i.e. on how many calories we have to take or lose to reach the metabolic reset indicated by reaching the TDEE. That is, it depends on how much is the value of the average calculated as mentioned above, compared to the calories introduced in the period of the measurements present in the food diary.

The diet for the entire duration of the protocol provides for high consumption of proteins, up to 3g / kg of lean mass, and to keep fats between 0.5 and 0.8 / g per kg of lean mass and the residue of the calories we need in carbohydrates.

It is, consequently, necessary to calculate the lean mass. For this, we use Wilmore and Behnke's formula

LBW = 44.636 + 1.0817 (wt) - 0.7396 (c) where wt represents the body weight in Kg and c represents the abdominal circumference in cm. A person who weighs 70kg and has a circumference of 78cm will have a lean mass of around 63kg. This will be the initial parameter on which to calculate the quantities of proteins and fats to consume.

If the subject has a TDEE of 2,200 kcal and current consumption of 1,900 kcal, the value to be achieved with the diet for the metabolic reset phase will be 2200kcal + 1900kcal / 2 = 2.050 kcal.

Maintaining the hypothesis seen above of 3g / kg of lean daily protein mass, we will have 3 * 63 (kg lean mass) = 189 g proteins which correspond to about 756 kcal (we know that a gram of protein is worth about 4kcal). While for fats we will have, assuming we have 0.6 g / kg lean mass by rounding 38 g of fat which is equivalent to 351 kcal. To reach the required level of 2,050 kcal we need to consume 943 kcal in carbohydrates which correspond to about 236 g. These are the values to start from. Once this value has been stabilized and consolidated, the caloric-cutting phase can be started by decreasing the intake of carbohydrates based on the final cut.

Once you understand how much is the difference to reach the TDEE, you decide the number of weeks to reach that value.

When the TDEE is reached, the values are maintained for a few weeks, 2 or 3, before starting the actual body recomposition phase. This consists of a caloric cutting phase combined with a workout that pushes to break the body's homeostasis and induces the body to consume more fat, because, in essence, fewer calories are consumed from carbohydrates, always keeping protein consumption high.

At this point, it is a question of deciding how to cut calories. There are several ways, but they all aim to introduce a weekly calorie deficit.

During the week we can make several choices: we can decide on a drastic cut in calories for the first 3-4 days, reducing calories to -50 / -70% of what is indicated by the TDEE, exceed the calorie level of the TDEE for one day and keep the calorie level at the TDEE for the remaining two days. On calorie recovery days, we lower protein consumption to 2g / kg lean mass, keep fat at 0.5g / kg lean mass, and increase carbohydrates to reach or exceed the TDEE. Or we can stay low-calorie (-50% TDEE) for the first three days and high-calorie (+10, + 20% calories compared to TDEE) for the next two days and then stabilize the intake with a norm caloric diet for the remaining days (i.e. with calories at the TDEE level).

Or stay low-calorie for the first three days (-40%, - 50%, - 60% calories compared to TDEE), high-calorie for the next two days (+20%, + 10% calories compared to TDEE) and then again in low calorie (-50% calories compared to TDEE) with the last day in a normal caloric diet at TDEE.

In all these cases, training must focus on metabolic and cardiovascular work (or rest) in the low-calorie phase and on strength work with few repetitions and high loads in the high-calorie phases. In the latter case, we can use those techniques typical of strength work such as the pyramid sets, supersets, 5x5.

While in metabolic work we reduce the rest between one setss and another by increasing the number of repetitions with a lower weight to raise metabolic stress by adopting techniques such as trisets, giant sets, or circuit training, or increasing aerobic activity.

In the long-term protocol, the low-calorie and high-calorie phases are used not (only) within the week but over the months.

In long-term high-calorie phases, the goal will be to gain muscle by limiting as much as possible the increase in fat mass that any high-calorie diet necessarily produces; vice versa in the low-calorie phases the point will be not to lose muscle mass while losing weight.

In the muscle building phases with a high-caloric diet, the workouts will be heavier than in the second case. The starting point for the long-term protocol is to establish weekly weight gains, usually between 0.8 and 1% of kg of lean mass. However, keep in mind that if a person is already trained it is more difficult for him to increase with these rhythms. For example, if we have a person who has 70kg of lean mass, the weekly increase must be:

between 70 * 0.8% = 560g and 70 * 1% = 700g which corresponds to an increase in weekly kcal ranging from 2240 kcal to 2.800kcal, i.e. between 320 and 400 per day.

To achieve these weekly increases, calories are increased by respecting the previously reported parameters of proteins, fats, and carbohydrates. How much to increase compared to the initial TDEE? In this situation, there is no single way. It depends on how the body responds: you can start by increasing the calories by 10% or 20% compared to the TDEE and adjust through the changes highlighted by the measurements that are recorded.

Also in this phase, the need to detect what is happening through the measurements is emphasized: if we realize that the weight increases excessively we can intervene immediately by modifying the caloric intake or increasing some parameters of the training, or even the body temperature will help us understand when the time has come to take a break from a low-calorie diet: if we start this period with a temperature of 36.5 degrees and after a few weeks this parameter begins to drop, it indicates that the body begins to reduce its metabolic activity because, under stress, it may be the case to insert a break in the diet by inserting a so-called carbohydrate "refill" and modify the workouts until the temperature starts to rise again towards its initial value.

The same parameter of body temperature is used in the construction phases or "mass" or as we say in English of "bulk" to understand when we are

reaching a moment of over-training.

Weight, the measurement of the amount of lean mass calculated through the circumferences as seen above, is useful for us to understand if we are going towards the goal of muscle growth as "clean" as possible, that is, without excessive increases in fat mass.

It is useful to envision phases (weeks) of caloric cutting, within the mass period.

For example, after 12-15 weeks of high-calorie intake, we can decide to set 5-7 weeks of low-calorie intake trying to lose 1% of body weight per week.

So for example, if we have an athlete who weighs 80kg after the weeks of mass we will have to lose 80 * 1% = 800g per week.

This corresponds to the level of calories to consume 800 * 7 kcal / g = 5,600 kcal less per week which means 800 kcal less per day. However, we must always think about the final result: in total, at the end of the weeks of caloric cutting, we will have to have 5,600kcal * 5 weeks (or for how many weeks it has been decided) corresponds to a total loss of 28,000kcal.

Now it is up to us to decide the strategy to be adopted to reach that level: we can decide for a constant cut of 5.600kcal per week or a decreasing calorie cut starting with an initial sharper cut, for example of 6.500kcal and gradually go down as the weeks go by 6500 the first, 6000 the second, 5500 the third, 5000 the fourth and fifth week. Nothing precludes us from following other paths, the important thing is to reach the overall cut of 28,000kcal if we consider the example above.

In the period of a low-calorie diet of long-term body recomposition, it is good to decide to have days with calorie cuts but also introducing high-calorie days. Also, in this situation, the optimal amounts of proteins and fats must always be kept fixed and carbohydrates increased or decreased.

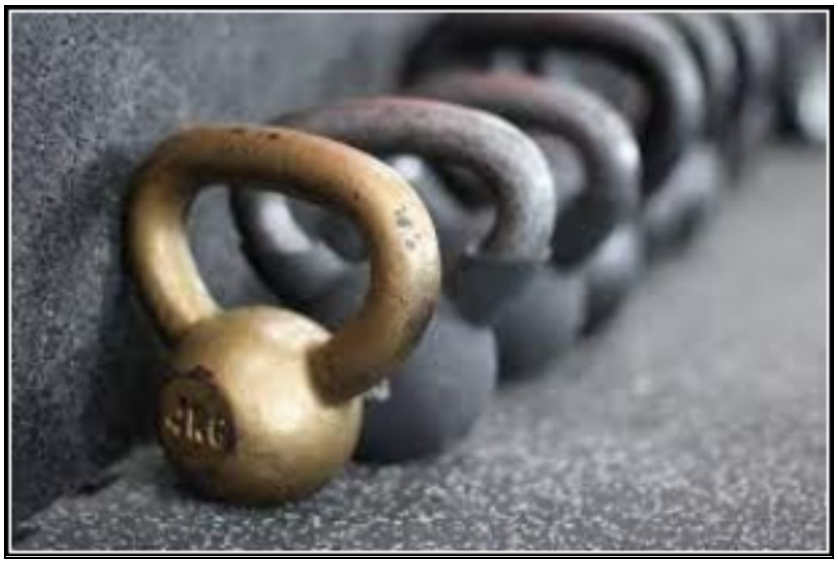
You should not think of going down too quickly with calories, otherwise, muscle catabolism will increase. Here, too, we take into account a loss ranging from 0.5% to 1% of body weight per week: on an 80kg person, the loss should be from 400g to 800g per week. Which corresponds to removing 5,600 kcal per week or 800kcal per day. Knowing the weekly cut,

we can decide how to make this calorie cut within the week: constantly, or decreasing or cyclically, varying the intake of carbohydrates and fats, always leaving an optimal consumption of proteins.

In this phase, what has been said above regarding the cutting phase within the bulking period is valid, i.e. perform workouts that accompany calorie-cutting and facilitate an increase in metabolic activity by reducing recoveries between sets and increasing repetitions with medium loads. (65% -75% 1RM).

As already stated, only by keeping track of the path taken through regular measurements can we intervene in time and correct the route, and only with time and consistency in training we can achieve the goals we have set. Whatever they are.

Write to me to find the best protocol for you info@fitnessedintorni.it or visit the website https://www.fitnessedintorni.it. Try my platform free for two months to track your progress https://www.pt-manager.com



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The book wants to be a help to those who approach the world of bodybuilding or body recomposition. In these pages you will find everything you need to reach your goals without proposing miraculous solutions or extraordinary results of the latest scientific research, which we have also studied, but you will find what is essential to plan the path that will guide you towards weight loss or building of muscle mass. Then it's up to you to understand the concepts and apply them to your case. As stressed several times in the book, **each of us is unique and the right diet and training routine must be tailored to the particularity of each person**. Routine, because training and proper nutrition must become a habit, a part of yourself. This is fitness.