TRI HARD

SKIN CARE FOR TRIATHLETES

THE STRENGTH GUIDE FOR ENDURANCE ATHLETES

WEBSITE: TRIHARD.CO | INSTAGRAM: @TRIHARD_US

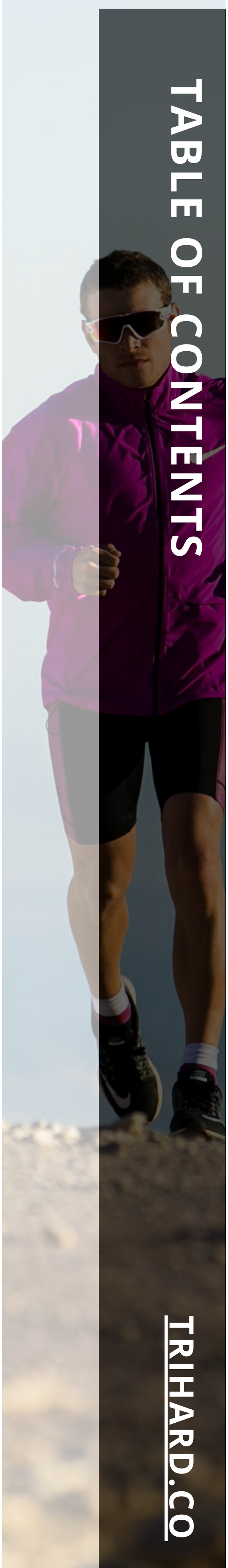


TABLE OF CONTENTS

TRIHARD.CO

DO I EVEN NEED TO DO STRENGTH TRAINING?

So many endurance athletes ask themselves the question: do I even need to do strength training? The answer to this question is very complicated. Without a doubt, there are some endurance athletes who do not need strength training, however, the vast majority could only benefit from strength training, which completes and balances out their training.

CAN A GYM INSTRUCTOR ADDRESS MY NEEDS?

In many cases, endurance athletes feel lost in the gym. The worst case scenario for the athlete is to receive a workout plan from a gym instructor, who does not understand the demands of the competition which the athlete is preparing for, and does not know how to match their strength training to their cardio training.

THIS GUIDE IS DESIGNED FOR YOU

In this guide, I have summed up all the knowledge you need in order to create a workout which combines strength and cardio training, for your next competition. In this guide, you will be able to find out the correct approach to making a strength training plan for an endurance athlete, and how to match them to your overall workout plan. In addition to the necessary knowledge, I also added 20 detailed strength exercises to help you assemble a whole strength training plan without needing to go to a gym.

GOOD LUCK,

TOM MARMARELLI, CO-FOUNDER AT TRIHARD.CO -
DEVELOPING SKIN CARE PRODUCTS FOR TRIATHLETES

WHY STRENGTH TRAINING FOR ENDURANCE ATHLETES? 4

INJURY PREVENTION

As athletes in endurance sports such as triathlon / running / cycling or swimming we repeat the same action over and over again. In such work, we often produce asymmetry between certain muscles in particular and the body structure in general, resulting from repetition of the same action in the same direction. This repetition is what makes us very strong and good in these disciplines and on the one hand, it makes us weaker in activities we neglect. Typically, the longer the activity, the initial technique will be harmed by fatigue. When a muscle is in a fatigued state it may lead to an impairment of the technique and eventually to other muscle compensations, which can cause short and long term injuries. The goal of strength training is, among other things, to improve symmetry and reduce muscle imbalances.

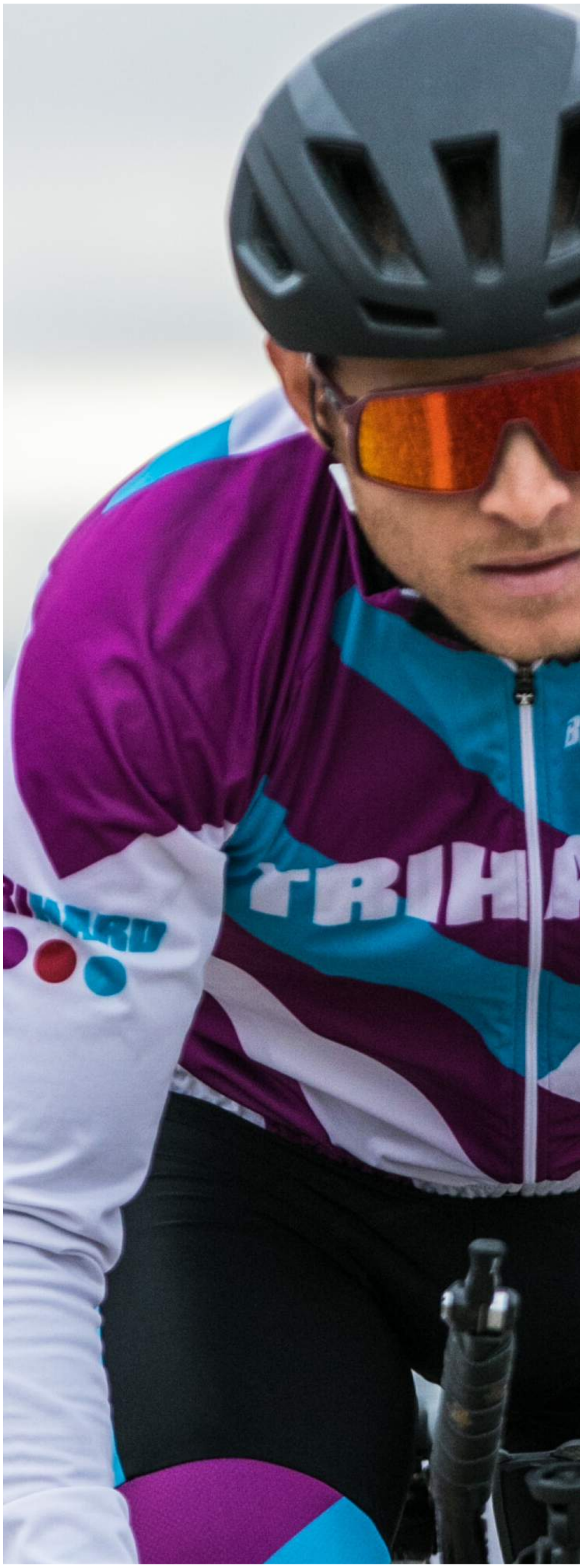
IMPROVING EFFICIENCY

Until a few years ago, all studies indicated that strength training would not improve endurance athletes' performance. This is because these studies examined the effect of anaerobic strength training improving VO2Max which is considered a parameter indicative of the aerobic engine and overall endurance level of endurance athletes. However, we have known for many years that the VO2Max is not the only or even the most important component in predicting endurance athletes' performance. Recent studies have looked at efficiency in endurance athletes who have also took up specific strength training and found major efficiency improvements. Defining efficiency simply, it is the amount of energy needed to move the body at a certain speed. The lower the energy needed, the lower the oxygen and energy consumption, which will eventually improve overall performance.

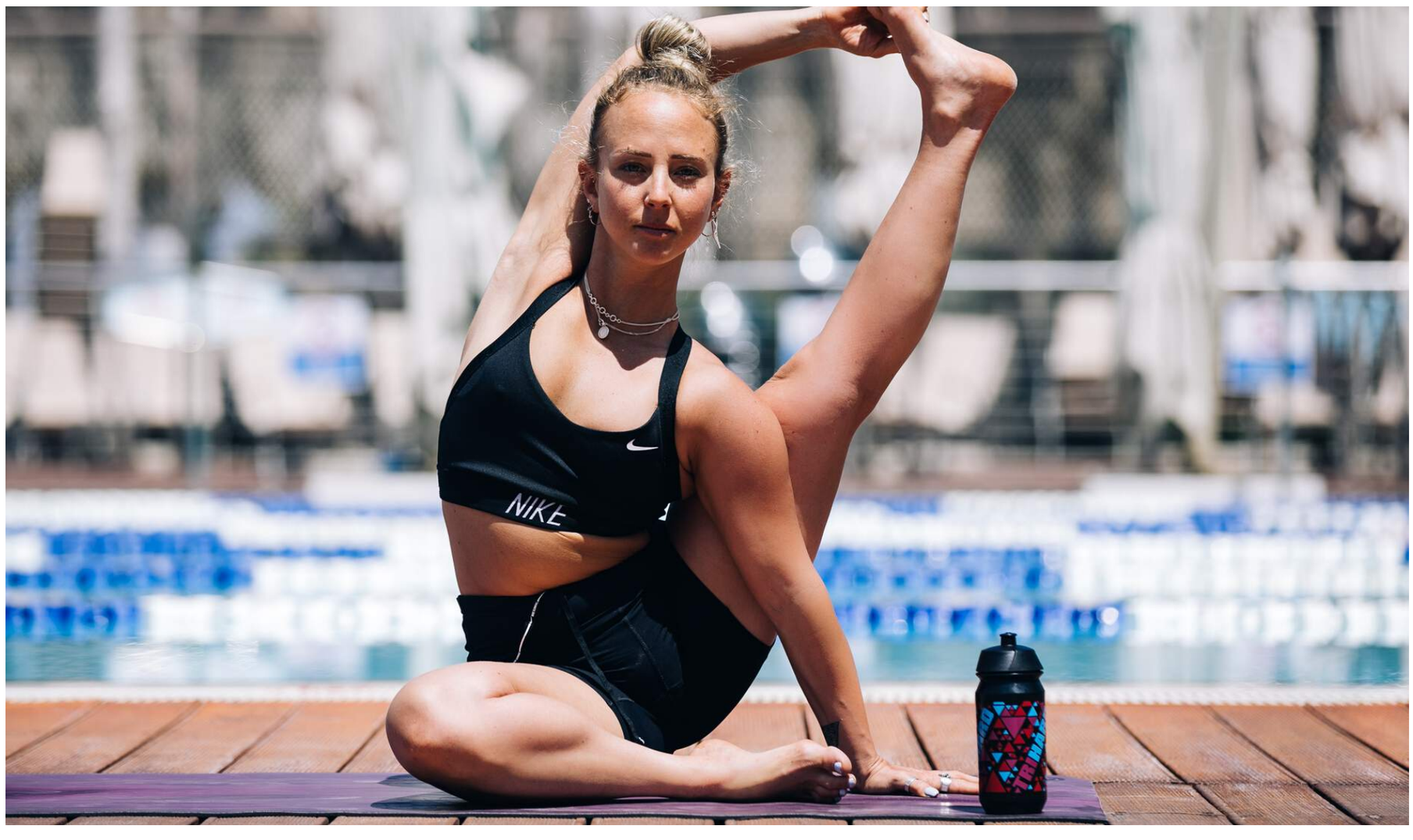
WHY STRENGTH TRAINING FOR ENDURANCE ATHLETES? 5

IMPROVING BODY COMPOSITION

One of the most important and central roles in performing strength training as an endurance athlete is to improve the athlete's body composition. Body composition is the sum of lean mass and fat mass and endurance athletes will aspire towards more lean mass than fat mass. Strength training will help the body remain in an anabolic state (muscle building) when endurance training is usually catabolic (muscle decomposition) in their adaptive response. Strength training can help reduce fat mass by increasing lean mass and keeping the same overall weight. Sometimes there is a fear that strength training may increase overall body mass and make the athlete heavy and slow or at least "inflated" (especially women). The muscle adaptation process for strength training and the body's adaptation process for endurance training work through the same pathway. That is, if endurance athletes continue their endurance training, there is no concern of s/he increasing muscle mass and "swelling".
Endurance training will suppress the effect of muscle hypertrophy after strength training.



As an endurance athlete strength training is usually subsided.
It is recommended to do 2-3 strength workouts per week all year round to see any long and short term gains. Sometimes we encounter situations where we miss training due to time constraints and the general recommendation is to give up a second / third strength session before giving up an endurance workout. Strength training is more important for some athletes than for others, but it is generally true that for the amateur athlete, it is more important to do the training relevant to the sport for which he is training than strength exercises in the gym which by no means are specific. Two strength sessions per week are recommended at all stages of the training season, but one will also contribute to the overall performance.



STRENGTH TRAINING STAGES IN THE OVERALL ENDURANCE TRAINING PLAN

In different training plans for different goals and levels, varied emphasis will be given to strength training. In addition, adjustments can be made to the strength plans fitting to the athlete's weak points and strengths. For example, a trainee with a lot of muscle mass can shorten the hypertrophy phase and extend the muscular endurance phase and a trainee who's sprint finish ability is of greater importance can extend the maximal power phase and shorten the muscular endurance phase. Each phase of the training plan has a goal for specific physiological improvement such as an increase in muscle mass in a particular group of muscle, improving overall strength and endurance for higher training load, and improving the maximal power for some athletes. In order to achieve the same adaptations the strength workouts will differ in several measures.

STRENGTH TRAINING STAGES IN THE OVERALL TRAINING PLAN 7

Number of Exercises - The total number of different exercises performed in a workout.

Number of Sets - The number of sets in each exercise.

Number of repetitions - Number of repetitions in each set.

Performance Speed - The reference is to how fast we performed each repetition. For example, if we performed a squat exercise and the muscle eccentric phase (drop down) took us 2 seconds and the muscle concentric phase (rise up) another 2 seconds, it took us a total of 4 seconds per repetition.

F**ailure** - Failure is a well-known concept in the field of strength training and refers to a condition in which the muscle is unable to complete a repetition. For instance, if we were required to perform 15 repetitions at a certain weight but only succeeded in 12, then we have reached failure, which means that the muscle failed to perform the task.

Resistance - that is, the amount of weight or resistance it takes to overcome in a repetition. It is customary to use the **RM (Repetition Maximum)** index, which is the maximum amount of weight that can be used for a single repetition of a specific exercise. For example, if you can do a squat with 100kg once, and you were asked to do 6 reps with 80% RM, it means that you have to perform 6 repetitions with 80kg in each repetition.

Volume - Workout volume is defined as: Total Volume = #Repetitions * #Sets * #Weight in each repetition. For example, if in a certain workout you did 2 different exercises, 3 sets in each, with 10 reps in each exercise at 20 kg resistance the total training volume is: 2 * 3 * 10 * 20 = **1200 kg**.

1. ANATOMICAL ADAPTATION

The first phase in any strength training plan is the anatomical adaptation phase and it takes about 2 to 4 weeks in total.
When starting a new training plan, the body must first become accustomed to the set of exercises before the exercises can be overloaded, because the body does not know these movements. The most dangerous thing is to start strength training at high loads, when the body has yet to adapt to the movements.

Many athletes feel very "sore" after their first strength training even if they haven't trained "hard", consequence of the unfamiliar muscle movement and therefore an adjustment period is required.

<u>Recommended numbers for the phase:</u>
Number of exercises in workout: 8-12
Number of sets: 2, recovery between them: 30 seconds.
Number of reps: 12-20
Performance Speed: Slow
Arrival at failure: No.
Resistance: 50-60% RM
Volume: Low-Medium

2. HYPERTROPHY

Hypertrophy is a process in which muscle volume and muscle mass increase. This is a very important step for athletes who need to improve their body composition - that is, lowering fat percentage. This phase encourages a process of growing the muscle fiber and will increase the total muscle volume, and generally a larger muscle is a stronger muscle that can withstand larger loads.

Number of exercises in workout: 8-12
Number of sets: 2, recovery between them: 30 seconds.
Number of reps: 12-20
Performance Speed: Slow
Arrival at failure: No.
Resistance: 50-60% RM
Volume: Low-Medium

3. STRENGTH

Strength is the maximal amount of resistance the muscle can overcome. The better the strength, the muscle can resist (or lift) heavier weights and so the focus in the strength phase is on the level of resistance or weight in each exercise. The strength phase is especially important for athletes who have a tendency to suffer from traumatic injuries (such as a rupture of a certain muscle, etc.). You can also focus and improve a particular muscle or muscle group if you have some chronic injuries.

Recommended numbers for the phase:

Number of exercises in workout: 10-12
Number of sets: 3-6, recovery between them: 90-180 seconds.
Number of reps: 1-6
Performance Speed: Slow
Arrival at failure: Yes
Resistance: 80-100% RM
Volume: Low

4. MUSCULAR ENDURANCE

This is the most important stage for endurance athletes and will take up the most time during the training plan. The higher the endurance capacity of the athlete's muscle, the longer it can sustain a certain amount of performance before the muscle fatigues and cannot produce the same amount of energy. At this stage, the muscle's ability to produce energy over time is enhanced by the large number of repetitions in each exercise and the highest general training volume of all strength phases.

Number of exercises in workout:10-15
Number of sets: 3-5, recovery between them: 30-60 seconds.
Number of reps: 12-20
Performance Speed: Normal
Arrival at failure: Yes
Resistance: 60-70% RM
Volume: High

5. MAXIMAL POWER

The maximal power phase is especially important for endurance athletes whose competition may end in a sprint or track runners with significant pace changes. A higher maximum power will help a triathlete, for example, in the start of the swim if he wants to catch a "good draft", a cyclist competing for the final sprint win or a criterium-type competition with lots of accelerations. Maximal Power also produces endurance athletes more resistant to trauma injuries since they can better handle sudden movement changes where these types of injuries usually occur.

Recommended numbers for the phase:

Number of exercises in workout: 8-12

Number of sets: 3-6, recovery between them: 90-180 seconds.

Number of reps: 1-6

Performance Speed: Fast in contraction. Normal in extension

Arrival at failure: No

Resistance: 80-100% RM

Volume: High

SQUAT

Target Muscles – buttocks, (the glutes maximus, glutes medius and glutes minimus) femur, quadriceps, calves.

1) Stand with your feet in a natural position (not exactly straight and parallel to each other, but slightly outward, at a natural angle).

2) Have your chest out, while tucking in your core.

3) Bend your knees towards a sitting motion on an imaginary stool that is slightly lower than your knee, and then stand back up straight

Things to look out for

1) An upright chest that "looks" forward and upwards throughout the exercise

2) A natural arch in the back throughout the exercise

3) Have your entire foot on the floor while conducting the squat.

Additional options

Hold a dumbbell tightly to the chest, or try the Smith machine or leg press.

To further intensify the workout, try: Holding dumbbells or weights while squatting, or plyometrics, also known as jump training or ploys

SINGLE-LEG SQUAT

Target Muscles – glutes, hamstring, quadriceps, calves, back.

1) Stand with your legs and put your hands to the front

2) Lift one leg off the floor and slowly sit back while lifted leg is in front of your body

3) Once you bend to knee height or slightly lower, rise up to return to standing on one leg

Things to look out for

1) Upright chest "looking" forward and upwards throughout the motion.

2) Natural arch in the back throughout the motion.

3) Have your entire foot on the floor. Do not raise your heels

JUMPING-SQUAT

Target Muscles – glutes, hamstring, quadriceps, calves, back.

1) Stand on your legs and put your hands to the front.
2) Make a sitting motion on an imaginary chair (slightly lower than knee height)
3) Rise up and jump up

Things to look out for

1) An upright chest that "looks" forward and upwards throughout the exercise.
2) Natural arch in the back throughout the motion
3) After landing, bend slowly before the next jumping squat.

Additional options

Adding a dumbbell or weight to your chest, doing the exercise on a buso ball.

FRONT LUNGE

Target Muscles – glutes, hamstring, quadriceps, calves, back.

1) Legs should be shoulder width, parallel to one another
2) Take a big step forward with one leg.
3) Hold your chest upright, and kneel with your back knee downward so it could touch the floor.
4) Stand back up to a natural position

Things to look out for

1) An upright chest that "looks" forward and upwards throughout the exercise.
2) Natural arch in the back throughout the motion.
3) A 90 degree angle should be formed with both legs during exercise
4) Not to lean on the front knee, but rather to think about taking the back knee further back and lean on it.

REVERSE LUNGE

Target Muscles – glutes, hamstring, quadriceps, calves, back.

1) Legs should be shoulder width, parallel
2) Take a big step back with one leg
3) Hold your chest upright and kneel with your back knee downward so it could touch the floor.
4) Stand back in a natural position

Things to look out for

1) Upright chest "looking" forward and upwards throughout the motion.
2) Natural arch in the back throughout the motion
3) Create a 90 degree angle with both legs

Additional options

Adding a weight in each hand, using a body bar, using a buso ball.

HIP ABDUCTION

Target Muscles – gluteus maximus, gluteus medius

1) Tie a resistance band around a pole, and stand parallel to the pole while holding it (for balance)
2) Wrap the other side of the resistance band around your leg
3) Cross your legs, meaning one leg is closer to the pole (increases range of movement)
4) Move your thigh as much as possible (without momentum)& bring the hip back

Things to look out for

1) Keep your body stable
2) Make sure you feel your glutes working and not other muscles
3) Keep your leg straight, don't bend your knee

SHOULDER PRESS

Target Muscles – obliques (side abs), deltoid, triceps, shoulder

1) Standing up, hold a weight at shoulder height so one end of the weight will touch your shoulder lightly.

2) In one consecutive motion, press the weight in an upward direction, until your elbows are locked, which will occur roughly when your elbows reach your ear height.

3) Return to your starting position in the same way

Things to look out for

1) There is a common tendency to push the weight too much to the front or too much to the back. It is advised to use a mirror or a coach to make sure the weight is parallel to your ears. If the weight is leaning forward, you can fix it by pushing it slightly to the back.

2) Do not arch your back

SHOULDER ABDUCTION WITH LATERAL ROTATION

Target Muscles – shoulders

1) Standing naturally, hold two weights to the side of your body

2) Keep your elbows straight and lift the weights upwards until they reach the height of your ears.

3) While lifting your arms, make a lateral rotation so your thumb will point down

Things to look out for

1) keep your knees locked or slightly bent and don't use momentum.

2) Keep your elbows locked.

3) Bring your elbows to the height of your ears.

4) Don't squeeze your shoulder blades and neck, make sure they are as loose as can be.

PROTRACTION

Target Muscles – back, shoulders, and shoulder blades

1) Standing, stretch a resistance band at shoulder height

2) Keep your elbows locked and your hands straight. Keep your hands far away from each other while stretching the rubber band.

3) Once your hands are in line with the rest of your body, go back to your starting position.

Things to look out for

1) knees slightly bent

2) Elbows locked as much as possible

3) Feel the work in your shoulder blades and do not squeeze your neck

Additional Options

shoulder press with both hands using a machine

SHOULDER ABDUCTION

Target Muscles – latissimus dorsi (upper back)

1) Standing naturally, hold the resistance band or cable with locked elbows above ear height.

2) With one motion, pin your elbows to your body.

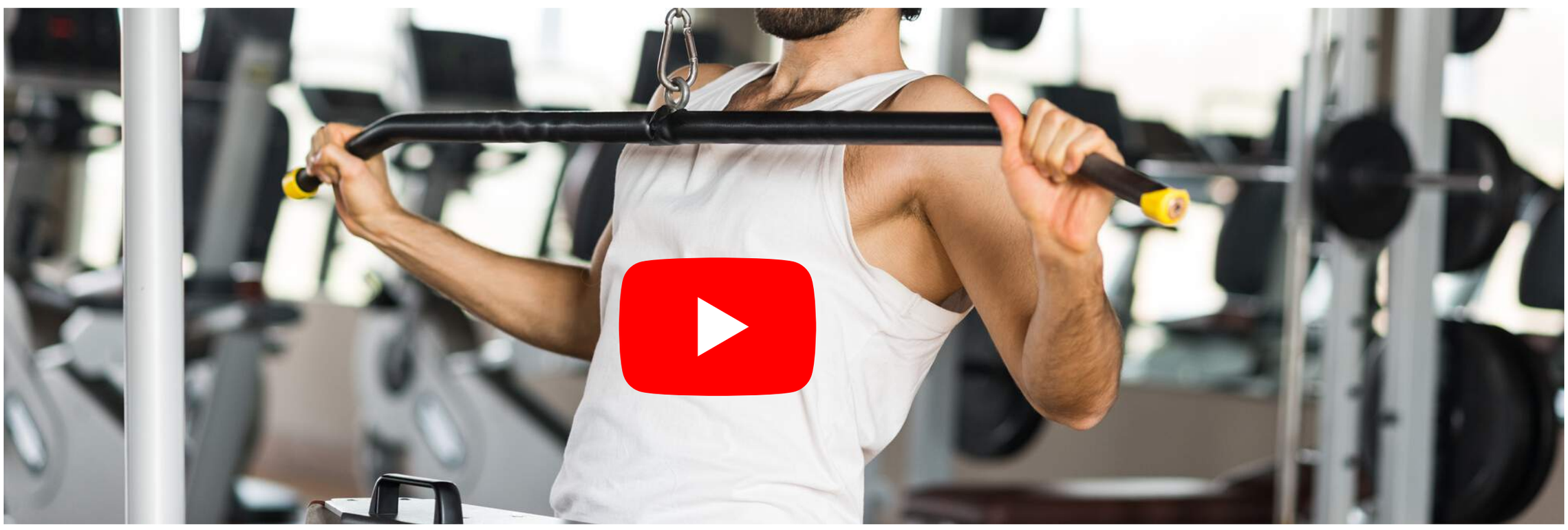
Things to look out for

1) Locked knees

2) Elbows locked as much as possible

Additional Options

pull over exercises, upper pulley exercises



PUSH UP

Target Muscles – pecs, deltoid, triceps, abs

1) Get down on your hands and knees. Hands, knees, and tips of the toes should be on the floor.
2) Lean on your hand and push your feet back so that your knees are in the air.
3) Keep your hands shoulder width apart, or slightly wider. Keep your hands in line with your nipples.
4) Bend your elbows, and push your chest to the floor until you almost touch the floor.

Things to look out for

1) It is recommended to work on a flexible surface
2) Drop down to the floor with control, do not collapse into the floor
3) Don't arch your back, maintain a natural arch

REAR BRIDGE

Target Muscles – gluteus maximus, gluteus medius, back muscles

1) Lie on your back with your knees bent so your heels are close to the glutes
2) Lift the pelvis upward while keeping feet parallel to each other
3) Repeat = until the buttocks touch the ground before the next repetition

Things to look out for

1) Keep feet parallel to each other
2) Push through the glutes in a decisive, precise motion
3) Both feet flat on the floor

Additional Options

Try a resistance band around your hip

PLANK

Target Muscles – Abdominal muscles with emphasis on the abdomen

1) Get down to your hands and knees so your hands, knees, and fingertips are on the floor.

2) Lean on your forearms and push your feet back so your knees are in the air

3) Keep your glutes at the same height as your back.

Things to look out for

1) It is recommended to work on a flexible surface (rubber, plastic, grass) and not on too hard of a surface (asphalt, concrete).

2) It is important to maintain a straight back, no arch.

3) Suck your stomach in throughout the exercise.

Additional Options

Sit ups

SIDE PLANK

Target Muscles – Abs with emphasis on the obliques

1) Get down to your hand and knees so your hands, knees, and fingertips are on the floor.

2) Sit on your forearms and push your feet back so your knees are in the air.

3) Keep your glutes at the same height as your back.

Things to look out for

1) It is recommended to work on a flexible surface (rubber, plastic, grass) and not on too hard of a surface (asphalt, concrete).

2) It is important to maintain a straight back, no arch

Additional Options

Sit ups

PULL THROUGH

Target Muscles – latissimus dorsi, pecs, deltoid, triceps.

1) Standing with slightly bent knees, hold a resistance band in both hands so that your hands are stretched forward.
2) Keep your hands parallel to the ground before starting the movement.
3) Bend the elbow so that the forearm is vertical to the ground
4) Bring the forearm closer to the body so that it is still vertical to the ground
5) Finish the movement so that the hand is straight, fingers pointing back, and the hand is parallel to the ground.

Things to look out for

1) It is recommended to work very slowly during the first few times to learn the correct movement.
2) It is important to hold your stomach in. You should not feel a load on your back
3) Forearm should be as vertical to the ground as possible during the movement.

CATCH

Target Muscles – shoulder, biceps, forearm

1) Standing with slightly bent knees, hold a resistance band in both hands so that your hands are stretched forward.
2) Keep your hands parallel to the ground before starting the movement.
3) Bend elbow and rotate inward so that the forearm is vertical to the ground.

Things to look out for

1) It is recommended to work very slowly during the first few times to learn the correct movement.
2) It is important to hold your stomach in. You should not feel a load on your back.
3) Keep the elbow and shoulder at the same place throughout the movement—only the forearm rotates and changes position.

BENT-OVER ROW

Target Muscles – back muscles, trapezius, deltoid, forearm.

1) Standing with slightly bent knees, hold two weights or a body bar.
2) Both hands "hanging" from the body.
3) Keeping a straight body, pull your bent elbows closer to your body.

Things to look out for

1) Keep your body stable and straight. Suck your stomach in.
2) Do not arch your body
3) Work through the back muscles without momentum.

Additional Options

Rowing in T, rowing device, rowing with pulley exercises, rowing lying on the stomach.

STEP UP

Target Muscles – glutes, hamstrings, quadriceps, calves, back muscles.

1) Stand upright in front of a 30–50 cm step.
2) Raise one foot on the step and use it to climb up with the other leg so both legs are now on the step.
3) Work through the leg muscles without momentum.

Things to look out for

1) Keep your body stable and straight. Hold your stomach in.
2) Do not lean too forward so that the knee is not in front of the ankle on the step.
3) Work through the leg muscles without momentum.

Additional Options

Forward lunge, squat, one leg squat

BOX JUMP

Target Muscles – glutes, hamstrings, quadriceps, calves, back muscles

1) Stand upright in front of a 30–50 cm step, feet in parallel position.
2) Gently bend your knees to generate momentum.
3) Jump on the box and land with both feet together, parallel to each other.
4) Straighten up and lock your knees before getting off the box.

Things to look out for

1) Keep your body stable and straight. Suck your stomach in.
2) Do not lean too forward so that the knee is not in front of the ankle on the step
3) Work through the leg muscles without momentum.

Additional Options

forward lunge, squat, one leg squat, jump squat

CALF RAISE

Target Muscles – Gastrocnemius muscle, soleus, plantaris (calves)

1) Stand on the edge of the step with the ball of your foot on the step and your heels in the air.
2) Stand on the ball of your feet (on your tiptoes)
3) Don't go too low with your heels under your toes

step height.

Things to look out for

1) Locked knees and a stable body
2) Do not lean too forward so that the knee is not in front of the ankle on the step.
3) Rise without letting your feet collapse to the outside of the feet

Additional Options

On a foot pressing machine

GET 20% OFF OUR AFTER-SWIM CHLORINE-REMOVAL PROUDCTS

USE THE CODE "DAYAFTER" AT CHECKOUT TO REDEEM YOUR OFFER

TRIHARD.CO