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Introduction



Dr. Larry Van Such, DC, BE

Dear Athlete,

Thank you for your interest in the *Swing Faster, Throw Harder & Run Quicker With Isometric Training* program. It is my sincere desire that this program meets your needs.

Isometric training, with the help of the resistance band and its dynamic and elastic properties, is fast becoming one of the most popular ways to train your muscles for strength and speed.

Once you start incorporating the strategies contained in this program into your current training schedule, you too will join a select group of athletes who have gained an immediate advantage in their sport.

So take charge and use this information. The possibilities of what you might accomplish are endless!

Sincerely,

A handwritten signature in blue ink that reads "Dr. Larry Van Such". The signature is stylized and cursive.

Dr. Larry Van Such, DC, BE

Chapter 1

Isometric Training
Muscular Contraction
The Resistance Band
The Running Process
The Baseball Swing
Muscle Charts

ISOMETRIC TRAINING

The word ISOMETRIC is defined as follows: *iso* means equal or the same, and *metric* means length. Combining these two definitions we get *equal or the same length*. Isometrics, as it pertains to muscle training, involves tensing muscles against other muscles or against an immovable object while the length of the muscle remains unchanged. For isometric training to be effective, this muscular tension must be maintained over a certain period of time. Therefore, isometric training is best defined as follows:

The sustained contraction of a muscle over a certain period of time where the length of the muscle remains unchanged.

The following are a few examples of an isometric contraction:

Example 1. Take a 20 pound weight and perform a biceps curl. Hold a position halfway between the repetition for 10 seconds. The length of your biceps muscle doesn't change during this time. A force is still being applied. See Figure 1-1 below:

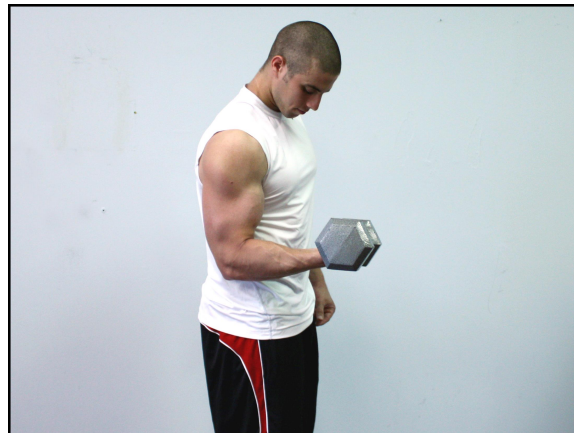


Figure 1-1.

Example 2. Push against a wall for 10 seconds. The wall doesn't move and neither does the length of the muscles in your arms pushing against it. A force is still being applied. See Figure 1-2 below:

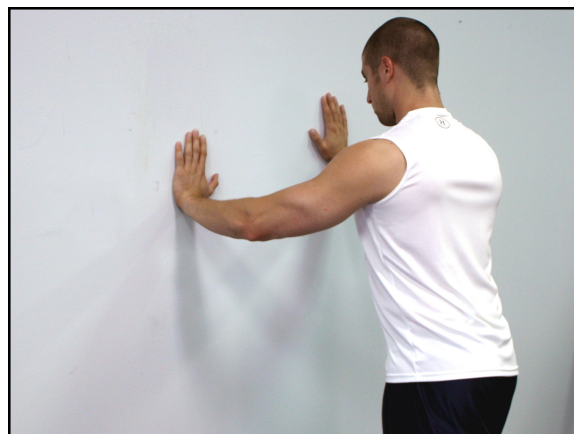


Figure 1-2.

Isometric training has been around for a long time, and so it is nothing new. Many extraordinary results in muscle strength have been achieved in a very short period of time with this type of training. However, because of the number of new training products and techniques on the market today, its use by athletes is often overlooked.

MUSCULAR CONTRACTION

In order for you to appreciate the value of isometric training, it will be necessary to briefly discuss some basic anatomical principles of muscular contraction. To start with, all skeletal muscles consist of three main fiber types. These fiber types are listed below:

- 1) Slow twitch fibers - Responsible for the endurance and strength of a muscle.
- 2) Fast twitch fibers - Responsible for the speed and strength of a muscle.
- 3) Intermediate twitch fibers - Possess qualities of both slow and fast twitch fibers.

In most muscles, these fibers are intermingled. However, there is usually a predominance of one over the other. For example, in postural muscles of the spine, the slow twitch fibers dominate. This is because slow twitch fibers can undergo extensive repetitive contractions without fatigue. In non-postural limb muscles like the arms and legs, the fast twitch fibers dominate. This allows for powerful forces to be generated over a short period of time.

All of these fiber types are arranged into groups known as *motor units*. A motor unit is defined as one motor neuron and all the muscle fibers it supplies. There are many motor units within the overall muscle. When a muscle begins to contract, an action potential is carried down the motor neuron across the motor endplate to the muscle fibers it supplies. Initially, only some of the motor units become active. As the demand on the muscle increases, more and more motor units are recruited to help support this demand. As the demand on the muscle decreases, the number of motor units also decreases. This is a general description of muscular contraction.

With isometric training, a muscle opposes some form of resistance and is contracted to a certain length and then held for a certain period of time, usually 10 seconds or more. There are no repetitions required here as in weight training.

The biggest advantage to this type of training is twofold. *First*, by forcing your muscles to hold a position for a certain length of time, your body starts to recruit more and more motor units to help maintain this contraction. Motor units that are rarely exercised within a muscle are now brought into use, perhaps for the first time. *Second*, the motor units that are recruited are forced to hold their contraction continuously, time after time, until your muscles achieve a state of maximum intensity safely and effectively. The end result is that the entire muscle matures very quickly.

THE RESISTANCE BAND

One of the most popular forms of exercise training today deals with what is known as resistance training. Essentially most forms of training deal with some type of resistance aid (weights, etc.) but the way the term *resistance training* is used today means to utilize things such as rubber bands or flexible pieces of metal to provide you with a simulated form of weight training. One of the new and more popular types of resistance training aids is what is known as the resistance band or exercise band. See Figure 1-3 on the next page:



Figure 1-3. The resistance or exercise band.

This is an outstanding product that has a very unique physical property known as a *hyper-elastic potential*. This means that the more you stretch the band the more resistance you will have to apply. The amount of resistance found within an elastic band is therefore a function of its length when stretched. When used properly, the resistance band is the ideal speed training device.

Here's a very basic idea of how and why it works: imagine first that you are performing a biceps curl, much like that shown in Figure 1-1 on page 2, except that instead of holding a weight, you are holding one end of a resistance band with the other end either attached to the floor or perhaps secured under your foot. Since we are using an isometric contraction, this position with the elbow flexed at about 90 degrees is held for 10-15 seconds without moving it.

While holding this position, imagine the band is already stretched and exerting a significant amount of force back into your biceps muscle. For some, this may be a 40 lb equivalent force while for others, perhaps more. After a few seconds, your biceps muscle will naturally start to weaken. When this happens, your body will begin to recruit more and more motor units to help keep your arm and elbow in this fixed position.

Eventually, and rather quickly if the resistance is high enough, you get to the point where you can no longer hold the band still and maintain the same amount of force efficiently. The muscle has become over-stimulated. This causes your arm to give out or start to shake a little, since the over-stimulated muscle weakens and your coordination dissipates. This is one of the desired states for your muscles to be in to train them for speed and quickness.

These movements in your elbow and arm, however small and in whichever direction, instantaneously alters the amount of force that the resistance bands supply. Unlike weights, which always have the same amount of resistance, the band's resistance is variable and changes as its length changes. Even small changes in distance, whether greater or less than the starting position, will affect the amount of resistance your muscles exert.

Your muscles constantly perceive these small changes in resistance and alter their typical recruitment pattern of motor units to try and maintain the held position. This new pattern is considerably different than that observed while undergoing a similar exercise with a 40 lb dumbbell, because its resistance is not subject to a change in position.

This is a great benefit to athletes since with each new recruitment pattern of motor units, a muscle's weakness and lack of coordination on a much deeper level than normally experienced is instantly exposed, forcing the over-stimulated muscle fibers to immediately get stronger and with more precision than before. Furthermore, the mass of the muscle typically does not significantly increase with this type of training which, if it did, could potentially offset these gains.

So, whenever you are able to increase a muscle's strength and coordination without adding any additional body weight, your speed, quickness and athletic performance will automatically increase. This again is just one of the reasons how and why this type of training works.

Imagine now applying this strategy in not only conventional ways, as in the biceps example here, but also in ways and positions you may have never thought of before. When you do this to your muscles, you will immediately expose and then eliminate greater weaknesses in them leading to a vastly improved athletic performance.

Therefore, throughout this entire program, we will be *using the resistance band with an isometric training strategy to increase the strength, coordination and contraction rate within specific muscles located in your upper extremities, lower extremities and core* - all of which play important roles in the running process, baseball swing and throwing motions.

THE RUNNING PROCESS

The *Running Process* consists of three main phases: 1) the push phase, 2) the swing phase and 3) the pull phase. These three phases constitute a complete leg sequence for each leg during the entire time one is running. For example, the right leg will sequence as follows:

Push phase > Swing phase > Pull phase > Push phase > Swing Phase > Pull Phase etc.

The left leg follows a similar pattern however, the phases of running for the left leg are not in synch with the phases of running for the right leg.

The Push Phase. The push phase is perhaps the most popular of the three phases since it is typically associated with the start of a race however, like the other two phases, it is involved throughout the entire time one is running. It begins when the thigh of the foot touching the ground is perpendicular to the ground, and ends when the toes of this same foot are barely touching the ground behind you. Figures 1-4a, 1-4b, 1-4c and 1-4d show the stages of the push phase shortly after the start of a race for the *right* leg. See below:

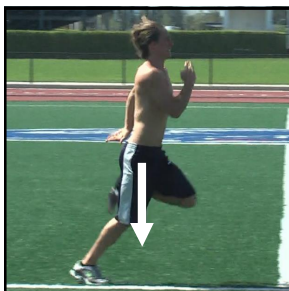


Figure 1-4a. Start of the push phase. Right thigh is perpendicular to the ground.

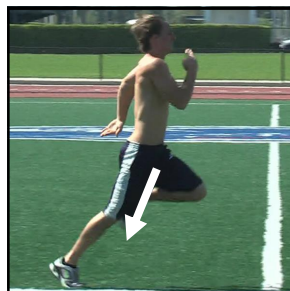


Figure 1-4b. Middle of the push phase. Right thigh and leg are extending.

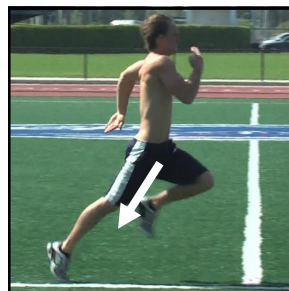


Figure 1-4c. Continuation of push phase. Right thigh and leg near complete extension.

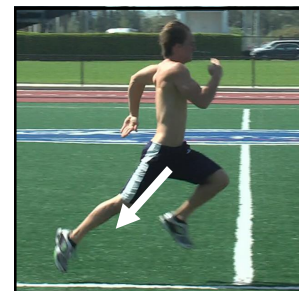


Figure 1-4d. End of push phase. Right thigh and leg fully extended. Right foot makes last contact with ground.

The muscles involved in the push phase are the knee extensors (Figure 1-15, page 15), hip extensors (Figure 1-16, page 15) and the ankle plantar-flexors (Figure 1-16, page 15).

The Swing Phase. The swing phase begins when the toes of the foot that finished the push phase have just left the ground behind you and ends when this same foot strikes the ground in front of you. The distance covered by the swing phase is what many people refer to as their *stride*. Training to improve your stride is not very difficult however, it is perhaps one of the greatest oversights athletes make. Improving this phase of running can make a big difference in your running speed. Figures 1-5a, 1-5b, 1-5c and 1-5d below show the basic stages of the swing phase for the *right* leg:

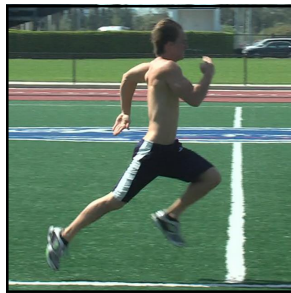


Figure 1-5a. Start of the swing phase. Right foot has just left the ground.

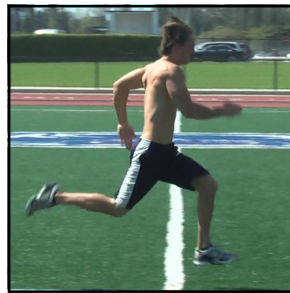


Figure 1-5b. Middle of swing phase. Right thigh is being pulled forward.

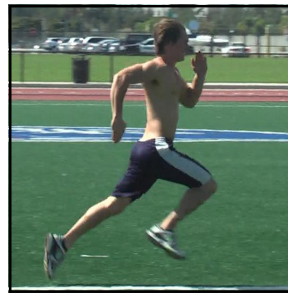


Figure 1-5c. Continuation of swing phase. Right thigh is now flexed in front of runner.

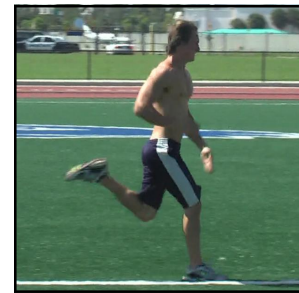


Figure 1-5d. End of swing phase. Right foot strikes the ground in front of runner.

The muscles involved in the swing phase are the hip flexors (Figure 1-15, page 15), knee flexors (Figure 1-16, page 15) and knee extensors (Figure 1-15, page 15).

The Pull Phase. The pull phase begins once the foot strikes the ground in front of you and your thigh is still flexed, and ends when the knee and thigh of the same foot are perpendicular to the ground directly beneath you. This is the shortest of all the phases and it too is often overlooked by a lot of athletes. Improving this phase of running can also make a big difference in your running speed. Figures 1-6a, 1-6b, 1-6c and 1-6d below show the basic stages of the pull phase for the *right* leg:

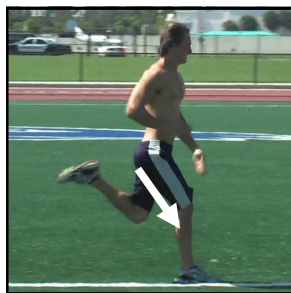


Figure 1-6a. Start of pull phase. Right foot on the ground; right thigh (arrow) is flexed on the hip.

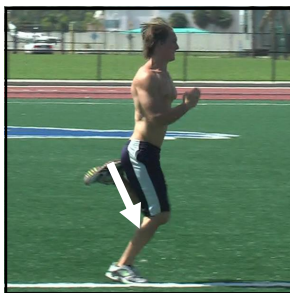


Figure 1-6b. Middle of pull phase. Right thigh (arrow) flexed but is now starting to be pulled underneath runner.

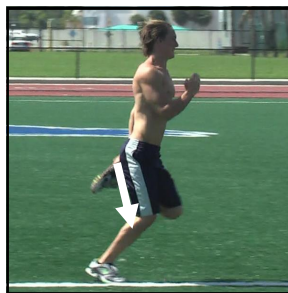


Figure 1-6c. Continuation of pull phase. Right thigh (arrow) almost perpendicular to ground beneath runner.

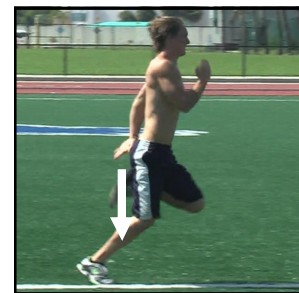


Figure 1-6d. End of pull phase. Right thigh (arrow) perpendicular to ground; push phase set to repeat.

The primary muscle groups involved in the pull phase are the hip extensors (Figure 1-16, page 15) and to a lesser extent, the knee flexors (Figure 1-16, page 15). Note: the hamstring muscles have two functions, 1) hip extension and 2) knee flexion.

This completes the basic motions of the three phases of running. Many athletes have different styles of running that best suits their needs however, the muscles involved all remain the same.

THE BASEBALL SWING

The baseball swing consists of three main phases: 1) the loading phase, 2) the launching phase, and 3) the follow through. Each player, with their own unique style, will find themselves making adjustments to their swing depending on the type of pitch, its location, the pitch count, the number of outs, weather conditions and the position of the defense to name a few. However, regardless of the batting style used and the adjustments made to it during game-time situations, the muscles involved in the baseball swing always remains the same.

In this section we are going to identify all the major muscles used in each phase of a typical swing for the *right-hand* batter. Once you learn which muscles are involved in the swing and how to condition them for speed and power, you will become a more focused, confident and productive hitter. However, before any of these phases are performed and the muscles are identified, getting into the proper stance is required. Therefore, let's first identify the basic stance position along with a few variations to it for the baseball player.

The Stance. The baseball swing begins with getting into the proper stance. Figures 1-7a, 1-7b, 1-7c and 1-7d show four different views of this. Feet and hand position vary from player to player more than anything else and in Figure 1-7a, the batter has chosen to stand with his feet a little more than shoulder width apart. A firm grip of the bat is usually preferred and the height of the hands, as well as the distance they are in front of the body, is based on preference. Figures 1-7b and 1-7d shows the hands about 10 - 12 inches in front of his body and right about shoulder level. Some players may prefer to keep them in closer and perhaps lower or higher.

Figure 1-7a shows his weight is balanced and evenly distributed between his two feet and Figure 1-7b shows the batter standing fairly tall in the box. Figure 1-7d shows that he is leaning slightly forward with the knees and hips slightly flexed and Figure 1-7c shows him on the balls of his feet. The shoulders and hips are level in the stance position for most players as seen in Figure 1-7a, but this too, may vary slightly.

The stance is truly a matter of personal preference. As long as it fits your own individual style and helps you to feel comfortable, confident and alert in the box, you're ready to swing the bat.



Figure 1-7a.



Figure 1-7b.



Figure 1-7c.



Figure 1-7d.

The Loading Phase. The loading phase takes us from the stance position to the launching position. There are five noticeable movements that take place during this phase and they are: 1) the backward movement of the shoulders and arms, 2) the backward rotation of the spine, 3) the beginning of the timing step, 4) the cocking of the hips and 5) the cocking of the wrists.

1) The Backward Movement of the Shoulders and Arms. The first noticeable movement that takes place during the loading phase is the backward movement of the shoulders and arms toward the catcher. This action helps to load, or stretch, different muscles in each shoulder that will be released, or contracted, later during the swing.

Let's take a look at a sequence of movements from directly across home plate. Starting in the stance position in Figure 1-8a, follow the movement of both shoulders and arms in subsequent Figures 1-8b, 1-8c and 1-8d. Here we see both shoulders and arms moving in the same direction, back and away from the pitcher however, each shoulder uses a different set of muscles to get there.



Figure 1-8a.



Figure 1-8b.



Figure 1-8c.



Figure 1-8d.

First, the movement of the leading *left* arm and shoulder across the body and away from the pitcher is known as shoulder adduction. See Figure 1-8d. This is caused mainly by the action of the pectoralis major muscle (Figure 1-21, page 16) with help from the coracobrachialis (Figure 1-19, page 16), latissimus dorsi (Figure 1-22, page 16) and teres major (Figure 1-22, page 16) muscles, all on the left side of the body. The left shoulder ends up shrugged or elevated in this position which is a function of the upper fibers of the trapezius muscle (Figure 1-21, page 16). The left scapula or shoulder blade is also protracted, or moved anterior, toward the front of the body in this position. This motion is caused by the left serratus anterior muscle (Figure 1-21, page 16).

The contraction of these muscles stretches or loads the muscles on the back side of the same leading left shoulder, namely the posterior deltoid (Figure 1-22, page 16), rhomboids (Figure 1-22, page 16) and middle fibers of the trapezius muscles (Figure 1-22, page 16). These muscles are now fully loaded, or stretched, and ready to swing forward in this position.

The movement of the back (right) arm away from the pitcher and laterally raised away from the player's body is known as shoulder abduction. See Figure 1-8d. This is caused by the supraspinatus (Figure 1-22, page 16) and middle deltoid (Figure 1-21, page 16) muscles. The right scapula may also be slightly shrugged or elevated in this position depending on the player's style and if so, this motion is caused by the upper fibers of the trapezius muscle (Figure 1-21, page 16).

The contraction of these muscles stretches or loads the antagonist or opposing muscles on the same side of the body, namely the latissimus dorsi (Figure 1-22, page 16), teres major (Figure 1-22, page 16) and serratus anterior (Figure 1-21, page 16) muscles. These muscles are now fully loaded and ready to help swing the bat in this position.

2) The Backward Rotation of the Spine. At the same time the shoulders and arms are moving backward, muscles along the spine and abdomen are also contracting to help turn and rotate the spine (including the chest, abdomen and upper body) in the same direction. To see this, let's look at a similar sequence of movements from behind home plate.

Starting in the stance position in Figure 1-9a where only the back shoulder is visible, follow the movement of the upper body in Figures 1-9b, 1-9c and 1-9d. Here we see the chest, abdomen and upper back also being rotated away from the pitcher to the point where now both shoulders are visible. This action of upper body and spine rotating away from the pitcher gives the appearance that the shoulders are *rotating* backward when in effect it is the spine that is rotating, carrying the shoulders with it. This backward rotation of the spine is caused by the contraction of the lateral spine rotators (Figure 1-19 and 1-20, page 16).

To get the body to rotate back and away from the pitcher, the lateral spine rotators on the left side of the body (front side for the right-hand batter) needs to contract or shorten. In doing so, the trunk is turned to the side opposite to that from which these muscles act - to the right, or backward. This may be opposite of what you might think however, this has to do with the upward and oblique orientation of these muscles in the spine. The contraction of these lateral spine rotators on the left side of the body stretches and loads the exact same muscles on the opposite, or right, side of the body, which will be needed during the swing.



Figure 1-9a.



Figure 1-9b.



Figure 1-9c.



Figure 1-9d.

3) The Beginning of the Timing Step. Immediately after the shoulders and arms have started to move toward the catcher and the spine (including the chest, abdomen and upper body) has rotated as well, a short timing step with the front leg begins to occur. Look above at Figures 1-9a through 1-9d and you will notice that as the player's body has turned inward or backward, his front foot has come off the ground signifying the beginning of this timing step.

Some players may raise their foot higher than this while others may still keep their toes in contact with the ground. Some will even turn their front knee inward to facilitate the hip-cock (discussed next), though this is not part of the batter's technique here. But however high or low the *beginning of this timing step* is, the first effect of it is to force the back leg to carry the player's weight however, since his feet are shoulder width apart at the start and not directly underneath him, the natural tendency once in this position will be to fall forward thereby creating valuable momentum in the process. Another effect of the *beginning of the timing step* is that it also places an additional load on the big muscles of the back thigh and buttocks. Looking again at Figures 1-9a through 1-9d, we see this additional load on the back leg taking place as the player's position ends up squatted down a little more when the front foot comes off the ground. The muscles in the back leg that are further loaded during this movement are the hip extensors (Figure 1-16, page 15) and knee extensors (Figure 1-15, page 15).

Besides creating momentum and loading the powerful muscles of the back leg, another purpose of the timing step is to cock the hips which is discussed next.

4) The Cocking of the Hips. Cocking of the hips refers to the backward rotation of the hips away from the pitcher and as just mentioned, it occurs in unison with the beginning of the timing step. You can see this backward turn of the hips in Figure 1-9d on the previous page. As the front leg has come off the ground both hips rotate backward, toward the catcher, and now the front side of both hips are visible.

Cocking the hips is driven by momentum created by the backward movement of the shoulders/arms and the rotation of the spine along with a shift in weight to the back leg and the inward turn of the front knee. Since the back foot remains in contact with the ground during this time, it is forced to plant firm. This creates a pivot point around the back hip for the weight of the entire body to rotate. As a result, the rear hip (thigh) is forced anatomically into medial or inward rotation. This in turn stretches the powerful external hip rotators (Figures 1-17 and 1-18, page 16) in this same rear hip. This is the primary effect of cocking the hips and the stretching of these strong muscles stores an incredible amount of elastic energy that when timed properly, can be released to help carry out a very powerful rotational bat swing. This is why these are the muscles everyone needs to target as part of their training!

5) The Cocking of the wrists. Cocking of the wrists is an action the hands perform on the bat handle at the tail end of the loading phase (Figure 1-10a) and into the first part of the launching phase (Figure 1-10b). Its purpose is to break inertia, or prevent the bat from coming to a dead stop, and create a rapid recoiling effect with the bat-head at the end of the player's furthest backswing.



Figure 1-10a. End of loading phase.
(This is the same as Figure 1-8d, page 8.)



Figure 1-10b. Beginning of launching phase.
(This is the same as Figure 1-11a, page 12.)

As the shoulders, arms and spine have moved and rotated backward as seen in Figure 1-10a, the hips, being the last to rotate back in the loading phase, are now the first to recoil and begin their explosive contraction forward in the launching phase seen in Figure 1-10b.

Comparing the back hip's position in Figure 1-10b with that of Figure 1-10a, we can see that the hips have already begun their turn toward the pitcher and this rapid change of direction by the hips occurs a split second before the head of the bat reaches its furthest backswing position.

The furthest backswing position of the bat is accomplished by a pushing of the top hand on the bat-handle so the bat-head ends up leaning back toward the hitter. This represents the cocking of the wrists and is shown in Figure 1-10b. Compare the bat-head position in this figure with

that in Figure 1-10a, and you will see the bat-head is now closer to the player's head, which is a sign that the hands and wrists are still loading, and this occurs even though the hips have already started to launch forward.

Since cocking the wrists occurs in the opposite direction as the path of the swing resulting in the bat-head pushed to its furthest backswing position, and since it occurs when the body is transitioning into the launching phase, it represents a point of maximum coiling power in the body. If timed at the right moment, this little extra thrust of the wrists cocking the hands on the bat-handle will create a rapid change in direction of the bat-head which increases the body's ability to create, store and release incredible amounts of elastic energy in the arms and shoulders resulting in a more powerfully executed bat swing.

The Launching Phase. Once all of the muscles in the body have been properly loaded and stretched, the body is now in the position to unwind or uncoil and release this stored elastic energy to powerfully swing the bat. This is what is known as the launching phase of the baseball swing and it continues to the point of contact with the ball. There are five noticeable movements that take place during this phase and they are: 1) the continuation of the timing step, 2) the opening of the hips 3) the forward rotation of the spine, 4) the pushing and pulling action of the arms and shoulders, and 5) the guiding action of the hands on the bat.

1) The Continuation of the Timing step. The timing step began in the loading phase when the front leg was raised off the ground and weight was momentarily rocked onto the back leg. See Figure 1-10a on the previous page. Now, the continuation of the timing step is the first part of the launching phase.

Depending on the player's technique, the timing step of the front foot can actually be a short stride towards the pitcher by a few inches and perhaps more, or it can simply be placed back down on the ground as shown in Figure 1-10b on the previous page.

Whichever technique is used, the lowering and turning of the leading foot outward, to the ground, triggers the initiation of the swing. This outward turning of the leading foot is caused by muscles acting higher up in the hip, the external hip rotators (Figures 1-17 and 1-18), and it forces the toes to point outward, in the direction of first base, as seen in Figure 1-10b. Compare this foot position with that in Figure 1-10a and you can see this repositioning more clearly.

Since most of one's batting power comes from hip rotation, the repositioning of the front foot is necessary since this starts the opening of both hips toward the pitcher, the direction the batter will end up facing at contact. The contraction of the lead hip's external hip rotators to point the toes outward (heel inward) will load or stretch the antagonistic (opposing) muscles in this same lead hip, namely the internal hip rotators (Figure 1-16, page 15). These muscles will then help further pull the batter around in the swing when he is closer to contact.

2) The Opening of the Hips. Opening of the hips refers to the direction and movement both hips turn, and eventually end up facing, when making contact with the ball which is forward, toward the pitcher. See Figure 1-11d on the next page.

This motion starts out in conjunction with the *continuation of the timing step* just mentioned. As the lead foot is being placed back to the ground with an outward rotation caused by the opening of the same lead hip toward the pitcher, the back hip is also starting its turn toward the pitcher. To see this, compare the back (right) hip and thigh position in Figure 1-10b with that of Figure 1-10a on page 10. This turning or opening of the back hip toward the pitcher is caused

by powerful contractions in the external hip rotators of this same back hip that were previously stretched during the loading phase.

The uncoiling of these external hip rotators is the start of an incredible power release in the body as it forcibly rotates the player's right side toward the pitcher. See Figures 1-11a through 1-11c. This rotational hip power builds right from the onset and is further increased by the momentum and drive created by pushing of this same back leg toward the pitcher during the timing step or stride when the player's weight is being shifted forward.

As the rotation of the back hip continues to turn and the same rear leg is driving the right side of the body toward the pitcher, the front hip is also opening toward the pitcher right along with it. See Figures 1-11a through 1-11c. This clears an opening for the back leg to continue its drive of the back hip further toward the pitcher until the rear leg's forward progress is met by the increasing stiffness of the front leg. With both hips now nearly facing the pitcher, the stiff front leg forces the lead hip backward, away from the pitcher. See Figure 1-11d. This not only opens the hips further toward the pitcher but also creates a short, compact and explosive pivoting action across the player's pelvis that carries up the spine.

The combination of the hips exploding open toward the pitcher along with the massive torque created across the pelvis by the pushing of both legs in opposite directions through contact, is the primary contributor of power to the player's swing.



Figure 1-11a.



Figure 1-11b.



Figure 1-11c.



Figure 1-11d.

3) The Forward Rotation of the Spine. As the hips begin their explosive rotation toward the pitcher and torque is building across the pelvis, this ever increasing rotational power source is also being combined with muscles that are uncoiling along the spine.

During the loading phase, when the spine (chest, abdomen and upper body) was turned back toward the catcher, the lateral rotators of the spine on the forward or left side of the body needed to contract to accomplish this. In turn, the lateral spine rotators on the rear or right side of the body were stretched or loaded. Now these same stretched lateral spine rotators on the right side of the body contract hard during the launching phase, turning the spine, including the chest, abdomen and upper body, toward the pitcher. As a result, the shoulders and arms are turned in the same direction.

We can see this turning of the spine and consequently the shoulders and arms back toward the pitcher in Figures 1-11a through 1-11d above as well as in Figures 1-12a through 1-12d on the next page. Notice how the player's numbers were not visible in Figure 1-12a but are now clearly seen in Figure 1-12d, signifying this spine and upper body rotation.



Figure 1-12a.



Figure 1-12b.



Figure 1-12c.

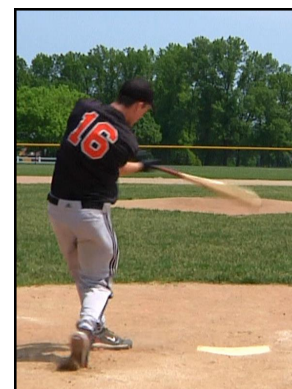


Figure 1-12d.

4) The Pushing and Pulling Action of the Arms and Shoulders. As the hips and spine are aggressively rotating toward the pitcher, the arms are riding right along with them. In the process, they add their own force to the bat however, each of them does so in a different manner. First, with regards to the rear arm, the elbow drops immediately tucking in tight against the body and makes the shape of the letter Δ . See 1-13b below. The dropping of the arm to the side is driven by the latissimus dorsi and teres major muscles which were stretched during the loading phase. The elbow also supinates in the process which forces the palm of the hand to start turning upward. This is caused by the elbow supinator muscles (page 17). As a result of these two actions, the knob end of the bat points forward. See Figure 1-13b below.

As the body continues its rotation toward the pitcher, the rear arm applies a hard, but short, push forward which brings the bat-head around near the contact point as shown in Figure 1-13c. This is caused by the pectoralis major, anterior deltoid, coracobrachialis and serratus anterior muscles. The elbow also starts to extend in the process, though not completely. See Figure 1-11d on the previous page. This is caused by the elbow extensor muscles (Figure 1-17, page 16).

The position of the front arm remains relatively straight with a slight bend in the elbow and a downward lean, in line with the plane of the bat. The amount of flexion in the elbow can change based on pitch location. As the upper body rotates toward the pitcher, the muscles on the back side of the lead shoulder contract, pulling the lead arm forward toward the path of the ball. See Figures 1-13a and 1-13b. These muscles are the posterior deltoid, rhomboids, and middle fibers of the trapezius. All of these were stretched in the loading phase and now they are contracting here in the launching phase. As the lead arm nears full extension rather than letting the force of the rotation pull the lead hand off, away from the ball, it stays on this circular path, becoming a pivot point at the bat-handle. The latissimus dorsi and teres major muscles assist this action. This causes the bat-head to rapidly accelerate in an arc to explosive contact with the ball. See Figure 1-13d below as well as Figure 1-11d on the previous page.



Figure 1-13a.



Figure 1-13b.



Figure 1-13c.



Figure 1-13d.

5) The Guiding Action of the Hands on the Bat. The bat-head is the recipient of all the centrifugal force created in the body by the rotation of the hips and spine along with the pushing and pulling action of the shoulders and arms. This is all made possible by seven muscles in each hand and three muscles in each forearm holding the bat-handle with a firm grip. See the definition for the *hand grip muscles of the hands* and *hand grip muscles of the forearms* on page 17.

The hands and forearms main job is to supply direction to the bat from the initiation of the swing to contact with the ball. The hands first direct the knob end of the bat inside the flight of the pitch towards the center of the ball as seen Figure 1-13b, page 13. With all of the explosive movement taking place in the body, the bat-head is soon found lagging behind the hands as seen in Figure 1-11c on page 12.

The rotation of the body and the action of the shoulders and arms will help pull the bat-head around toward the contact point however, any cocking of the wrists done during the loading process will have to be restored to their neutral position at contact. This is because the best position for the wrists and hands to be in to transfer all of this explosive rotational power into the bat is *square*, or *neutral*, with respect to the forearms. This means the wrists are in a position without any flexion, extension, radial deviation (abduction) or ulnar deviation (adduction) and/or any combination thereof. Hand and wrist muscles are at their strongest in this position which is necessary to power the bat-head through the ball without being deflected. The ideal contact point is where the bat-head meets the ball at 90° from the direction of the pitch, give or take 15° degrees in either direction. See Figure 1-11d on page 12.

The Follow Through. After the ball has left the bat, the forearms will extend completely as seen in Figure 1-14a. This is a function of the elbow extensors (Figure 1-17). The wrists will then do a true rollover after contact which means the right forearm pronates, forcing the palm side down and the left forearm supinates, forcing the palm side up. See Figure 1-14b.



Figure 1-14a.



Figure 1-14b.



Figure 1-14c.



Figure 1-14d.

The rest of the swing finishes naturally with the hips opening completely toward the pitcher. Notice the stiff front leg has driven the left hip back in Figure 1-14d. This is a sign that a very compact and powerful swing, giving maximum power and contact through the ball, has been achieved.

This completes the identification of all the phases in the baseball swing and the most pertinent muscles involved in each. Now it's time to begin properly training all of these specific muscles including those involved in the throwing motion and running process. Let's get started with reviewing the instructions on how to accomplish this in the next chapter.

MUSCLE CHARTS

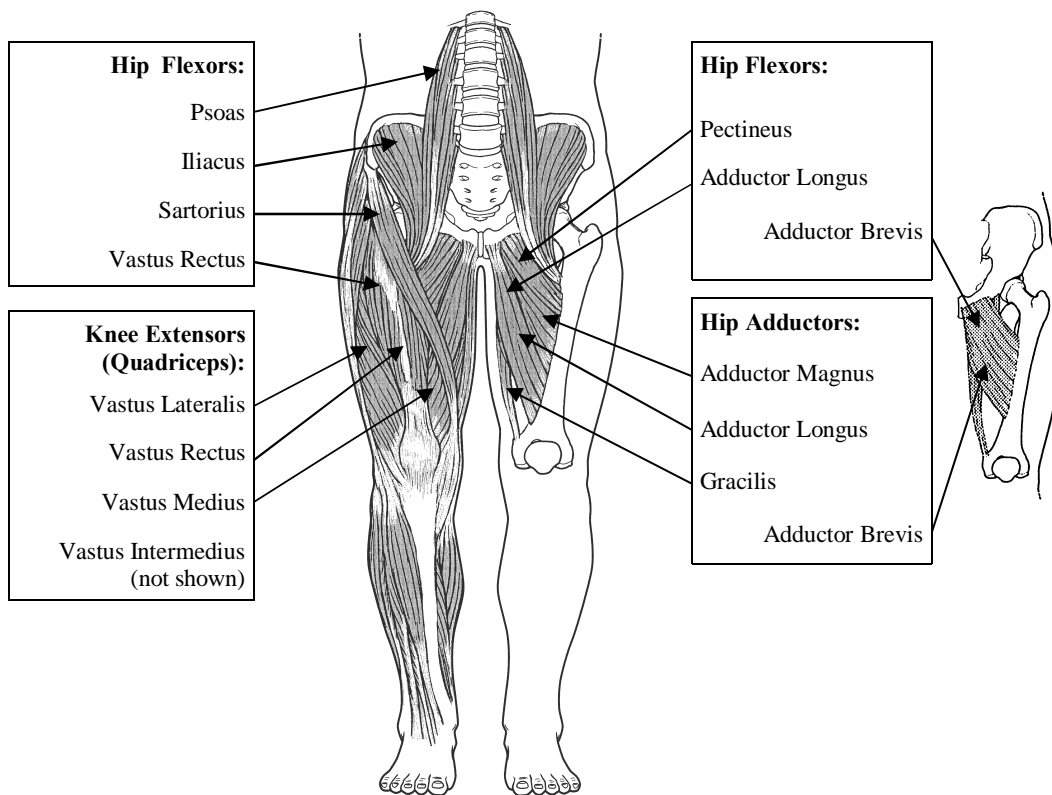


Figure 1-15.

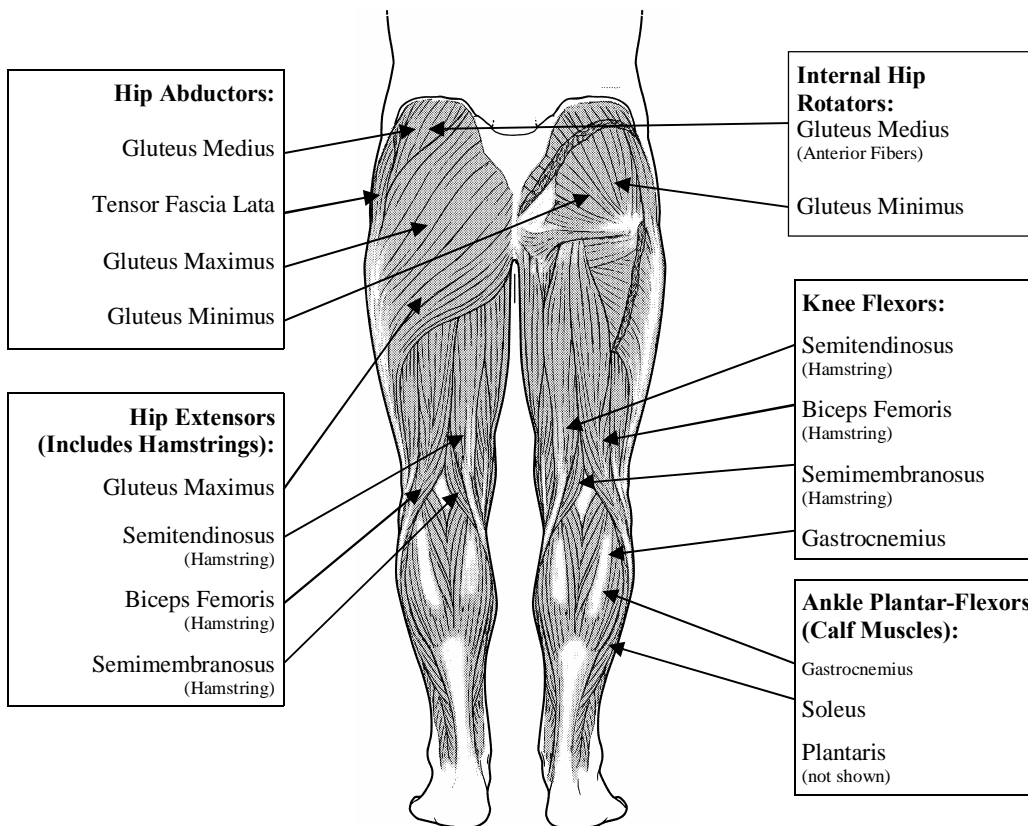


Figure 1-16.

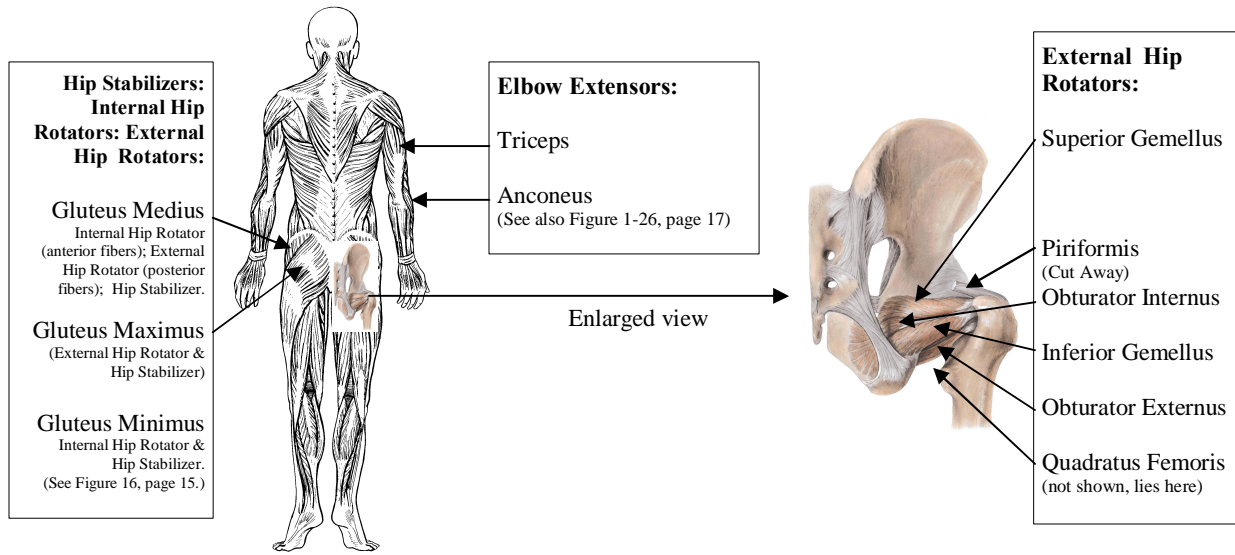


Figure 1-17.

Figure 1-18.

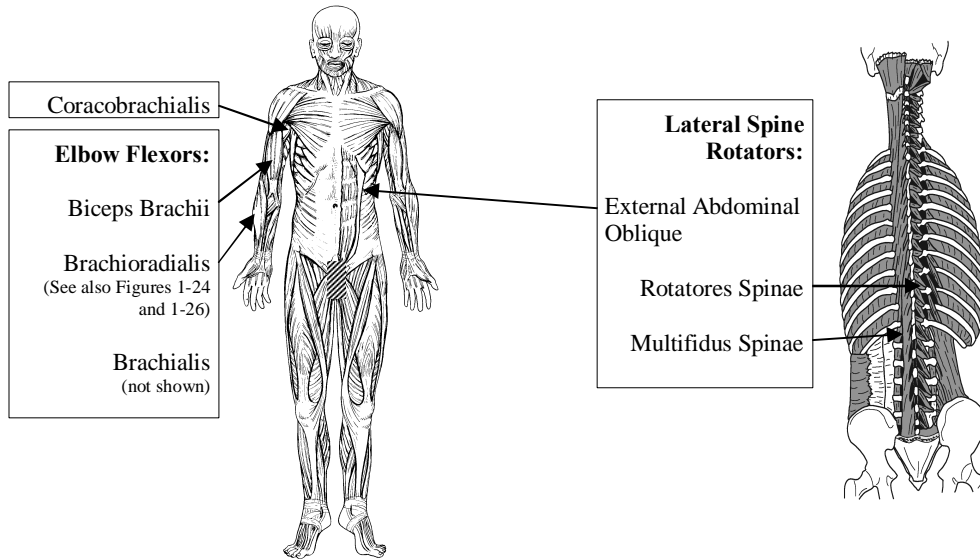


Figure 1-19.

Figure 1-20.

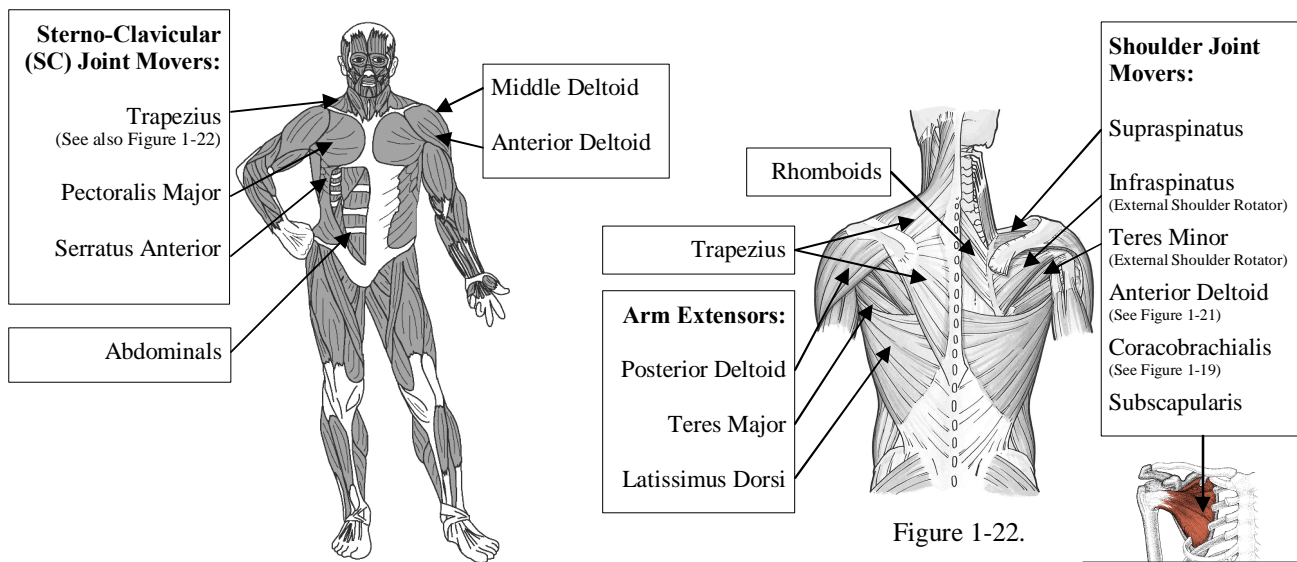
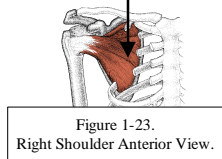


Figure 1-21.

Figure 1-22.



HAND GRIP MUSCLES. WRIST MOVERS. FOREARM MOVERS.

Hand grip muscles located in the forearm: 1) Flexor Pollicis Longus, 2) Flexor Digitorum Superficialis, and 3) Flexor Digitorum Profundus.

Wrist flexors: 1) Flexor Carpi Radialis, 2) Flexor Carpi Ulnaris, and 3) Palmaris Longus.

Wrist extensors: 1) Extensor Carpi Radialis Longus, 2) Extensor Carpi Radialis Brevis, 3) Extensor Carpi Ulnaris, 4) Extensor Digitorum Communis.

Wrist adductors (ulnar deviation): 1) Flexor Carpi Ulnaris and 2) Extensor Carpi Ulnaris.

Wrist abductors (radial deviation): 1) Flexor Carpi Radialis, 2) Extensor Carpi Radialis Longus, and 3) Extensor Carpi Radialis Brevis.

Elbow pronators: 1) Pronator Teres (Figure 1-24) and 2) Pronator Quadratus (Figure 1-25).

Elbow supinators: 1) Biceps Brachii (Figure 1-24) and 2) Supinator muscle (not shown).

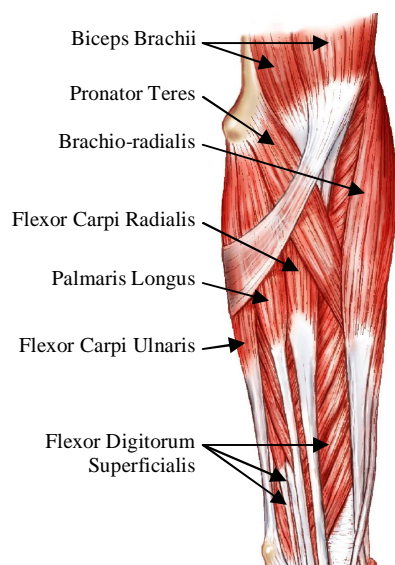


Figure 1-24. Superficial flexor muscles of the *left* forearm. Anterior view.

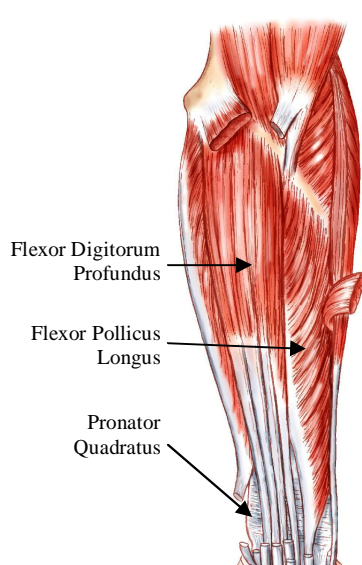


Figure 1-25. Deep flexor muscles of the *left* forearm. Anterior view.

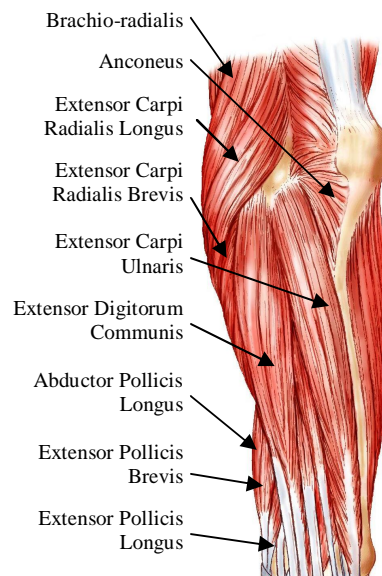


Figure 1-26. Superficial extensor muscles of the *left* forearm. Posterior view.

Hand grip muscles located in the hands: 1) Opponens Digiti Minimi, 2) Opponens Pollicis, 3) Flexor Digiti Minimi Brevis, 4) Flexor Pollicis Brevis, 5) Adductor Pollicis, 6) First Dorsal Interossei, and 7) Palmar Interossei.

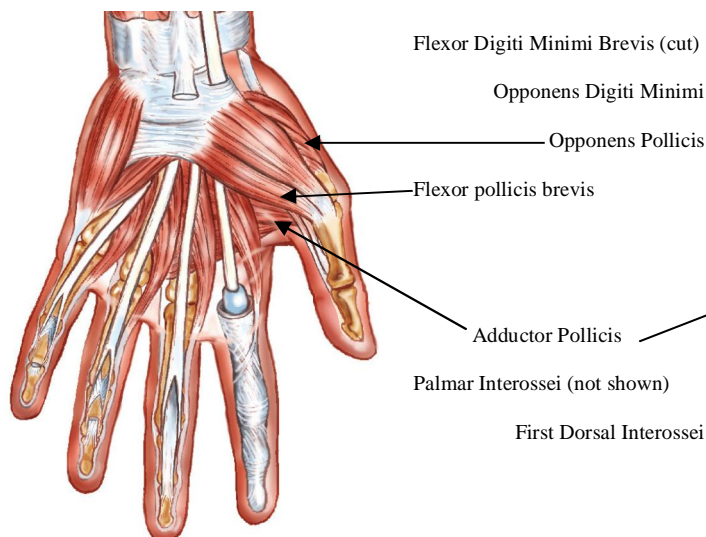


Figure 1-27. Superficial muscles of the *left* hand.

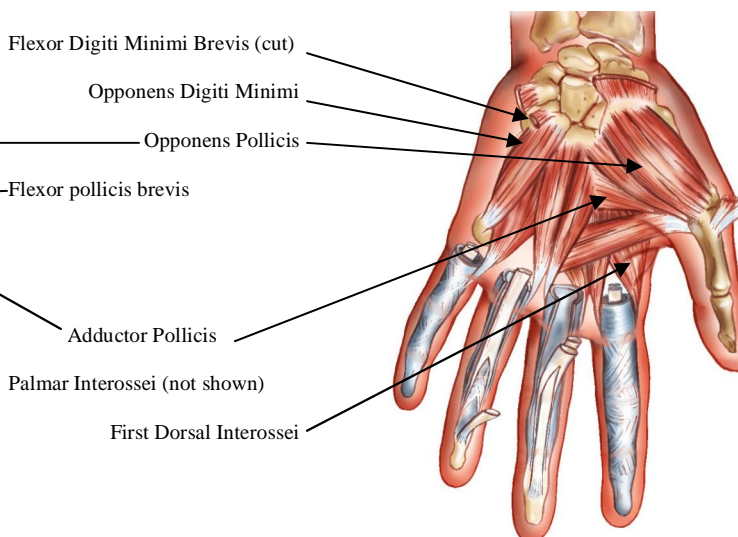


Figure 1-28. Deep muscles of the *left* hand.

Chapter 2

Instructions

INSTRUCTIONS

To ensure the greatest amount of your success with this program, please read through this section very carefully and refer back to it as often as needed.

1. Isometric training involves no repetitions. As mentioned in Chapter 1, isometric training is *the sustained contraction of a muscle over a certain period of time where the length of the muscle remains unchanged*. In other words, unlike weight training where the lengths of your muscles are always changing, as in performing a set of ten biceps curls, isometric contractions are typically held at a point about halfway between a full repetition, and then this position is maintained for 10-15 seconds.

Take a moment now and look ahead to page 26, Figure 3-1e. This is the final position for Exercise #1 and is held for 10-15 seconds. The leg does not repetitively go forward and back, again and again, as you would normally do with weights. This is very important because isometric contractions using the resistance band is a very efficient way to train your muscles for speed and strength and as a result all of the exercises in this program are done this way.

2. Attaching the resistance band. This training program comes with at least two resistance bands. Some of the exercises require you to attach your bands around an immovable object such as a pole. Look ahead again to page 26, Figure 3-1e. Here, the band is attached around the leg or pole of a table. When it is time for you to attach your bands to a similar object, here are two simple rules to follow: 1) make sure the object you tie the band to is really immovable relative to your own strength and 2) make sure the object you tie the band around does not have any rough or sharp edges as this will cause your exercise band to tear. Serious injury may result if the exercise band breaks and snaps back and hits you.

If you have trouble locating a convenient place to attach your band, you can make and use a simple door attachment shown on pages 21 and 22. The three hinges on a typical door frame are excellent reference points to anchor your band to and should be strong enough to withstand the amount of force you will be using during these exercises however, common sense applies and if you feel you may damage the door frame, look for another more stable location.

You may also order a pre-made door attachment designed specifically for this purpose. Go to www.AthleticQuickness.com/order.asp and scroll down to bottom of the page.

3. How much effort should you exert for each exercise? Isometric contractions can be done with any amount of force but typically they are done using between 70-80% of your maximum strength. The best way to gauge this amount of effort is as follows: when you start an exercise, if you can easily hold the final position for a lot longer than the recommended 10-15 seconds, then you are not using enough effort. If you feel like you need a break around the 10 second mark similar to the breaks taken between weightlifting sets, then you are exerting the proper amount of force.

4. Proper positioning. Some of the exercises will require you to be at a certain distance away from where the band is tied in order to achieve enough resistance. Again, look ahead to page 26, Figure 3-1e. This is the final position for Exercise #1. If this exercise becomes too easy when you first try it, then you will need to move farther away from where your band is tied. This will force your band to stretch a little more thereby increasing its resistance. Likewise, if this exercise is too hard, then you will need to move closer to where the band is tied. Getting into the proper position is a simple thing to do. It is also critical to achieving good results with this program. As you become familiar with all of the exercises, you should be able to judge for yourself the best position to be in to make the exercises most effective for you.

5. Doubling-up the resistance. There will also be times when the entire length of the band is needed but the resistance it can supply is still not strong enough. Therefore, you can use two bands and double-up the resistance. Again, look ahead to page 26, Figure 3-1e. This is the final holding position for Exercise #1 and is shown below in Figure 2-1a. When you perform this exercise, if it appears too easy to hold this position, then using a second band will help make it more difficult. Simply tie a knot in the second band and attach it next to the other as shown in Figure 2-1b. This is the same exercise except two bands are used at the same time to increase the resistance.



Figure 2-1a. Final holding position for Exercise #1 using one band.

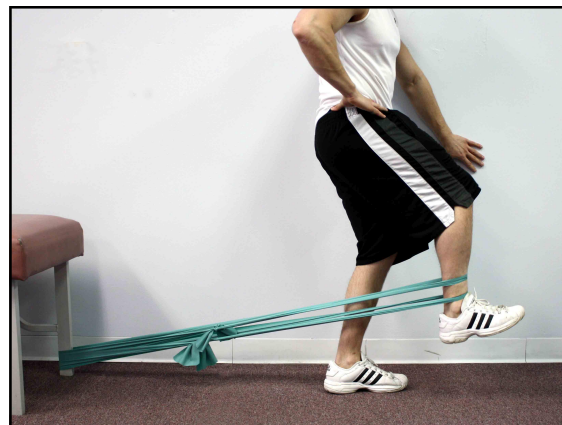


Figure 2-1b. Final holding position for Exercise #1 using two bands.

6. You may use bands with a higher resistance level. Each band has a specific color that corresponds to a particular resistance level ranging from the color *red* which is of light resistance to the color *gold* which is of xxx-heavy resistance. By using a band with more resistance, you should be able to exercise well within the physical limits of that particular band. See the product information section in the appendix for all available bands.

7. Maintaining good balance during each exercise. Since some of the exercises are performed using one leg at a time you may find that your balance is really being tested in the beginning with this type of training. Its important to maintain proper form with each exercise and finding something to balance against while you do them is essential for your success.

In Figures 2-1a and 2-1b above, the athlete is shown balancing against a wall while this exercise is being performed. If you are doing these in your home, walls make good places to balance against since they provide you with a sturdy support should you need it. However, be careful there are no items on the walls such as pictures or mirrors that can slide if you happen to find yourself losing your balance and end up placing your hands on them.

If you are doing these exercises in a gym and are attaching your bands to say, one piece of equipment, you might also look for a second nearby machine that can also serve as a good support for your hands. Gym equipment makes perhaps the best places to attach your bands to. This is because the equipment is typically immovable relative to your own body strength and most of the equipment is finished with smooth steel that won't cut your bands and cause them to tear. If you have access to gym equipment, it is suggested that you use it. As a cautionary note, if you choose to incorporate gym equipment into your setup, make sure you keep your hands away from any moving parts on the equipment (pulleys, cables, hinges etc.) that you may be using for balance to avoid injury.

8. Creating a door attachment. There will be some who purchase this program that find themselves faced with the challenge of locating a safe and convenient place to attach the band to perform a specific exercise. The door attachment will solve this problem.

The three hinges on a typical door frame provide very good locations to anchor your bands for most of the exercises shown in this program. They are ideally spaced for exercises where the bands need to be attached below your knees, waist level and above the shoulder. Here's how to make your door hinge attachment if you have no other place to attach your bands:

STEP 1. You will need to locate about a five foot piece of nylon rope, preferably 1/8" diameter and not any larger. See Figure 2-2. You can find this at your typical home improvement store and it will cost about a dollar or two. Nylon rope is best since it compresses better and is needed to securely attach it to the door frame as well as to allow the door to close completely.

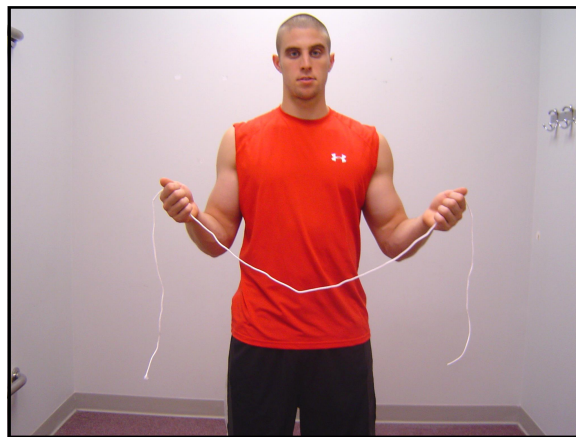


Figure 2-2. Five foot piece of nylon rope.

STEP 2. Fold the rope in half to form two ropes about 2 1/2 feet long each. You don't need to cut the rope in half. See Figure 2-3a. Then fold these in half again to form four ropes. See Figure 2-3b.

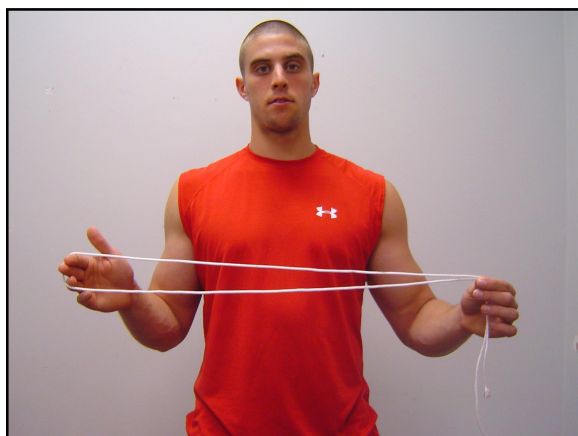


Figure 2-3a. Rope folded in half to make two strands about 2 1/2 feet long.

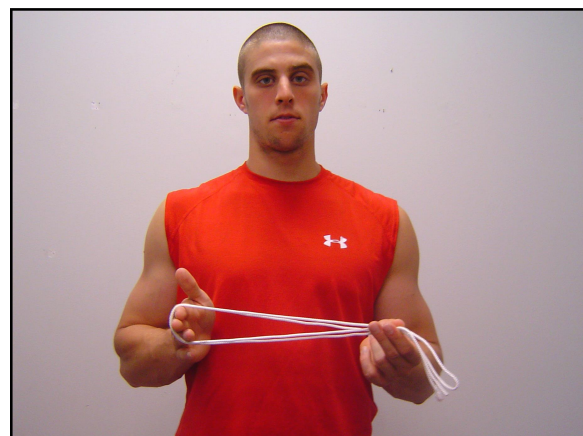


Figure 2-3b. Rope folded in half again to make four strands a little more than a foot long each.

STEP 3. Tie a knot in these four strands near the middle as shown leaving yourself with a loop that is at least six inches long. Your door attachment is now complete. See Figure 2-4 on the next page:

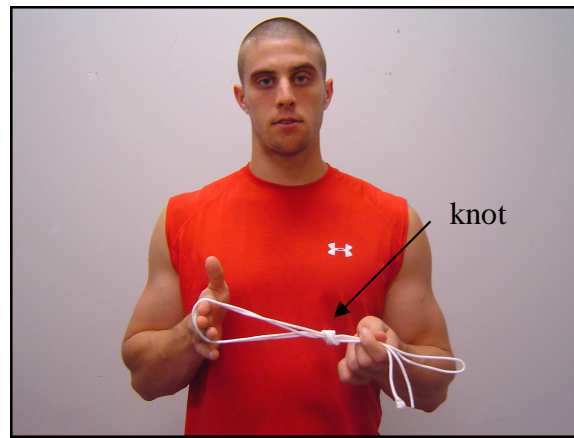


Figure 2-4. Door attachment complete.

Next, we will show you the proper way to attach it to the door frame. The first thing you need to pay attention to is which way the door you plan on attaching your band to opens. Most doors open *in* to a particular room and not *out* into the hallway. This is important to know because it is always safer (and recommended) that exercises be performed on the opposite side of where the door opens. This will be the hallway in most situations but not always. Note: The side of the door frame where the hinges are on doesn't matter.

STEP 1. In Figure 2-5a, the door opens into the room. Feed your door attachment with some of the loose ends first through the door above the top hinge so that the knot is resting on the hinge. **STEP 2.** Close the door until it closes and cannot be opened unless you turn the door knob. See Figure 2-5b. This will keep your door attachment fastened securely between the door and the frame. This is also why you want to use nylon rope, which is fairly compressible, as well as not to exceed the 1/8 inch diameter. Anything larger may prevent closing the door or cause damage to it if forced too much. **STEP 3.** The exposed loop without any loose ends on the other side of the door is now ready to have a band attached to it. See Figure 2-5c. **STEP 4.** Band attached to loop with slip knot and ready for use. See Figure 2-5d.

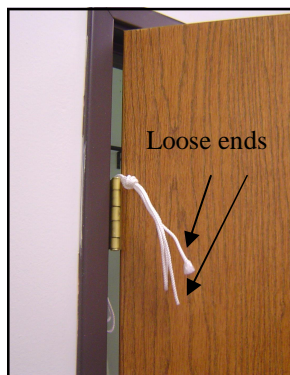


Figure 2-5a. View from *inside* the room. Door slightly open.

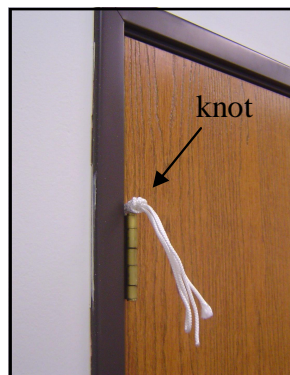


Figure 2-5b. View from *inside* the room. Door closed tightly shut.

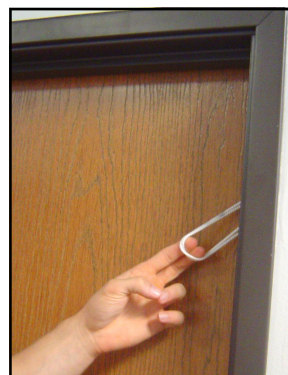


Figure 2-5c. View from *outside* the room. Loop exposed - ready for band.



Figure 2-5d. *Outside* the room. Band attached to loop with slip knot.

General Rules. 1) Attach the door attachment *below the bottom hinge* for exercises where the band is attached below the knee and *above the top hinge* for exercises where the band is attached above the shoulder. This prevents any sliding of the band during the exercise. Middle door hinge attachments are attached directly above or below the middle hinge for exercises where the band is attached about waist level. 2) Periodically check your door attachment for any wear and tear and create a new one when necessary to prevent accidental breaking.

Chapter 3

How To Get The Most From This Program
Exercises #1 - #20

HOW TO GET THE MOST FROM THIS PROGRAM

Below are several tips on how to get the most from this program. Review them as often as necessary as each of these tips holds a key to your success.

Tip #1. Perform approximately five minutes of light stretching before starting these exercises.

Tip #2. Use a watch or clock with a clearly visible second hand so that you can accurately time your isometric exercises.

Tip #3. The final position for each exercise should be held for 10-15 seconds. The amount of effort you should be exerting during this time should be between 70-80% of your maximum strength.

Tip #4. Isometric exercises are to be done with normal breathing. Do not hold your breath during the exercises because this may cause a sudden change in blood pressure and/or light-headedness.

Tip #5. If you experience any abnormal discomfort during these exercises, ease off just a little bit. If the discomfort persists, consult with your physician before continuing.

Tip #6. Perform each exercise according to the *Training Routine* found in the appendix.

Tip #7. It doesn't matter what time of day you exercise however, your body will respond best if you choose the same time each day to train.

Tip #8. Pay close attention to the way your body position is shown for each exercise, because correct positioning is needed to isolate specific muscle groups.

Tip #9. Periodically check your resistance bands for any wear and tear and replace them when necessary to prevent them from breaking during an exercise.

Tip #10. To reduce the resistance for a given exercise you can either create a longer loop with your band, use bands with less resistance and/or position yourself closer to where the band is attached. Positioning yourself closer means the band will not be stretched as much thereby reducing the resistance.

Tip #11. To increase the resistance for a given exercise you can either use two or more bands together, use bands with more resistance and/or position yourself further away from where the bands are attached. Positioning yourself further away will cause the bands to stretch a little more adding to their resistance.

Tip #12. Always train within the physical limits of the band. What this means is, no matter how much effort you are exerting for a given exercise, the resistance band should still be capable of stretching a little further. If the band is stretched to its maximum, you will essentially turn it into a static rope or cable, incapable of returning any hyper-elastic force back. This greatly reduces its effectiveness. If this situation ever occurs, see Tip #11 on how to rectify it.

FIRST IMPORTANT NOTICE. Consult with your physician before beginning this exercise program.

SECOND IMPORTANT NOTICE. Muscles listed underneath each exercise are considered the primary muscles involved for that exercise. Other secondary muscles may be involved but not listed.

EXERCISE #1

Muscles Trained: Hip Flexors (Figure 1-15, page 15); Knee Extensors (Figure 1-15, page 15).

STEP 1. Tie one of your bands around an immovable object, in this case the leg of a heavy table, (e.g. a *pole*), as shown in Figure 3-1a. Use the lower door hinge if necessary. Next, place your right foot inside the loop with your back facing the pole as shown in Figure 3-1b.



Figure 3-1a. Resistance band tied around a pole. Any knot will do as long as it does not come undone.



Figure 3-1b. Right foot inside the loop with your back facing the pole.

STEP 2. Depending upon your size and strength, begin stepping slowly away from the pole or other immovable object in the direction of the black arrow as shown until you feel the tension in your right hip flexors and quadriceps (white arrows) starting to increase. See Figure 3-1c.

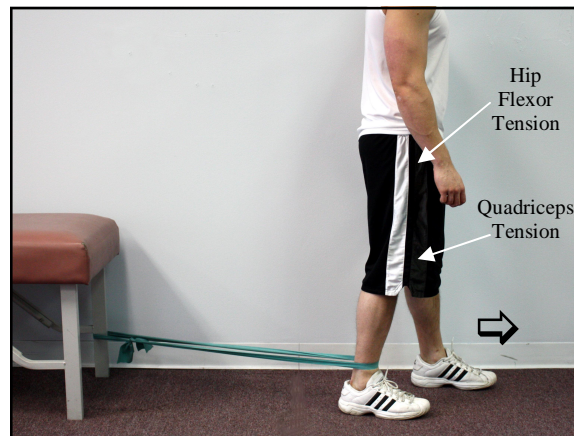


Figure 3-1c. Body positioned further away from the pole. Resistance band is now stretched. Tension is felt in your right hip flexors and quadriceps.

STEP 3. Lift your right foot off the ground about 12 inches as shown in Figure 3-1d. Finally, extend your right foot forward in the direction of the black arrow as shown in Figure 3-1e and then hold this position without changing it for 10-15 seconds using between 70-80% of your maximum strength. See both figures on the next page:

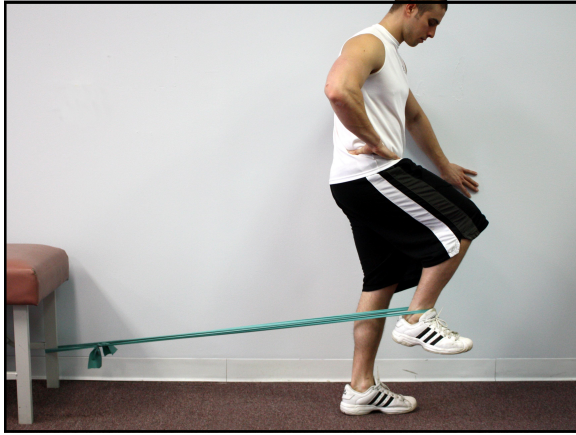


Figure 3-1d. Right foot raised off the ground about 12 inches.

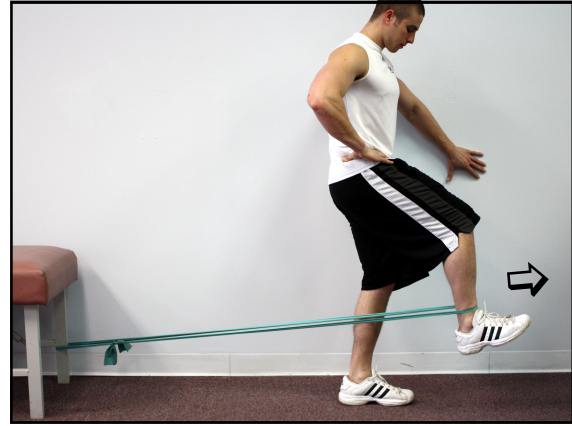


Figure 3-1e. Final position held for 10-15 seconds using between 70-80% of your maximum strength.

STEP 4. Repeat STEPS 1, 2 and 3 with your left leg.

TRAINING TIPS. 1) The most important aspect of this, and all of the exercises, is to hold and maintain the final position for 10-15 seconds using between 70-80% of your maximum strength; this is the key to your speed training success. 2) You may need to reposition yourself closer to, or farther from, where the band is attached to achieve the proper amount of resistance. 3) It may be helpful to balance yourself against a wall or a chair to counterbalance the twisting effect this exercise has on your upper body. 4) Perform this exercise according to the *Training Routine* found in the appendix.

EXERCISE #2

Muscles Trained: Hip Extensors (Figure 1-16, page 15); Knee Flexors (Figure 1-16, page 15).

STEP 1. Tie one of your bands around an immovable object, in this case the leg of a heavy table, (e.g. a *pole*), as shown in Figure 3-2a. Use the lower door hinge if necessary. Next, place your left foot inside the loop while facing the pole as shown in Figure 3-2b.



Figure 3-2a. Resistance band tied around a pole. Any knot will do as long as it does not come undone.



Figure 3-2b. Left foot placed inside the loop while facing the pole.

STEP 2. Depending upon your size and strength, begin stepping slowly away from the pole (backwards) or other immovable object in the direction of the black arrow as shown until you feel the tension in your left hip extensors (white arrows) starting to increase. See Figure 3-2c. Next, raise your left foot off the ground a few inches. See Figure 3-2d.



Figure 3-2c.



Figure 3-2d.

STEP 3. Pull your left thigh and leg backwards (keeping your knee in this slightly flexed position and ankle dorsiflexed) in the direction of the *black outlined arrow* as shown in Figure 3-2e. Stop at a position when your foot is beneath you and then hold this position without changing it for 10-15 seconds using between 70-80% of your maximum strength. See Figure 3-2e.



Figure 3-2e. Final position held for 10-15 seconds using between 70-80% of your maximum strength.

STEP 4. Repeat STEPS 1, 2 and 3 with your right leg.

TRAINING TIPS. 1) The key to this exercise is to keep the ankle that is off the ground, (left ankle in the example above) dorsi-flexed. This means your foot and toes are flexing up and back towards your shin. This helps prevent too much knee flexion (as in performing a leg curl) and forces the hamstring muscles to function more as hip extensors rather than knee flexors. 2) The right hand is shown bracing against the wall. The left hand may be more helpful to brace against the back of a chair (not shown), so that your upper body is not pulled forward during the exercise. 3) To increase the resistance, either shorten the band, use two or more bands together, or move away from the pole a little further. 4) Perform this exercise according to the *Training Routine* found in the appendix.

EXERCISE #3

Muscles Trained: Hip Adductors (Figure 1-15, page 15).

STEP 1. Tie one of your bands around an immovable object, in this case the leg of a heavy table, (e.g. a *pole*), as shown in Figure 3-3a. Use the lower door hinge if necessary. Next, place your right foot inside the loop with your right side facing the pole as shown in Figure 3-3b.



Figure 3-3a. Resistance band tied around a pole. Any knot will do as long as it does not come undone.



Figure 3-3b. Right leg inside the loop with your right side facing the pole.

STEP 2. Depending upon your size and strength, begin stepping slowly away from the pole (sideways) or other immovable object in the direction of the black arrow as shown until you feel the tension in your right adductors (white arrows) starting to increase. See Figure 3-3c.

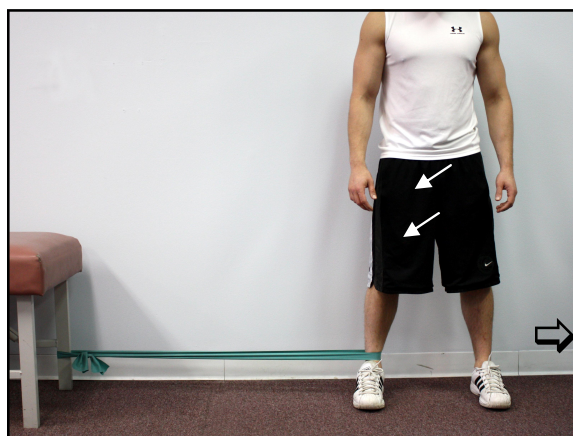


Figure 3-3c. Body positioned further away from the pole. Resistance band is now stretched. Tension in your right adductors is starting to increase.

STEP 3. Cross your right leg over your left (adduction of right leg) in the direction of the arrow as shown and then hold this position without changing it for 10-15 seconds using between 70-80% of your maximum strength. See Figure 3-3d.

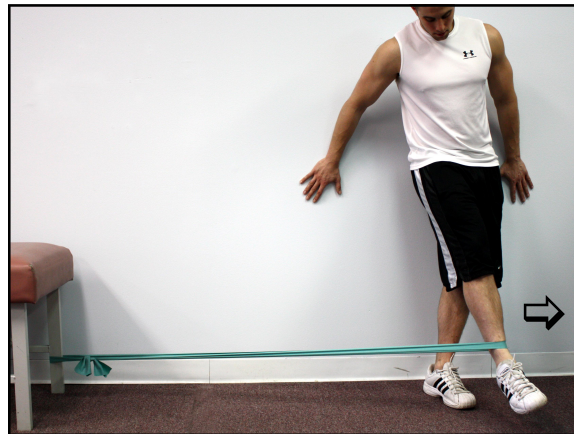


Figure 3-3d. Final position held for 10-15 seconds using between 70-80% of your maximum strength.

STEP 4. Face the other direction and repeat STEPS 1, 2 and 3 with your left leg.

TRAINING TIPS. 1) The most important aspect of this, and all of the exercises, is to hold and maintain the final position for 10-15 seconds using between 70-80% of your maximum strength; this is the key to your speed training success. 2) To increase the resistance, step further away from where the band is tied or use two bands together. 3) Use a watch or a clock with a clearly visible second hand so that you can accurately time your exercises. 4) Try not to let the band slide too far up your leg while performing this exercise. 5) Perform this exercise according to the *Training Routine* found in the appendix.

EXERCISE #4

Muscles Trained: Hip Abductors (Figure 1-16, page 15).

STEP 1. Tie one of your bands around an immovable object, in this case the leg of a heavy table, (e.g. a pole), as shown in Figure 3-4a. Use the lower door hinge if necessary. Next, place your left foot inside the loop with your right side facing the pole as shown in Figure 3-4b.



Figure 3-4a. Resistance band tied around a pole. Any knot will do as long as it does not come undone.



Figure 3-4b. Left foot inside the loop with your right side facing the pole.

STEP 2. Depending upon your size and strength, begin stepping slowly away from the pole (sideways) or other immovable object in the direction of the black arrow as shown until you feel the tension in your left abductors (white arrows) starting to increase. See Figure 3-4c.

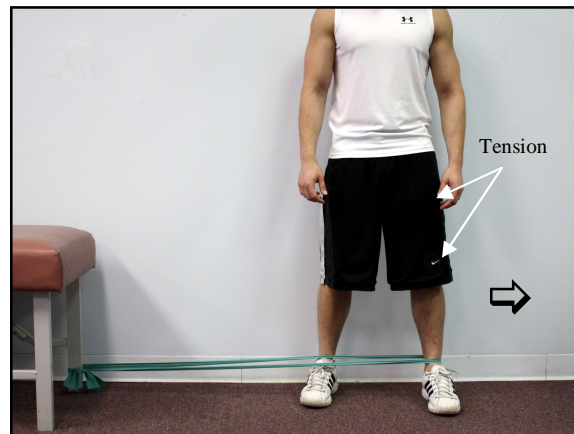


Figure 3-4c. Body positioned further away from the pole.
Resistance band is now stretched.
Tension in your left abductors is starting to increase.

STEP 3. Move (abduct) your left leg away from the midline of your body in the direction of the arrow as shown and then hold this position without changing it for 10-15 seconds using between 70-80% of your maximum strength. See Figure 3-4d.



Figure 3-4d. Final position held for 10-15 seconds
using between 70-80% of your maximum strength.

STEP 4. Face the other direction and repeat STEPS 1, 2 and 3 with your right leg.

TRAINING TIPS. 1) Balance yourself against a wall or a chair to get better leverage with this exercise. 2) To increase the resistance, add in your second band and/or step further away from where the band is attached. 3) Isometric exercises are to be done with normal breathing so do not hold your breath during the exercises because this may cause a sudden change in blood pressure and/or unexpected light-headedness. 4) Perform this exercise according to the *Training Routine* found in the appendix.

EXERCISE #5

Muscles Trained: External Hip Rotators (Figures 1-17 and 1-18, page 16).

STEP 1. Tie a knot in one of your bands to form a loop and feed it around a pole as shown in Figure 3-5a. Use lower door hinge if necessary. The loop now has four strands; see numbered items in Figure 3-5a. Next, grab both ends of the loop as shown in Figure 3-5b. This new loop is now capable of providing four times its resistance. Now place your left foot inside the loop as shown in Figure 3-5c. To do this properly, it may help to face the direction you will be laying first (pictured), then feed the loop over the back of your heel and eventually over your toes ending up around the ankle - this way the loop won't get twisted during the exercise.

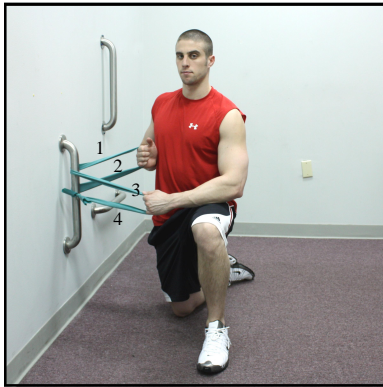


Figure 3-5a. Resistance band tied in a knot and fed around pole.

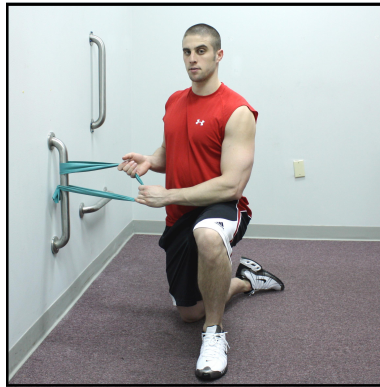


Figure 3-5b. Both ends of the loop grabbed with hands.



Figure 3-5c. Left leg placed inside the loop.

STEP 2. Lay down on your stomach with your left leg flexed to about 90 degrees to the floor. See Figure 3-5d. Cross your left leg over the midline of your body and then hold this position without changing it for 10-15 seconds using between 70-80% of your maximum strength. See Figures 3-5e and 3-5f. While your left leg is crossing over your right, the effect this has is to externally rotate the front of the left thigh at the hip joint.

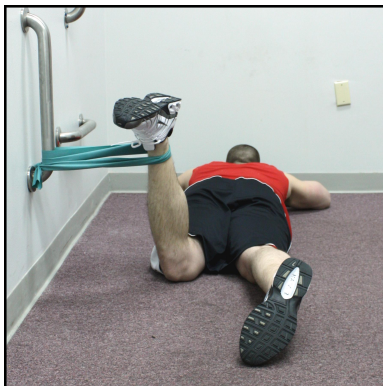


Figure 3-5d.

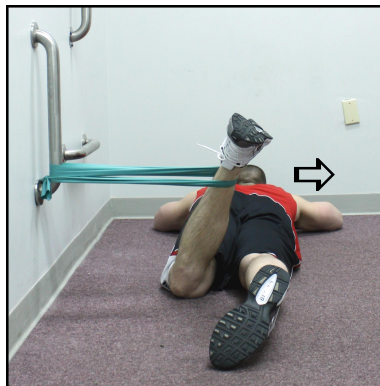


Figure 3-5e.



Figure 3-5f. Side view.

STEP 3. Face the other direction and repeat STEPS 1 and 2 with your right leg.

TRAINING TIPS. 1) To increase the resistance, move further away from the pole to stretch the band. 2) Lay as straight as possible while doing this exercise; do not allow your upper body to be pulled in either direction. 3) Perform this exercise according to the *Training Routine* found in the appendix.

EXERCISE #6

Muscles Trained: Internal Hip Rotators (Figure 1-16, page 15).

STEP 1. Tie a knot in one of your bands to form a loop and feed it around a pole as shown in Figure 3-6a. Use lower door hinge if necessary. The loop now has four strands; see numbered items in Figure 3-6a. Next, grab both ends of the loop as shown in Figure 3-6b. This new loop is now capable of providing four times its resistance. Now place your right foot inside the loop as shown in Figure 3-6c. To do this properly, it may help to face the direction you will be laying first (pictured), then feed the loop over the back of your heel and eventually over your toes ending up around the ankle - this way the loop won't get twisted during the exercise.

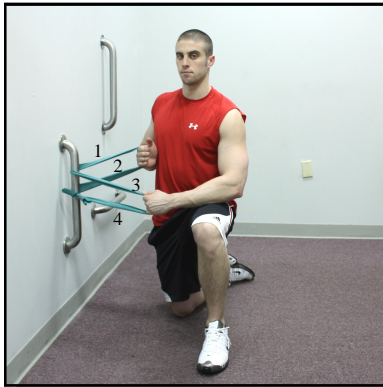


Figure 3-6a. Resistance band tied in a knot and fed around pole.

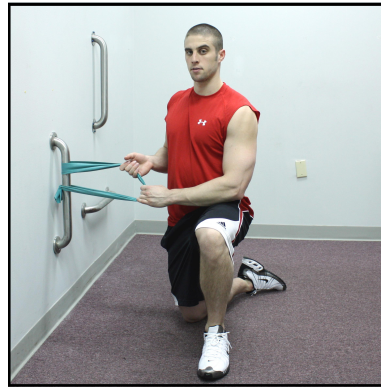


Figure 3-6b. Both ends of the loop grabbed with hands.



Figure 3-6c. Right leg placed inside the loop.

STEP 2. Lay down on your stomach with your right leg flexed to about 90 degrees to the floor. See Figure 3-6d. Rotate your right leg laterally away from your body and then hold this position without changing it for 10-15 seconds using between 70-80% of your maximum strength. See Figures 3-6e and 3-6f. While your right leg is rotated outward, the effect this has is to internally rotate the front of the right thigh at the hip joint.



Figure 3-6d.

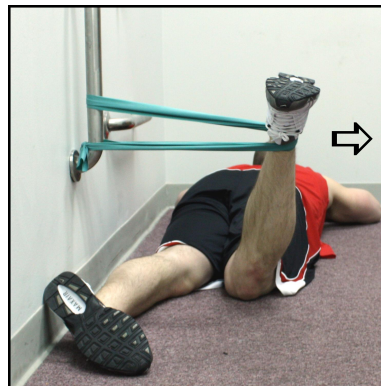


Figure 3-6e.



Figure 3-6f. Side view.

STEP 3. Face the other direction and repeat STEPS 1 and 2 with your left leg.

TRAINING TIPS. 1) To increase the resistance, move further away from the pole to stretch the band. 2) Lay as straight as possible while doing this exercise; do not allow your upper body to be pulled in either direction. 3) Perform this exercise according to the *Training Routine* found in the appendix.

EXERCISE #7

Muscles Trained: Hip Extensors (Figure 1-16, page 15); Knee Extensors (Figure 1-15, page 15).

STEP 1. Tie a knot in one of your bands as shown in Figure 3-7a. Twist it as shown in Figure 3-7b. Place the end of the band held in your left hand into your right hand and grab the twisted part of the loop with your left to make two loops as shown in Figure 3-7c.

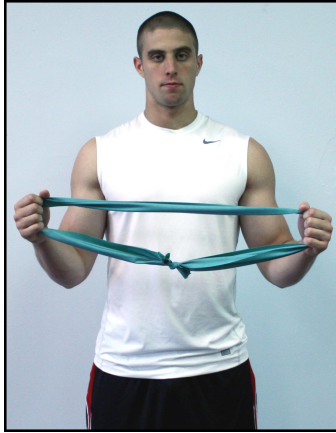


Figure 3-7a. Resistance band tied in a knot.

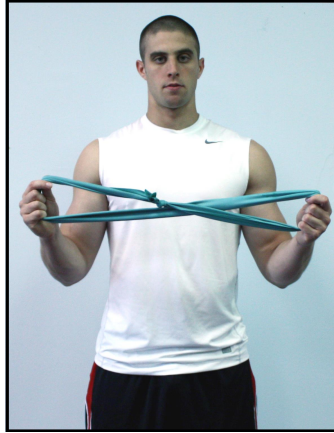


Figure 3-7b. Same band twisted in the middle.

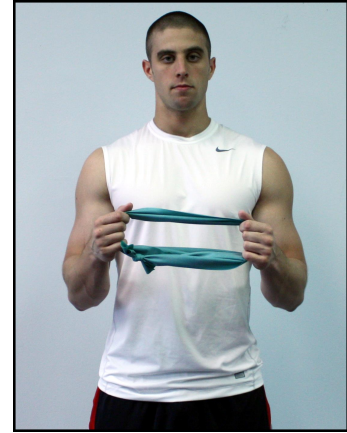


Figure 3-7c. Two loops formed with the same band.

STEP 2. Place one end of this double loop under your right foot and step on it as shown in Figure 3-7d.



Side
View
→



Figure 3-7d. Front and side views.

STEP 3. Make sure the majority of your weight is on your right foot and use your left foot mainly for balance. Next, keeping your back as straight as possible, extend your right leg (i.e., stand) to a position halfway up (do not lock your knee out) until you feel the resistance in right thigh and buttocks is near 70-80% of your maximum strength. (You may need to pull on the band upwards to help increase the resistance). Finally, hold this position without changing it for 10-15 seconds. See Figure 3-7e on the next page:

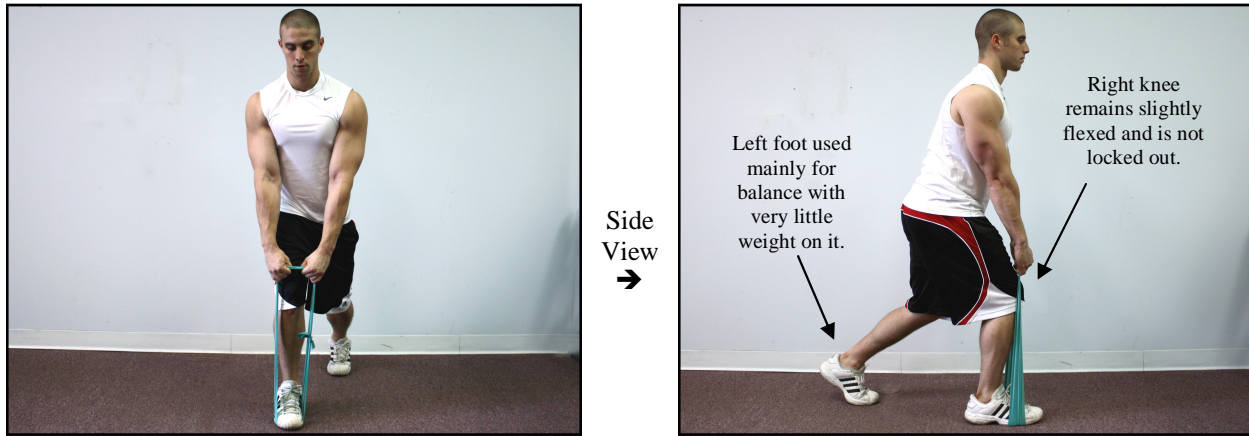


Figure 3-7e. Front and side views.
Position held for 10-15 seconds using between 70-80%
of your maximum strength.

STEP 4. Repeat STEPS 1, 2 and 3 with your left leg.

TRAINING TIPS. 1) Keep your back as straight as possible throughout the exercise. 2) Make sure you do not lock your knee out. 3) Perform this exercise according to the *Training Routine* found in the appendix.

EXERCISE #8

Muscles Trained: Ankle Plantar-flexors (Figure 1-16, page 15).

STEP 1. Tie a not in your band to form a loop as shown in Figure 3-8a. Next, feed it behind a pole as shown in Figure 3-8b. This will allow you to get four times the resistance from just one band - see numbered items in Figure 3-8b. Use the lower door hinge if necessary. Getting four times the resistance from the band may be necessary for most athletes since the exercise lends itself to being able to apply a lot of leverage through your calf muscles and the extra resistance may be needed. With the added force this exercise brings, strong supports such as heavy gym equipment would be a better attachment source than the door attachment and is highly recommended for stronger athletes if possible.

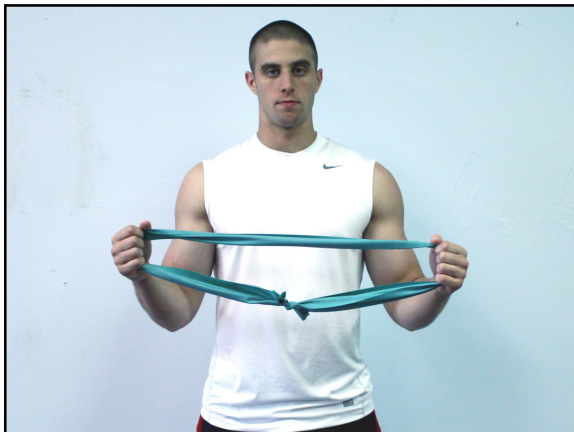


Figure 3-8a. Resistance band tied in a loop. Any knot will do as long as it does not come undone.



Figure 3-8b. Loop is fed behind a pole creating four times the resistance with one band.

STEP 2. Grab both ends of the loop together to form one loop. See Figure 3-8c. This new loop is now capable of providing four times its resistance. Next place your right foot inside this new loop with your back facing the pole as shown in Figure 3-8d.



Figure 3-8c. One band attached around a pole now provides four times its resistance.



Figure 3-8d. Right foot placed inside the loop with your back facing the pole.

STEP 3. Step forward to stretch the band. See Figure 3-8e. Finally, raise up on your right foot while lifting your other foot off the ground and hold this position without changing it for 10-15 seconds using between 70-80% of your maximum strength. See Figure 3-8f.



Figure 3-8e. Body positioned further away from the pole to stretch the band.



Figure 3-8f. Position held for 10-15 seconds using between 70-80% of your maximum strength.

STEP 4. Repeat STEPS 1, 2 and 3 with your left leg.

TRAINING TIPS. 1) When you step forward to stretch the band in Figure 3-8e, it may be helpful to keep your right foot in contact with the ground and *inch your right foot forward with your toes*. Since the resistance in the band is relatively strong (4 times), this should help you stretch the band further than if you were to simply try and raise your leg off the ground and place it out in front of you. The ankle joint has a small range of motion and this allows for powerful leverage to occur through your calf muscles consequently, you will need a lot of resistance in the band even before you raise up on your toes for this exercise to be effective. 2) If you find the original setup for this exercise provides too much resistance, then simply attach your band around a pole similar to Figure 3-1a, page 25, as this will reduce the resistance in half. 3) Perform this exercise according to the *Training Routine* found in the appendix.

EXERCISE #9

Muscles Trained: External Hip Rotators (Figure 1-17 & 1-18, page 16); Lateral Spine Rotators (Figure 1-19 & 1-20, page 16); Anterior Deltoid, Figure 1-21, page 16); Shoulder Joint Movers (Figure 1-22, page 16); Wrist Flexors, Wrist Extensors and Hand Grip Muscles (See definitions on page 17).

STEP 1. Attach your band to a pole just below your knees (lower door hinge attachment if necessary) and while standing with your *right side* closest to the pole, grab hold of the band with your *left hand* first as shown in Figure 3-9a. Next, reinforce it with your *right hand* as shown in Figure 3-9b. This will ensure that both arms are used during the exercise. Then move sideways away from the pole to stretch the band as shown in Figure 3-9c.

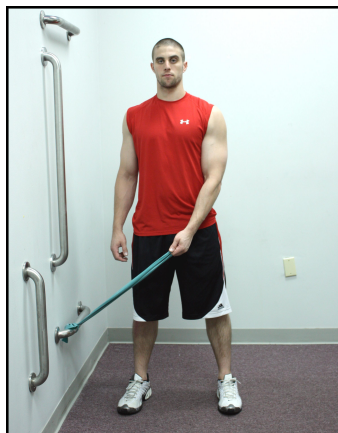


Figure 3-9a.

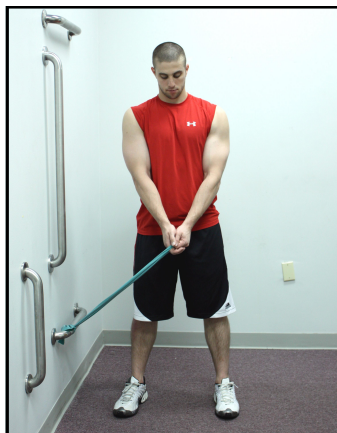


Figure 3-9b.

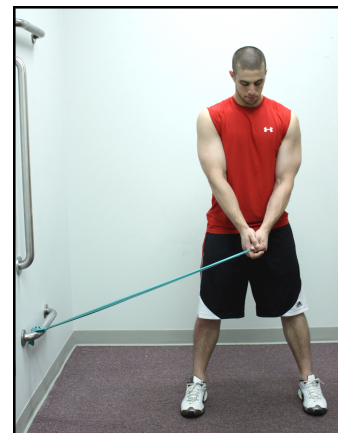


Figure 3-9c.

STEP 2. Pull the band upward and across your body as shown in Figures 3-9d and 3-9e, stopping at a point when both arms are about parallel to the ground. Then, hold this position for 10-15 seconds using between 70-80% of your maximum strength.

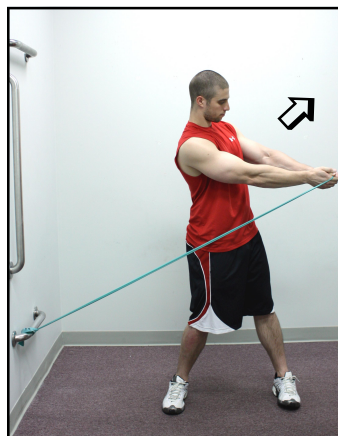


Figure 3-9d. Front view.

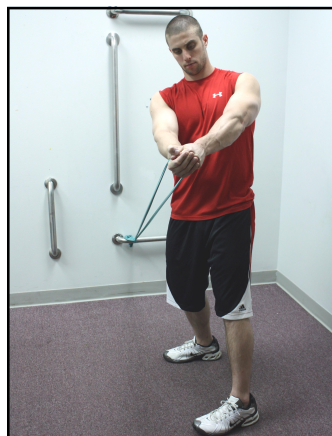


Figure 3-9e. Side view.

STEP 3. Face the opposite direction and repeat STEPS 1 and 2. Make sure you start by grabbing the band with your *right hand* first. This will ensure that both hands will be used during the exercise.

TRAINING TIPS. 1) The most important aspect of this exercise is to hold and maintain the final position for at least 10 seconds (and not more than 15 seconds) using between 70-80% of your maximum strength. This is the key to your speed training success. 2) Periodically check your bands and/or door attachment (if you are using one) for any tears to prevent accidental breaking during your exercise. 3) To increase the resistance, either shorten the band, use two or more bands, or move away from the wall a little further. 4) Perform this exercise according to the *Training Routine* found in the appendix.

EXERCISE #10

Muscles Trained: Elbow Extensors (Figure 1-17, page 16); Middle Deltoid (Figure 1-21, page 16); Posterior Deltoid (Figure 1-22, page 16); Wrist Adductors & Hand Grip Muscles (See definitions on page 17).

STEP 1. Attach your band to a pole slightly above your head (upper door hinge attachment if necessary) and while standing with your *right side* closest to the pole, grab hold of the band with your *left hand* first as shown in Figure 3-10a. Then, move sideways away from the pole to stretch the band as shown in Figure 3-10b.



Figure 3-10a.



Figure 3-10b.

STEP 2. Pull the band downward and slightly across your body as shown in Figures 3-10c and 3-10d. Do not lock your elbow out and keep the palm of the hand holding the band facing in toward you. Then, hold this position for 10-15 seconds using between 70-80% of your maximum strength.



Figure 3-10c. Front view.

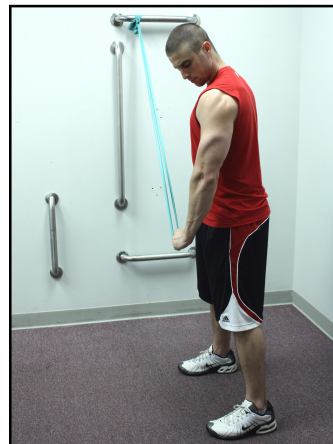


Figure 3-10d. Side view.

STEP 3. Face the opposite direction and repeat STEPS 1 and 2 with your other arm.

TRAINING TIPS. 1) To increase the resistance, either shorten the band, use two or more bands, or move away from the attachment a little further. 2) Pay close attention to the way your body position is shown for each exercise, because correct positioning is needed to isolate specific muscle groups. 3) Perform this exercise according to the *Training Routine* found in the appendix.

EXERCISE #11

Muscles Trained: External Shoulder Rotators (Figure 1-22, page 16); Wrist Extensors (See definition on page 17).

STEP 1. Attach your band to a pole above your shoulder (use upper door hinge if necessary) and grab it with your left hand, *palm side facing forward*, as shown in Figure 3-11a. Next, step backward away from the pole to stretch the band as shown in Figure 3-11b.



Figure 3-11a.



Figure 3-11b.

STEP 2. While keeping your upper arm parallel to the ground and the forearm perpendicular to it, pull the band backward and then hold this position for 10-15 seconds using between 70-80% of your maximum strength. See Figures 3-11c and 3-11d.



Figure 3-11c. Side view.



Figure 3-11d. Back view.

STEP 3. Repeat STEPS 1 and 2 with your other arm.

TRAINING TIPS. 1) Use a watch or clock with a clearly visible second hand so that you can accurately time your isometric exercises. 2) Apply force in the direction of the arrow as shown in Figure 3-11c. 3) It doesn't matter what time of day you exercise however, your body will respond best if you choose the same time each day to train. 4) To increase the resistance, back away from the attachment a little further and/or use two or more bands at the same time. 5) Perform this exercise according to the *Training Routine* found in the appendix.

EXERCISE #12

Muscles Trained: Latissimus Dorsi and Teres Major (Figure 1-22, page 16).

STEP 1. Make a loop with your band and attach it to a pole slightly above your head as shown in Figure 3-12a. Use the upper door hinge if necessary. Next, get down on your left knee and grab the band with your left hand, palm side up, as shown in Figure 3-12b.

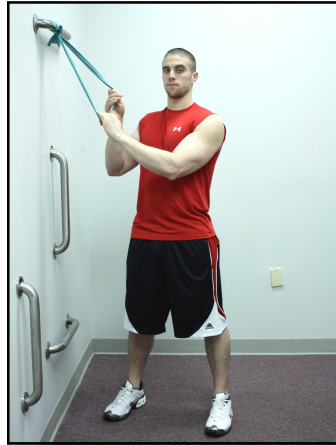


Figure 3-12a.

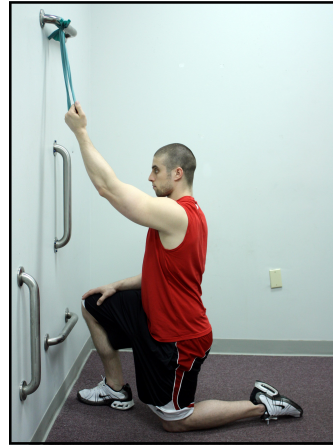


Figure 3-12b.

STEP 2. Pull the band down toward the ground making sure to keep your elbow/forearm flexed and then hold this position for 10-15 seconds using between 70-80% of your maximum strength. See Figures 3-12c and 3-12d.

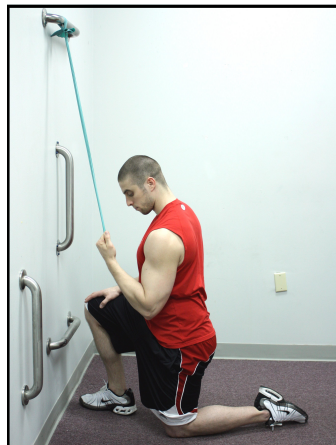


Figure 3-12c. Side view.

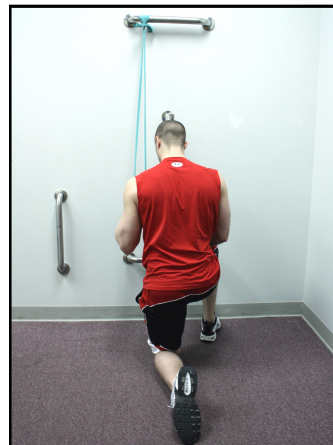


Figure 3-12d. Back view.

STEP 3. Repeat STEPS 1 and 2 with your other arm.

TRAINING TIPS. 1) The most important aspect of this exercise is to make sure your elbow ends up pointing toward the ground while the forearm is in this flexed position. This will direct most of the force on the arm extensor muscles (Latissimus Dorsi and Teres Major). 2) If you experience any discomfort during these exercises, ease off just a little bit. If the discomfort persists, consult with your physician before continuing. 3) To increase the resistance, either shorten the band or use two or more bands together. 4) Perform this exercise according to the *Training Routine* found in the appendix.

EXERCISE #13

Muscles Trained: Internal Shoulder Rotators, includes Subscapularis (Figure 1-23, page 16), Latissimus Dorsi & Teres Major (Figure 1-22, page 16), and Pectoralis Major (Figure 1-21, page 16); Wrist Flexors (See definition on page 17).

STEP 1. Attach your band just above your head and while standing with your back to the wall, grab the band with your right hand, palm side facing forward. See Figure 3-13a. Use the upper door hinge if necessary. Next, step forward to stretch the band as shown in Figures 3-13b and 3-13c. Make sure your right arm is also about 30° above parallel as seen in Figure 3-13c.



Figure 3-13a.

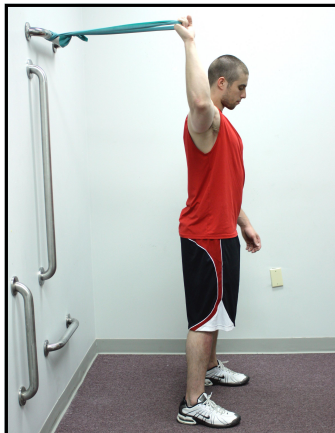


Figure 3-13b. Side view.

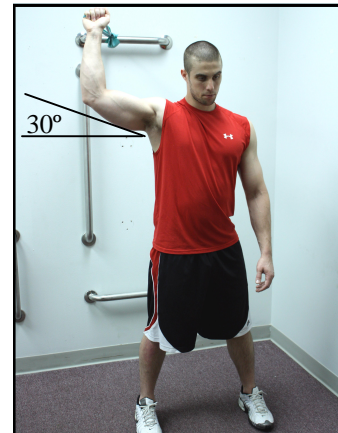


Figure 3-13c. Front view.

STEP 2. Pull your right arm forward stopping at a point when it is about 45 degrees forward from vertical and then hold this position for 10-15 seconds using between 70-80% of your maximum strength. See Figures 3-13d and 3-13e.



Figure 3-13d. Side view.

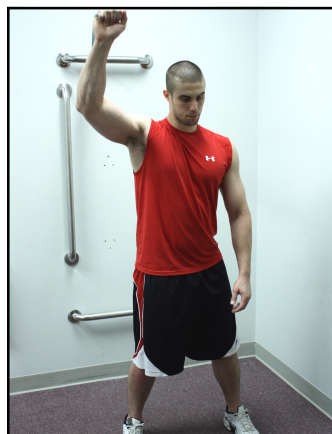


Figure 3-13e. Front view.

STEP 3. Repeat STEPS 1 and 2 with your other arm.

TRAINING TIPS. 1) To increase the resistance, use two bands together and/or step further away from where your band is attached. 2) You can lead with your opposite foot for better leverage if necessary. 3) Perform this exercise according to the *Training Routine* found in the appendix.

EXERCISE #14

Muscles Trained: Latissimus Dorsi & Teres Major (Figure 1-22, page 16); Pectoralis Major (Figure 1-21, page 16); Elbow Extensors (Figure 1-17, page 16); Wrist Extensors (See definition on page 17).

STEP 1. Tie a knot in your band to form a loop and attach it to a pole just above your head as shown in Figure 3-14a. Then, while standing with your right side closest to the wall, grab hold of the band with your right hand. Again, see Figure 3-14a. Use the upper door hinge if necessary. Next, step away from the pole to stretch the band as shown in Figure 3-14b.



Figure 3-14a.



Figure 3-14b.

STEP 2. Pull your right elbow down and in to your side as shown in Figure 3-14c. Next, extend your right forearm downward and move it slightly across your body stopping when it is just in front of your right hip as seen in Figure 3-14d. Also, make sure the right forearm is about parallel to the ground with the palm side facing up as shown in Figure 3-14e. Then, hold this position for 10-15 seconds using between 70-80% of your maximum strength.



Figure 3-14c.

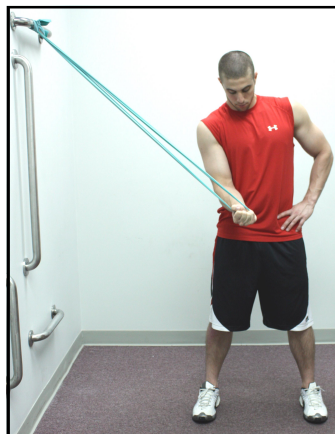


Figure 3-14d. Front view.

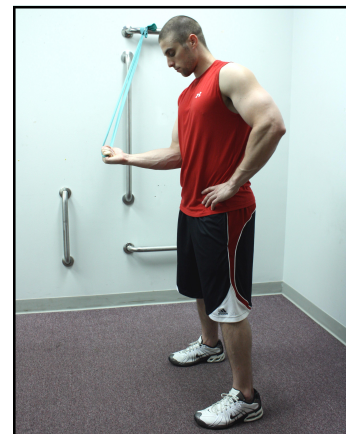


Figure 3-14e. Side view.

STEP 3. Face the other direction and repeat STEPS 1 and 2 with your other arm.

TRAINING TIPS. 1) To increase the resistance, use two bands together and/or step further away from where your band is attached. 2) Keep your elbow tight against your body during the exercise with the palm of your hand facing up. 3) Keep your feet pointing straight ahead. 4) Perform this exercise according to the *Training Routine* found in the appendix.

EXERCISE #15

Muscles Trained: Elbow Extensors (Figure 1-17, page 16); Middle Deltoid (Figure 1-21, page 16); Wrist Adductors & Hand Grip Muscles (See definitions on page 17).

STEP 1. Attach your band to a pole just above your waist (use the middle door hinge if necessary) and while standing with your *right side* closest to the pole, grab hold of the band with your *left hand*. See Figure 3-15a. Next, step away from the pole to stretch the band. See Figure 3-15b. Then, turn your hand so that the palm side is facing down toward the ground. See Figure 3-15c.



Figure 3-15a.

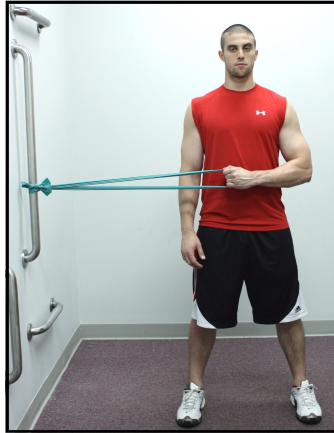


Figure 3-15b.



Figure 3-15c.

STEP 2. Pull the band across your body and slightly upward, keeping your palm facing downward and do not lock out your elbow. Then, hold this position for 10-15 seconds using between 70-80% of your maximum strength. See Figures 3-15d and 3-15e.



Figure 3-15d. Front view.



Figure 3-15e. Side view.

STEP 3. Face the other direction and repeat STEPS 1 and 2 with your other arm.

TRAINING TIPS. 1) Make sure you try and keep the angle of the band to the ground around 10° to best simulate the path of a typical swing as shown in Figure 3-15d. 2) You can rotate your hips much like you would during the swing to get better leverage with this exercise as shown in Figure 3-15d. 3) Perform this exercise according to the *Training Routine* found in the appendix.

EXERCISE #16

Muscles Trained: Shoulder Flexors, includes: Anterior Deltoid (Figure 1-21, page 16), Pectoralis Major (Figure 1-21, page 16), and Coracobrachialis (Figure 1-19, page 16); Elbow Flexors (Figure 1-19, page 16); Wrist Adductors and Wrist Flexors (See definition on page 13); Serratus Anterior (Figure 1-21, page 16); Lateral Spine Rotators (Figures 1-19 and 1-20, page 16).

STEP 1. Tie one of your bands around an immovable object *just below waist level* and hold it in your right hand, palm side up, as shown in Figure 3-16a. Next, step away from the pole to stretch the band and keep the elbow bent at about 90° as shown in Figure 3-16b.



Figure 3-16a.



Figure 3-16b.

STEP 2. Pull the band across your body, keeping your elbow bent and palm facing up. Stop at a position when your hand is just past the outside of your left hip. Then, hold this position for 10-15 seconds using between 70-80% of your maximum strength. See Figures 3-16c and 3-16d.



Figure 3-16c. Front view.



Figure 3-16d. Side view.

STEP 3. Face the other direction and repeat STEPS 1 and 2 with your other arm.

TRAINING TIPS. 1) You can rotate your hips in the direction of the force of your hand during the final holding position much like you would during your swing. Your lead foot can also rotate outward. 2) Your forearm can elevate slightly much like the position it would be in at contact as seen in Figure 3-16d. 3) Perform this exercise according to the *Training Routine* found in the appendix.

EXERCISE #17

Muscles Trained: Hip Stabilizers & External Hip Rotators (Figures 1-17 & 1-18, page 16); Lateral Spine Rotators (Figures 1-19 and 1-20, page 16); Elbow Extensors (Figure 1-17, page 16); Pectoralis Major and Serratus Anterior (Figure 1-21, page 16); Rotator Cuff (Figure 1-22, page 16); Posterior Deltoid and Rhomboids (Figure 1-22, page 16); Wrist Adductors & Hand Grip Muscles (See definitions on page 17).

STEP 1. Attach your band to a pole about waist high (middle door hinge attachment if necessary). While standing with your *right* side closest to the pole, grab hold of the resistance band with your *left* hand first then reinforce it with your *right* hand. See Figure 3-17a. Next, step away from the pole to stretch the band as seen in Figure 3-17b. Then extend both arms in front of you, just above your waistline and rotate your hands so that the palm of your *left* hand is facing down and the palm of your *right* hand is facing up. See Figure 3-17c.



Figure 3-17a.



Figure 3-17b.



Figure 3-17c.

STEP 2. Rotate your hips to the left and pull the band in the same direction stopping at a position when both arms are almost near, but not at, full extension. Then hold this position without changing it for 10-15 seconds using between 70-80% of your maximum strength. See Figures 3-17d and 3-17e below:



Figure 3-17d.



Figure 3-17e.

STEP 3. Face the opposite direction and repeat STEPS 1 and 2. Make sure you start by grabbing the band with your *right* hand first. This will ensure that both hands will be used during the exercise.

TRAINING TIPS: 1) Make sure your hands stay in the same position with the top hand's palm facing down and the bottom hand's palm facing up. 2) Perform this exercise according to the *Training Routine* found in the appendix.

EXERCISE #18

Muscles Trained: Hip Stabilizers (Figure 1-17, page 16); Pectoralis Major & Deltoids (Figure 1-21, page 16); Lateral Spine Rotators (Figures 1-19 & 1-20, page 16); Elbow Extensors (Figure 1-17, page 16); Wrist Flexors, Wrist Extensors & Hand Grip Muscles (See definitions on page 17).

STEP 1. While standing with your *right side* closest to the pole, grab the resistance band with your *left hand* first; then reinforce it with your *right hand*; and extend both arms out in front of you so that your arms are parallel to the ground as shown in Figure 3-18a. Grabbing the band with your hands in this order will ensure that both arms are being used during the exercise. Next, step sideways from the pole to stretch the band as shown in Figures 3-18b and 3-18c.



Figure 3-18a.

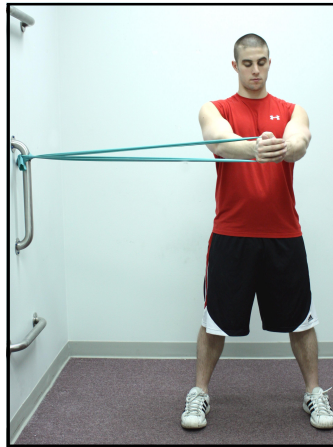


Figure 3-18b. Front view.

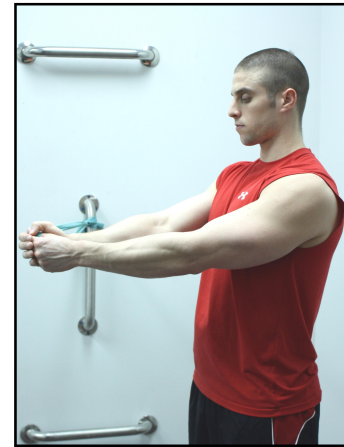


Figure 3-18c. Side view.

STEP 2. While keeping your feet pointing straight ahead, rotate your shoulders about 45° to the left and keep your elbows extended. Then, hold this position for 10-15 seconds using between 70-80% of your maximum strength. See Figures 3-18d and 3-18e.



Figure 3-18d. Front view.



Figure 3-18e. Side view.

STEP 3. Face the opposite direction and repeat STEPS 1 and 2. Start by grabbing the band with your *right hand* first and then reinforce it with your *left hand*. This will ensure that both arms will be used during the exercise.

TRAINING TIPS. 1) Keeping your hands and elbows in the position as shown is the most efficient position to target the proper muscles listed in this exercise. 2) You can lower the level of where the band is attached by a few (2-4) inches if you choose to simulate the path of your swing a little more, although it is not necessary. 3) Periodically check your resistance bands for any wear and tear. Replace them when necessary to prevent them from breaking during an exercise. 4) Perform this exercise according to the *Training Routine* found in the appendix.

EXERCISE #19

Muscles Trained: Internal Shoulder Rotators, includes Subscapularis (Figure 1-23, page 16), Latissimus Dorsi (Figure 1-22, page 16) Teres Major (Figure 1-22, page 16) and Pectoralis Major (Figure 1-21, page 16); Wrist Flexors (See definition on page 17).

STEP 1. While standing with your right side closest to the pole, attach your band as shown in Figure 3-19a (use the middle door hinge if necessary) and grab it in your right hand, keeping your right forearm parallel to the ground. Next, step away from the pole to stretch the band and keep your elbow tight against your body as shown in Figure 3-19b.

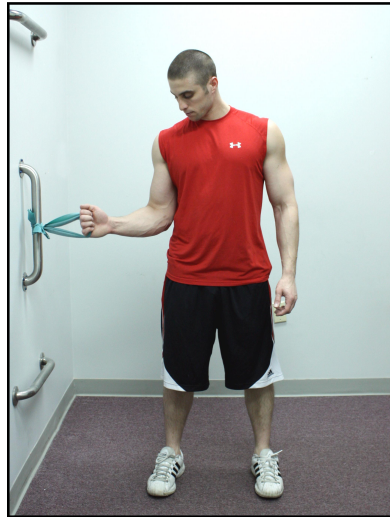


Figure 3-19a.

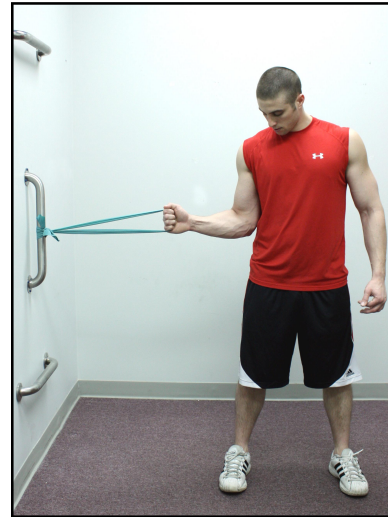


Figure 3-19b.

STEP 2. While keeping your right forearm parallel to the ground, rotate it inward and stop when it is perpendicular to the front of your body as shown in Figures 3-19c and 3-19d and then hold this position for 10-15 seconds using between 70-80% of your maximum strength.

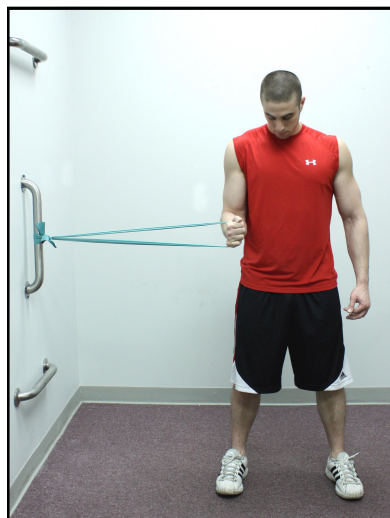


Figure 3-19c. Front view.



Figure 3-19d. Side view.

STEP 3. Face the opposite direction and repeat STEPS 1 and 2 with your other arm.

TRAINING TIPS. 1) Do not rotate your hand across your stomach; it should end up directly in front of you as seen in Figure 3-19c. 2) To increase the resistance, step further away from where your band is attached or use two bands together. 3) Keep your elbow close to your side throughout this exercise. 4) Perform this exercise according to the *Training Routine* found in the appendix.

EXERCISE #20

Muscles Trained: External Shoulder Rotators, includes Teres Minor & Infraspinatus Muscles (Figure 1-22, page 16); Wrist Extensors (See definition on page 17).

STEP 1. While standing with your right side closest to the pole, attach your band to an immovable object about waist high (use the middle door hinge if necessary) and grab it with your left hand as shown in Figure 3-20a. Next, step away from the pole to stretch the band as shown in Figure 3-20b.

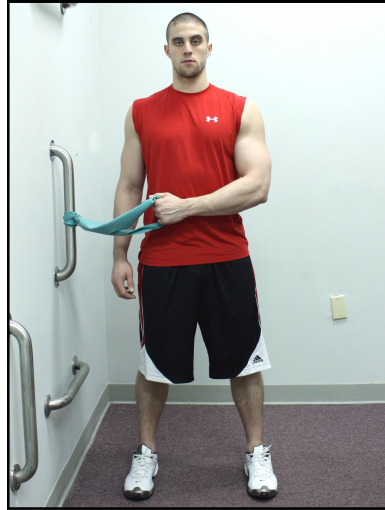


Figure 3-20a.

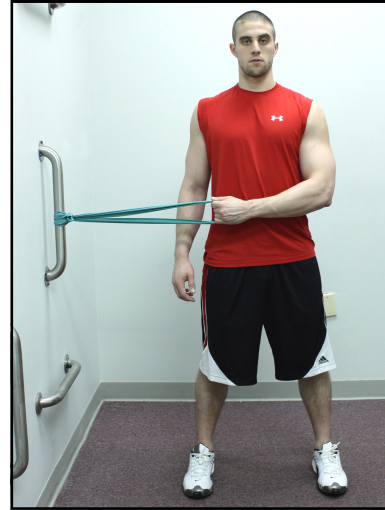


Figure 3-20b.

STEP 2. Rotate your left hand and forearm outward and stop when your forearm is perpendicular to the front of your body. Keep your left elbow tight against your body with the forearm parallel to the ground and then hold this position for 10-15 seconds using between 70-80% of your maximum strength. See Figures 3-20c and 3-20d.

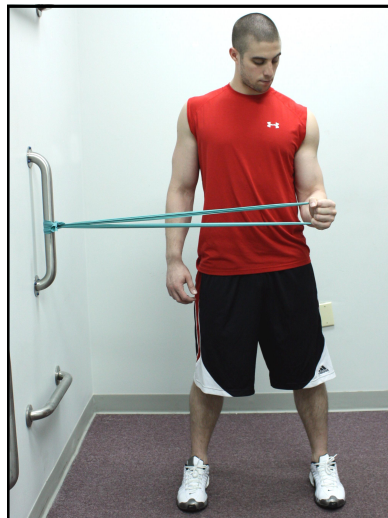


Figure 3-20c. Front view.



Figure 3-20d. Side view.

STEP 3. Face the opposite direction and repeat STEPS 1 and 2 with your other arm.

TRAINING TIPS. 1) You can lower, or raise, the level of where the band is attached a few inches to re-direct the force of the band more specific to the path of your swing and still properly target the correct muscles for this exercise. 2) Perform this exercise according to the *Training Routine* found in the appendix.

Appendix

Training Routine
Progress Charts
Weekly Training Schedule
Additional Training Tips
Product Information

TRAINING ROUTINE

There are 20 exercises in this program and each of them are demonstrated using a certain leg, arm or direction. Each exercise also contains instructions to repeat the corresponding exercise by using the other leg, arm or facing the other direction. Therefore, performing each exercise with both legs, arms or directions *completes* that exercise one (1) time.

The *Weekly Training Schedule* (located two pages after this page) calls for doing each *complete* exercise two times in a given day. As an example of how an exercise should be performed each day, look back at Exercise #1 and in particular, page 26, Figure 3-1e. This is the final holding position for Exercise #1, and it states to hold this position for 10-15 seconds. This is shown again in Figure A-1. This completes the first half of the exercise. STEP 4 of Exercise #1 (also on page 26) states to *Repeat STEPS 1, 2 and 3 with your left leg*. This completes the second half of the exercise and is shown for the first time here in Figure A-2.



Figure A-1. Final position for Exercise #1 using the right leg. This position is held for 10-15 seconds using 70-80% of your maximum strength. This completes the first half of the exercise.

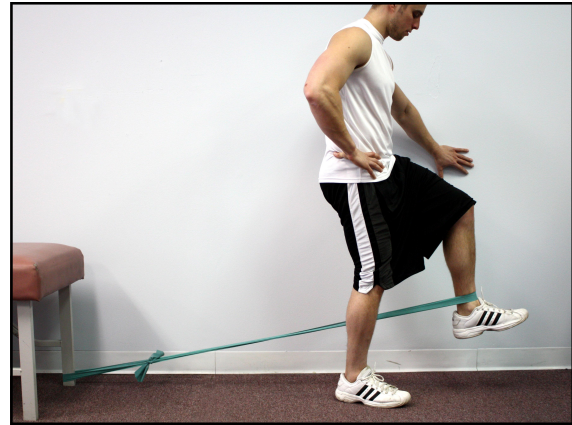


Figure A-2. Final position for Exercise #1 using the left leg. This position is held for 10-15 seconds using 70-80% of your maximum strength. This completes the second half of the exercise.

Performing Exercise #1 with each leg completes the exercise *once*. Since the *Weekly Training Schedule* calls for doing each complete exercise two times in any given day, Table 1 shows how this would look:

Table 1. Exercise #1.

1. Exercise #1 performed with <i>right</i> leg, Figure A-1. Position held for 10-15 seconds. Rest 15 seconds.
2. Exercise #1 performed with <i>left</i> leg, Figure A-2. Position held for 10-15 seconds. Rest 15 seconds.
Exercise #1 completed one time.
3. Exercise #1 performed with <i>right</i> leg, Figure A-1. Position held for 10-15 seconds. Rest 15 seconds.
4. Exercise #1 performed with <i>left</i> leg, Figure A-2. Position held for 10-15 seconds. Rest 15 seconds.
Exercise #1 completed a second time.

TOTAL EXERCISE TIME: 2 Minutes Maximum

A similar routine is used for each of the remaining 19 exercises and it will take you approximately two minutes to perform each exercise as described on any given day.

The *Progress Chart* and *Weekly Training Schedule*, located on the next two pages, will help guide you through all of the exercises and allow you to chart your progress along the way.

PROGRESS CHARTS

Name _____ Date Started _____

STEP 1. Complete each progress chart below before starting this program.

<p style="text-align: center;">Progress Chart #1. Record your 5 fastest <i>baseball swings</i>. Add them together and divide by 5 to get the average.</p>	<p style="text-align: center;">Progress Chart #2. Record your 5 fastest <i>pitches</i>. Add them together and divide by 5 to get the average.</p>	<p style="text-align: center;">Progress Chart #3. Record your 5 fastest <i>home to first</i> running times and five fastest <i>40 yard dash</i> times. Add them together and divide by 5 to get the average.</p>	
1. _____ mph.	1. _____ mph.	Home to First Times	40 Yard Dash Times
2. _____ mph.	2. _____ mph.	1. _____ seconds	1. _____ seconds
3. _____ mph.	3. _____ mph.	2. _____ seconds	2. _____ seconds
4. _____ mph.	4. _____ mph.	3. _____ seconds	3. _____ seconds
5. _____ mph.	5. _____ mph.	4. _____ seconds	4. _____ seconds
Average: _____ mph.	Average: _____ mph.	5. _____ seconds	5. _____ seconds
		Avg: _____ seconds	Avg: _____ seconds

STEP 2. Complete the *Weekly Training Schedule* located on the following page for at least two consecutive weeks.

STEP 3. Now complete similar progress charts below and note the improvement.

<p style="text-align: center;">Progress Chart #4. Record your 5 fastest <i>baseball swings</i>. Add them together and divide by 5 to get the new average.</p>	<p style="text-align: center;">Progress Chart #5. Record your 5 fastest <i>pitches</i>. Add them together and divide by 5 to get the new average.</p>	<p style="text-align: center;">Progress Chart #6. Record your 5 fastest <i>home to first</i> running times and five fastest <i>40 yard dash</i> times. Add them together and divide by 5 to get the new average.</p>	
1. _____ mph.	1. _____ mph.	Home to First Times	40 Yard Dash Times
2. _____ mph.	2. _____ mph.	1. _____ seconds	1. _____ seconds
3. _____ mph.	3. _____ mph.	2. _____ seconds	2. _____ seconds
4. _____ mph.	4. _____ mph.	3. _____ seconds	3. _____ seconds
5. _____ mph.	5. _____ mph.	4. _____ seconds	4. _____ seconds
Average: _____ mph.	Average: _____ mph.	5. _____ seconds	5. _____ seconds
Improvement: _____ mph.	Improvement: _____ mph.	Avg: _____ seconds	Avg: _____ seconds
		Imp.: _____ seconds	Imp.: _____ seconds

STEP 4. After you have performed the exercises for at least two weeks it is recommended you continue on with this same schedule for as long as you continue to see improvement and for as long as you plan to stay competitive in baseball. After you have been performing these exercises for several months, you may be able to reduce your training down to once a week for each exercise however, you will need to pay close attention as to what effect this has on your athletic performance.

STEP 2 (Cont'd):

WEEKLY TRAINING SCHEDULE

Perform each complete exercise two (2) times on the recommended day of the week. Exercises #1 through #10 are performed on days 1 & 4 during the week. Exercises #11 through #20 are performed on days 2 & 5 during the week.							
Place a ✓ on the line when complete.	Day #1	Day #2	Day #3	Day #4	Day #5	Day #6	Day #7
Exercise #1	_____	REST	REST	_____	REST	REST	REST
Exercise #2	_____	REST	REST	_____	REST	REST	REST
Exercise #3	_____	REST	REST	_____	REST	REST	REST
Exercise #4	_____	REST	REST	_____	REST	REST	REST
Exercise #5	_____	REST	REST	_____	REST	REST	REST
Exercise #6	_____	REST	REST	_____	REST	REST	REST
Exercise #7	_____	REST	REST	_____	REST	REST	REST
Exercise #8	_____	REST	REST	_____	REST	REST	REST
Exercise #9	_____	REST	REST	_____	REST	REST	REST
Exercise #10	_____	REST	REST	_____	REST	REST	REST
Exercise #11	REST	_____	REST	REST	_____	REST	REST
Exercise #12	REST	_____	REST	REST	_____	REST	REST
Exercise #13	REST	_____	REST	REST	_____	REST	REST
Exercise #14	REST	_____	REST	REST	_____	REST	REST
Exercise #15	REST	_____	REST	REST	_____	REST	REST
Exercise #16	REST	_____	REST	REST	_____	REST	REST
Exercise #17	REST	_____	REST	REST	_____	REST	REST
Exercise #18	REST	_____	REST	REST	_____	REST	REST
Exercise #19	REST	_____	REST	REST	_____	REST	REST
Exercise #20	REST	_____	REST	REST	_____	REST	REST

ADDITIONAL TRAINING TIPS

Tip #1. The exercises demonstrated in this program are meant to be physically difficult. If you find that your initial attempt with an exercise is too easy, you should either add another resistance band to the exercise, use a stronger band and/or reposition yourself further away from your band attachment to stretch the bands. Remember, holding the final position for these exercises using 70-80% of your maximum strength is a significant amount of effort to exert over a 10-15 second period of time before wanting to take a rest.

Tip #2. Gym equipment provides safe and effective places to attach your bands to since they are relatively immovable and do not typically possess any rough or sharp edges that may accidentally cut your band. If you have access to such equipment, it is suggested that you use it.

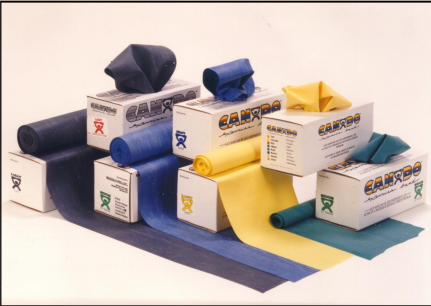
Tip #3. If you have been actively performing all of the exercises in this program for at least two consecutive weeks prior to a scheduled game, you may want to allow yourself two full days of rest before the game.

Tip #4. If there is a particular exercise or two you feel could use more training than the recommended two times per day, then you can go ahead and perform it a third time without any problem. However, it is not recommended you do this for all the exercises each day since that would add ten (10) extra minutes to your training and would inadvertently turn this speed and quickness training program into an endurance program.

PRODUCT INFORMATION

Available at: www.AthleticQuickness.com/order.asp

Product #1: Resistance Bands



Color/Resistance

Red *	Light resistance
Green *	Medium resistance
Blue *	Heavy resistance
Black	X-Heavy resistance
Silver	2X-Heavy resistance
Gold	3X-Heavy resistance

*Recommended

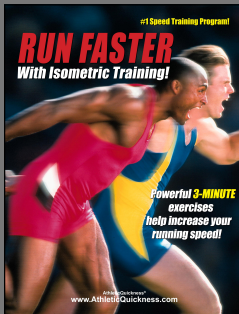
Important Notice: It is very natural to want to use the heaviest bands available to get as much resistance as you can. However, a better strategy would simply be to buy the red, green and/or blue bands and then combine them together if you need more resistance. This is because the silver and gold bands are extremely strong and you won't be able to reduce their resistance level if you need to. Just like working out with weights, it is better to have several 10 lb. plates to work with instead of one 100 lb. plate - you have more options. The same applies with the bands.

Product #2: Door Attachment For Bands

Makes finding a secure place to attach the band easy and convenient. The height of the door anchor can be easily adjusted to accommodate any of the exercises.



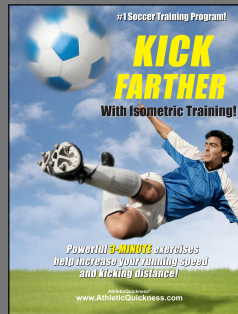
Product #3: Additional Training Programs



Run Faster

RUN FASTER With Isometric Training!

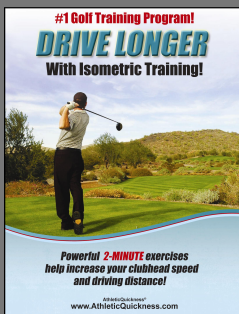
Powerful 3-minute exercises help increase your running speed!



Soccer/Football

KICK FARTHER With Isometric Training!

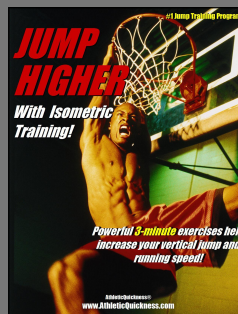
Powerful 3-minute exercises help increase your running speed and kicking distance!



Golf

DRIVE LONGER With Isometric Training!

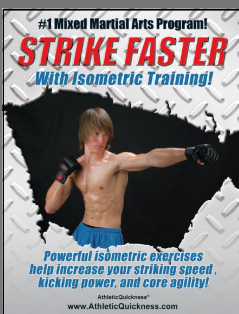
Powerful 2-minute exercises help increase your clubhead speed and driving distance!



Basketball

JUMP HIGHER With Isometric Training!

Powerful 3-minute exercises help increase your vertical jump and running speed!



Mixed Martial Arts

STRIKE FASTER With Isometric Training!

Powerful isometric exercises help increase your striking speed, kicking power, and core agility!



Tennis

SERVE FASTER, RETURN HARDER & MOVE QUICKER With Isometric Training!

2-minute exercises will unlock powerful serves, crushing returns and court speed & quickness!

From the author of the bestselling speed training program... *Run Faster With Isometric Training!*

Isometric training, with the help of the resistance band and its dynamic elastic properties, is perhaps the most effective speed training technique available today!

Two weeks of training puts you on the fast track to swinging faster, throwing harder and running quicker than ever before!

Powerful 2-minute exercises quickly and easily isolate, strengthen and quicken all of the major muscle groups involved in the baseball swing, throwing motion and running process, including:

External Hip Rotators, Internal Hip Rotators, Hip Flexors, Hip Extensors, Hip Abductors, Hip Adductors, Lateral Spine Rotators, Knee Flexors, Knee Extensors, Ankle Plantarflexors, Rotator Cuff Muscles, Sterno-clavicular Joint Movers, Elbow Flexors, Elbow Extensors, Wrist Movers and Hand Grip Muscles.

Exercises leave you feeling lighter, faster and more responsive immediately!

Training takes less than 20 minutes a day!

Great for all ages, all body types as well as all levels of competition!

Requires very little set-up equipment!

Exercises can be done basically anywhere and at anytime!

"We'll bring you up to speed!"®



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