



A Tool for Designing Stronger Youth Training Programs

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Speed and acceleration development. Mobility and flexibility protocols. Power training modalities. Creative programming. Employing resistance bands. Properly using kettlebells. The power and art of coaching.

Adhering to the long-term athletic development principles of the IYCA can seem daunting in practice, when parents want results and kids have to perform. These IYCA experts think otherwise.

This manual was put together to provide the IYCA coach with knowledge and insight into intelligent and effective long-term athletic development programming *in the real world*.

A distinguished panel of youth conditioning experts has compiled this manual to help improve your youth conditioning programs. In it, you will find a wealth of information, specific tips, and done-for-you material you can use immediately in your own practice. The decades of combined of coaching experience with athletes of all types—from the youngest Discovery athletes to top-performing high school track stars—will pay dividends for anyone looking to improve upon their youth coaching and programming abilities.

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# Using Ropes and Tires in Athletic Development Programming

IYCA expert and Athletic Revolution consultant Dave Gleason reminds us to use creative programming and shares his favorite games using ropes and tires.

I want to start off with a reminder to spark some creativity:

As long as your programming has developmental justification that points back to the required elements of the IYCA system, everything is in bounds!

This includes two dynamic and fun pieces of equipment: tires and battle ropes. In Athletic Revolution, many of our franchise partners are co-branded or are also a Fitness Revolution Franchisee as well. As such, many of our trainers and coaches have experience with large tractor tires and battle ropes. With safety mechanisms in place, very effective and fun activities can be implemented in your youth conditioning programs for 6-9 (Discovery) and 10-13 (Exploration) sessions.

Of course, your older athletes can benefit as well from the conditioning and full-body strength demands imposed by ropes and tires, but their programming can be much more straightforward and require less creativity to pull off effectively.

Here are a few examples of youth conditioning programs to get your creative juices flowing:

**1. Team tire flip.** Even with a 500-pound tire, if you orientate your young athletes well and put yourself in a position to effective spot this activity, this is a very safe team building and physical exercise. Systemic strength, object manipulation, and cooperation are all aspects of this fun drill.

Have your athletes form a semicircle around the backside of the tire. Cue them to keep their toes close to the tire and keep their eyes up as they place their hands underneath the tire. Instruct them with something similar to the following: "On a count of three, we all lift and drive the tire forward." Make sure you congratulate them after pulling off the lift and get them excited to cooperate again in other activities.

**2. Team tire drag (pull).** This systemic strength pulling activity is an adventurous variation of tug-of-war.

Place a battle rope through the middle of a large tire so there are two equal lengths of rope to pull on. Place your athletes evenly on each length of rope. On your command, your athletes will pull and drag the tire to a designated area or length.

You can add variation and problem solving by experimenting with how many athletes you can take off pulling duties to sit on the tire with the remaining athletes still able to move the tire. Then experiment with different kids on the tire vs. pulling. You'll find that not only does the competition spark some extra effort, but the athletes learn to come together in the end by switching teams constantly.

**3. Angry Monkeys.** This super fun exercise is a battle-rope-wave drill masked by a silly name and animation during the movement. Straight from the brain of Autism Fitness Expert Eric Chessen, this exercise is set up nearly the same depending on the age and size of the athletes. Your 6-9 year old athletes will do well with a single rope wave. A mature 12 or 13 year old will handle a rope end in each hand with no problem. A 40-foot, 1.5-inch diameter rope works very well for this exercise.

Instruct your athletes to act like angry monkeys with the rope end in their hands while making a wave in the rope. Let them make "angry monkey" noises. 10-20 seconds of work is optimal depending on the age of the athletes in your group.

4. Battle rope relay. Object manipulation, cooperation, spatial awareness, systemic strength, and kinesthetic differentiation are included in the benefits of this game.

Lay out a battle rope in a straight line on the ground. Form two lines of athletes, one line at each end of the rope. The first athlete in each line grabs hold of the end of the rope like a relay baton. On your command, the athletes race to opposites ends and hand the rope off to the next person in line.

This is a perpetual race because there is no winner. Give your athletes 2-3 runs each and then give the group a rest.

Whenever you can think outside the box and inject some additional fun and adventure into your programs for young athletes, you should do so! Keep thinking of new ways to challenge your athletes with exercises and activities that are both fun and creative.

# Top Alternatives for Olympic Lifts When Training Young Athletes

IYCA expert Wil Fleming shares some effective techniques for training explosive strength in young athletes without using barbells.

Nearly all young athletes, with very few exceptions, need to develop explosive strength. The instances in which this skill is used in sports are endless, but when used, "explosiveness" is very apparent:

A linemen firing off from their stance.
A soccer player rising above his opponents to head a ball toward the goal.
A volleyball player making a quick lateral move to reach for a dig.

As a coach and professional, I love Olympic lifts for training explosiveness in young athletes. When properly coached and programmed, Olympic lifts are peerless in getting athletes more explosive.

Occasionally, I find myself coaching athletes offsite in large numbers where using a barbell is simply not possible. Or I'll meet athletes that are not ready for being taught Olympic lifts, but they still need power development. In those cases, the need for training your athletes does not diminish, but the need for creativity does increase.

In addition to athletes that train offsite, where equipment and sheer numbers are the limiting factors, athletes that are concurrently training in their high school and doing Olympic lifts 2-3 times a week similarly need alternative methods to train explosively.

Indeed, as my training business has grown, and more and more athletes find out and are recruited to train with me, the objective has become not to force my training on them but rather to discover the best training methods for them. My beliefs are not something that can supersede the needs, time, or ability of the athlete.

So what are some tools for alternative programming for power gains, especially when limited by an athlete's experience or exposure to equipment?

Here are three practical, versatile, and highly effective alternatives to using barbells when training for power development in athletes. Besides, these are fun, and your athletes will love them!

#### **Medicine Ball Throws**

Medicine balls are a great tool to use with even the least experienced of athletes. Unlike barbells, they are rarely ever intimidating, nor are the movements difficult for athletes to learn. Plus, throws are low impact but can produce maximal force outputs. For these reasons, medicine balls are a great tool to use especially on the first day of training for young athletes.

While the uses for medicine balls are quite extensive, in terms of explosive strength they are well suited as a tool for upper body throws. In addition, they can be used as external resistance for lower body plyometrics, speed, and agility drills.

Another great use of medicine balls is for exercises in different planes. Rotational throwing drills help athletes learn to develop power in the transverse plane through their hips and effectively transmit force through a stable core, which is extremely important in many sports that require power development in planes other than the frontal plane. Correctly performed throws originate in the lower body and leave through the hands; as such, a kink in the core armor will be very apparent if a delay occurs from initiation to delivery.

Regardless of whether athletes can do Olympic lifts or not, medicine ball throws are a vital part of athletic programs, nothing develops the all-important power in the transverse plane quite like rotational medicine ball throws.

## **Kettlebell Swings with Additional Band Resistance**

While the benefits of kettlebells to developing explosive strength are well established, the addition of elastic resistance can take this movement to an entirely different level.

The swing itself is an excellent tool to develop an explosive hip hinge pattern. Most athletes lack in the ability to feel the explosive hinge and the swing is perhaps the best movement for training quad-dominant athletes to use hip extension, not knee extension, to initiate explosive motion in the lower body.

The end range of hip extension is one of the best ways for athletes to truly feel the maximum contraction of the glutes. The voluntary muscle contraction that most athletes have difficulty attaining through other movements is a must for athletes to achieve total hip extension.

The addition of elastic resistance allows accomplishes 2 main objectives:

1) It spares you of having to buy an unlimited number of kettlebells. Our biggest kettlebell is 32 kg. Many of our high school athletes can toy around with this weight with little to no difficulty for 10-15 swings. By adding even a small band to the kettlebell, 10-15 swings becomes a much greater challenge.

2) The majority of resistance occurs at the top end, where athletic movements occur. The maximal contraction should occur at the top end of the swing movement. With just the dead weight resistance supplied by the kettlebell, athletes are sometimes apt to use the top extension as a point of relaxation. The addition of band resistance increases the load as it travels away from the floor. This top "high resistance" position is also the position in which most athletic movements occur.

In general swings simulate overall athletic movement. A correct swing should have the athlete relax momentarily at the top of the swing after reaching full hip extension but before returning to contraction at the top. This contract, relax, contract pattern allows for greater recruitment on the next upward swing.

## **Prowler Sprints**

The goals of Olympic lifting are varied and can range from becoming a better overall competitor to improving speed (I first noticed that I had become a much more powerful athlete due to Olympic lifting when my 40 yard dash time dropped .5 seconds in just 6 months). For the latter, a great substitution is to do resisted sprinting with the prowler.

The idea of special strength training was popularized by USSR track and field coaches. My first exposure to it was as a hammer thrower. To us, special strength training was literally training the specific event in which I competed with a heavier implement (can't get much more special than that!). Prowler sprints are the perfect special strength tool for athletes looking to improve acceleration.

The sets are typically 8 seconds or less, and the athlete gets adequate rest. This timing mimics the bouts typically seen in athletic competition and the length of time for typical Olympic lifts, all while increasing the alactic power an athlete is able to produce.

An increase in stride length will be seen for athletes training with resisted sprinting techniques. This increased stride length will be due to an increase in the athlete's ability to produce more power.

# Submaximal Front Squats/Deadlifts with Band Resistance

Loads of 40-50% 1RM on the bar and band resistance of less than 100lbs should be used. Athletes should be instructed to lift the weight with maximal force on the concentric portion of the movement.

Recent research shows that maximal force produced during 40% of 1RM in the Hex Bar Deadlift is surprisingly similar to that produced in the Olympic lifts (4800 Watts Hex Bar vs. ~4900 Watts in O lifts). While research has shown that maximal power production

measured in watts can be achieved in the split jerk at nearly 6000 watts, this is very close when it comes to the big 2 Olympic lifts (snatch/clean).

Adding bands to the puzzle has not yet been studied, but anecdotally, my athletes have seen a large improvement in the ability to produce power during top end hip extension. The greatest load is encountered at the point at which the athlete has the greatest mechanical advantage.

The bands pull the athlete down at a faster rate in the eccentric phase of the lift. To resist this greater speed, the posterior chain must contract with a greater force. This is similar to the eccentric portion of plyometric action. Higher rate of contraction in the muscle spindles will lead to a greater force of contraction on the concentric portion of the lift.

**Resistance Bands** – As it has been mentioned plenty already, you probably get the idea that resistance bands are a hugely versatile tool for training explosively, especially in the extremes of range of motion. Another great property of resistance bands is that they can make training explosively a truly portable experience: Athletes can use these virtually anywhere – in the gym, on the field, or even at home.

Bands supply increasing resistance the more they are stretched, which means that near the end of a given range of motion, an athlete will find the most difficulty. The greatest resistance when working with bands is in the area in which athletes do the most of their work. This fact—along with their portability, simplicity, and versatility—makes bands a super-practical tool to provide resistance for both upper body and lower body training.

Resistance bands can be used in place of nearly any traditional barbell training exercise, but the best uses can be found in areas where it is difficult to train with a barbell. Use bands to add additional resistance when training explosive plyometrics or in lateral movement training.

**Bodyweight (or Bodyweight +)** – Finally, we come to the last technique for developing explosive strength in young athletes, which is a great one to start with for those inexperienced with training. Simply using bodyweight or a weighted vest ("bodyweight +") can be an excellent way to develop strength in young athletes. These tools are rarely imposing for athletes and allow them to perform exercises with proper execution and mechanics.

Adding a weighted vest is applicable not only to traditional plyometrics but also to speed and agility drills. To finish off a set, have athletes remove the weight vests to contrast the weighted stimulus with a non-weighted effort.

A favorite drill of mine is to use a weighted vest to do a "Falling Start." Wearing the vest, an athlete should extend up as high as possible on their toes and then lean forward until nearly

falling forward. At the moment they begin to actually fall, have the athletes explosively sprint forward. Sprinting from this position closely resembles the correct acceleration position; furthermore, using the contrast method can really help athletes feel the positions of acceleration.

Although Olympic Lifts can be extremely beneficial, they impose constraints that are often unrealistic. Using medicine balls, kettlebell swings with resistance bands, prowler pushes, deadlifts or front squats with resistance bands, resistance bands by themselves, and weight vests in your training can revolutionize the explosiveness of your athletes and create variety in your programming. Best of all, these tools and methods can be used anywhere and with little prior experience required for athletes. It is a great way to make the first day's experience at your youth training facility something that athletes can enjoy by mastering an exercise and getting a decent workout—all with minimal equipment.

# **Resistance Bands and Olympic Lifting**

The Band Man Dave Schmitz highlights the advantages of using resistance bands to train Olympic lifts and other power movements.

IYCA expert Wil Fleming knows a thing or two about Olympic lifting, having competed as a track and field thrower at a Division I school and coached thousands of athletes at his training facility in Bloomington, IN. That's why I try to get everything out of him that I can on the subject of power development and programming for explosive strength.

In a recent article, Wil correctly pointed out that when you begin to discuss Olympic lifting with coaches, red flags immediately go up because of concerns for proper teaching, worries over safety, and the stigma that Olympic lifting is only for the highly skilled or older athlete. I understand this opinion and will not argue those points. Instead, I will pose a question:

Is there a way to achieve some of the benefits of Olympic lifting without struggling with the teaching challenges or putting athletes at risk for injury?

As I mulled over Wil's article, I continued to see a strong correlation between the benefits of resistance band training and Olympic lift training. Therefore, as a follow up to Wil and as an exploration of the subject on its own, I want to touch on Wil's key points (type II muscle development, improved coordination, improved power characteristics, improved force absorption, and outside success) and relate them back to how resistance bands can assist young athletes and coaches with "improving" Olympic lifting skill sets.

Please note that I am not suggesting you replicate Olympic lifting with bands; rather, I am proposing that you can get some of the neuromuscular benefits of Olympic lifting by training with resistance bands—without the learning curve necessarily associated with Olympic lifts.

I also feel that performing certain movement with resistance bands will carry over to helping young athletes become better Olympic lifting candidates.

Now, onto the discussion of the utility of resistance bands in power training.

# **Type II Muscle Development**

Elastic resistance is an ascending resistance that increases as the range of motion increases. As a result, a young athlete quickly learns that in order to complete the movement using a resistance band, they must accelerate out of their loaded posture. This mindset of acceleration not only recruits Type II muscle fibers as Wil noted, but it also coordinates the neuromuscular system to teach young athletes how to accelerate a force, which is a key skill set necessary with Olympic Lifts.

## **Improved Coordination**

Resistance band training incorporates the use of compound, multi-joint movements like squat to press, hip hinge to high pull, and squat to row. All these compound movements require neuromuscular coordination to complete the movement effectively. With resistance bands, an athlete will learn to properly coordinate their movements since the band pulls harder as it lengthens, which is unexpected. Teaching young athletes these compound movements initially using resistance bands will provide them the neuromuscular training to learn how to coordinate movements similar to those required in Olympic lifting.

## Improved Power characteristics

Attaching a band around the hips to create a horizontal or vertical force vector will proprioceptively teach young athletes how to perform full hip and knee extension. Applying the hip-attached set-up with bands while performing a dead-weight swing or broad jump will reflexively teach the skill set of full hip extension and knee extension with an upper extremity arm swing. Using the band belt system (see videos below) will proprioceptively create a vertical load while performing some of the more power-oriented band exercises. Whether you use a band around the waist or the band belt system, either will allow young athletes to train the Olympic lifting skill of getting full hip extension and knee extension with an upper extremity driver.

Band belt system videos:

http://www.youtube.com/watch?v=zkAMGtjkVm4&feature=player\_detailpage

http://www.youtube.com/watch?v=8Zglijf9mR0&feature=player\_detailpage

## Improved Force Absorption

Absorbing the force of the bar when receiving it overhead or at the chest requires the core to reactively stabilize in order for the body to maintain its center of gravity over its base of support and avoid excessive lumbar extension, which can often result from improper Olympic lifting form. This same reactive stabilization is seen when doing any type of horizontal vector upper body band exercise with the individual facing away from the band attachment site. For instance, a simple horizontal chest press or overhead tricep press requires the core to reactively stabilize to avoid excessive lumber extension during the initiation of the concentric phase of the movement. Using bands to teach young athletes how to dynamically engage their core while performing an explosive upper body exercise with bands will neuromuscularly replicate the core reaction needed with Olympic lifting.

#### **Success Elsewhere**

Bands are rarely seen in a high school weight room for use in augmenting or helping train movement skills. Instead, they are used to simulate machine based movements or assist with body weight exercises like pull ups. One of the greatest benefits of resistance band training is its impact in proprioceptively teaching young athletes how to feel movement, train movement, and ultimately store movement in the body's "muscle memory bank." Once permanently embedded into the muscle memory, these movement skills will easily transfer into any other lift or activity that requires that particular movement skill like with Olympic lifting or more field-specific foot agility training.

When it comes to Olympic lifting, Wil Fleming is the foremost expert in the IYCA. He and I both agree that resistance bands are by no means a replacement for Olympic lifts. However, incorporating them into a strength and conditioning program not only will allow coaches more training options but also will teach young athletes a skill set that could bring them closer to incorporating many of the movement skills needed to successfully implement Olympic Lifts into their training program.

# Developing Speed Appropriately in Athletes: The Short-to-Long Approach

IYCA speed expert Latif Thomas explains his short-to-long methodology to developing acceleration, top speed, and speed endurance in athletes.

Speed is a skill.

The ability to take advantage of the potential of one's body, and to do so consistently, is a highly technical skill. As coaches and athletes, we often allude to this concept when talking about speed development, but rarely do we discuss how important this statement is and what effects it has on training and performance.

When watching skilled athletes run at full speed, there is commonality in the power and fluidity that these athletes display. They run smoothly and effortlessly. And they run the same way, every time. It is this consistency in the patterning of their movements, the skill of running fast, that creates that "Wow" factor when you see them in action.

Depending on your level of experience in speed development, you may or may not know instantly what these athletes are doing that engenders such awe, but you know it is there. Even though we can't bring every athlete to elite levels, we can teach them the skill of running fast, where they can apply it to their own particular sport in the context of their own particular level of inherent ability.

Anyone who has learned the skill of running fast knows exactly what it feels like when you reach the point where you're no longer "trying" to run fast but are seemingly floating over the ground. But there is a progression of development required to consistently reach this point of ease in running. My goal is to explain how to progress an athlete toward the consistent application of the skill of running fast.

To begin, let us establish the foundation of this progression. I believe it to be simply a matter of common sense, i.e. another area in athletic development where we have made something complicated that is, in fact, somewhat simple. In an individual's speed development, one cannot expect to be able to run fast consistently over 100 meters if they first have not developed the ability to run fast consistently over 80 meters. One cannot expect to run fast consistently over 80 meters if they have not developed the ability to run fast consistently over 60 meters, etc. Therefore, with prescribing a methodology for youth speed training and developing an athlete's ability to run fast, we must apply a "short to long" approach.

With a short to long approach, we develop an athlete's proficiency over short distances and progress to longer distances once that athlete has shown that he/she can perform a given distance to the satisfaction of the coach administering the program. Therefore, the onus is on the coach to know what to look for in terms of strengths and weaknesses, how to cue an athlete to effectively perform certain movement patterns, and how to fix mechanical inefficiencies. This is the case regardless of the sport; where the emphasis, time or effort is spent will be contingent on the particular demands of the sport and the particular strengths and weaknesses of the athlete. Thus, for youth speed training, not every athlete will necessarily need to spend equal time developing every component/skill that will be discussed here.

For our purposes we will divide youth speed training 'speed development' into three major categories:

Acceleration – the ability to quickly and efficiently get to full speed

**Maximum Velocity (VMax)** – the ability to maintain top and near top speeds

**Speed Endurance** – the ability to maintain efficient coordination of the limbs in order to slow the rate of deceleration

NOTE: There will certainly be a temptation to rush to other areas, progress to longer distances, and run workouts that are more exciting. I must stress that in training inexperienced athletes, we must look at **long-term development**. I know this can be difficult when we only have athletes for a 12-week season or an 8-week program at a facility. While radical improvements can and will be made over the short term, if your true goal is to maximize the potential of your athletes, then you will not rush them into skills and movements they are not prepared to effectively execute.

Keep in mind that the purpose of this chapter is to discuss how to progress using a "short to long" program. Certain assumptions must be made, such as the assumption that while implementing a short to long approach to speed development, you are also developing the other four biomotor abilities (strength, coordination, flexibility, endurance), which will allow athletes to progress at the fastest reasonable rate. Thus, the remainder of this chapter will not go into the biomotor abilities or how to train them but will focus instead on speed progressions. In addition, it must be assumed that you understand the basic cues and demands of speed development, basic body angles, rest periods, etc., in that the confines of this chapter do not allow for intimate discussion of these issues.

## **Acceleration Development**

Acceleration development should be the primary focus of linear speed development for any athlete in any speed- and power-based sport. Success in any sport requiring running is

going to be contingent on the athlete's ability to accelerate to top speed with little wasted motion or energy (i.e. efficiently). So the foundation of any speed development program must spend the appropriate amount of time focusing on developing this skill.

Before we do any running, we must put athletes in a good acceleration position. An athlete cannot expect to perform a skill if they have not experienced the context in which it must be performed. So before beginning acceleration work, I teach the wall/fence drill. This will allow athletes to feel, both statically and dynamically, the ideal position for acceleration. While they will not be able to hold or maintain this position at full speed, they will at least understand experientially what it should feel like. And this serves as a great starting point for teaching athletes self-assessment, a critical tool for maximal development.

**Wall/Fence Drill** – Have athletes stand with their hands against a wall with their arms parallel to the ground. The feet should be behind the hips and the athlete should be at, approximately, a 45-degree angle to the ground. The torso should be erect, hips forward, and stomach and lower back tight so that one could draw a straight (45-degree) line from the head through the hips to the ankles.

This is the ideal body position that an athlete would be in at the outset of acceleration, particularly when accelerating from the ground, out of a 3- or 4-point stance, starting blocks, etc.

From this position, we implement a marching action. Have the athlete raise the right leg so that the ankle is beneath the hips, toe dorsiflexed. On your command, the athlete will march, alternating legs, for a given number of repetitions. They will finish with their leg in the original starting position.

You will see immediate breakdowns in technique:

Athletes will break at the hips while performing the march, so that the butt sticks out.
The straight line from head to ankle is broken. Cue them to keep their hips forward
(squeeze the cheeks).
They will not keep their heels underneath the hips. Instead the ankle will pump
straight up and down, piston like, so that the foot is out past the center of mass. Cue
athletes to pull the heel under their butts.
They will not drive down and back so that each foot strike takes place in the original
starting position, behind the hips.

Since athletes cannot perform this basic drill in a confined setting, they certainly cannot be expected to possess the skills required for smooth, powerful, and efficient acceleration to top speed. At the outset of acceleration development, I will have athletes perform this drill before each training session. Additionally, of course, we are teaching traditional speed drills.

#### So what next?

I like to start with short hill runs. And by short I mean 10-15 meters, max. I put athletes on a fairly steep hill, and we begin with accelerations up this hill. As we learned with the wall march, holding acceleration angles is difficult at this point. With a hill, we can bring the angle to the athlete, putting them in the position we want them to be in. With short hills it is paramount that athletes drive down and back, applying force to the ground. If they don't, they will immediately feel that their center of mass is behind them and they will not be able to get up the hill with any reasonable speed or power.

Because force application, and the strength demands that come with it, is such an integral part of running fast, we can teach this skill with short hills as well as help athletes experience how much easier and more effective it is when they can activate and fire the glutes so that power is transferred appropriately. At the beginning, athletes will often try to bound up the hill, with the swing leg landing too far in front. This overcompensation is another opportunity to cue the importance of driving down. Like in traditional sprinting, when the foot gets out in front of the hips at foot strike, athletes must spend longer on the ground, which limits force output and slows them down.

Generally, I'll start with around 10 repetitions with 1-2 minutes rest for teenaged athletes. At this point I'm not going to get overly technical with the volume. I always err on the side of caution. The more critical element to teach here is self assessment. And this goes for all phases of speed development. Once you've established some of the fundamental skills that athletes should be trying to learn with a particular workout or series of workouts, they must begin to identify positives and negatives on their own. I constantly ask them, "How did that feel?" "What did you feel?" "What were your arms doing?" etc.

Ask questions that get them to analyze their performance. If you are giving them good feedback with each interval, they will begin to come back and tell you how they felt, what felt right, what felt wrong, what they were thinking, etc.

This is an incredibly important component of youth speed training and should not be overlooked. But to make it happen, you must be able to give appropriate comments that facilitate their learning.

Once athletes have become proficient at the short hill runs extending out to 20m, I will take them to the track or to a turf field. I do not advise doing speed work on grass as it is an invitation to injury. From here we will start out at 20m, starting from a variety of positions on the ground, a crouch, a 3-point stance, etc. I'm looking for the same aggressiveness that was required to accelerate up the hill to now be transferred to a flat surface. Once I see that, with the mechanical elements in place, we'll extend out to 30 meters, then to 40. Again, the progression is logical. What you should be looking for in graduating your athletes to longer runs is consistency in their movement patterns, proper running mechanics, and an

improved ability to tell you what they did right and what they did wrong without you having to tell them first. The best way to assess consistency is to time the athletes' intervals. When they are consistently running the same times within .1-.2 seconds, it is likely that they are doing the same things each time. At these shorter distances, there is less room for error, but developing these skills early will pay great dividends at longer, more challenging distances.

Now that we are out to the 30-40 meter range, athletes are no longer accelerating. In fact, the vast majority of athletes will be at full speed by 30 meters, so this is the time where we will begin adding Maximum Velocity components to training. If an athlete is not reaching full speed until after 30 meters, they are likely holding back or have mechanical problems that are limiting proper acceleration. These athletes are not ready for longer sprint work.

## Maximum Velocity (VMax)

Even elite sprinters can only maintain top speed for around 2 seconds before beginning to decelerate. Thus, VMax work is geared more toward maintaining near top speeds for longer distances (reducing the rate of deceleration) than running at full speed because the time spent at full speed is quite short. Again, this chapter is not a discussion of this type of training but rather guidelines for how to implement it.

I am a big fan of fly runs. This is where you will have a buildup zone, a fly zone, and a deceleration zone. With our acceleration work, we've been practicing in the 30-40m range, so we will now add a fly to our work at these distances.

Our initial runs will be "fly 15's." Set up a cone at the start, at 20m, at 35m and at 60m. The breakdown is this: 0-20m is the acceleration zone, 20-35m is the fly zone, and 35-60m is the deceleration zone. The final 20 meters should be a slow deceleration to a full stop. Since we've been focusing on acceleration development thus far, athletes should be quite proficient through 20m. Our new focus is on what they should be doing while at full speed.

Cue athletes to run hips tall and with a foot strike beneath the hips, not behind or far in front. It is important for young athletes especially to focus not on straining to run faster but rather on executing a consistent pace. Our goal here is maximum speed, minimum effort. Again, we can assess consistency here by timing athletes through the zones. If their time to the first cone is inconsistent, it will likely lead to inconsistencies in the fly portion. Because we're breaking the run into sections, we can identify where things are going wrong (and right) and give appropriate solutions. I strongly recommend videotaping these runs and breaking down the film with your athletes.

As athletes become consistent and proficient at fly 15's we can simply extend the distance with time. Generally, for athletes who require extended sprints in their training, our meat and potatoes workouts are fly 30's and fly 40's. Volume is dependent on the particular athletes.

When times fall off, the workout is over. As a general rule, with teenage athletes, we look at a total volume in the range of 250-300 meters before fatigue begins to adversely affect the quality of the workout. But again, this is a generality and you must prescribe distances appropriate for your athletes—thus, the art of coaching.

Because we are implementing a short to long progression, even with VMax work, you are still working on acceleration development. Athletes must accelerate properly to reach true to top speeds. So, where I was previously doing acceleration work twice per week as we made our way to the 30-40m range, I will now do one day of acceleration work and one day of VMax work. When you think about it, we're getting more bang for our buck because we're still getting two days of acceleration work in, but we're also developing our ability to maintain at top speed. Since acceleration work is paramount in almost every sport, we can maintain constant focus on that skill because we've mastered it. Consistent acceleration paves the way for maximal development at longer distances.

We also use another type of workout for VMax development. It goes by many names, but we call it "Sprint-Float-Sprints." This is simply a more advanced progression of the fly XX. Here the goal is to teach athletes to relax once they reach top speed, but without slowing down. This is one of the hardest things for coaches to teach and athletes to learn. Athletes simply must experience this in order to understand it. I've never been able to come up with a universally understood cue that got athletes to do this right. The important thing to convey is this: Once an athlete reaches top speed, continuing to try to accelerate will only slow the athlete down.

When timing experienced athletes in this type of workout, they run faster in the float—or relaxation portion—than when they are pushing to run faster. To most athletes, this doesn't make sense at first, but there is a reason that you see elite athletes with relaxed faces, shoulders, hands, etc. at the end of a race. They know that they must stay within a certain confine to run faster. If they begin to press, they will break down mechanically and slow down. So, when doing Sprint-Float-Sprints with your athletes, you must get them to understand this. One very clear way to tell if athletes are slowing down in the float zone vs. relaxing is by watching their torso. If the shoulders drop back behind the hips (foot strike will also take place in front of the hips), then you know the athlete is doing it wrong.

Here is how to set up the workout. Set up a cone at 20m, 30m, 40m, 50m, 70m. From 0-20m athletes accelerate normally, 20-30m athletes will sprint aggressively, 30-40m athletes go into a float, 40-50m back into an aggressive sprint, 50-70m athletes should slowly come to a stop.

Generally, I stick to this distance throughout the season. If an athlete excels, I may bring the zones from 10m to 15m. Because this workout is quite taxing, both physically and mentally, we don't do a large number of them in a workout. We may do a max of 4 or 5 total. As with fly runs, getting this on tape is an incredibly valuable tool. With so much going on from zone

to zone, it really is difficult to assess an athlete live and time their zones. You really have to pick one or the other.

With this workout, it would be the alternative to running, say, fly 40's. Depending on the sport and time of year, it is unlikely that I will get away from pure acceleration work entirely, but there are exceptions to every rule. Now that athletes have become proficient in acceleration patterns and maintaining top/near top speeds, we can add a new element to training:

## **Speed Endurance (SE)**

With speed endurance, we want to be specific to the demands of the sport. For our discussion, there are two types of speed endurance: Alactic speed endurance and Glycolytic speed endurance. Without turning this into a lecture on energy systems, alactic SE is for runs of 30-80m with rests periods of 1-3 minutes between reps and 5-10 minutes between sets. Glycolytic SE is for runs of 80-150m, with rest periods of 5-6 minutes between reps and 6-10 minutes between sets.

At this point, you should have a clear understanding of how progressing distances works. Fundamentally it's going to be the same here, but again, sport specificity comes into play. There is little need to focus on glycolytic SE if your athletes are never going to have to sprint for longer than 60-70m on a fairly regular basis, i.e. almost every sport outside of track and field. Instead, I would focus on alactic SE. Athletes are going to be competing in a state of fatigue for a good portion of their games, so short sprints with relatively short rest periods are going to prepare them better for the demands of their sport. Because you've taught them proper acceleration mechanics and developed the skill of high speed maintenance, they will be able to run faster and longer while tired. If you had not done this progression in this way, once they got tired (in a workout or competition) they would immediately regress from a mechanical and technical standpoint, which of course makes them less competitive athletically and at increased risk of sustaining an injury. But because they have learned the skill of sprinting, as well as self assessment, they can focus and fall back on the previously learned and repeated movement patterns that lead to running faster and winning more.

With track and field sprinters, the need for longer speed endurance runs is obvious. It is important, however, that we adhere to these rest protocols. I find that many track coaches can't overcome the urge to reduce rest periods, believing them to be too long to be effective. They are not.

So how is it all put together?

Putting Together Acceleration, VMax, and SE in the Context of a Season

If you have a true preseason or offseason, that is where I would put in the short hill accelerations or even flat surface acceleration work. But if you're working on limited time frames of a typical season, here is how I would structure the progression, assuming you are working on speed twice per week.

This, of course, is a general guide. Look at it in terms of progressing in distance. As far as volume, these are estimates. Some athletes are workhorses; others are not. There is no magic formula for determining the perfect volume for a workout or workout period, and there are many other variables to consider in prescribing speed sessions. It should vary by athlete based on training age, experience, skill, etc.

M: 8-10 x10m hills Th: 8-10 x 15m hills

Once athletes have begun to improve:

M: 8-10 x 20m hills

Th: 8-10 x 20-30m acceleration development on flat surface

Once proficiency is shown:

M: 8-10 x 30m

Th: 4x30m, 3-4 x 40m

Once athletes have developed consistency in their acceleration development:

M: 10 x 30m

Th: 6-8 x fly 15's with a 20m buildup

Choices from here vary by sport. Non-track coaches will likely stick with a format along these lines. Remember, you don't always have to move up in distance; you can do repeat 10's, 20's, etc. Make it specific to your sport. In fact, you should move around in volume, distance, and intensity so that athletes do not adapt and become stagnant in their training.

If athletes aren't going to maintain an all out sprint for more than 15-20m then spend the bulk of time on various components of acceleration development, speed endurance, and some VMax work.:

M: (Acceleration work) 5x10m, 5x20m, 5x30m (full recovery)

Th: (SE) 2 sets of 6x25m with 1 min rest between reps, 5 min between sets

Do a VMax workout every 3 or 4 workouts.

With track and field, you have to consider meets as part of your program design. So if an athlete is running the 100 and 200 in a meet plus field events, acceleration work and VMax work may be part of that week's training, generally speaking. Of course, you must consider the above factors, time of year, etc.

For a 100/200m runner who has progressed through the requisite acceleration and VMax skills:

M: 5x30m out of blocks on the straight, 3 x 60m out of blocks on the turn (float at 40m) Th: 4x fly 30's with a 20m buildup, 1 x 120m

The meet will involve speed endurance elements so we don't have to go heavy on that during the week. And both the Monday and Thursday workout cover some degree of speed endurance work as well.

Keep in mind that when doing VMax work, you're still doing acceleration development. You have to accelerate to get to top speed. When you're doing (Glycolytic) Speed Endurance, you're doing both acceleration work and VMax work. To get the most out of a longer run, an athlete must be capable of effectively performing a shorter run. It is for this reason that the short to long approach to youth speed training and development is the optimal method for developing the fastest athletes.

# Flexibility vs. Mobility: When to Use Each with Young Athletes

Strength, mobility, and corrective exercise expert Mike Robertson discusses the differences between mobility and flexibility and outlines when to employ each.

When it comes to young athletes, flexibility and mobility concerns are slightly different from the general adult population. For one, they are more active (though this is changing). And secondly, young athletes have had less time to develop joint limitations and postural problems than have adults. But these differences merely mean we need more information and analysis of young athletes in order to prescribe the proper flexibility and mobility regimen.

This chapter addresses some common questions about flexibility and mobility and includes my own recommendations for when to include each in your athletes' training.

## But first... What is the difference between flexibility and mobility?

While I've been asked the question too many times to remember, I've always used the Bill Hartman definitions, which go something like this:

Mobility – Range of motion under specific circumstances (specific)

Flexibility – Range of motion about a joint (non-specific)

So mobility is specific to a certain movement – i.e. you need a certain amount of hip mobility to squat, lunge, etc.

In contrast, flexibility is non-specific – i.e. you lay someone on their back and stretch their hamstrings. This gives you an idea of their flexibility, but it's not specific. Just because they have great hamstring length doesn't mean they'll be able to perform functional movements properly or without compensation.

### Are both important to young athletes, or is one more important than the other?

While both are definitely important, flexibility is more or less a component of mobility. I think of mobility as an equation, something like this:

Mobility = Tissue length + Neural Control/Stability + Joint Architecture

In terms of mobility and flexibility, my primary goal with young athletes is to improve their mobility and allow them to perform those specific movements (squatting, lunging, etc.)

without compensation from other areas (generally the lumbar spine). Flexibility will arise as a result of the mobility work we do.

#### When should young athletes train flexibility?

Keep in mind the difference between flexibility and mobility here. Flexibility refers to, generally, increasing the range of motion around a joint, which is not movement-specific. There are actually several times throughout the day when I would incorporate specific flexibility drills into the programming:

Pre/peri-workout – I would only use this as part of an acute-corrective strategy; in other words, I don't believe that static stretching has much of a place pre-workout. The goal here, for example, would be to statically stretch the hip flexors and pair that stretch with an activation drill for the glutes. This will enhance motor control and function by helping restore proper length/tension relationships.

Post-workout – Here I'd use more "active" flexibility techniques like eccentric quasiisometrics (EQI's).

Before bed – I've always been a proponent of static stretching before bed. I think not only does it allow you to unwind and relax, but if you hop right into bed afterwards, you're less likely to lose any flexibility gains you just worked for throughout the day.

#### When should young athletes train mobility?

Whenever they can! Quite simply, most people need more mobility in the appropriate areas (ankles, hips, t-spine, etc.), and young athletes, too, are usually in need of mobility work. Especially in the beginning or foundational period of their training, more is generally better.

Getting more specific, pre-workout mobility training is a slam dunk. But if someone is really restricted in their movement patterns or movement quality, I'll have them perform mobility drills several times throughout the day to reinforce good movement. Unlike strength training, you're not going to overtrain your body by doing some simple mobility drills throughout the day.

Are there different kinds of flexibility, or is "bending over to touch my toes and stretch my hammy" all young athletes should be doing?

With the athletes I work with, we include several different kinds of mobility throughout their day.

Pre-workout, we always do a dynamic warm-up. Always. They've been sitting in school or class all day, so my first goal is to get them warmed up and moving through a nice range of motion.

EQI's are a little more advanced, but they're still working to promote optimal/length tension relationships and develop active flexibility. Once someone has been training for a few months I like to get them doing this at the end of every workout.

Finally, we discussed static flexibility above, and I think it's an integral component as well. I'm only 32, but kids are a lot different now than they were 10, 12, or 15 years ago when I was a kid! They sit more. They play more games. They have more homework. Certainly, static stretching can help get them back in tune with their body and keep themselves healthy.

I think all these methods are important; what's more important is using the right flexibility/mobility method at the appropriate time.

# What is the single greatest mistake or myth people make when it comes to flexibility training?

Not doing it!

Seriously, most people are so focused on their training and/or diet, they put no value or stock into recovery methods. Just using the methods I outlined above can go a long way to improving the alignment and function of your body.

And young athletes are no different. They have recovery needs just like adult athletes, and due to the increasingly sedentary nature of kids' lives, many of them probably have significant restrictions in flexibility and mobility.

Start targeting these areas at the times outlined above and your athletes can move properly again in no time.

# Giving Athletes What They Need—And Coaches What They Want

Dave Gleason discusses how to prioritize programming to balance the needs of the athletes and the wants of the coaches before sharing some programming templates for youth football teams.

There is often a disconnect between what we know is the ideal training for young athletes and what parents/coaches want for them. We know through our education and "in the trenches" experience(s) how to devise an athletic development program and implement it with athletes of various abilities and sports interests.

But we are often the minority when it comes to opinions about what athletes "need."

What are we to do when the opportunity presents itself to work with an entire youth league of athletes with a board president and coaches that have a philosophy that doesn't match our ideals?

Don't panic; you don't have to compromise your values!

Make sure you keep your focus on their needs by asking questions—and a lot of them. You will gain the trust of the coaching staff when they know you are there to help them versus taking control over any aspect of their practice sessions. If you do this with care and patience, the outcome can be very beneficial to your business and, more importantly, to the young athletes involved.

# Youth Football Training Program Case Study

After several conversations with the president of the youth football league and some of his coaches I was able to ascertain the areas they were most concerned with. In their words: a.) "revamping the warm up" to get the kids ready to play, b.) "agility in small spaces," and c.) injury prevention. Once we narrowed it down to these specifics, I could devise a game plan. They did not want the new programming to be intrusive to their practice time or ability to coach football.

Keep in mind the relationship with the president of this youth football league began developing nearly 2 years ago. Be patient when engaging coaches.

And remember that this solution is specific to this situation. Your local leagues and teams may very well have different needs and priorities, in which case you'd of course have to

present your own tailored programming. Still, seeing one solution might help you create your own!

The outcome was to implement a pre-written youth football training program for every age group in the youth football league that the coaches would learn and implement for every practice. This was an extraordinary opportunity: Exposure to every football player from 1<sup>st</sup> grade through 8<sup>th</sup> grade and the buy in of every coach—you can't buy that type of publicity!

Upon completion of the last practice session, we set a time for the coaches and I to meet in order to troubleshoot any issues they were having.

#### The Nuts and Bolts

Knowing that the coaches had limited time to learn their new programs, and that I only had one practice session with each team, I had to prioritize the programs. The football program had to deliver what the president and coaches asked for combined with simple yet effective activities for coaches and players to learn.

Remember, this may not be the solution you need. However, let this serve as an example of how a program should be prioritized according to the needs of the coaches and the constraints on the teams.

(Not included are the descriptions and key points for each age group that were provided for each coach):

#### Pembroke Titans Football Mighty Mites (1st & 2nd Grade)

Warm up

- 1.) Reactive Game or Fun Activity
  - a. Simon Says
  - b. Tag Variations
  - c. Movement Mirroring (coach or each other)
  - d. Rhythm Machine (clapping)
  - e. Coaches Choice
- 2.) Monster Walks
- 3.) Bear Crawl
- 4.) Dragon Walks
- 5.) Log Rolls

Speed/Agility/Strength = Coordination Training

1.) Scramble to Balance 2x each leg

- 2.) Rats/Rabbits
- 3.) Red light Green Light (add football themed lights)
- 4.) Push up hold/High Fives (partners)

#### Speed and Agility

- 1.) Dynamic Repeats (run to stop)
- 2.) Dynamic Repeats with Return (run, stop, return)
- 3.) 4 x 4 x 4 Drill (survive for 7 seconds)
- 4.) Bear Crawl to Hand Taps 6:4
- 5.) Forward Crab Walk to Table Top 6:1

#### Cool Down

A formal cool down is not necessary from a developmental standpoint, and static stretching is not advised for this age group. To familiarize the kids with the structure and expectations of future football practices, you can put them through the following passive active stretching activities:

- 1.) Cobra 2 second hold x 5
- 2.) Alternating Knee hugs x 5 each
- 3.) Around the worlds 2x each leg

#### Pembroke Titans Football Mites (3rd & 4th Grade)

#### Warm up

- 1.) Activity game, laps, etc...choice of coach
- 2.) Spiderman 2 x 10
- 3.) Alternating Supine extension 20 Second Hold
- 4.) Squat to stand 2 x 5 (squat, knees out, arms up, stand)
- 5.) Prone Extensions 2 x 8
- 6.) Lunge with toe touch 1 x 10 each
- 7.) Dynamic Warm up
  - a. Skipping Patterns
    - i. Straight
    - ii. High
    - iii. Back
    - iv. Side
  - b. Knee Hugs 1 x 10
  - c. Butt Kicks
  - d. Straight Leg March 1 x 10
  - e. Heel Walks/Toe Walks 1 x 10 each

#### f. Side shuffle/Carioca (tight) 10 yds each x 2

#### Speed and Agility

- 1.) Dynamic Repeats (run to stop)
- 2.) Dynamic Repeats with Return (run, stop, return)
- 3.) 4 x 4 x 4 Drill (survive for 7 seconds)
- 4.) Bear Crawl to Hand Taps 6:4
- 5.) Forward Crab Walk to Table Top 6:1

#### Cool Down

- 1.) Static Stretching
  - a. Hamstrings
  - b. Inner Thigh
  - c. ITB/Hips
  - d. Cobra Stretch
  - e. Calf Stretch
- 2.) Choice as needed

#### Pembroke Titans Football Pee Wees (5th & 6th Grade)

#### Warm up

- 1.) Activity game, laps, etc...coaches choice.
- 2.) Spiderman/inside elbow to ground 2 x 10
- 3.) Alternating Supine extension 2 x 8 each side
- 4.) Squat to stand 2 x 5 (squat, knees out, arms up, stand)
- 5.) Prone Extensions 2 x 10
- 6.) Lateral Lunge with toe touch 1 x 10 each
- 7.) Dynamic Warm up
  - a. Skipping Patterns
    - i. Straight
    - ii. High
    - iii. Back
    - iv. Side
  - b. Knee Hugs 1 x 10
  - c. Butt Kicks
  - d. Straight Leg March 1 x 10
  - e. Heel Walks/Toe Walks 1 x 10 each
  - f. Side shuffle/Carioca (tight) 10 yds each x 2

#### Speed and Agility

- 1.) Pro Agility
  - a. 5-hold-10
  - b. 5-10-Hold
  - c. 5-10-5
- 2.) 4 x 4 x 4 Drill (survive for 7 seconds)
- 3.) Bear Crawl to Push Up 6:1
- 4.) Forward Crab Walk to Table Top 6:1

#### Cool Down

- 1.) Static Stretching
  - a. Hamstrings
  - b. Inner Thigh
  - c. ITB/Hips
  - d. Cobra Stretch
  - e. Calf Stretch
- 2.) Choice as needed

### Pembroke Titans Football Midgets (7th & 8th Grade)

#### Warm up

- 1.) Activity game, laps, etc...coaches choice.
- 2.) Spiderman with hip lift 2 x 10
- 3.) Supine extension with rotation 2 x 8 each side
- 4.) Squat to stand 2 x 5 (squat, knees out, arms up, stand)
- 5.) Atlas Stretch 2 x 6 each
- 6.) Prone Extensions 2 x 10
- 7.) Alternating Lateral Lunge Walk 1 x 10
- 8.) Dynamic Warm up
  - a. Skipping Patterns
    - i. Straight
    - ii. High
    - iii. Back
    - iv. Side
  - b. Knee Lift/Heel lift 1 x 10
  - c. Straight Leg March 1 x 10
  - d. Cradles
  - e. Heel Walks/Toe Walks 1 x 10 each

#### Speed and Agility

1.) Pro Agility

- a. 5-hold-10
- b. 5-10-Hold
- c. 5-10-5
- 2.) 4 x 4 x 4 Drill (survive for 7 seconds)
- 3.) Turn and Burn (Hip turn and go)
- 4.) Bear Crawl to Push Up 6:1
- 5.) Forward Crab Walk to Table Top 6:1

#### Cool Down

- 1.) Static Stretching
  - a. Hamstrings
  - b. Inner Thigh
  - c. ITB/Hips
  - d. Cobra Stretch
  - e. Calf Stretch
- 2.) Choice as needed

I hope I have shed some light on the tricky issue of programming for athletes with what they need while accommodating what coaches are looking for. The four football program templates above all worked within the confines of what the coaches needed while delivering functional and beneficial programming for the athletes.

It can seem like a balancing act catering to the coaches while providing quality programming to the athletes. However, the two are not mutually exclusive, and it simply takes practice to figure out how to give athletes what they need and coaches what they want.

# **Dissecting to Improve Your Programming**

Discover how using three basic questions to analyze youth athletic programs can vastly improve your own program creating ability.

After a few days of observing local rec league coaches or spending some afternoons trying to help a local high school sports program will give you the impression that most trainers and coaches don't have a clue.

This isn't meant to sound horribly negative or pessimistic; it's merely an observation of the state of our industry.

Here is a concrete example to support that conclusion. In the middle of a textbook called *Youth Training Programs* is the following program for a "typical" high school football player:

- A. Hang Cleans: 4 sets, 8 reps
- B. Bench Press: 4 sets, 6-8 reps
- C. Incline Bench Press: 4 sets, 6-8 reps
- D. Front Pull Down: 4 sets, 8 reps
- E. Dumbbell Shoulder Press: 4 sets, 8 reps
- F. 1-Arm Dumbbell Row: 4 sets, 8 reps (each)

What do you think? How does this program stack up against your knowledge of the needs of young athletes—or any athletes for that matter?

At first glance, it might seem adequate, if a little ambitious. But upon closer examination, it does not hold up as a good program. But why? If you agree it's a poorly designed program, what makes it so bad in your eyes?

Answering the "why" is perhaps the most important and critical aspect of being able to write quality programs of your own. It's called dissection, or the ability to assess and analyze a program based on three critical factors:

- 1. Timing Requirements
- 2. Even Stimulus
- 3. Understanding Objectives

These three elements, and your ability to assess them in various programs, is going to change your ability to write effective youth training programs of your own.

Let's take the program from above and dissect it from those three variables:

#### **Timing Requirements**

	To assess	the	timina	requirem	nents.	let's	list	what	we	know:
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The average 6–8 rep set takes roughly 45 seconds to perform.
Each exercise lists "4 sets" as the objective.
There are six exercises in total.
Six exercises at four sets each is 24 sets for the session.
At 45 seconds per set, that totals 18 minutes of working time.
Roughly 2 minutes of recovery time will take place in between each set, which
amounts to 8 minutes of total recovery per exercise.
With six exercises in total, that amounts to 48 minutes of recovery in total.
Combined with the 18 minutes of total workload, this training session will take
roughly 70 minutes to perform.

Here are the main concerns:

- a. 70 minutes is far too long for high school training programs.
- b. The 70-minute workout as written does not include a warm-up or cool-down.
- c. The work/rest relationship is roughly 1:3, which is unacceptable except for maximum strength gains, which should not be the goal with these young athletes.

Although the intentions are probably good (get the athletes to improve by working as hard as they can), they are certainly misguided, as no high school athlete is going to complete this program *and* throw in a warm-up and cool-down. Simply put, it is trying to do too much.

But are the things it is trying to do even appropriate?

#### **Even Stimulus**

As for timing, the workout missed the mark entirely. The question of balance within the workout is a bit better, but it still falls short of ideal.

Here's the biggest thing to note:

12 sets = pushing
8 sets = pulling

You don't need to know much about athletic development or functional anatomy to know that this in an improper ratio.

Especially for high school athletes—most of which, if they've completed any strength training in the past, have most likely focused on pushing movement and anterior chain

development—pulling and posterior chain development is essential for keeping them healthy, injury-free, and able to move and perform at their best. Instead of accentuating these differences, an intelligent program would attempt to correct the gap between pushing and pulling.

#### **Understanding Objectives**

Do high school athletes really need to perform a horizontal pushing motion from two different angles? Are bilateral movements from start to finish the best option when trying to create a functionally fit and injury resistant athlete? Does the program outlined above seem way too much like a standard bodybuilding program?

The key to creating effective training programs is to start with objectives. Knowing your objectives makes assessing the popular combine tests counterproductive at times. For example, if you are intent on testing athletes' vertical jump, bench, squat, and 40 time, then your youth training programs are going to naturally focus on improving these elements—and be limited in other areas as a result.

What do your young athletes need in terms of:

| injury prevention? | age-related factors of development? | on-field performance? | correction of body/structural dysfunction?

When you identify your athletes' needs, you have a much broader—and more complete—understanding of the objectives necessary in creating an effective program.

Whenever you see someone's program for "[sport] athlete," take a moment to dissect it according to those three principles:

| What are the timing requirements, and are they appropriate? | Is there an even stimulus, i.e. is the exercise selection balanced? | What are the objectives of the program, and how would you prioritize the objectives differently?

Not everyone can write programs that work well; it is a skill that requires learning from mistakes, honest evaluation, and practice.

Rather than starting with a blank canvas, use those three factors to assess your own youth training programs. At the very least, you should have a clearer picture of where the holes in your programming are, at which point you can take from the other chapters in this manual to build a stronger program!

# Making Strength Training Fun for Young Athletes Using Resistance Bands

Dave "Band Man" Schmitz reveals ways to use resistance bands to help young athletes have more fun during conditioning.

At least once a week, I am posed a simple question: "How do I train my son/daughter using bands?" In most cases, all I can envision is kids being put through grueling workouts using big bands that throw them around like a human sling shot.

OK, maybe I am a little off, but I've watched plenty of videos on YouTube that have absolutely scared me when it comes to training young athletes.

Resistance bands offer a distinct advantage over many other types of training with young athletes. However, you first have to unlock that secret and, like any tool, take advantage of it appropriately.

If you really want young athletes to enjoy resistance band training, the secret is to start making the training game-oriented.

My goal with any young athlete resistance band workout is to get them to train instinctively, because when they reach that level, it becomes as close to a game situation as it possibly can be. In a game, training becomes fun because athletes are thinking about competing, not training.

Over the past several years, I have had a chance to test out many resistance band games. In this chapter, I'd like to share some of my favorite games and show how you can use them in your own programming..

# **Partner Zigzag**

Young athletes need direction and a target. I find cone drills like a simple Zigzag drill to accomplish both of these. The key to this drill is making sure athletes have a good understanding of how to shuffle or backpedal as well as how to hold for their partner. Once they understand those aspects, Zigzag drills are very easy to implement. Within about 2 minutes you will have taken and trained a young athlete how to decelerate in the frontal and sagittal planes while developing good reactive strength of their trunk, hips, and quadriceps.

Check out a video of partner zigzags here:

http://www.youtube.com/watch?v=yQ3ygc8EEQ0&feature=player\_detailpage

#### **Ricochet**

Ricochet is a drill I developed to teach young athletes how to decelerate. It has become a training game due the ability for athletes to compete while performing it. It can be used for all band locomotion drills but can also be effectively used for strength training drills as well. The video below demonstrates how it works with locomotion. When used with strength training exercises, each athlete will alternate completing the exercise. This format is great for developing teamwork but also is very effective at improving strength endurance, especially when done for a 2 minute time interval.

Here is a video demonstrating the exercise:

http://www.youtube.com/watch?v=j363NE\_rLuo&feature=player\_detailpage

#### **Partner Reaction**

This is where athletes get to test their partner who now is their opponent. Athletes face off where one is offense and one is defense. Defense must react to offense and try to mirror them during the drill. Best drills for this are shuffle or turn and go drills. Also 2 step deceleration drills work well with this also. This is also a coaching favorite because you allow the kids to dictate the start and stopping of the drill.

The following video shows a few variations of partner reaction games, all of which can be both fun and challenging:

http://www.youtube.com/watch?v=omNRtOzF6uU&feature=player\_detailpage

### 1 Minute Partner Challenge

The one-minute partner drill is fun because you can do it with 2-, 3-, 4-, or 5-athlete teams. You can do all the same exercise, or you can have each athlete do a separate exercise for 1 minute. The goal is to get as many reps as possible in 1 minute before transitioning to another exercise. The added competition makes this both challenging and fun, and your athletes are sure to get a good workout. My favorite band exercises for this setup are:

Band Push ups
Assisted pull ups
Split Squats
Squat Jumps
Front Squats
Overhead Press
Turn and go (touching a cone

Now to make this entire resistance band training game experience just a little more
motivating, all of these games can be played anywhere because bands are so portable.
This means kids can:

Train at their practice site and not have to go into a smelly, crowded, or inconvenient
weight room
Trainers can have kids train outside, which is a much more enjoyable environment
Coaches can throw these types of drills into practice anytime and supplement
conditioning with strength training

To be a successful youth coach, you must find ways to motivate young athletes starting from a very young age and continuing throughout their high school years. Resistance bands can provide a definite change of pace that athletes find both fun and challenging at the same time.

As Dave Gleason said earlier, as long as your programming has developmental justification that points back to the required elements of the IYCA system, everything is possible. So be creative and challenge your athletes to have fun using resistance bands!

## The Power of a Coach

IYCA CEO Pat Rigsby discusses the far-reaching impact of a coach on both the athletic progress and future lives of his or her athletes.

Recently a very humbling thing happened to me that reminded me of the powerful role coaches can play in young people's lives.

If you didn't know, earlier in my professional life I was the head coach of baseball and a strength and conditioning coach at a small state university in Ohio.

One day not too long ago, I was speaking with one of my former players, who is now the head coach at the same university. He told me that in the spring, they would be hosting the Pat Rigsby Invitational Tournament—something that he dreamed up with another player I coached, who is now also a collegiate head coach.

Needless to say, I was very humbled and honored.

But I was also reminded of the impact that a coach can have on a young person. I can think back now to several of my coaches and the experience they helped me have. I have been forever indebted to them for the lifelong love of sports they instilled in me.

In fact, about a decade later, when I look back upon my baseball coaching days, the things that I'm most proud of are the successes that my former players have achieved and how many of them have gone into coaching—hopefully, in part, a testament to them having had a good experience while they were under my care.

I've since started coaching again, and these days it's with 9-year olds instead of college athletes. A decade ago, my objectives revolved around winning championships, beating rivals, and graduating players. Now, my goal is pretty simple: I want the kids to have a good enough experience that they are excited to play again next season.

If that happens, I feel like I've done my job as a coach.

My logic is straightforward: If they're excited about playing again next season, then they've obviously improved over the course of this season. They've had their share of successes. They had fun. They weren't bored. It was a positive enough experience that they're excited to do it again.

I truly believe that, outside of a parent, a coach can have as much of an impact as anyone can on a young athlete. And, to quote either Voltaire or Spider Man, with this great power comes great responsibility.

Certainly, it's our responsibility as coaches to teach the fundamentals and mechanics of sport and fitness. But the full scope of our responsibilities go far beyond that. It's also our responsibility to help instill values. It's our responsibility to provide an experience for the young people we serve that ignites a lifelong passion for sport and fitness. In short, it is our responsibility to make our athletes not just better athletes but better people. This is the mark you can leave. This is the impression that can last well beyond your time with the athletes.

There were a handful of coaches that did this for me. They taught. They inspired. They instilled a passion that continues to this day. That's the real potential of working with young athletes. That's the power of a coach.

# **Kettlebell Training: It's All About Progressions**

IYCA kettlebell expert Pamela MacElree, BS, MS, discusses the importance of intelligent progressions when employing kettlebells in athletic development programming.

Just like every other training modality, kettlebells also have training and movement progressions.

I find it ironic that we often see people approaching kettlebell training far differently from how they would approach barbell training or even the use of a dumbbell. Especially in terms of youth training, everything has a progression. Always. You wouldn't give someone additional weight in a squat if their bodyweight squat has poor form, and you especially wouldn't give them a weight to use in squats if they have never squatted before.

If this is the case, why would we automatically hand someone a kettlebell and show them how to do snatches if they have never done one before, if they have never used one before, or if they have never done any other similar movements before?

Simply put, we don't (or at least we shouldn't).

This is where progressions come into play when training young athletes. Progressions are vital to ensuring that our clients and athletes can maintain proper form throughout a rep, a set, and a workout. Furthermore, they are essential in safely moving athletes to the next level of performance, whether through added weight, added volume, or any number of more challenging modalities.

Since I mentioned kettlebell snatches earlier, let's use them as the example. Keep in mind that I am not teaching how to do a kettlebell snatch. Rather, I am showing you the proper progressions to use when first teaching the snatch.

In order to understand what movement patterns go into a KB snatch, let's take a look at things in reverse order:

Prior to using kettlebell snatches, we should ensure that the athlete is able to proficiently perform a one-arm kettlebell high pull.

Prior to doing one-arm kettlebell high pulls, athletes will learn two arm kettlebell high pulls until they have mastered the movement.

Prior to programming two arm kettlebell high pulls, we will teach the kettlebell Romanian deadlift to proficiency.

Prior to learning the kettlebell Romanian deadlift, athletes will learn the good morning stretch and the hip hinge.

As you can see there are several steps that need to happen before teaching young athletes a kettlebell snatch. In fact, there are several basic movement patterns that must be mastered before they can be put together, using resistance, in a single exercise.

The good morning stretch shows us that our athletes understand the hip hinging process of moving the hips back in space, rather than down toward the floor as in a squat.

The Romanian deadlift follows the same hip hinging pattern as the good morning stretch with external load, being performed slowly and in control. When learning the Romanian deadlift, you start with two hands on the kettlebell and eventually move to one.

After mastering the slow and controlled movements, we will move into the more dynamic explosive exercises of the two-arm and one-arm high pulls and finally progressing to the snatch.

In kettlebell training just like with any type of training, progressions are essential to the safe and effective development of athletes. Without learning a movement to proficiency before attempting more complex movements, an athlete is not only at risk for injury but also for inefficient movement and decreased performance.

To progress athletes to a KB snatch, ensure they can first perform a good morning stretch/hip hinge, then a KB Romanian deadlift, then a two-arm KB high pull, then a one-arm KB high pull. It is only in this stepwise, intelligent, and incremental manner that athletes can progress with kettlebells as with any movement or exercise. If they don't have the basics mastered, upon what is their athletic foundation built?

# **Training for Power with Young Athletes**

Olympic lifting expert Wil Fleming is back, sharing 5 important techniques for developing power in athletes of any sport.

My young athletes are known for explosive power. From middle school volleyball players to football players preparing for the combine, all of them out class the competition when it comes to quick bursts of power.

I shared an earlier chapter on my favorite alternatives to training explosive strength in the absence of equipment or with the limitation of skill development. In this chapter, I want to lay out 5 highly effective, no-holds-barred tools for training explosive power in athletes in any sport. If you're looking to take your athletes to the next level and challenge them in new ways, consider implementing these techniques.

### 1. Hang Clean and Snatch

You will notice that I did not say the Power Clean or Power Snatch. Power cleans are the staple of most training programs, but the key is executing this power movement from the hang position, i.e. with the bar just above your knees. This position is much more functional, as it is more similar to positions and situations athletes find themselves in during competition.

Furthermore, the power clean and snatch are more technically challenging, incorporating a much greater range of motion. For this reason, the hang position is preferred, as it allows athletes to have a much greater potential for technically sound lifts.

Lastly, the snatch must be included because it requires tremendous power generation. Besides, diversity in your programming is generally beneficial.

## 2. CHAOS Agility Drills

Much of the need for power in football comes in the reaction to a movement of the ball or of the defensive player. For this reason, football players must also develop mental awareness to make explosive movements reactively, not merely proactively. Credit the tremendous Coach Robert Dos Remedios for this one, but my favorite training tool for developing mental awareness is CHAOS agility drills (it stands for Conscious-to-unconscious Have-unpredictability Active-to-Reactive Open-drills Slow-to-Fast). The idea behind it is to have athletes mirror one another in specific patterns first and then to open-ended drills with many different movement patterns, more closely replicating the actions of actual game play. Having athletes pair up is another great training implement that can build camaraderie and speed up progression for everyone.

### 3. Kettlebell Swings

This is a foundation movement for any athlete looking to develop more power. The action in the kettlebell swing is founded on the idea of a hip hinge, which is important because most athletes need to gain better control of the ability to hinge at the hips. Most athletes are very much quad-dominant and are robbed of the power-producing potential of their backside. The Kettlebell Swing does a great job of teaching these motions effectively.

The key with the KB swing is to initiate the movement with the hips and to minimize knee flexion throughout the swing. Locking the knees is never recommended, but the vast majority of movement should come from the hips. By teaching the athletes to create power with the hips to execute a KB swing, they will begin to learn to activate the posterior chain during athletic movements, which can transfer over to significant boosts in power on the court or field.

As mentioned in my earlier chapter, attaching resistance bands to the kettlebell can create a prime training stimulus for developing force production at the very top of the swing, which is where athletic movements primarily occur. Using bands in this way will ensure training that is more specific to athletic movements and will have great carryover into sports performance.

#### 4. MB Throws

Using medicine balls in throwing motions (chest pass, side throws, throws for distance, etc.) is a great way to develop power in the upper body for young athletes while incorporating the important parts of hang cleans, hang snatches, and Kettlebell swings (i.e. hip hinging). Throwing or slamming a Medicine ball with force is a great way to engage the core in explosive activities. In order to generate force with the lower body, the core musculature must activate at the precise moments to control the delivery of the ball by the arms. This transfer of power from lower body to the upper body via the core (and vice versa) is a fundamental aspect of athleticism and virtually all sports, as mentioned in the previous chapter.

### 5. Plyometrics

Athletes need to be adept at accelerating and decelerating their own bodies at maximum speeds, for this is what occurs during competition. Plyometrics are an excellent way that athletes can learn to accelerate and decelerate their bodies quickly, efficiently, and effectively. One of our foundational plyometric movements involves maximal jumps with a stuck landing. Along with other plyometric exercises, this will help athletes develop resistance to injury and will develop functional power by simulating many movements in sport.

I used the phrase "Bodyweight +" in the previous chapter, which refers to athletes wearing weighted vests while executing plyometric exercises. This is generally a safe way to progress athletes beyond bodyweight plyometrics and can be a highly effective way to develop power in young athletes.

Of course, there is a lot more than just power development that goes into becoming athletic. Being a good athlete requires general strength, resistance to injury, proper conditioning, and a well-prepared mind. However, by implementing some of these 5 power-generating exercises, you can take athletes a long way towards getting to where they want to be.

# The Missing Link in Your Programming

IYCA speed specialist Latif Thomas is back with a reminder that effective coaching comes before effective programming in athletic development.

The biggest mistake coaches—especially high school long sprints coaches—make is wasting time and energy searching for solutions to problems that don't exist.

You can write the most beautiful annual plan or the most individualized and specific workouts the universe has ever known.

But if your sprinters secretly hate or fear the 400 or don't possess the level of inner confidence proven to fuel great performances, they'll still get beat by inferior athletes running inferior workouts who believe they're going to run faster.

I'll be honest: I don't excel at writing workouts.

Simply put, I don't need to. Or try to.

The season is less than three months (and that's only for your very best runners) of training little kids with low training ages. They don't need nuanced workout progressions because they're too inexperienced to absorb or apply that much detail.

The same goes for most other high school sports: The programming is not typically the limiting factor; the coaching is.

The real secret to my high school long sprints program is simple:

**I'm good at motivating kids.** At developing self confidence. At inspiring them to buy into the program, system and philosophy... hook, line and sinker.

I look at it like this: Like you, I only have so much time in the day. It means I can't get to everything I'd like to do. So I focus on what's going to get me the most bang for my buck.

For my money, that's spending more time studying and applying the "Science of Mind" than the "Science of Periodization."

We all coach for different reasons. However, I'd bet that consistently near the top of the list, specifically for sprint coaches, is: 1) Help kids, 2) Develop faster long sprinters (200/300/400 runners), 3) Develop more of those faster long sprinters

All of which lead to more winning, which, last I checked, is a good time for everyone. So, if you want to experience more of the things I just listed, spend more time refining your system of developing self-belief and less time trying to copy workout progressions from dozens of coaches whose programs have almost nothing in common with yours.

For the high school track coaches out there, keep in mind this one idea about your role as a coach:

Since you coach one of the most disrespected and irrelevant sports your school has to offer, you have to think of yourself as a marketer. Ultimately, you're competing against the soccer program, the basketball program, the lacrosse program, and the baseball program. You're competing against sports kids have been playing their whole lives.

If you want to grow your numbers, how are you going to compete with the Club Soccer or AAU coach who tells your young athletes that year round soccer or basketball is going to get them noticed by college coaches and scouts?

How can you compete with the dad who is reliving his failed baseball career through his son?

Simple: **Make their experience on the track team more fun and rewarding.** This is a basic principle of the IYCA, that our young athletes have feelings and goals and ultimately want to have fun. And we as coaches want to benefit their lives (see #1 above).

Although all coaches in all sports can improve their athletes' experience by making it more fun and rewarding, there exists a unique opportunity in an individual sport like track and field because each personal best is an individual experience.

The "team" didn't PR in that 400; "I" PR'd in that 400.

It wasn't the starting point guard getting the credit while I stood on the wing. I did the work and I got full credit for reaping the full results of that work. It doesn't matter if that result is winning an All State Championship or breaking 70 seconds for the first time, everyone can take pride in their own individual improvement.

It's going to take time to cultivate a default "I can" mindset in your young athletes because right now they don't really believe they can. They might BS you if you ask, but they won't look you in the eye when they say it. They hope to. They want to.

But they don't expect to.

It becomes your job as their coach to motivate them and instill in them the confidence they need to believe they can. This is true for all sports, not just track and field, and for all athletes everywhere, not just those in high school sports.

If you want to find the Missing Link to sustained success, improvement, and growth in your high school long sprints program—or any high school sport for that matter—spend the bulk of your energy this season on the Periodization of Expectation.

My process isn't random. I develop and apply it systematically, the same as I would if teaching acceleration mechanics or an Olympic Lift.

I do and say certain things at certain times in certain ways to certain people based on their current ability to receive and apply the lesson.

It's a game changer. And the only thing more fun than winning is seeing the look on a kid's face when you tell them they just achieved their goal time, something they thought was unobtainable just a few months before.

Never forget that, as a coach, you develop your athletes' minds first and bodies second. Focus on instilling confidence and motivating your athletes first, and you will be rewarded beyond just fast times and wins.

# **Outcome-Based Coaching in a Nutshell**

In his third chapter, IYCA specialist Dave Gleason highlights the importance of clear and simple outcome-based coaching with young athletes.

The primary coaching style we want to use with our youngest athletes is called outcomebased coaching. This style of coaching puts more emphasis on the outcome of the activity or exercise you have asked for from your athletes.

Outcome-based coaching utilizes very little cueing or technique modifications, if any. Our 6–9 year old athletes can suffer from goal confusion, leading to frustration and a less than average experience. As youth coaches, our goal must be to provide an exciting, memorable, and remarkable experience—EVERY TIME.

A communicative coaching style such as outcome-based coaching is exactly what a young person needs to ensure the indoctrination of a healthy physical culture. At some point in life, every athletic career ends. Our role is to provide an opportunity for their ability to move and exercise to continue long into their adult lives, no matter their current level of sporting success.

In addition, it is imperative that a young athlete discovers movement patterns on their own as much as possible. A young athlete has a much more plastic central nervous system than does an adult. That is, a young athlete's CNS is very sponge like or magnet like. Internal and external stimuli are more readily assimilated, learned from, and transferred to movement patterns. This aspect of neural development is a crucial component of the natural development of a child. Let your young athletes "discover" movement patterns on their own. (It is no coincidence that "Discovery" is the name given to our youngest group of athletes).

Here are some practical concepts to think about as you engage in outcome-based coaching:

**Be careful what you ask for.** If you cue your athletes to skip across the length of your facility and what a few of them perform is a high skip in a zig pattern, they are STILL giving you what you asked for. Encourage their creativity, then layer one or two appropriate boundaries with simple cueing. In this example, ask the entire group to skip in a straight line on the next try.

**Be a reflective coach.** During and after your sessions, reflect on the effectiveness of your coaching cues. Take note of what was successful and what you and your coaches need to improve on. Communicating more effectively with your young athletes will only result in more fun for both them and you!

**Praise and praise often.** When a child gives you their interpretation of what you asked of them, praise them for it. If modifications or boundaries need to be communicated, use simple cuing. For instance, a lunge walk with a pronounced forward lean at the hips can be corrected by saying, "Heads up," "Eyes up," or, "Reach for the sky."

**Use names.** Calling and praising a child by name will add tremendous value to the relationship building process and significantly increase the enjoyment your young athletes experience while in your care. In short, this makes coaching personal.

Always keep in mind that your young athletes are still children. They need a certain amount of love, care, attention, and encouragement. One excellent way to deliver those things is by using outcome-based coaching and taking a less-restrictive approach to delivering your training. Over time, you will refine your cuing to where you will no longer get (as many) zigzaggers, and it will help you build lasting and trusting relationships with the athletes.

Take these concepts and coach your young athletes with your heart first and head second.

## **Programming for Pre-adolescents**

Programming for young athletes requires balance among what their physical needs, their mental/emotional needs, the pressures of coaches/parents—but it can be simple. Follow the provided template to start training pre-adolescent athletes properly.

One of the biggest challenges for youth conditioning specialists is finding the right balance between giving pre-adolescent athletes what they need physically and what they crave mentally and emotionally.

Many coaches tend to focus on questions such as, "How much volume, sets, or reps is appropriate?" "Should we use weights?" and "When is too early?"

But it doesn't have to be so complicated.

Most, if not all, of you reading this manual understand the need for training and instruction with kids under 12. But do you know how to design and implement programs for this age group?

The question is not whether you understand the philosophy behind training those youths, because you probably do. Rather, do you know how to create actual programs for preadolescent athletes?

Especially if you do know how and have done it before, you'll agree with me that it is a very tricky science. Especially when you factor in the reality that you're likely going to be dealing with several kids, all of whom have different learning styles and abilities, and the potential of over-zealous coaches and parents who are looking for results NOW—as completely silly as that is.

Finding the proper balance between what athletes need and what parents/coaches want is something Dave Gleason discussed earlier. It takes special consideration and respect, but it is entirely possible.

Here's a quick crash course for you on how to program for kids under 12 years old. If you follow these guidelines, you can easily and effectively give your athletes what they need while making parents and coaches happy with your coaching.

## **Programming for Athletes 12 and Under**

First, keep these tips in mind to ensure maximum participation, positivity, and enjoyment among your athletes:

	Always start by arranging your training group into a semi-circle around you. This setup avoids any natural hierarchies that typically plague groups of pre-adolescent athletes.
	Both verbally explain and visually demonstrate every exercise and game the athletes will be performing.
	Be positive with all commentary and feedback, and show encouragement whenever you can.
The p	rogram itself should follow this sequence:
1.	Coordination 1 (demo)

- 2. Game Play
- 3. Coordination 2 (demo)
- 4. Game Play
- 5. Technical Instruction
- 6. Game Play

For the two coordination exercises, choose ones that stimulating any of the following physical characteristics:

Balance
Kinesthetic Differentiation
Rhythm
Spatial Awareness
Movement Adequacy

Pick any games that you are familiar with for the kids to have fun with a purpose. Other than that, let the athletes get a feel for the exercises and the group while encouraging them and providing positive feedback all the while.

As you can see, programming for young athletes can be quite simple. As long as you keep your coaching senses about you, you should have no problem getting these athletes conditioned and on their way to a lifelong love of play.

## **Stretching Young Athletes with Bands**

Dave "Band Man" Schmitz shares his "in the trenches" experiences with utilizing resistance bands for mobility and flexibility gains in young athletes.

What is the appropriate age to start band stretching?

Is it appropriate to stretch young athletes ages 10 to 13 with bands?

Are there precautions when stretching young athletes with bands?

As a band expert, I never believed that band stretching with athletes younger than 14 was an effective way to improve passive mobility. Young athletes have nervous systems that are hypersensitive to passive overpressure stretching. Anytime I attempted to introduce band stretching to this age group, I met with a great deal of inhibition and compensation. Passive overpressure stretching of young athletes for years seemed to be very noxious to the neuromuscular system, which resulted in kids just putting their bodies through unproductive stress that their bodies were not mature enough to handle. The key word in this sentence is "mature."

Band stretching is like any other movement skill: It must be integrated progressively, which means eliminating inhibition by introducing the movement skill in a progressive manner. With band stretching, this means:

- Using the correct band strength that provides the young athlete with enough resistance to initiate a contraction but does not put their muscles under inhibitioncausing stress.
- 2. Providing a manual training stimulus using your hands and verbal cueing to guide them through the movement patterns
- 3. Stressing the importance of opposite side stabilization and manually assisting with this so they can feel the impact of locking out the opposite arm and maintaining a solid foot contact against the wall
- 4. Not overwhelming them by showing all stretching positions in one training session; instead, start with hamstring stretching and gradually introduce hip rotation, hip flexor/quad stretching, and ankle movements on subsequent sessions

Other important keys to remember are that many of these young athletes are going through abrupt growth spurts, which instantly disrupt their neuromuscular control and coordination. Lever arms are lengthened, which in turn challenges dynamic stabilization. Also with this added length, neural tissues become shortened, leading to neurotension restrictions, which are best addressed with rhythmical dynamic stretching versus a static stretching approach.

### A Case Study

My son Carter was 13 years old, weighing 135 pounds and standing 5 feet 1 inch tall going into his 8<sup>th</sup> grade year. Carter moved very well for his age but had recently gone through a 3-inch growth spurt over a 2-month timeframe, which dramatically increased his hamstring and hip rotation tightness.

Carter played soccer as well as football. He had become very interested in becoming the kicker for his 8th grade club football team. In watching Carter kick the summer prior to his 8<sup>th</sup> grade year, he was not able to get effective hip flexion with knee extension during the follow through of his kicks, which decreased both his power and his accuracy. In accessing his Straight leg Raise (SLR) Test, Carter demonstrated only about 30 degrees of hip flexion with full knee extension.

Up until this time, I had never implemented band stretching with Carter but decided to do a 3-week trial. For the first three 15-minute stretching sessions, I manually worked with Carter to ensure proper movement and stability during the movement. I did not apply any overpressure but rather allowed Carter to create that with the band. My role was simply to guide the movements and assist with stabilization. After the first 2 sessions Carter started demonstrating very good neuromuscular control using a Red Small band and was able to perform all hamstring and hip rotation stretches effectively without my assistance. He stretched a total of 15 times over a 21-day period with each session lasting about 12 to 15 minutes. Many of the sessions were done prior to practice or before going out to play with his friends.

After 3 weeks of band stretching, Carter's SLR Test increased to 75 degrees and his kicking accuracy from 30 yards was 90%. After 6 weeks, his SLR Test was 90 degrees and his accuracy was now 90% at 35 yards.

After seeing this incredible change in Carter's hip flexibility, I adjusted my opinion on band stretching for younger athletes. One of the other factors that I realized while going through this experiment was the level of muscle stiffness he was experiencing while maturing. Carter's tissues were stiff but not to the degree of an individual in his 20's or 30's. Therefore, by applying the correct stretching stimulus, Carter's tissues quickly adapted and lengthened, which explained the dramatic improvement in his SLR test and kicking ability. At the same time, the results from this single resistance band stretching experiment also provided support for instituting band stretching sooner rather than later in young athletes.

### **Recommendations for Stretching Young Athletes with Bands**

Here are a few recommendations for starting a band-stretching program for ages 11 to 14.

- 1.) Begin by using a red band before considering any stronger level band. It is very important to not over-tension their muscle tissue and make them struggle getting into the correct positions.
- 2.) As their coach or parent, you need to help them learn the movements and positions. They will need manual guidance and verbal cueing for at least 2-3 sessions before they can be allowed to stretch on their own.
- 3.) Start with 1 or 2 stretches and gradually implement the others as they master the initial stretches. Keep in mind that is not fun stuff and the motivation to train flexibility will probably not be there initially. Until they begin to feel functional improvement, getting young athletes to stretch effectively will require coaching patience.
- 4.) Stretch slowly but actively. 2-3 second progressive holds while performing at least 90 seconds of rhythmical movement in each position is important. Progressive holds are defined as maintaining increased tension for 2 to 3 seconds while still attempting to push further into the range.
- 5.) Again, have patience, both with the athletes and with the band stretching itself. Monitor the progress of your athletes and make adjustments if you continually see compensation or do not notice any progress being made. If boredom or interest is a problem, be creative in coming up with funny names for the stretches or making it a challenge for them, but make sure they are using proper form throughout.

While resistance band stretching is not for every young athlete, especially the younger ones that are physically immature, it can improve functional movement in more mature athletes. Experiment with adding it in with your own athletes, but always use your best judgment when doing so.