

10 Tips to
Improve Acceleration
and
Sprinting Speed

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Speed Kills!

Coaches, players, opponents, announcers, EVERYBODY will tell you speed kills. If you can run at high speeds, then you have an advantage in just about every sport. There's no question that speed is a key determinant to playing time, potential, and success in sports.

Now while all of that is true, the quote, "You can't teach speed", is not true. You can definitely teach speed and improve your speed! DO NOT FORGET THAT!

While there is a ceiling, based on your genetics, this doesn't mean that what you're born with cannot be maximized and improved. No matter who you are, you can get faster with correct training.

This ebook is designed to give you the best advice out there to improve your speed. There is sooo much information out there that it can be hard to sort through everything.

So and so says to do this

The Jamaican's do this

But he does that

Vertical forces are most important

No, horizontal forces are most important

It's a mess and can be hard to truly decide what is best.

Research is doing wonders with sprinting lately, and we are finding out more and more about what makes people fast. It's leading to great discussion and potential training guidelines, but can be hard to really decide what you should do.

We will give you 10 tips to maximize and improve your acceleration and sprinting speeds.

These are based off research, experience, and fundamental concepts. This will be the best article you have read on speed. You will be hard pressed to find so much sprint information in one place.

So take advantage of this and use them to your advantage and see the improvements made in your sport.

So here we go, the Top 10 Tips to Improve Acceleration and Sprinting Speed

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1. Lose BF – Get Into Shape

Fat don't Fly!

It's pretty obvious the more fat and weight you're carrying on your frame, the slower you will run. Fat does not contribute to muscular force or power, so it is of no help generating high forces that contribute to high running speeds. It's the anchor that holds you back and slows you down. You want to have higher amounts of muscle weight and lower amounts of fat weight.

In fact horse trainers have the weight of their horses down to a science, and know how much a horse needs to weight to run their best. They found only 2-5 pounds heavier than their ideal weight can slow down their horse by as much as 8-20 feet. That's between 2-2.5 horse lengths, and if you've ever watched a horse race, that can be the difference between **1st and 5th**.

Add on just 2% body fat (which can be as little as 3-6lbs depending on your weight), and you're looking at slowing down close to .26 in a 40 yard dash!

Your goal should be to be around 9-11% BF for a male and 14-16% for a female. If you're above that, you're leaving time on the table.

We believe there reaches a certain point where the benefits start to drop off. Meaning being at 4% BF will not benefit you more than being at 8-10% BF. The tolls it takes on your body being that low, counteract the benefits. So shoot for that 9-11% and 14-16% range and you'll be good. Read more [here](#), [here](#), [here](#), and [here](#)

This ebook isn't meant to be nutrition guideline, but here are some suggestions

- **Decrease Carbohydrate Intake** – Reduce breads, pastas, grains and stick to vegetables and fruits with the occasional intake of potato varieties, squash, and rice
- **Increase Protein Intake** – Get a [whey protein supplement](#), eat more lean meats, fish, and dairy
- **Perform Multi-Joint, Compound Movements** – Get rid of isolation exercises and stick to big, compound lifts (squat, deadlift, hip thrust, pull-up, push-up)
- **Increase Your Vegetable Intake** – Veges give you tons of vitamins, minerals, antioxidants, fiber, as well as provide great assistance to inflammation, tissue repair, and overall health. Consider a [greens drink](#) if you have trouble getting 7+ servings a vegetables each day.
- **Get Rid of Excess Cardio** – Cardio is one the biggest mistakes you can do for your speed and overall health. Stick to high intense, shorter duration exercises. Condition by playing basketball, volleyball, performing repeated sprints, [kettlebell](#) circuits, [slideboard](#) conditioning, jump rope circuits, [heavy rope](#) work, etc.

Doing long duration – low intensity exercises like jogging, elliptical, biking **do not** provide the benefits to body composition, metabolism, hormonal profiles, protein synthesis, strength, or power as an athletic based program. If you are set on doing that

type of work, keep it to 10 minutes or less.

- **Get Into Shape** – This means exactly what it says, GET INTO SHAPE. Don't stick to just lifting heavy weights for low reps, or running 10 yard accels. Do things that will better condition you, just like mentioned above

Check out all the research showing High Intensity Training and Strength Training positively effects endurance and conditioning as much if not more than Low Intensity – Long Duration Training [here](#), [here](#), [here](#), and [here](#).

2. Sprint More

Duh! To get faster, sprint more!

Look at profession sprinters, they sprint 2-3 times per week. And not submaximal, slow running. They sprint or do accelerations at top-end, 100% effort.

Sprint!

The more you do something, the better you become at it.

[Pavel Tsatsouline](#) likes to say you need to, “Grease the Groove.” Meaning, make movement more natural, efficient, and smooth by engraining the pattern.

If you put grease of a rusty door hinge, what happens? The door moves much more freely, smoothly, and efficiently.

Grease your sprinting and acceleration abilities by getting enough reps actually doing it. This will improve your technique, efficiency, and motor patterning.

Not only that, but sprinting truly is one of the best exercises you can do. Here at BBA, if we could only do one exercise forever, it would be sprinting!

Nothing else combines the speed, coordination, power, stability, rhythm, GRF, strength, elasticity, eccentric absorption, ankle stiffness, range of motion, neuromuscular development, posterior chain development, the list can go on and on. It is a basic human movement and one that is too often neglected or lost in training and as we age. Get back to the fundamentals and sprint baby!

Studies have shown that weight training combined with sprint training is superior to just one or the other. Strength training is great to build a bigger engine, but you must learn how to use that engine. If you want to be fast, you must sprint ([Study](#))!

3. Acceleration

While many talk about Speed Kills in team sports, what they are really talking about is acceleration. Acceleration is the transition from 0 to top-end speed. It has been shown in 100m races, sprinters don't reach their top running speeds until around 60 meters. This means they are accelerating for 60 meters!

Think about that, in how many sports other than track do you ever run 60 meters in a straight line?

For most, NEVER!

While it is part of these sprinters race plans, training, and strategies to maintain acceleration up to 60 meters, in most team sports the goal is to get to top end speed as quick as possible. Most will agree that it still takes between 20-35 yards to reach top speeds for team sport athletes. But again not many times in any sport will there be a situation where you will run for this distance in a straight line.

Team sports are built around 5-20 yard distances. ACCELERATION! This is where sports are dominated and games are won.

Keys to Acceleration

- **Body Angle** – The body position during acceleration is vastly different that during top-end sprinting. Your body angle during acceleration needs to have everything going forward, or what we call positive angles. Your shins need to be going forward, not vertical. Your torso should be in a straight line with the leg that is driving into the ground creating an angle of around 45 degrees with the ground.
- **Created Force!** - During acceleration you will spend more time on the ground (.17-.18 sec) and your focus needs to be to apply as much force as you can with each step. Unlike during top-end sprinting, we need to see full triple extension and long lines!

You've all seen the Road Runner cartoon. When he starts, his legs are spinning, but he's not going anywhere. Same applies to acceleration. We want longer, powerful strides that cover distance; not short, fast strides that don't go anywhere. Studies have show that the stride length is the best indicator of acceleration speed.

- **Piston Like Action** - The range of motion of your legs during acceleration will be less than when running at top-end speed. Think of your legs as pistons, driving straight into the ground then a direct line back to be positioned to do it again.

The Jamaican's have become known for toe-drag, basically the cycle leg during the first 1-3 strides slides right above the ground. This helps keep good angles, preserve energy for later stages of sprinting, and shortens the range of motion so the leg cycles through

more quickly and more piston like.

- **Horizontal Forces** - Also because of the body angles you've created the force that you will apply will be horizontal. **Horizontal forces** are king during acceleration, and the body angles you create are key to making sure the forces you created are propelling you forward. During acceleration and during top-end sprinting the direction in which you apply force is key, so great body position is fundamental to accelerating faster
- **Big Splits Between Your Arms and Legs** - We want to be powerful and deliberate with each stride. Getting good separation between your arms and legs is an indication of full force and extension being put into each stride and allow for proper body angles and ground contacts.



Work on your acceleration through drills such as

- Get-Ups (prone, supine, lateral, roll-overs)
- Wall Runs – Perfect those body angles
- Falling Starts
- Partner Drops
- Mountain Climber Starts
- Single Leg Starts
- Bounding
- Weight Room – Acceleration is largely related to strength. Acceleration, more than top-end speed, is improved by strength due to the longer ground contacts and maximal extension. Some of the best accelerators are the strongest athletes.

4. Get Stronger, Specifically Your P-Chain

The posterior chain is the power house of running faster. It is your main engine and key to reaching high top speeds.

The means you need to do things to target your glute max, glute medius, and hamstring complex. Don't get caught looking in the mirror and just focusing on your quads. Build your P-Chain! ([Study](#))

The power and forces produced at top-end running speeds largely come from your posterior chain. Your glutes and hamstrings truly are the motor to higher running speeds.

Have you ever seen a sprinter without a developed backside?

No!

They all have strong, powerful, and developed glutes and hamstrings. These are the most active contributors to producing higher forces into the ground. Peter Weyand, who's Research on forces being key to running faster, gives this conclusion, "The key to human speed is simple: Applying large mass-specific forces to the ground quickly".

So first let's give you 2 routines for glute and posterior chain activation. Perform these before every lift, workout, jumping session, game, etc to get your glutes working properly. Here's a ([Study](#)) that showed going through a simple glute activation series increased vertical jump and power.

Glute Activation #1

Double Leg Glute Bridges x12
Naughty Dogs (On all-4's, hip abduction) x10each
Bird-Dog x12 total
RKC Plank x15sec ([Video](#))
Side Plank x20sec
Single Leg Rotational Hip Thrust x8each ([Video](#))
BW Squat x10
Single Leg Airplanes (SLRDL) x8each

Glute Activation #2

Straight Leg, Lateral Band Walks x15yards (Put band around feet) ([Video](#))
Bent Leg, Lateral Band Walks x15yards (Put band around feet) ([Video](#))
Glute March x20 ([Video](#))
Split Squat Series (forward, lateral, reverse) x4each
Prone, Straight Leg Hip Extension x10 (slightly abduct your leg for more glute activation)
Prone, Bend Leg Hip Extension x10 (slightly abduct your leg for more glute activation)
BW Squat x10

Now that you've got your backside more revved up than the cars at the Indy 500, you'll be ready to put those bad boys to work. You'll see the difference in your movements, and actually feel your glutes be more involved.

But the fun doesn't stop there. Activation can only go so far, you need to add some strength to your backside. Here are some sure fire ways to target your backside in the weight room.

Here are some sure fire ways to target your backside

- Deadlifts
- Hip Thrusts
- Squat variations
- Valslide Leg Curls
- Olympic Lifts – Snatches, Cleans, Jerks
- Glute/Hams
- Back Extensions
- RDL variations
- KB Swings
- Stability Ball Leg Flutters
- Reverse Hypers



Start programming some of these into your workouts to get some direct posterior chain work and see your times start to trickle down.

Piggy backing this idea is that you want to increase your relative body strength - how strong are you at your given body weight. If you weigh 200lbs and can squat 300lbs, and add 20lbs to your squat and still maintain your body weight, you have given yourself a higher potential to

run faster.

Famous Canadian Sprint Coach Charlie Francis said, “To go faster, you need MORE force!”

This may seem old school, but shoot for a 2xBW squat or deadlift. This gives you the “engine” to supply higher forces being put into the ground. Higher GRF benefit both stride length and stride frequency. Apply higher amounts of force in shorter ground contact times is the key to running faster (Although Usain Bolt seems to be an exception, as he has longer ground contract times)

BUT, you need make sure your strength training is hitting all aspects of the force-velocity curve. Just trying to build on max strength isn't going to do the trick. You need to make sure you are training all the qualities needed to enhance your speed - power, RFD, strength, speed, elasticity, coordination, mobility.

Here are some studies for your enjoyment – [One](#), [Two](#), [Three](#), [Four](#)

5. Core Strength

Everybody has heard of core strength, it's the buzz word nowadays. But what is our core and what does it do? Here's how I describe the core or torso

RATS

- R- Resist Movement/Motion – The core is an anti-mover. It resists external forces put on the body to keep it in a stable position
- A- Assists in Force Production – Because the core is a big stabilizer, it works to put the body in a safe and correct position for other muscles to perform movement. Your torso needs to be stable and in a correct position for you hips, legs, glutes to initiate any kind of force/strength
- T – Transfer Force – Once a force is produced by a prime mover, that force is transferred through our core to other parts of the body. Throwing a ball starts from the hips, down through the ground, back up to the hips, through our core, and on to our shoulder/arms. If the core is weak, there will be energy leaks and force will be lost
- S – Stability – The overlying theme of the responsibility of the core/torso

You need a stable core and torso to transfer force throughout your whole body. If your core strength is not up to par, then you will have energy leaks and lose potential force. Have a stable core and in the proper position allows the most optimal movements of the limbs, being weak or unable to get into the right posture will negatively effect your sprinting.

Gray Cook has been know to say, “A weak core is like shooting a cannon out of a canoe”. A canoe cannot stay stable or stiff enough for that cannon to fire at it's full power. The canoe

represents a weak core in terms of all the energy that is lost if you cannot create that stiffness and stability during powerful movements.

You need to attack your core in a ways that stress it in the above ways. Things like...

- Kneeling and ½ kneeling chops/lifts
- Pallof presses
- Carrying Variations - Farmer walks, suitcase carries, waiter walks, goblet walks
- Turkish Get-Ups
- Deadbugs
- Deadlifts
- Plank Variations – Prone, supine, side, single arm/leg, bird-dogs, moving
- Med Ball Throws
- Rollouts, etc.
- **NOT** crunches, sit-ups, rotational sit-ups, or any of that crap.

Sprinkle in these throughout your workouts, in your warm-up, and as a finisher. DO NOT base the foundation of your program strictly around these exercises. Studies have shown that the core is not a prime mover, and core training, by itself, does not enhance power, strength, etc ([Study](#), [Study](#)). It is a supplement to your big, compound lifts and assists these bigger movements.

6. Ankle Stiffness

The lower leg complex (feet, ankles, plantarflexor, dorsiflexors) is the point of contact where the force generated from up the chain, is put into the ground. We talked about how having a weak/unstable core will cause energy leaks, well having weak/unstable ankles or feet will also cause energy leaks.

You don't want that great force created from your hips, glutes, hamstrings, and quads only to be lost at your ankles and feet. Elite sprinters often experience ground reaction forces of 3 times body weight and muscle forces 7 times body weight!

Just read this little passage from Kebba Tolbert

“Typically, peak ground forces of ~600 pounds are generated in less than one-tenth of a second at sprint racing speeds. The forces on the arches of the feet and Achilles tendons are appreciably greater than the 600 lbs sprinters slap onto the track. Without the necessary muscle-tendon force production and transmission from the legs and feet to the ground, there is no speed.

Since the amount of muscle (and active muscle force) that can be packed into the arch is limited by its small size, the foot manages to generate the huge forces largely passively. This is

accomplished with the ligaments that span the arch - the plantar fascia and deeper layers of springy material that connect the bottom of the heel to the ball of the foot”

Can you see why you need a strong/stable lower leg complex! Increasing your lower leg strength and stability increases the potential to transfer those high forces from the hips into the ground.

Lower leg stiffness will enhance ground contact times, vertical impulses, activation and involvement from muscles up the chain, and elastic return.

Ankle stiffness is also key for muscles up the chain to work optimally. For example, have instability in your ankle decreases the activity of the gluteus maximus ([Study](#)). So working on ankle stiffness will help your sprinting in a number of different ways.

Now doing balance drills or band resisted ankle strengthening drills will NOT increase your ankle stiffness. You need to drills that stress that lower leg complex in a manner that will carry over to actual acceleration and sprinting.



Ways we like to do this at BBA include

a. Perform lower intensity, high duration plyometric or bouncing exercises

Things like jump rope, line jumps, 1-3 inch continuous box jumps, high rep calve work, and isometric holds fall into this category. Perform these movements for time or reps. For instance, aim for 500+ contacts in the jump rope, we shoot for sets of 50-100 jumps. Or when doing line jumps, perform them for 1-2 minutes straight. This builds ankle stiffness and strengthens the elastic qualities of the lower leg.

b. High intensity, lower duration plyometric movements

Things like depth jumps, sprinting, hurdle jumps, landings, bounding will put great stresses on the lower leg complex, and improve it's stiffness in a manner similar to the demands seen in sprinting

c. Spending direct work on the tibialis anterior and tibialis posterior

Your tibialis anterior is the main muscle that dorsiflex your ankle, and is often not up to snuff. Increasing the strength of the tibialis anterior will assist in dorsiflexion ROM, help in force absorption, help eccentrically control and stabilize the ankle, and decrease risk of injuries such as shin splits and jumpers knee.

The tibialis posterior is a small muscle runs up the medial side of the foot and works in conjunction with the tibialis anterior and peroneals to stabilize the foot and ankle. Specifically it works to control eversion and effects the height of the arch. A weak tibialis posterior can help contribute to a flat foot, or collapse of the arch (more info on this in tip #6). This action not only puts additional stresses on the foot and can lead to injury, but also is a sign of a major energy leak. You will lost elastic qualities of the foot and jump lower.

Improve tibialis posterior function by working on tri-pod foot position, watch this [Video](#) by [Mike Robertson](#) to learn more about foot tri-pod and it's importance. Strengthen and get your posterior tibialis activated and involved by performing [this exercise](#)

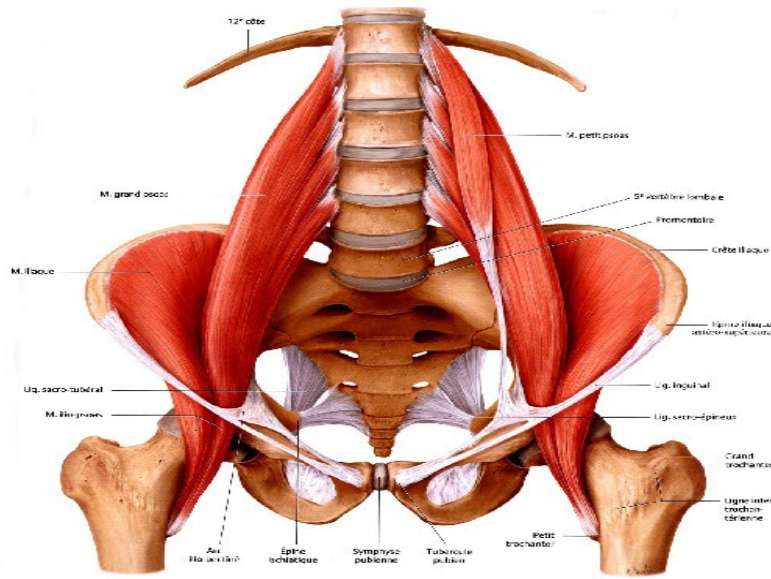
Remember There are 26 bones in each foot so 52 bones in your feet alone. That accounts for 25% of the total bones in your body are in your feet and ankle. Not to mention the many more muscles, tendons, ligaments, attachment points, all bound up in those tight sneakers. We think that those shriveled up things you call your feet are pretty damn important! So take some time each day let those puppies breath and move by taking off your shoes!

7. Psoas

If you're reading this, then we assume you have heard of the iliopsoas muscle. Commonly known, the psoas is one of the major flexors and external rotators of the hip. But more than that, it also attaches to the lumbar spine and acts as an anterior stabilizer of the spine. It also is heavily involved in pelvic positioning and when contracted during an upright position assists pelvic positioning.

Weakness in the psoas effects joint range of motion, pelvic positioning, stability, and ability of posterior muscles to work optimally. Many studies have shown that [faster running speeds](#) are correlated with [higher degrees of activation](#) of the [hip flexor](#), mainly the psoas. Other studies have shown that elite sprinters have bigger cross-sectional size and strength in their psoas compared to average sprinters.

It is commonly thought that the psoas only acts upon hip flexion when the knee is above 90 degrees. But if you look at its origin and insertion you can see that it will still contribute small amounts of flexion under 90 degrees. The psoas also plays a key eccentric role when the hip is in full extension and certain [EMG's](#) have shown the psoas to be the most activated during this time of the running phase.



So how do you get your psoas up to par? Let's look at 3 easy ways

1. Train it above 90 degrees. Sit or stand, and rest your foot so the knee is above 90 degrees. From there lift the knee as high as you can while NOT flexing or extending the spine! A key to training the psoas is to keep the spine neutral and stable. Hold this position for 6-20 sec. and do 2-4 reps or perform reps in the 8-20 range. This builds hypertrophy and strength so it is more involved during the running cycle
2. Do regular hip flexion exercises – Take a band or hop on a 4-way hip machine and knock out some reps. Keep the glute of the leg on the ground contracted, and keep a neutral spine. Don't extend your spine at the top, flex your hip. [Hip flexor strength](#) is correlated with sprinting speed
3. Perform exercises that stress hip flexion in a stretch position – Exercises like the Bulgarian Split Squat, ISO split squats, reverse lunges, and sprinting. The psoas and hip flexor group have to work eccentrically and isometrically in this position just as it does during sprinting.

8. Mobility/Flexibility

The body needs adequate amounts of range of motion throughout the body in order to run fast. If there are restrictions or a joint cannot move through a needed range of motion without running into resistance, then you're gonna run into troubles being as fast as you can.

Track and Field coaches have been noticing that if an athlete does not have the range of motion to cycle their leg up to their butt, they are not going to run at their highest potential. Full ROM is needed to fully achieve your maximal power potential, posture, rhythm, elastic components, and muscular development.

You need to be able to go through a wide range of motion, without restriction or being slowed down to fully maximize your running speeds. At BBA here are some areas that we see to be often slacking and need extra focus

- Ankle Dorsiflexion
- Hip Flexors = Loss of Hip Extension
- Thoracic Spine – Extension and Rotation
- Pecs – Horizontal Abduction, Shoulder Extension
- Hip Complex – Internal/External Rotation, Flexion, Extension, Adduction, Abduction

You might be thinking, where's the hamstrings?! Well we didn't include the hamstrings because we feeling hamstring pulls are a result of weaknesses and lack of mobility in other joints, rather than shortened or tight hamstrings.

At BBA we like to focus more on joint mobility rather than muscle flexibility. Our warm-up consist of a ton of mobility exercises, and almost zero static stretching. Static stretching has been shown by a ton of research to reduce power and speed in the following training, so we save that for cool-down.

Another tool we use is Self Myofascial Release (SMR). This involves using a foam roller , PVC pipe, tennis ball, or lacrosse ball to roll out and massage the tissues of our body. Some target areas for SMR include

- Quads
- Glute Medius
- TFL
- Piriformus
- Hip Flexors
- Calves/Achilles
- Thoracic Spine
- Pecs
- Rear Delts
- Adductors

Look familiar? We're targeting many of the same areas which are responsible for providing range of motion lost in the previously mentioned movements.

Here is what a Mobility, Flexibility, SMR plan might look like

- **SMR** – 5-10 minutes – Hit what feels tight/restricted
- **Mobility Routine** – Work through joints that are most often restricted or perform 5 minute mobility
- **Dynamic Warm-Up** – Will Include Mobility Drills
- **Training Session** – Will Include Mobility and Relaxation Drills During Rest Periods
- **Cool-Down** – Combination of joint mobility and static stretching

We also like to tell our athletes that throughout the day you should be performing some of these drills. If you're in class or at work all day, sitting down, you need to take a couple of minutes to each hour to get up and move around.

Here are two simple 5-minute mobility drills you can do everyday

5 Minute Mobility #1

- Double Leg Internal Rotation x20
- Full Body Bride x5
- Cat – Camel x5
- Groin Rock x5
- Upward Dog – Downward Dog – Superman w/ Rotation x3each
- 3-Way Lunge Matrix x3each
- Squat with Rotation x5
- Triangle with Rotation x5each
- 3-Way Arms Waves x5
- 4-Way Neck x5
- Hurdle Under/Over x3each

5 Minute Mobility #2

- Single Leg Internal Rotation x10each
- Open Book x5each
- Single Leg Downward Dog – Superman x5each
- Child Pose with Rotation x5each
- Crosssacks x3each
- Sumo Squat with Arms Through x5
- OH Squat Progression x5
- 3-Way Leg Pivots x5each
- Leg Swings – Lateral and Linear x5each
- 3-Way Arm Internal/External Rotation x5each

- 3-Way L Rotations x5each
- 4-Way Ankle Rolls x5each

Another great way to hit mobility is through hurdles. Going through hurdle mobility circuits is not only great for hip mobility in all planes/directions, but also great for ankle mobility, foot strength (go barefoot), hip strength, lumbo-pelvic mobility/coordination, and thoracic spine mobility.

9. Need Rest Periods

When you train for maximal speed or acceleration, you need adequate rest periods. Don't turn speed training into conditioning training. Full go accelerations and sprinting are high stress, high demand movements. They require a lot of rest time to allow adequate recovery for the next repetition. If you do not give enough rest time in between reps, you turn the training session into speed endurance rather than pure maximal speed. (**Sprinting while fatigued** effects GRF and the ability to apply forces are altered)



This Is Not What You Should Look Like
During Acceleration/Maximal Speed Training

If you are performing accelerations or top-end sprints, your rest periods need to be minimum 20:1, rest:work, and should be more along the lines of 50:1 or more.

So if you perform a flying 30 in 3.0 seconds, your rest period should be around 150 seconds, or 2 ½ minutes. Look at sprinting programs and a 2 ½ minute rest after a flying 30 is low! Often prescribed rest periods after flying 30's range from the 4-6 minute range.

You need to allow for creatine-phosphate stores to be restored so you are truly training at your maximum ability.

Top-end sprinting will fatigue and stress the CNS/body more than accelerations. So if working on top-end sprinting speed the rest ratios need to be 50:1 or more, while acceleration work will work with ratios lower than that.

Now on the other hand, most sports do not have maximal rest periods between each bout of sprinting. They often require repeated bouts of acceleration and sprinting with a condensed rest period.

In this case it can be advantageous to perform repeated sprints at the interval that most closely relates to your sport. This will not necessarily improve your maximum acceleration or top-end speed, but it will allow you to run at closer intensities to your maximum for more reps.

This is key in team sports.

You don't want a guy that can run a 4.4 once, and then each proceeding rep he gets one-tenth of a second slower. No, you would rather have somebody run a 4.7 and be able to repeat that performance over and over again. So by the 10th play of a drive in football or 4th quarter in a game you have that speed still in the tank to perform at a close to maximal velocity.

There is a time and place for both principles, but we feel the faster we can get your top-end speed, the more potential you have. Repeated sprint ability is important, but it's of less importance the slower your maximum velocity is.

So step one should be to increase your acceleration and top-end sprinting abilities. Get as fast as you can and work on pure maximal acceleration and speed; then from there you can work to improve your repeated sprint ability.

10. Posture and Ground Forces

Posture is key to running fast.

“The first and most important aspect of speed is **Posture**” - Tom Tellez.

On Tip #3 we talked about acceleration mechanics and posture, but now let's talk about top-end speed posture.

Sprinting posture is going to be much different than acceleration. During sprinting we are looking to be much more erect through our trunk, we want our head level, hips high, foot contact slightly ahead of our center of mass, and large range of motions through our limbs.

Obtaining this upright, tall position allows for better freedom of movement, elastic energy production, maximal power production, better relaxation, and efficiency.

Posture during top-end sprinting seeks to minimize braking forces and enhance propulsion forces, creating an optimal environment for force production, force direction, ground contact, and the resulting speed output. ([Study on Force Production and Direction](#))

When you get upright, you'll hear a lot of front side vs backside mechanics.

Front side mechanics is exactly what it says, the actions taking place in front of your body; with backside mechanics being the opposite.

Think of front side mechanics as the high knee portion of the cycle through ground contact. The backside portion is from toe off, to cycling through back to the front side.

When it comes to sprinting front side mechanics win out vs. backside mechanics. Front side mechanics allow for better positioning for force production, pre-stretch on the glutes and hammies, greater usage of elastic qualities, larger ROM for leg to accelerate, and help maintain proper pelvic positioning and overall posture.

World Class Sprint Coach Loren Seagrave states “The key to speed is applying large force through appropriate ranges of motions over increasingly shorter times”.

Previous research has confirmed what Coach Seagrave has said - faster runners apply greater amounts of force into the ground during shorter ground contact times.

Also note that during top-end sprinting ground contact times are only .08-.09 secs, half as long as during acceleration.

Another great piece of advice is from Mike Young of EliteTrack.com. “In the ideal ground contact position the knee of the cycle leg and knee of the grounded foot should be even.”

Film some sprints and see if you are in this position. If not, you may have too much backside mechanics and need to working on getting to your front side quicker.



Each Athletes Knee's Are Even During Foot Contact

Being in the correct posture/positioning heavily contribute to applying high forces in the correct directions.

Here are some progression for correcting/improving posture

- Marching with Arms Behind Head
- Marching
- A-Skips with Arms Behind Head
- A-Skips
- A-Run with Arms Behind Head
- A-Run
- Wickets

At BBA we like to use progressions that involve taking the arms out of the equation. This really forces a tall, high hip posture the over emphasizes the torso and lower body. This more heavily involves musculature in the torso and hips that otherwise would not be so active and forces the lower half be precise.

We have had success with this progression, but it's also important to remember that sprinting technique is a very hard skill to change. The younger the athlete and the more time you have with them, the easier it becomes.

But at certain stages athletes have 15-20 years of poor posture and technique to fix. It will not happen in a day, and will take time. Use these progressions as part of a dynamic warm-up and over time you will see slight improvements, followed by more slight improvements which slowly add up to noticeable and effective changes.

Here are some simple ques that we've had a lot of success with to help get into the correct running posture.

- High Hips
- Step Over the Opposite Knee and Drive Down
- Your Pelvis is a Bucket of Water, Don't let the Water Spill Out
- High Knees
- Stay Tall
- 90 Degrees (Ankle, Knee, Hip, Elbow)
- Shoulders and Hips Stacked
- Push Up Through the Ground

The best and easiest way to help improve technique is to film accelerations and sprints. Many athletes are visual learners and seeing yourself and exactly what you are doing is very valuable in making positive changes.

BONUS!!!

11. Learn To Absorb Force

Sprinting by its very nature involves massive amounts of forces put on the body. With each stride the body has to absorb multiple times its body weight on a single leg. This means that your body's ability to absorb and withstand these forces is very important.

This largely comes down to the eccentric abilities of your lower limbs. With each stride these huge forces go up through your legs, pelvis, and core; and your body must absorb, stabilize, and then reproduce force in light of everything. It is a very demanding job, and is very stressful on the body.

Coaches are realizing that force absorption is a very key quality athletes need to have in order to run fast. If your body cannot withstand these high forces, it will limit your running speed as well as break down your body. You can only produce as much force as you can safely absorb, so the need for this kind of training is of high importance.

Don't want to bore you too much, so instead read these two articles that really dive into

<http://www.elitetrack.com/articles/read/2195/>

<http://michaelzweifel.blogspot.co.at/2013/02/freefree-falling.html>

12. Relaxation

It has been known for a long time, that in order to run fast, you need to be relaxed. A lot easier said than done unfortunately.

Watch someone as they sprint, more specifically watch their face, neck, shoulders, and hands.

Are they tight and tense or relaxed and loose?

You want to be relaxed and loose. Tightness in the aforementioned body parts gives a good indication of tension throughout the body.

Being able to relax allows muscles to move through ranges of motion with greater velocity, force, coordination, and rhythm; while also limiting fatigue and extra strain put on the body.

A relaxed muscle is a fast muscle

As the great Charlie Francis used to say, "You must 'let the speed come'".

Don't force it or think that tensing up with somehow make you faster, in fact it will make you slower.

For a lot more detail read this great article on how relaxation is a key contributor to faster movements.

<http://michaelzweifel.blogspot.co.at/2013/03/relax-to-go-fast.html>

Now Get Out There

There you have, 12 great tips to take your speed to the next level. To separate you from your competition and give you that extra edge you need! We hope you enjoyed and learned something! Feel free to share this info with friends and family and send them to BBA to pick up their own copy!

Keep following **[Building Better Athletes](#)** for great weekly information and updates and check out our **[Youtube Page](#)** for tons of great videos

Feel free to contact us with any questions, comments, or concerns at buildingbetterathletes.bba@gmail.com

So from us here at BBA, Go Get 'Em!

Resources to Check Out!

[Barrier to Sprint Performance – Mike Young](#)

[Charlie Francis Training System](#)

[Supertraining – Mel Siff and Yuri Verkhoshansky](#)

[Mechanical Basis of Human Running Speed – Peter Weyand](#)

[Mechanics of Sprinting and Hurdling – Ralph Mann](#)

[The Rocket Sprint Start – Bud Winters](#)

[So You Want to Be a Sprinter – Bud Winters](#)