

Summer 2020 General Strength Progression

The four elements of the progression are Leg Swings (LS), the Lunge Matrix (LM), Strength and Mobility (SAM), and Core X. To view the videos on YouTube, simply open your phone's camera app and center this circle and wait a moment (you don't have to take a photo). You'll be taken to the videos via your phone's web browser. Or, go to this link: http://bit.ly/LSLM_SAM_CoreX



SAM – Strength and Mobility: It's broken into five phases with Hard days and Easy days. Athletes typically stay in one phase before they move to the next. SAM P1E is the easiest routine and takes less than 10 minutes, yet SAM P4H takes over 20 minutes and is very challenging for most high school athletes.

Each phase is broken into Hard and Easy. Coaches assign Hard after any workout or long run. So that means at least twice a week athletes should do the Hard routine for the phase that they're on. The rest of the week, coaches should assign the Easy phase after the run.

Coaches will write "SAM P2H" (phase 2 Hard) to be done after an athlete's long run day, then "SAM P2E" (phase 2 Easy) after a recovery day.

LS – Leg Swings: Athletes can do leg swings before every run. There are other warm-up routines that can be done, but when in doubt, start with leg swings.

LM – Lunge Matrix: This is rooted in Gary Grey's work and gets the athlete moving in all three planes of motion.

Sagittal plane: Forwards/backwards. Running is primarily a sagittal plane exercise. But it has a touch of transverse plane movement.

Transverse plane: A rotation around an invisible axis that runs from the head down to the spine. An ice skater performing a rotational jump is one example. A golf swing is primarily a sagittal plane movement.

The key for runners is the slight rotation of the shoulders and hips during running, which are sagittal plane movements. When your right knee is up, the right hip is forward AND the left shoulder moves forward.

Frontal plane: This is where the lunge matrix is unique. You move in the frontal plane—the side-to-side plane—during the lunge matrix. A shortstop shuffling to the side to get a grounder is moving in the frontal plane.

There are five lunges in the lunge matrix. Five reps on each side, so 10 reps total. That means there is a total of 50 lunges in the lunge matrix.

Key Point: Athletes should do the lunge matrix first thing when they arrive at their first practice of the year. Use the progression below, which incorporates the LM into the SAM routines, for a few weeks.

Core X: This is a simple routine: 10 exercises, 30 seconds per exercise, for five minutes of total work. New athletes can go for just 20 seconds per exercise and take breaks. It's not

unreasonable that a strong upperclassman can go through the routine twice with breaks of less than five seconds between exercises.

Core X is well balanced in terms of anterior chain and posterior chain work. The posterior chain is the back of your body, which needs to be strengthened in virtually every runner. So rather than just planks and sit-ups, his routine will improve back, low back, glute and hamstring strength, which your athletes need.

Guidelines

New Athletes: Start with phase 1, knowing that it's fine to stay here for a few weeks before moving to phase 2.

Mature Athletes: Start with phase 2, even though it might seem easy. Within two or three weeks, the athlete can move to phase 3.

When do you do this work? Leg Swings are done before the run. Initially all this work is done after the run. Eventually the Lunge Matrix can be added to the pre-run routine.

When do you move to the next phase? Athletes need four sessions where they complete all of the exercises with good posture. And they need to be able to move from exercises to exercise with no breaks. Because the Hard days will typically be done twice a week, theoretically an athlete could advance to the next phase in just two weeks. Rarely does this happen, as an athlete who is feeling especially tired after their run/workout may struggle with the general strength for the day. Therefore, advancing from phase 2 to phase 3, even for a mature athlete, will likely take longer than two weeks. Finally, phase 3 is challenging and athletes may need to stay in this phase for several months. Plus, in the following progression, a coach can increase the workload in phase 3 by adding elements from Core X. The key is that both coaches and athletes are patient and don't rush to get to the next phase. This progression takes time, and as the saying goes, time takes time.

Identifying weaknesses: Not only does this progression improve general strength and mobility, it will also highlight areas where the athlete is weak. If lateral leg raises are especially hard for an athlete, then they'll need to work on hip strength. For this athlete, additional work with a mini-band can be done to strengthen the hips. That said, coaches and athletes must be patient, as most weak areas will improve over time, so long as the athlete is consistent with doing this work every day after their run.

Easy Days Easy and Hard Days Hard: It's imperative that the easy days are easy so the hard days can be hard. Simply put, there is no reason to assign the hard days described in this document on a recovery day. While it's crucial that athletes strengthen their chassis every day that they run, the overall workload for the day on easy days must be low enough that they're ready for the next hard day. Professional runners and collegiate runners often have medium days and can handle these days due to their training age (ranging from four to 10 years or more). Most serious high school students have a training age ranging from zero to two years (or perhaps three years). This means the most effective training for high schoolers is easy days – which will include strides (revving the engine) and general strength (strengthening the chassis) – that are easy and fun. These easy days set the athlete up to run well on the hard days. This rhythm gives athletes a great chance to stay “on top of their training” and, over time, have the word consistency define their training.

When in doubt, go back a phase for Easy days. It makes a lot of sense that when an athlete can handle, for instance, P3H, but shows up for the next day's practice fatigued, they should do P2E. The easy days must be easy and, so long as some strength and mobility get done, that's all that matters. For this reason there is no P5E – you simply do P4E when your hard days are P5H.

Phase 1

1. LS – Full routine.
2. Hip activation – five reps of clams, reverse clams, reverse air clams (see SAM P1H).
3. Run or workout. Make sure to rev the engine with strides at some point, before going into the general strength.
4. SAM P1H after the hard days. Add the LM as the first part of P1H. Start with 30 lunges total, so six reps of each lunge. The modest amount will cause some soreness for weak kids. Then proceed with P1H as written.
5. SAM P1E after an easy day just as it's written.

Phase 2

1. LS – Full routine.
2. Hip activation – five reps of clams, reverse clams, reverse air clams (see SAM P1H).
3. Run or workout.
4. SAM P2H. Add 30 Lunge Matrix lunges after “Wave Lunge” (so between exercises 8. and 9. on the SAM document – refer to the end of this document for the complete routine). This is done for two or three sessions, then the coach can decide if the athlete is ready for 40 repetitions. Most of the time you'll need four sessions of 30 lunges before you go to 40 because, prior to the lunge, they've done a decent amount of work. Then progress to doing the entire LM as part of SAM P2H.

How does a coach know when to progress with the Lunge Matrix in phase 2? When athletes can do the LM with good, but not impeccable, form, and when the soreness they report is moderate and not high.

5. SAM P2E. Do this as written after easy days. Remember, “Do Easy Days Easy and Hard Days Hard.”

Key Point: Athletes should only advance to phase 3 when they can do all this work and not be overly sore day to day. They need to do the exercises with B+ angles and postures (but don't need to get to A or A+ level before moving on).

Phase 3

1. Pre-run. Now the athletes are ready for more pre-run work. LS and LM - 3 lunges on each side, for a total of 30 lunges.
2. Run or workout.
3. SAM P3H. For four sessions athletes simply need to follow the progression as written. Then you can make the following changes (refer to the end of this document for the complete routine).
 - a. Take out exercises 12-15, keep in 16 and 17, take out 18, keep in 19, take out 20 and 21, then do 22 and 23, then do Core X.
 - b. After Core X, resume with exercise 24.
4. P3E as written for the easy days. Note that this will take quite a bit longer than P1E and P2E.

Note: Serious high school runners like doing the work that builds their aerobic engine – and that will be what they spend most of their time doing. Once an athlete can do P3H, they should now be valuing this chassis-building work as much as they value running. Then, they need to view all of the work that comes after the run or workout to “build their attention span for hard work.” Put simply, at this point they should be fully bought into the idea that everything done at practice is important.

Once an athlete has moved through SAM phase 3 Hard (SAM P3H), there is a choice to make. If the athlete wants (and needs) more general strength work, which will mean a longer practice session, then they should move to SAM phase 4. But for many athletes, staying at SAM P3H is a good way to maintain foundational strength.

Phase 4 Hard is both a long and challenging routine. There are 37 exercises, which will take over 20 minutes to do. Serious athlete should have no problem finding 20-30 minutes for post-run work a couple of days a week, but again, on the rare occasion that time is limited, doing P3H and taking out some exercises is fine. Also, that athlete should keep in most of the exercises they dislike in this abbreviated routine to keep things mentally challenging.

Key Point: Athletes do SAM work just for the fun of it – they’re doing it so they can handle more intensity or more volume (or both).

Phase 4

SAM P4H is the type of work all high school upperclassmen should be able to do after every workout (track workouts, challenging aerobic workouts and race pace work). After a long run, they should be able to do the skipping components in this phase, but if you want to take them out and start with exercise number 8 – mountain climbers – that makes a lot of sense as well. This is where the art of coaching comes in.

SAM P3E isn’t long and, for strong athletes, it is the right amount of work to maintain their current strength and mobility levels. That said, this is a great time to add some lacrosse ball myofascial release.

Most athletes will need six solid sessions of P4H before moving on. If they stay here for weeks and weeks, that's great. This is a lot of work and it's going to be challenging. Adding Core X into the mix would make for a killer day, though it may be too much of a challenge mentally and physically for kids. The key here is to make the hard days challenging, but not so challenging that the athlete (who has a sizeable capacity for hard work) is dreading this work during the running portion of the day.

Phase 5 - A Gentle Introduction into Plyometrics

The goal with SAM P5H is to have a gentle introduction into the plyometric work. Once the athlete can do four to six sessions of P5H, they can do a full plyometric routine.

In the summer this will work well following your workout days. You can do it after a long run as well, but in that case, I think P3H with the Core X addition is the way to go.

Note: There is no P5E – you simply do P4E on the easy days.

Weight Room Work

Finally, a question many athletes and coaches have is, "When do we go to the weight room?"

First, let's start with the ideal situation.

A coach works with a middle school athlete and has the chance to coach them for 15-20 years. In that case, the athletes do bodyweight work for the first couple of years, with very little work with light external loads.

The ideal progression is:

Body Weight-->Light External Load-->Heavy External Load

When it's time for light external loads, it's not necessary to go to the weight room. Medicine ball work at the track – both in terms of general strength exercises, and multi-throws, are a great way to increase both strength and work capacity.

The flip side is that going to the weight room, if it's available, will work with new athletes, so long as athletes do light external loads. The key is that the progression above needs to be at the forefront of the coach's mind when assigning this work.

A lunge with dumbbells in each hand is great, and it comes before a lunge with a 45-lb bar on their back – which may not be the best exercise anyway, as you're loading the spine. Ask "Is this athlete ready for this?" Again, this is the art of coaching.