General things you can do to get better at sprinting:

- Sleep 8-10 hours a night
- Stay hydrated
- Eat enough food (calories)
- Eat enough protein
- Don't eliminate eating fat or carbs entirely
- Eat mostly healthy food. Get some fruit and vegetables. Don't take this to mean only ever eat healthy food. Just use some moderation.
- Eliminate things that add stress to your life. That could be certain people, or it could be that you procrastinate and it causes you stress when deadlines come up. It could be that you play hours of competitive online gaming and it stresses you out the whole time.
- Don't overdo it on easy (aerobic) days. It will not make you better. Work smarter, not harder.
- Don't use the same shoes forever. You'll get injured eventually.
    - It is typically recommended to replace trainers every 300-400 miles for a distance runner, but sprinters will go through shoes with fewer miles than that, especially if you walk around in them all day.
- Rolling out muscles (self myofascial release) with a foam roller, lacrosse ball, or something similar. Foam rollers don't make as much of an impact as something harder, like a lacrosse ball, but if you're particularly tight/sore there, it might be fine to start with it. Every other day or so should be enough. Don't go hard with rolling/massage the day before a meet or the 2 days leading up to a big meet.
    - What to prioritize with rolling
        - Side of hips (TFL and gluteus medius)
        - Feet
        - Calves
        - Hamstrings
        - Quads
        - Glutes
        - IT bands
- Work on preventing anterior pelvic tilt (explained later)
- Improve ankle mobility (explained later)
- Take side and front video of you sprinting (if you can only do one, do side). Evaluate it on your own (I'll be explaining some stuff to look for later) and/or post it online to ask for help.

Sprint form notes:

- Anterior pelvic tilt is very common and is the cause of most hamstring injuries, among other injuries. This is where your hip is tilted forward, making your hamstrings constantly overstretched. Here's what to do to help fix this:

    - 2 kinds of hip flexor stretch, regular lunge position stretch and couch stretch.
    - 2 kinds of calf stretch, straight knee and bent knee.
    - Lacrosse ball roll hamstrings
    - Lacrosse ball roll piriformis
    - Lacrosse ball roll calves
    - Duck walks to improve lower back flexibility
    - Improve ab strength
    - Improve glute strength, including gluteus medius
    - Focus on making your hip neutral when just standing at first. Think of pushing your bellybutton to your spine, if you need to do it that way.
    - Then focus on doing it while walking
    - Then do it while jogging
    - Then do it while doing sprint drills
    - Then do it during sprints
    - Then you can try doing it in races
- Gait width: your feet should be landing under your hip (left foot under left hip, right foot under right hip). If you were to straddle a lane dividing line and sprint down it, your feet should be landing to the left and right of the line, without touching it. If you have a narrow gait, it is inefficient (slow) and increases your likelihood of getting shin splints.
- Dorsiflexion: After you push off the ground and while your foot is in the air, you should be dorsiflexing your ankle before making ground contact. You should start plantarflexing right when you're about to hit the ground. The plantarflexing part will happen naturally, but not everyone dorsiflexes. Landing flat footed while sprinting is fine, if you're dorsiflexing in the air. If your foot just stays plantarflexed the entire time, you increase injury risk in many parts of your legs (shins, calves, Achilles tendons, ankles, knee).
- Torso stability - There should be slight twisting of your torso when sprinting at high speeds, but not much. Sometimes the twisting comes from an issue with the lower body, and sometimes it's a weakness issue. Check for lower body issues first, like narrow gait width.
- Upright torso - Being hunched over will slow you down. Leaning back will also slow you down.
- Project vertically - You should be pushing off the ground hard enough to project yourself up. You can see this in video by watching our hips and seeing if they go up after you push off the ground. If you're not, you're sitting in your stride and pulling yourself through each stride.

Summer (Off-Season) Training

Off-season / pre-season is the time to raise your potential by increasing your work capacity and improving your neural system. It is to make it so you get more out of your later training. It is not about being in your best racing shape in that time.

Things to do in the Summer:

- Acceleration work: This is sprints of up to 30 meters in length (possibly shorter for lower level sprinters/jumpers) with full recovery. This requires 45-60 seconds recovery per 10m run after each sprint (2:15 - 3:00 recovery after a 30m sprint, for example). If you use less recovery time, the workout becomes a speed endurance workout.
    - Acceleration workouts should max out at a total volume of around 300m. That doesn't mean you have to or should do 300m all the time. The earliest acceleration workouts could be something like 10-12x15m, and that could eventually progress to 3x3x30m or 8-10x 30m.
    - There are many kinds of starts you can use for these workouts: standing 2 point start, 3 point start, 4 point start, falling start, 1-4 bounds into a start, drop in start, skipping drop in start, mountain climber start.
    - You can vary the surfaces for these, grass, turf, track, in spikes, in trainers, in flats. Mix it up.
    - Uphill accelerations are great. Having every other acceleration workout be uphill is very beneficial. If you don't have access to a hill, you could do a light sled pull (not heavy).
- Aerobic Work - Extensive Tempo: This is a 70-75% effort/speed run, which is calculated by taking the time you could run for that distance in a race of equal conditions that day, taking into consideration the weather and clothing you're wearing (trainers instead of spikes, for example) and dividing that time by 0.75 for 75%. A 24 second 200m divided by 0.75 ends up being a 32 second 200m extensive tempo.
    - Sprinters generally do between 1000m and 3000m of extensive tempo in a single workout, but going beyond 2000m is generally for more of a middle distance type runner or a very experienced runner with years of having done tempo. Sprinters can always physically do more than 2000m of tempo and finish the workout, but doing so tends to affect your other workouts later in the week without providing any extra benefit at all. For a short sprinter, especially a newer one, 2000m is overkill.
    - Example workouts for a short sprinter: 1) 2x6x100m with 1 minute between reps and 3 minutes between reps. This could build up to ~8 per set. 2) 6-8x 200m with 2 minute recovery between each.
    - Example workouts for a long sprinter: 1) 2x10x100m with 1 minute between reps and 3 minutes between sets. 2) 6-12x200m with 2 minute recovery. 4-8x 300m with 3 minute recovery. 3-6x400m with 3 minute recovery. The higher end of the rep range would be for more experienced, higher level sprinters, or even ones with some 600m or 800m experience.
    - Some people vary the distance within a workout, and there's nothing wrong with that. Some like the variety within a workout. You can also use this to transition to longer intervals by starting with half of the workout being 200s and the second half being 100s, then the next time do ¾ of the workout as 200s and the last ¼ as

100s, then go to all 200s. It's easier to feel out the pacing and just be smooth in the later reps when the distance is kept the same, but it's not in any way necessary.
    - Extensive tempo workouts should not be hard days. They should be smooth, relaxed, and with good form. Your hip posture should be neutral. Your torso should be upright.
    - In Summer, you can gradually build up the volume of extensive tempo workouts, so it's fine to start low. Better to start low and build than start too high and get overtrained.
- Aerobic work - non-running workouts: These are workouts that will help improve your work capacity while not adding more impact to your week of workouts, so you're recovering better from your harder days. Short sprinters and jumpers will tend to do more of these than long sprinters, but long sprinters will do them, too.
    - Bodyweight Circuits: ~10 minutes worth of bodyweight exercises that are 20-45 seconds in duration. If the workout is more recovery in nature, the rest time is equal to the work time. If it's more conditioning based, the rest time can be ~half the work time. Roughly ⅔ of the exercises are lower body with some upper body and core exercises mixed in.
    - Core Circuits: ~10 minutes worth of core exercises that are 20-60 seconds in duration. Rest time is 5-20 seconds.
    - Hurdle mobility exercises: ~10 minutes worth of hurdle mobility exercises.
    - Resistance band exercises for hip stability: zombie walks forward and back, side shuffle, side leg raises, isometric side leg raises. For side leg raises, your body should be completely straight, and your hips should be perpendicular to the ground.
    - Animal walks: duck walk - forward, back, and sideways, bear walk, panther walk, inchworm, crab walk, sideways pushup position crawl
    - Cross-train - Biking, swimming, elliptical ~30+ minutes. These are all better options than a distance run. Biking can force you into being even for a bit, which can be helpful for someone with imbalances.
- Glycolytic work-capacity work - short speed endurance based workout that can be useful to do every other week or so, but is not the focus of the training period.
    - Explanation: have someone that's a reliable timer. Have them time you do 40 yard sprints with a stopwatch (not a phone…) and react to your first movement. Record the time for every sprint. Go all out in every sprint. Take ~75 seconds between each sprint. You keep going until there's a 5% dropoff in time. For a 5.00 40y, that would be going until you run one at 5.25 or slower. I usually do a minimum of 8, but some kids end up doing 40+ of these once they've done it a few times.

Things to completely avoid doing in the summer:

- Distance runs - long distance runs should be avoided for anyone that's not planning to race the 800m or longer competitively. Any benefit that can be gained for a sprinter from a distance run can be done in a way that has many fewer negative side effects. Distance runs are reinforcing poor running mechanics and inducing a lot of extra impact, leading to higher injury risk and decreasing quality of other workouts throughout the week / training period / season / career.
- Lactic Capacity work: These are interval workouts in the 80-89% intensity range and 100-500m or so distance range with partial recovery. It will be further explained in the in-season training part.
- Lactic Power work: These are intervals in the 90-100% intensity range that are 200-600m in length with full recoveries (10-30 minute recovery). It will be further explained in the in-season training part.
- Glycolytic speed endurance work: These are intervals of 80-120m at 95%+ intensity with 5-12 minute recovery. It will be further explained in the in-season training part.
- Racing in meets: Longer meets would especially be detrimental. If you're a jumper, it can be okay to do a few jump competitions if you want to.

Weightlifting for Summer-Fall (Off-Season):

You should be working to increase your strength and power, while also trying to make yourself less susceptible to injury. It's often said that Summer lifting should be higher reps per set, and while that's true, it is generally taken too far in that direction. Don't rush through your lift. If you're able to rush through your lift, you're not doing enough weight. Get your form correct before worrying about increasing weight. Don't go in and do the same weight week after week (assuming you have the form down). Push yourself. Do not repeatedly go to failure though, as that requires a longer recovery time.

- A sprinter should not be doing an upper/lower split (that's where you have a day off just upper body lifts and a day of just lower body lifts) because your upper body day is a day where you're fatiguing our neural system, but not improving your lower body strength, which is obviously more important for a sprinter.
- Your lower body is the more important part, but you should not neglect the upper body.
- You should be doing both pushing and pulling exercises
- You should be making sure to focus your lifting sessions around your bilateral lifts (using both limbs together to lift, like bench press, pull ups, barbell back squat, deadlift, etc)
- You should include unilateral lifts in your workouts (dumbbell lifts, single leg exercises)
- Summer bilateral lifts should be around 4-6 reps per set and 3-4 sets.
- Summer unilateral lifts should be around 8-12 reps (per leg) for 3 or so sets.
    - Having a rep range allows for progress towards going up in weight. Once you can do 12 reps, it's likely time to go up in weight and try sets of 8.
- Lift on high intensity days (acceleration days in Summer). Lift after the sprinting portion of the workout.

- A lifting workout can consist of 4-8 exercises. Generally around 3 bilateral lifts, with the rest being unilateral.
- If you know how to properly do a clean or snatch, in the Summer they should be around 5 sets of 5 at around 50% of your max weight with a focus on moving the bar as quickly as possible. This will prepare you to do heavier lifts later in the year.

How much of each of these things should you do, and how would they fit into a week during the Summer?

- Acceleration - 2-3 days a week. If 3, one of the days should be low volume
- Aerobic (Extensive Tempo) - 0-2 days for short sprint, 1-2 days for long sprint
- Aerobic (non-running) - 0-3 days. If 3, then one should be lower volume.
- Aerobic workouts (extensive tempo + non-running - not more than 3 days.
- Lift - 2-3 days. Lifts should be on acceleration days, but you can make it so you're just doing 2 acceleration days, but 3 lifts. If 3 days, one day could be lighter, for example by taking out all bilateral lifts.
- Make your acceleration and/or lift days not back-to-back.
- Don't mix aerobic with acceleration in the same workout/day
- You can do a bunch of different aerobic stuff all together in the same workout. On non-tempo days, I generally pick a few non-running things to do with a few minutes between each thing.
- Have 1-2 days off a week. Even 3 days off a week is often fine in Summer. You do not want to be over-training in the Summer.

Fall Training: (assuming a winter track season)

There are a few ways of preparing for winter track in the fall. You could do a sport (Soccer, Football, Volleyball, Field Hockey) or you could do fall sprint training. Doing a sport is a fine way of preparing, so I'm not one to advocate quitting a fall sport to get better at sprinting, unless you're very prone to getting injured in your fall sport for some reason. If your fall sport is cross country though, and you are serious about getting better at sprinting, find another sport or just do fall sprinting. If your primary event is anything shorter than 800m, cross country is not for you. If you really like the team or something, ask to be the team manager and do some sprint stuff on your own.That being said, if you just sprint in track for fun, then it's up to you about whether or not to do cross country.

If you're choosing fall sprint training:

- It's extremely similar to summer training.
- Change one acceleration day every other week to a max speed day.
    - Max speed day would be a sprint of 40-60m in length or a fly run of 10-30m in length.

- If your tempo days are feeling especially easy, you can up the volume a little on one of the days. Keep one of them low, if you're doing 2 a week.
- Lifting is similar to the Summer. You can alternate Olympic lifts each week with the light 5x5 and a heavier 4-5 sets of 2 reps.

Winter Track

For the purpose of this explanation, I'm going to assume it's a high school winter track season, where you're trying to do your best at the end of the season during championship meets. It's also under the assumption that you're making a winter plan for a group of high school sprinters that haven't just spent the entire summer and fall doing sprint training, since it's pretty uncommon that many of your kids will be doing that. If your group was all doing summer/fall training, then skip the General Prep Period training, since they just did that for months. If your state doesn't have winter track, you would approach this differently. You would make winter start off as General Prep Period training and transition into Specific Prep Period training, but you wouldn't do the last 2 phases until spring track.

4 phases of training:

Each phase will be 2-4 weeks, depending on what you believe your team needs more of. Feel free to go 3 weeks of each and adjust from there in future years.

- **General Preparation Period:**
  - In this period, you do training to prepare yourself to be better at the later training.
  - It's called General, because it's less similar to your race.
  - Just read the summer training, because that's all General Prep.

- **Specific Preparation Period:**
  - Your speed days transition from being acceleration focused to max speed focused. You do still need to address acceleration occasionally, but assuming you're occasionally doing block work, that should cover it. If you're doing your max speed work as full effort sprints out of blocks, that will help with acceleration as well.
  - Extensive Tempo workouts become less frequent, or in the case of short sprinters, it generally ends completely.
  - If you're a long sprinter, this is where Intensive Tempo workouts start. Intensive tempo (AKA lactic capacity) workouts are done to increase the amount of acidity your body can handle before it stops functioning, basically. ***Lactate based workouts don't start until this point, because these qualities get maxed out from an adaptational standpoint relatively quickly, and the benefits gained from them don't stay around for long, if not maintained.***

        - Intensive Tempo workouts (Lactic Capacity work) are interval workouts in the 80-89% intensity range and 100-500m in length. The total volume is generally 800-1200m for a long sprinter. Short sprinters generally don't do these, or they do a low volume version (500-800m in length) and not often. To progress from one Intensive Tempo workout to the next, don't add volume. Start with your highest volume one and either stay that volume or go slightly lower later. Progress by making the next workout faster. You can up the recovery by a minute and up the speed, or just up the speed slightly. These workouts can be very intense and require recovery for a few days after and being fresh going into the workout to get the most out of them. It's hard to fit many of these into a season, but don't force them in just to do them, if there won't be enough recovery. You can lift after these workouts, but it would be more dumbbell based and less (if any) of the big bilateral lifts. Example workouts:
            - 5x200m @85-89% with 3-5 minute recovery. 3 minute recovery on the 85% end, 5 minute recovery on the 89% end.
            - 4x300m @85% with 4-5 minute recovery. I use this more for someone that might run a 600m at some point in winter.
    - You shouldn't have more than 2 days a week that are high intensity with an endurance component. Examples of high intensity workouts with an endurance component include: speed endurance, intensive tempo, special endurance, glycolytic work capacity. Examples of high intensity with no endurance component would be max speed or acceleration workouts.
    - You will have meets during this period, so you have to take those into account when planning workouts. If in a meet, you do a race longer than the 55m, then that's a high intensity day with an endurance component. If your week has 2 of those kinds of meets, then you will not have any workouts that week that are high intensity with an endurance component. A meet where you only do the 55m would just be a high intensity day.
    - Lifting in Specific Prep is more geared toward max strength with the bilateral lifts, so more like 4-6 sets of 1-3. This includes olympic lifts. Unilateral lifts (dumbbell stuff) stays at sets of 8-12. Still 4-8 exercises in a workout.

- **Pre-Competition Period:**
    - Continue working on max speed in this phase
    - Speed Endurance and Lactic Power workouts become a focus now. Lactic Power workouts would be just for long sprinters, though. Intensive Tempo workouts are no longer done.
        - Speed Endurance workouts involve getting to about max speed and holding it or very close to it for an extended period of time.
            - From a neural perspective, you're only really working speed endurance up to 90-120m, depending on your ability level.

- For the purpose of improving muscle glycogen stores, you can see these improvements in sprints that go 150m or so, but you can also see those improvements in the 90-120m range.
- These runs can be broken up with a sprint - float - sprint format. Sprinting sections are full effort, while the "float" sections are relaxed but fast. Some call floating "98% speed with 90% effort".
    - Sprint-float-sprint example workout - 3-4x120m (40-40-40 sprint-float-sprint) with 6-10 minute recovery, depending on the goal. This would be a 40m sprint that transitions into a 40m float, that then transitions into a 40m sprint.

■ Lactic Power Workouts (AKA Special Endurance I and Special Endurance II) - These workouts are done so your body gets better at functioning at a high level while under a high level of acidity.

- Special Endurance I workouts are generally around 200-400m in length and around 600m-1000m in total volume, at 90-100% intensity with full recovery between reps. Full recovery, depending on the intensity, could be 10-30 minutes.
    - Example workout 1: 3x300m @90% with 12 minute recovery.
    - Example workout 2: 2x300m @95-98% with 20 minute recovery.
    - Example workout 3: 2x40 seconds @100% with 20 minute recovery. If you're trying to hit around 300m, it would be more like 50 seconds for girls. I generally put cones out for every 2 meters from 270-330m and record how far they covered in the given time.
    - Example workout 4: "split 400" - 2-3 sets of 2x200m @95% with 30-60 seconds between reps and 20 minutes between sets. Something to aim for could be the 200m splits you want to hit in a race, so for a 50 second 400m runner, try and get a 24, then a 26. Could do a rolling/flying start into the second rep to make it easier to accomplish that.
- Special Endurance II - has at least 1 rep over 400m and generally has a volume of 1200-1500m or so total. This is more for a 400-600 type runner, but some would do it once a season for a primarily 400m runner. Aside from length of interval and total volume, the rest of the workouts are the same as Special Endurance I.
    - Example workout: 300m, 600m, 300m all at 90-95% with 20 minute recovery.

○ Recovery is very important from here on out. Rolling becomes a big part of our recovery days.

    - Your low intensity days become lower in volume. If you're still doing extensive tempo at this point (I don't for sprinters at this point in the season anymore, but some do) then you would be doing less of it in each workout and/or doing them less often.
    - A meet where you do a 200m race or two is a Speed Endurance workout.
    - A meet where you do a race or two that are 300-600m in length is a Lactic Power workout.
    - When you are 4 weeks out from your target meet, the lifting changes. Depending on how you plan your season, that could end up being during this phase. Bilateral lifts change from being max strength focused to being more speed/power based.
        - Heavy squats get replaced by jumping squats. Do this with around ⅓ of your bodyweight.
        - Bench Press gets replaced by speed bench or incline speed bench.
        - Barbell row or pull ups get replaced by a speed row.
        - Still 4-8 different exercises in a workout.

- **Competition Phase**
    - Continue work on Max Speed, Speed Endurance, and for long sprinters also continue Lactic Power. These workouts should resemble your primary race distance as much as possible.
    - Recovery continues to be very important in this phase. You're not going to do a lot of improving from an adaptational standpoint, so it's more about maintaining capabilities and being recovered from workouts/meets.
        - Speed Endurance workouts that mimic the 200m would be something like 2-3x 150m (50-50-50 sprint-float-sprint) with 6-8 minute recovery.
        - Lactic Power workout that mimics the 400m would be 2x300m @ the exact pacing you would run the first 300m of a 400m, with 20 minute recovery. This can also be shortened to 300m, 200m, or if you feel like you need it to be even more shortened, 2x200m @ the pacing you want the first 200m of your 400m to be.
        - You can do ao combination workout here to work on 2 things at once, since you're just trying to maintain. An example of that would be 1-2x50m from blocks with ~8 minute recovery, then 1-2x 150m (50-50-50 sprint-float-sprint) with 6-8 minute recovery.
    - Lifting is the same as the Pre-Comp phase.

Spring Track

If you have a group that didn't do winter track, then you can just go read what I said for winter track, since it's just an isolated season that requires all phases. If you have a group that's all returning from winter track, then you can skip the General Prep Phase and just have longer

phases. If you had an entire summer and fall of General Prep and did winter, with a focus on spring track, then you're probably skipping Specific Prep or having a very brief Specific Prep period. If this is for a very new athlete though, always have some General Prep to begin a season.

Plyometrics - jumps

There are a lot of different plyometric exercises to do and a lot of different ways to implement them. I'll give a brief general description here as a starting point, but it's a pretty big topic.

- In general, you should start with lighter plyometric exercises and build up to more intense ones.
- Another way to progress from light to intense is by starting on a softer surface (turf/grass) and building up to a harder surface (the track).
- Most plyometrics would occur after your sprints for the day and on a speed or acceleration day. This is to make sure that your primary focus of the day (the sprints) are of the highest quality. You would do sprints, then plyos, then lift, if you were doing all 3 in one day.
- Sometimes, moderate bounds are used in low volume before a sprint to work on full extension in the acceleration phase. Focusing on full extension on something like a standing long jump for a rep or two before every 20m rep of an acceleration workout can have good carryover into that first step.
- Lightest plyometrics should be done for time in the 8-15 second range with twice as much time for recovery for a set early in a training year to prepare for more intense stuff later. They should be done with flat footed landings to prevent injury. 8-15 exercises in a single workout is fine, starting on the lower end and building up to the higher end. Eventually maybe 2 sets of ~10 with a break in between.
- Examples of the lightest plyometrics (in place jumps):
    - Jumping jacks
    - Double leg in place hops
    - Squat jumps
    - Single leg hops
    - Side to side hops (double leg or single leg)
    - Forward and back hops (single leg or double leg)
    - Figure 8 hops (single or double leg)
    - Ice skaters
    - Criss cross hops
- Rudimentary bounds are another form of light plyometrics, and they are great for teaching proper ground contacts for eventually doing more intense things, like real bounding.

- Skipping is also a lighter plyometric. Skip for height, skip for distance, speed skip. All of these should be done with flat footed landings for every single ground contact throughout.
- Moderate plyometrics are done in much lower volumes than light plyometrics. 5-10 of an exercise like standing long jump can get a good return, whereas doing too many can cause overuse injuries.
- Examples:
    - Standing long jump (5-10 reps should be manageable)
    - Standing triple jump (3-8 reps. Could take time to build up to 8)
    - Box jumps
    - Hurdle hops
    - RRLL or LLRR bounding (4-8 contacts in a set, like RRLLRRLL, then recovering, is good, and start off with very few sets, like 3, building up to more like 8-10 for a higher level athlete.
    - Bounding for height
    - Bounding for distance
    - Speed bounding
- All bounding exercises should have a flat foot landing or slightly heel first.
- More intense plyometrics should generally be done in very low volume and with recovery. They should only be done if you've made it through a progression of the other plyometrics and haven't been having injury issues at all. There is risk involved with adding these, and I can't say it's worth the risk for everyone. I haven't done these with kids in years, because I have a large range of athletes, and I don't get to the point where everyone can handle them in a season. The best athletes that don't have any injury issues can generally handle them, if the volume is kept low. 3 sets of 3 is a whole plyometric workout with these.
- Examples:
    - Depth drop
    - Depth jump
- In order for it to be a true depth drop or depth jump, you need to be dropping from a height that's higher than your current vertical jump. Otherwise, you're just doing what you'd normally be doing when jumping. That being said, you can still start off with a lower box to drop from, but it just won't be as intense.

How to review film of sprinters

Things to look for on a side view:

- Pelvic tilt - Lower back should be pretty flat. This is easier to see with a tight, tucked in shirt or no shirt. You can often tell by looking at the angle of the waistband. It should be pretty close to parallel to the ground, or completely. Another sign when watching fast sprinting video is when your foot kicks back, if your heel gets all the way parallel to the

ground, then you likely have a tilted hip, because a neutral hip generally won't allow for that position.

- Overstriding - When your foot hits the ground, your two knees should be lined up or pretty close. If they're far apart, you're overstriding. This and anterior pelvic tilt tend to go hand in hand.
- Hip drop - When your swing knee crosses your stance knee, they should be at the same level. If the swing one drops lower, then your hip is dropping.
- Dorsiflexion - Your ankle should be dorsiflexed to an angle more acute than 90 degrees before going towards the ground.
- Ground contact - You should be landing forefoot first, but your whole foot should make contact with the ground at some point. If you're a sub 10 second 100m runner, then maybe your heel can completely miss the ground and have that be correct for you. If you're that level, you're not reading this though, so your whole foot should hit the ground.
- Step over point - When your swing foot swings past your stance leg, it should be close to the knee. If it's low, you're likely overtired, either within that workout, or in general from too much training or poor recovery (sleep, nutrition, etc.)
- Arm swing - At the top of your arm swing, your elbow should be bent more acute than 90 degrees and around neck-level when sprinting. When it swings down, it straightens to being either completely straight or very close when your hand is at your hips. It then passes that point and rebends at the elbow when your arm goes behind you.
- Tension - Sprinter should be as relaxed as possible, so check the face, hands, and shoulders for tension. Tense shoulders are usually raised up.
- Crossover gait - this is easier to see on a front view, but you can probably see it from the side, especially if it's extreme. You should be able to run down a track over a lane divider and have neither foot touch the line.
- Everything mentioned in the blocks portion (the part right after this) can be seen from a side view.

Things to look for in front/back view:

- Crossover gait - You should be able to run down a track over a lane divider and have neither foot touch the line.
- Hip drop - Look at the knees when they line up and see if the swing leg is lower than the stance leg. It shouldn't be. Hip drop and crossover gait often go hand in hand.
- Arms crossing over - Your arms shouldn't cross over your center. Not being perfectly forward-back only isn't the biggest deal, but it shouldn't be crossing over much.
- Over-twisting - your upper body should twist to an extent, but it shouldn't be all over the place.
- Foot arch collapse - This might take some work to see and a high enough frame rate, but you can sometimes see one frame where your foot lands flat on the ground, then a frame later, where the arch collapses inward. This is often an ankle mobility issue.
- Dorsiflexing - From a front view, you should be able to see the bottom of the shoe/spike.

- Knee crossover - your knees should just be moving forward and backwards, not crossing over the middle.

Blocks Explanation

You first need to know which foot to put in front and which to put in back. My go to for this is asking which leg you would kick something with. The leg you would kick with goes in back. If you're a jumper, your jumping leg would go in front.

- Block Setup:
    - Front block - When you are in the blocks and have your ankles flexed, your front knee should be able to drop and touch the track before the line, not past it.
    - Front block - most blocks have adjustable angles. Keep the front one at the lowest setting.
    - Back block - When in the blocks, your front foot should be around the middle of your back leg's shin.
    - Back block - most blocks have adjustable angles. You can raise the back one a little or keep it down.
    - Angled start - in a 200m, the blocks are on a turn, so angle the blocks a little, but don't go overboard.
    - Setting up your blocks at a meet - Measure where they should go somehow. Getting into the blocks at a meet and checking where your knee drops and stuff takes too long. You can measure with your shoes (make sure they're the same ones you'll be competing with). You can measure with your hands (sideways fists/fingers). You can use a measuring tape. Just measure it somehow that you can replicate quickly in a meet setting.

- Set position
    - Feet on blocks - To some extent, this will depend on the athlete. If you're coming out too low, you could try getting some of your toe on the track. If you're coming out too high, you could try going up the block a little. I'd generally start someone with just having your toe up to and barely touching the track. Sometimes the previously mentioned issues should be fixed in other ways than just changing your block setup.
    - Hand placement - You want to support your weight with your fingers making a bridge. Your thumbs should be right under your shoulders or close to that. Don't use up the whole lane, and don't go so narrow that your arms get in the way of your legs.
    - Ankles - your ankles should be dorsiflexed as much as you can so that when you start, you can immediately push, instead of having to stretch then flex. This also allows for lower shin angles in the blocks, making you push more back than down, pushing you forward, instead of up.

    - Shoulders - should be right above your hands, instead of behind or in front of them.
    - Hips - should be higher than your shoulders.
    - Front knee angle - should be more obtuse than 90 degrees. The exact angle will depend on the strength of the athlete, but unless you're squatting 500 pounds, keep the knee more obtuse than 90 degrees.
    - Shin Angles - should be low. You will be pushing yourself in the angle of your shin, so a high shin angle will be very poor at accelerating. Your front shin should be as close to parallel to the ground as you can get it. Completely parallel is possible for many.
    - Eyes - looking at the place between your blocks and the line, but close to the line. Do not look up.

- "Zero Step" AKA block clearance
    - Both feet push at first.
    - Eventually the back foot leaves the block and that side knee starts driving forward.
    - Arm swing is very exaggerated here. Focus on the arm that's swinging back and really whip it back.
    - Knee drive is really exaggerated here, but the focus should be on pushing with your front foot. If you push off fully with the front block foot, your knee will drive up, so make that the focus, not the knee drive itself.
    - Your hip should fully extend.
    - Your knee should fully extend.
    - Your ankle should mostly extend, but a complete extension at the ankle is unnecessary and possibly detrimental.
    - If watching for extension on a video from the side, when your foot is leaving the ground, you should be able to draw a straight line from ankle to shoulder that should also cross through the knee and hip.
    - Some people advise keeping your head down through this part.
    - Torso angle when extended will depend on the athlete. If you're very strong and a skilled accelerator, your angle at block clearance might be 45 degrees or lower. For some, it will be higher.

- 1st step - description starting from the point where you've completed driving your back block leg and are hanging in the air.
    - Foot path - after your knee has completed driving, that side foot should be moving backwards towards the ground before hitting the ground. If it is going straight down, you're pushing yourself up. You want to be making yourself go forward and accelerate.
    - Shin angle - you want a low shin angle when your foot hits the ground. Your shin angle will be higher every step. Lower shin angles are stronger accelerating shin angles, so you don't want to get high shin angles early. Once your shin angle

has gone up, it is not coming back down, so make it a gradual increase. From this point on, your shin angle at the moment of ground contact should be parallel to your torso. If it's not, you are likely reaching or hunching over.
    - Extension - you should still be fully extending at the knee and hip at this point.

- Steps beyond the first will gradually become less exaggerated. You will gradually extend less at the knee and hip. You will eventually hit vertical shin angles and stop having your foot go backwards before hitting the ground. Your torso angle will gradually get higher as your shin angles do. You should not be going side to side in your first few steps (skating appearance). This is often a sign that you're coming out too low or just have a habit from another sport that needs to be broken.

Wicket Drill

The wicket drill is done by running at a high speed and stepping over a series of "wickets".

- **A wicket -** can be many things. You'll commonly see them as 6" mini hurdles (AKA banana hurdles), and that's the tallest thing you'd want to use. You can also turn them over to just be running over the crossbar lying on the ground. Those mini hurdles can be expensive. You can make cheaper versions of them out of PVC pipes. You can also just use sticks, cones, or half-cones.
- **Spacing** - can be either a consistent spacing or progressive spacing. Generally, if you do consistent spacing, you don't do too many, like 8-ish. I'll give some spacing suggestions based on my experience. Whatever you do, don't use spacing that is so far apart that you end up having to reach to get to the next one, as that defeats the purpose of the drill.
    - Consistent Spacing
        - I've started off JV girls with 1.5m between
        - I've started JV guys off with either 1.5m or 1.6m, depending on ability level and their height.
        - Varsity guys can generally do 1.7m without issue, unless they're particularly short
        - I generally set up multiple lines with different spacings, and after each rep each kid does, I tell them if they should move to a shorter or longer spacing.
    - Progressive Spacing
        - Vince Anderson has a good chart, if you want to look it up. It has spacing for the wickets and spacing for your first 6 steps going to the first wicket.
        - Every 3 or 4 wickets, they should get 10cm (4") farther apart.
        - Start the spacing at what you would for consistent spacing, or a little closer.
    - Spacing specific to hurdling

        - Guys 1.8m. Get used to being fast with that stride length for hurdles.
        - Girls 1.7m. Get used to being fast with that stride length for hurdles.

Workout Types and Progressions

- Acceleration work: This is sprints of up to 30 meters in length (possibly shorter for lower level sprinters/jumpers) with full recovery. This requires 45-60 seconds recovery per 10m run after each sprint (2:15 - 3:00 recovery after a 30m sprint, for example). Sometimes it will be broken up into sets, and set breaks would be a minute or two longer than rep recovery. If you use less recovery time, the workout becomes a speed endurance workout.
    - Acceleration workouts should max out at a total volume of around 300m. That doesn't mean you have to or should do 300m all the time. The earliest acceleration workouts could be something like 10-12x15m, and that could eventually progress to 3x3x30m or 8-10x 30m.
    - There are many kinds of starts you can use for these workouts: standing 2 point start, 3 point start, 4 point start, falling start, 1-4 bounds into a start, drop in start, mountain climber start.
    - You can vary the surfaces for these, grass, turf, track, in spikes, in trainers, in flats. Mix it up.
    - Uphill accelerations are great. Having every other acceleration workout be uphill is very beneficial. If you don't have access to a hill, you could do a light sled pull (not heavy).
    - **Example of workout progressions:**
        - 3x(10m, 15m, 20m)
        - 3x(15m, 15m, 20m)
        - 9x20m
        - 10x20m
        - 3x(20m, 20m, 25m)
        - 9x25m
        - 10x25
        - 3x(10m, 20m, 30m)
        - 3x(20m, 30m, 30m)
        - 9x30m
        - 10x30m
        - Progress from upright starts to down starts
        - Down starts to block starts
        - Trainers to spikes
        - Note that more experienced sprinters would skip some of the earlier ones listed. Also, this is far from the only way to progress and is just an example.

        - You can repeat workouts here, with the progression being a change in starting position or footwear.
        - Resisted or hill sprints would be done farther out from your big meets and rarely, if at all, later in the season near big meets.
- Max Speed work: This kind of workout is to increase your maximum speed. Reps will require full recovery (5-10 minutes depending on the length and the athlete).
    - This can be done with any kind of start. If you're earlier in the season, it would more likely be from a flying start, and if it's later in the season, it would more likely be from a block start.
    - If you're using a flying start, you should be at max speed by the time you get into the zone you're using for your fly interval (fly 20m, fly 30m, etc.). This could take a 25-30m acceleration zone before the fly zone to accomplish.
    - Fly runs max out at 30m in length.
    - Block starts max out at around 70m for an elite ~10 second 100m runner and more like 50-55m for a good high school sprinter. Basically don't go more than 7 seconds.
    - In and Out workouts are another variation that can work max speed. Sections of about 15-30m in length that involve going back and forth between sprinting all-out and floating. Example: 3-5x (30m sprint, 20m float, 30m sprint) with 8 minute recovery.
    - Max speed workouts are run at 100% speed.
    - **Example progression: (all fly runs in example would have a 30m fly zone)**
        - 4x fly 10m with 5 minute recovery
        - 5x fly 10m with 5 minute recovery
        - 6x fly 10m with 5 minute recovery
        - 4x fly 20m with 6-8 minute recovery
        - 5x fly 20m with 6-8 minute recovery
        - 6x fly 20m with 6-8 minute recovery
        - 4x block 50m with 6-8 minute recovery
        - 5x block 50m with 6-8 minute recovery
        - 6x block 50m with 6-8 minute recovery
        - 4x block 55m with 6-8 minute recovery
        - 5x block 55m with 6-8 minute recovery
        - 2x3x block 55m with 6-8 minute rep recovery, 10 minute set recovery
            - If it's preseason, you could ease into these by starting with trainers, instead of spikes.
            - This is just one example. There are other ways.
            - You can do a variety of different starts within a single workout.
- Aerobic Work - Extensive Tempo: This is a 70-75% effort/speed run, which is calculated by taking the time you could run for that distance in a race of equal conditions that day, taking into consideration the weather and clothing you're wearing (trainers instead of spikes, for example) and dividing that time by 0.75 for 75%. A 24 second 200m divided by 0.75 ends up being a 32 second 200m extensive tempo.

- Sprinters generally do between 1000m and 3000m of extensive tempo in a single workout, but going beyond 2000m is generally for more of a middle distance type runner or a very experienced runner with years of having done tempo. Sprinters can always physically do more than 2000m of tempo and finish the workout, but doing so tends to affect your other workouts later in the week without providing any extra benefit at all. For a short sprinter, especially a newer one, 2000m is overkill.
- Extensive tempo workouts help to increase your work capacity to be able to handle workouts later in the season that require multiple hard intervals and maintain high quality throughout.
- Example workouts for a short sprinter: 1) 2x6x100m with 1 minute between reps and 3 minutes between sets. This could build up to ~8 per set. 2) 6-8x 200m with 2 minute recovery between each.
- Example workouts for a long sprinter: 1) 2x10x100m with 1 minute between reps and 3 minutes between sets. 2) 10x200m with 2 minute recovery. 6-7x 300m with 3 minute recovery. 5x400m with 3 minute recovery.
- Some people vary the distance within a workout, and there's nothing wrong with that. Some like the variety within a workout. I find it easier for athletes to feel out the pacing and just be smooth in the later reps when the distance is kept the same.
- Extensive tempo workouts should not be hard days. They should be smooth, relaxed, and with good form. Your hip posture should be neutral. Your torso should be upright.
- You should feel this workout more in your lungs than your legs. If you feel like your legs are getting acidic, your options are to slow down (if you picked too fast of a target time), take a set break at halfway, break the intervals into shorter intervals, or just end the workout. It's never worth pushing through the workout that's supposed to be easy and turning it into a hard one.
- In Summer, you can gradually build up the volume of extensive tempo workouts, so it's fine to start low. Better to start low and build than start too high and get overtrained.
- Longer extensive tempo intervals are for aerobic capacity(ability to run for longer). It's generally more for long sprinter types.
- **Example of a progression for aerobic capacity workouts:**
    - 5x400m @75% with 3 minute recovery
    - Same with 3.5 minute recovery
    - Same with 2 minute recovery
    - 7x300m @75% with 3 minute recovery
    - Same with 2.5 minute recovery
    - Same with 2 minute recovery
    - 6x300m @77.5% with 2-2.5 minute recovery

                - If you're in a down week, lower the volume of extensive tempo workouts by 25%-33%, or if you're normally doing 2 extensive tempo workouts, you could eliminate one entirely.
        - Shorter extensive tempo workouts are for aerobic power (ability to run at a faster pace while still being aerobic).
        - **Example of a progression for aerobic power workouts:**
            - 10x200m @75% with 2 minute recovery
            - 10x200m @77.5% with 2 minute recovery
            - 12x150m @75% with 90 second recovery
            - 12x150m @77.5% with 90 second recovery
            - 2x10x100m @75% with 60 second rep recovery, 3 minute set recovery
            - 2x9x100m @75% with 60 second rep recovery, 3 minute set recovery
            - 2x8x100m @75% with 60 second rep recovery, 3 minute set recovery
                - Volume drops at the end, as you transition to more of a maintenance workout.
                - If you're in a down week, lower the volume of extensive tempo workouts by 25%-33%, or if you're normally doing 2 extensive tempo workouts, you could eliminate one entirely.
                - If you have low work capacity, you would want to build up your volume of these workouts in pre-season. That could start with ~12 100m reps and slowly build up to more like 20 reps.
                - Some short sprinters would be better off with a lower volume version of this progression.
                - This is just an example and far from the only way to progress.
- Aerobic work - non-running workouts: These are workouts that will help improve your work capacity while not adding more impact to your week of workouts, so you're recovering better from your harder days. Short sprinters and jumpers will tend to do more of these than long sprinters, but long sprinters will do them, too.
    - Bodyweight Circuits: ~10 minutes worth of bodyweight exercises that are 20-45 seconds in duration. If the workout is more recovery in nature, the rest time is equal to the work time. If it's more conditioning based, the rest time can be ~half the work time. Roughly ⅔ of the exercises are lower body with some upper body and core exercises mixed in.
    - Core Circuits: ~10 minutes worth of core exercises that are 20-60 seconds in duration. Rest time is 5-20 seconds.
    - Hurdle mobility exercises: ~10 minutes worth of hurdle mobility exercises.
    - Resistance band exercises for hip stability: zombie walks forward and back, side shuffle, side leg raises, isometric side leg raises. For side leg raises, your body should be completely straight, and your hips should be perpendicular to the ground.
    - Animal walks: duck walk - forward, back, and sideways, bear walk, panther walk, inchworm, crab walk, sideways pushup position crawl

    - Cross-train - Biking, swimming, elliptical ~30 minutes. These are all better options than a distance run. Biking can force you into being even for a bit, which can be helpful for someone with imbalances.
- Glycolytic work-capacity work - short speed endurance based workout that can be useful to do every other week or so, but is not the focus of the training period.
    - Explanation: have someone that's a reliable timer. Have them time you do 40 yard sprints with a stopwatch (not a phone…) and react to your first movement. Record the time for every sprint. Go all out in every sprint. Take ~75 seconds between each sprint. You keep going until there's a 5% dropoff in time. For a 5.00 40y, that would be going until you run one at 5.25 or slower. I usually do a minimum of 8, but some kids end up doing 40+ of these once they've done it a few times. You can repeat this workout every other week or so in pre-season and it will progress on its own, as you'll start getting more reps before dropping off.
    - You can also progress through a more set design and adjust it along the way, if you need. Here's an example:
        - Start with 10x30m with 75 second recovery
        - Add a couple reps each time
        - Eventually take go to 35m reps and take off a few reps
        - Add a couple reps each time
        - Same process with 40m sprints
- Intensive Tempo workouts (Lactic Capacity work) are interval workouts in the 80-90% intensity range and 100-400m in length. The total volume is generally 800-1200m for a long sprinter. Short sprinters generally don't do these, or they do a low volume version (500-800m in length) and not often. To progress from one Intensive Tempo workout to the next, don't add volume. Start with your highest volume one and either stay that volume or go slightly lower later. Progress by making the next workout faster. You can up the recovery by a minute and up the speed, or just up the speed slightly. These workouts can be very intense and require recovery for a few days after and being fresh going into the workout to get the most out of them. It's hard to fit many of these into a season, but don't force them in just to do them, if there won't be enough recovery. You can lift after these workouts, but it would be more dumbbell based and less (if any) of the big bilateral lifts.
    - Example workouts:
        - 5x200m @85-89% with 3-5 minute recovery. 3 minute recovery on the 85% end, 5 minute recovery on the 89% end.
        - 4x300m @85% with 4-5 minute recovery. I use this more for someone that might run a 600m at some point in winter.
    - **Example progression:**
        - 4x300m @85% with 4-5 minute recovery
        - 6x200m @85% with 3 minute recovery
        - 5x200m @87.5% with 4 minute recovery
        - 5x200m @90% with 5 minute recovery

        - Type of progression would depend on the type of athlete. Someone with a little 800m ability might stay higher on the volume or stay lower on recovery time while just upping the speed.
        - Someone with lower work capacity or more of a 200m runner would likely skip the 300m intervals and just do 200ms.
- Speed Endurance workouts involve getting to about max speed and holding it or very close to it for an extended period of time.
    - From a neural perspective, you're only really working speed endurance up to 80-100m, depending on your ability level.
    - For the purpose of improving muscle glycogen stores, you can see these improvements in sprints that go 150m or so, but you can also see those improvements in the 90-120m range.
    - These runs can be broken up with a sprint - float - sprint format. Sprinting sections are full effort, while the "float" sections are relaxed but fast. Some call floating "98% speed with 90% effort".
        - Sprint-float-sprint example workout - 3-4x120m (40-40-40 sprint-float-sprint) with 6-10 minute recovery, depending on the goal. This would be a 40m sprint that transitions into a 40m float, that then transitions into a 40m sprint.
    - **Example Neural Speed Endurance Progression:**
        - 3x70m with 10+ minute recovery
        - 3x75m with 10+ minute recovery
        - 3x80m with 10+ minute recovery
        - 3x85m with 10+ minute recovery
        - 3x90m with 10+ minute recovery
        - 4x80m with 10+ minute recovery
        - 4x85m with 10+ minute recovery
        - 4x90m with 10+ minute recovery
        - Note: it's important to cut these workouts short if quality starts to drop off. Time them, and even a few tenths of dropoff could be a sign to stop, especially in the 4x rep workouts.
    - **Example Glycolytic Speed Endurance Progression**
        - 120m, 100m, 80m, 80m with 6-8 minute recovery
        - 4x120m with 6-8 minute recovery
        - 2x(120m, 100m, 80m) 6 minute rep recovery, 10 minute set recovery
        - 3x150m @ 95% with 6-8 minute recovery
        - 4x150m @95% with 6-8 minute recovery
        - 200m, 150m, 150m @95% with 8 minute recovery
        - 3x150m Sprint-Float-Sprint (50m-50m-50m) @98% on sprint and 90% on float. (taper workout and 200m race prep)
        - 2x150m Sprint-Float-Sprint (50m-50m-50m) @98% on sprint and 90% on float. (later taper workout and 200m race prep)

        - There are other ways of progression this, like starting with 100m reps and making reps progressively longer, while keeping the total volume no higher than 600m. 6x100m, 5x120m, etc.
- Lactic Power Workouts (AKA Special Endurance I and Special Endurance II) - These workouts are done so your body gets better at functioning at a high level while under a high level of acidity.
    - Special Endurance I workouts are generally around 200-400m in length and around 600m-1000m in total volume, at 90-100% intensity with full recovery between reps. Full recovery, depending on the intensity, could be 10-30 minutes.
        - Example workout 1: 3x300m @90% with 12 minute recovery.
        - Example workout 2: 2x300m @95-98% with 20 minute recovery.
        - Example workout 3: 2x40 seconds @100% with 20 minute recovery. If you're trying to hit around 300m, it would be more like 50 seconds for girls. I generally put cones out for every 2 meters from 270-330m and record how far they covered in the given time.
        - Example workout 4: "split 400" - 2-3 sets of 2x200m @95% with 30-60 seconds between reps and 20 minutes between sets. Something to aim for could be the 200m splits you want to hit in a race, so for a 50 second 400m runner, try and get a 24, then a 26. Could do a rolling/flying start into the second rep to make it easier to accomplish that.
        - Keep in mind that a meet where you run a 200m and a 400m or 400m + 4x4 is a hard Special Endurance I workout. A single dual meet race of 400m that's not all out could be a more moderate Special Endurance I workout.
    - **Example Progression:**
        - Note: it's common to do the same intervals multiple times, while changing the recoveries or pacing the following week. A normal high school season doesn't lend itself to getting many of these workouts in, but track meets will go a long way towards covering this aspect.
        - 3x300m @90% with 15 minute recovery.
        - 3x300m @90% with 12 minute recovery.
        - 3x300m @90% with 10 minute recovery.
        - 2x300m @95% with 20 minute recovery
        - 2x300m @98% with 20 minute recovery
        - 2x300m - same pacing as first 300m of your 400m race with 20 minute recovery (early taper workout and 400m race prep)
        - 300m, 200m - same pacing as first 300m (then first 200m in the 200m rep) of your 400m race with 20 minute recovery (later taper workout and 400m race prep)
    - Special Endurance II - has at least 1 rep over 400m and generally has a volume of 1200-1500m or so total. This is more for a 400-600 type runner, but some would do it once a season for a primarily 400m runner. Aside from length of

interval and total volume, the rest of the workouts are the same as Special Endurance I.

- Example workout: 300m, 600m, 300m all at 90-95% with 20 minute recovery.