PITTSBURGH PIRATES

TEACHING & ASSESSING THE BIOMECHANICS OF BASE RUNNING & FIELDING THROUGH ATHLETIC MOVEMENT PRINCIPLES

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THE IMPACT OF PROPER BASE RUNNING TECHNIQUE

REEVALUATING THE IMPORTANCE OF ATHLETIC MOVEMENT

- Every organization needs a method for all of their minor and major league players to subscribe to. This should include base running, fielding stances, and fielding technique.
- There is not one MLB franchise that has a coach or trainer that is base running coach. Base running is viewed as a concept that does not need an expert to coach. Just as each hitter and pitcher have variances in their technique, runners do also. There needs to be an expert that can determine if running technique is a proper variance or if it is incorrect.
- Before, during, or after a game, who is reviewing film to determine your players' and your opponents' running ability?
- Before, during, or after a game, who is reviewing fielding stances and movement along with the opponents' fielding stances and fielding range of motion?
- Players go into the clubhouse to watch film after they hit so why are they not going through the same improvement process for base running?
- Just like throwing and hitting mechanics, every player (including pitchers) should be expected to continuously improve their ability to run the bases correctly.

SABERMETRICS

- Every decision has to be judged on the basis of current data and correct technique so you can play the odds. The result should not always judge the decision. Some players steal a base with terrible technique while others do everything right but get thrown out because the pitcher and catcher did an excellent job.
- When a player's statistics on base running and fielding is assessed and the data is poor, who is fixing the physical problems?
- Players are being tracked more and more but even though there is an overabundance of data, statisticians are still trying to figure out how to parcel the information into digestible pieces and use it in an appropriate way.
- It is impossible to make good decisions on sending runners, calling hit and runs, etc if people are not running correctly. Some players cannot steal bases because of technique issues, not because of force production. Some players will be able to be more active on the bases once they learn the fine details of base running.
- You can make other teams' Sabermetrics incorrect with improve athleticism. All collected data only informs you of what happened in the past so if a player's technique has improved and now they are a base running threat, that gives you advantage because teams will be using outdated information to determine that player's current tendencies and abilities.
- What do you do if you have a bunch of guys that cannot hit doubles? The answer is that you have to be more active on the bases so it has to be coached at a very high level.
- Improved base running will lead to more total bases which will lead to more runs.
- What would happen if each player got one more hit per week because of their ability to beat out ground balls?

QUESTIONS THAT ARE ALREADY BEING CONSIDERED FOR DETERMINING IF A PERSON CAN STEAL A BASE:

What is the pitcher's throwing speed?

What pitch is statistically coming next?

What is the pitcher's ability to pick off runners?

What is the catcher's ability to throw out runners?

How important is it to move the runner?

QUESTION THAT SHOULD ALSO BE ASKED:

What is the running ability of the base runner?

If a base runner has the speed and technique, then he should try to steal a lot of bases. It puts a lot of pressure on the pitcher and catcher and keeps them from focusing on the hitter which gives the hitter greater odds of success. Most coaches assume that the pitcher and the catcher will do everything right but they are not accounting for the human error that is caused by a disruptive base runner.

QUESTIONS THAT ARE ALREADY BEING CONSIDERED FOR DETERMINING IF A PITCHER SHOULD ATTEMPT A PICK-OFF MOVE:

What is the pitcher's throwing speed?

What pitch is statistically coming next?

What is the pitcher's ability to pick off runners?

What is the catcher's ability to throw out runners?

What is the running ability of the base runner?

How far is the runner's lead?

How important is it to move the runner?

QUESTION THAT SHOULD ALSO BE ASKED:

What is the athletic position of the base runner?

This is an important question to ask because the athletic positioning will be one indication of if the runner will try to steal a base and/or if they are in a position to quickly get back to the bag. It is also important because every time a pitcher throws to a bag energy output is not directed at the hitters. If a runner is not in a good athletic position then they will have many improper or wasted movements that increase the time that is taken to get back to the bag. Proper and improper technique on leading off will be discussed below.

IMPROVED ATHLETICISM

- People can get better at something by either improving a physical function or improving their technique. A person can get faster with improving their technique without improving anything about their athleticism or force production. The movement just becomes more efficient and their forces get pointed in the correct direction.
- Everyone can and needs to get faster in the field and on the bases. They might not get fast but they can get faster.
- An inch can be the difference between a caught ball, a hit, a run or a momentum shift in a game or series.
- The physical and mental preparation is just as important as the physical action.
- Proper positioning leads to success just like on the mound or at the plate. Initial running technique mistakes get compounded exponentially over the course of 90 feet.

THE HUMAN ELEMENT

- A runner who steals a lot of bases or always sprints down the 1st base line puts pressure on the defense which leads to human error
- Sprinting out the batter's box will allow a player to take advantage of minor errors or bobbles. All players should start off sprinting and then slow down when needed. If a player jogs out of the batter's box and then decides to sprint, it is impossible to accelerate correctly even when they try to. If a player does not start off with proper technique, they will not be able to reach top speed.
- It is fair to tell the players that on most balls in play it does not matter if you sprint full speed but they still need to do it to get to that one ball or take advantage of a bobble.

FOUNDATIONAL ATHLETIC MOVEMENT PRINCIPLES

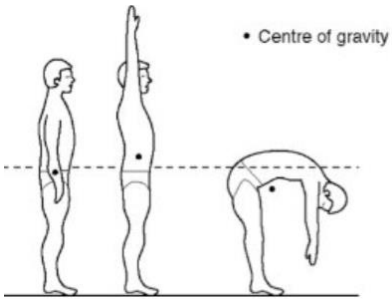
Before proper base running is discussed, a few Athletic Movement Principles need to be defined for further use and discussion. The following concepts are required for all athletic movement to improve fluidity, to produce maximum force, to make limbs move faster and more efficiently, and to reduce injury risk. These principles allow for the body's structural systems and the nervous system to maximize performance.

1. Neutral Head

For any athletic movement, the head should always be in Neutral Position, where the head is in line with the spine. The purpose of this is to keep the spine from putting a "kink" in itself. The spine works like a water hose and does not work if there is a "kink". If there is a "kink", the electrical impulses do not flow correctly to the muscles. The head can be rotated and turned but there cannot be a "kink". For the pictures below, you can see proper Neutral Head alignment.

2. Center of Mass

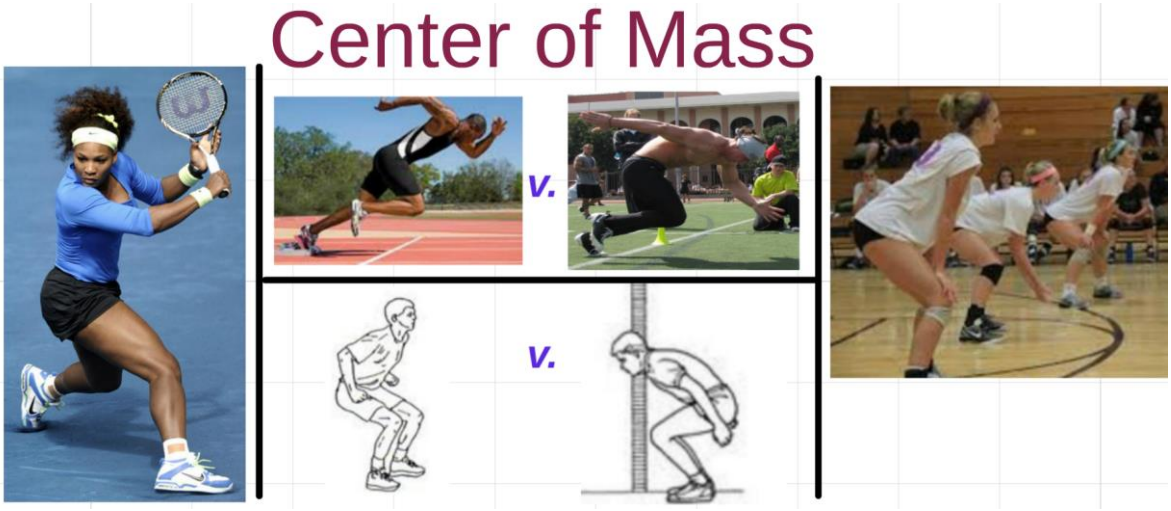
The body's center of mass sits right around the belly button and is the balancing point of the body. By just moving the shoulders a fraction of an inch, the Center of Mass will move and the body will compensate for the shift. If the Center of Mass is not where it is supposed to be, an athlete's current movement and their next movement will be compromised. The Center of Mass is one of the key ingredients that helps determine the proficiency and efficiency of the next movement. The picture below shows how the Center of Mass can move with each differing body position:



The Center of Mass can be felt in the pressure that is being exerted on an athlete's feet so they can always "feel" where their Center of Mass is and if it needs to be adjusted. In the above pictures, the person to the left will feel even pressure on their feet since their Center of Mass is sitting in the Anatomically Correct Position. For the person to the right, they will feel more pressure in the front half of their foot since their Center of Mass has moved forward.

For the pictures below, you can see:

- Serena Williams has perfect balance and this will allow her to not only hit the ball well but it will allow her to recover and be able to prepare for her opponent's return.
- For the 2 sprinters, the one on the left has a balanced Center of Mass (even though it has moved forward), where the sprinter on the right will have a Center of Mass that is too far forward and will make him run incorrectly.
- For the volleyball players, the girl in the middle's Center of Mass is too far forward which will cause the pressure in her feet to be too far forward which will make it hard for her to move laterally to get a ball.
- For the 2 drawings of men doing the vertical jump, the person on left will be able to jump higher because his center of mass is not being pushed forward. The person on the right will jump diagonally and up since their Center of Mass is too far forward.



3. Proper Upper-Body Position

One of the most injured parts of the body is the lower back. In most cases, people have poor posture which leads to their body's pressure residing in their lower back. If the upper-body is positioned correctly, the body's pressure will go into the hips and will be supported by a greater volume of muscle. Having a proper upper-body position will also keep the Center of Mass centered so there is an equal amount of pressure on the feet. As soon as the shoulders shrug forward, the Center of Mass also moves forward. Having a proper upper-body position will also keep the torso rigid and will keep the athlete from wobbling in any direction. The pictures below show the proper upper-body positioning:

4. Shin Angles

Along with the Center of Mass, the angle of the shins will determine the angle, efficiency, and proficiency of the next athletic movement. If the shins are leaned to a particular direction, then that is conducive to moving in that direction. This is why track athletes, in their starting blocks, have a front shin angle of 45 degrees. Since they want to come out at about 45 degrees they set their shin to make that happen. If the shins are vertical, that is conducive to preparing to move in whatever direction is necessary. Baseball fielders, basketball defenders, soccer goalies, etc should all have vertical shins because they do not know where they will have to go next since their next movement will be decided upon by their reaction to some stimulus.

For the pictures below, you can see:

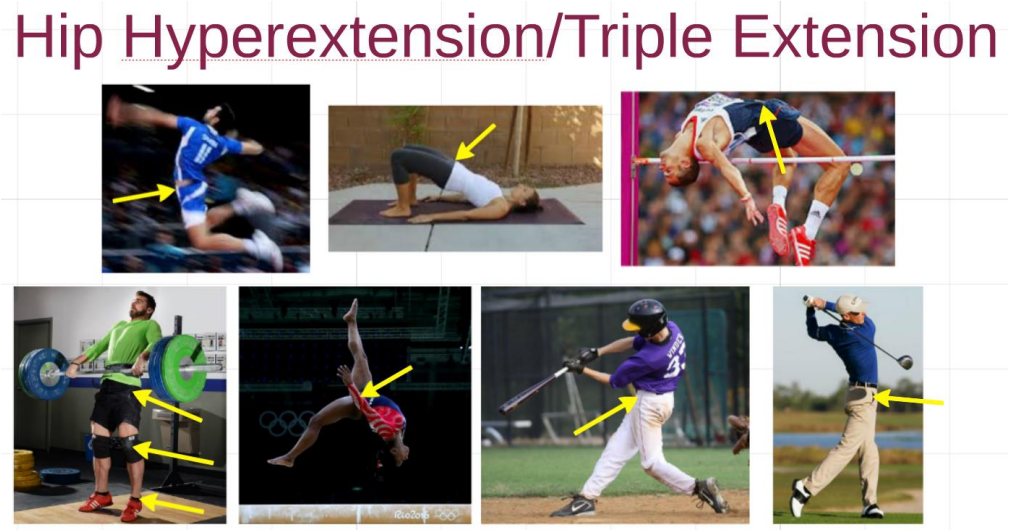
- The man squatting has his shins pointing vertical since he is trying to push the weight vertical.
- Mike Trout has his shins at about 45 degrees so he can push diagonally backwards to cause horizontal displacement. Since the body's proper acceleration position should be at 45 degrees, he has set his shins to the same angle.
- Lebron James has vertical shins because he is playing defense and waiting to react to court or player movement.
- The Lacrosse player is getting ready to cut to his right so his shins need to be pointed that way.

5. Stretch Reflexes

If you stretch a rubber band or a spring, it does not take any more energy to push the rubber band or spring back to its original position. Since there is potential energy stored in either item, the item will naturally snap back. Muscles work the same way and no movement is capable until the muscles have be "loaded" into a position that they can fire. If the muscles are not pre-loaded, the body will load them before the movement can occur. For example, all athletes have to bend their knees before they jump or run. The following pictures show where different Stretch Reflexes occur:

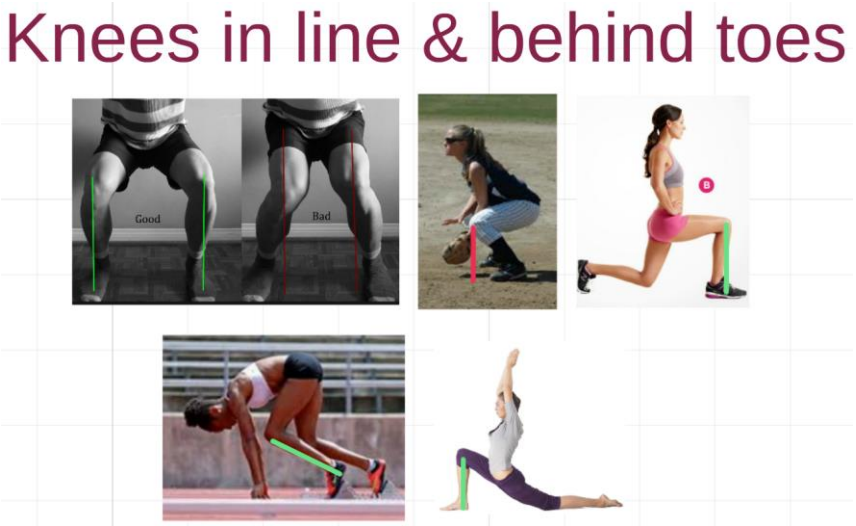
6. Hip Hyperextension & Triple Extension

Hip Hyperextension is the act of driving the hips through to be in front of the chest. Hip Hyperextension causes the front of the body to get into its Stretch Reflexes and prepared to "fire". Hip Hyperextension also allows the body to maximize force production in a variety of ways and to change the location of the Center of Mass. Triple Extension is the body position where the Hips, Knees, and Ankles are extended as far as possible to create force. The following pictures show examples of athletes using Hip Hyperextension and Triple Extension to their advantage.



7. Knees Stay In Line With & Behind Toes

To reduce injury, the knees should always be located behind and in line with the toes. If the knees go past the toes, there is an exponential amount of pressure that goes into the knee. If the knees dip in or out, the ligaments of the knee are negatively affected. The following pictures show the positive ways (green lines) and negative ways (red lines) for positioning the knees in relation to the toes:



8. Matching Arm and Leg Patterns

To stay as balanced as possible, the arms should always mimic the movement of the legs. If the legs are moving through short or long ranges of motion, then the arms should also. If the legs are moving independently of each other, then the legs should also. If the legs are moving together, then the legs should also.

9. Limiting Heel Displacement and Decreasing Ground Contact

Two of the main differences between slow people and fast people are the ability to stop their momentum and the ability to get off the ground quicker. Fast people can stop their momentum so they can transfer it to the next desired location while limiting the amount of time that their foot is in contact with the ground. When a fast person lands, their heel displacement will be very minimal and will allow them to get off the ground immediately. Slow people land and their heel displacement is very long so it is very hard for them to change direction and to get off the ground. Basically, the reaction time of the lower leg and foot determines the speed of an athlete.

SPRINT TRAINING THEORY & MECHANICS

After knowing the general Athletic Movement Principles, a person then needs to learn sprint training theory. Topics such as stances, mechanics, and practice principles all need to be learned before base running can be dissected.

GENERAL QUESTIONS

- How do you get faster?

  The answer is to run fast. Just like anything else in life, the best way to get good at something is to practice it. How would a baseball player get better at hitting Curveballs? The answer is obviously to go to the cage and hit a lot of Curveballs. Even though there are many other support exercises to that can help a movement, nothing beats actually doing the movement.

- How often should we work on sprint training?
  - Train for this exact skill 3 days a week
  - You can do a maximum of 6 sprints per session. Anything more than that will turn into Speed Endurance work.
  - There has to be adequate rest between each sprint. If a person is running full speed, the USA Track & Field formula is 1 minute of rest for every 1 meter run. For example, if a person ran the 100 meter dash, they would need 10 minutes to fully recover to run full speed again.
  - There are only two ways to get faster. An athlete can improve their stride frequency and/or their stride length.
- What is the best way to dissect sprint training?
  - The well trained human eye can see a lot of the incorrect movements that a sprinter will make
  - Filming and breaking down the movement with the athlete makes the most impact.
- How do you make it sprint training to be sport-specific?
  - The first thing any coach should do is breakdown all of the different positions that an athlete will use for their sport
  - Then the coach should breakdown all of the transitions that are made during a contest
  - Then the coach should create sprint workouts that mimic the positioning and transitioning that the athlete will use.

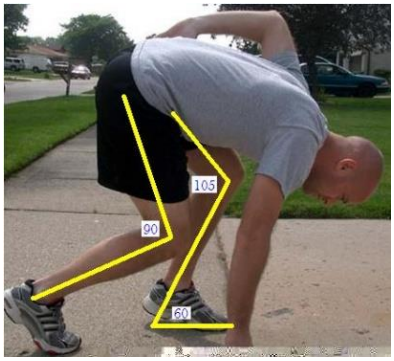
3-POINT TRACK STANCE

When a track runner gets into their blocks, proper technique involves:

- The back is as flat as it possibly can be so the Center of Mass does not move too far forward.
- The head is in Neutral Position to allow for the nervous system to effectively fire.
- The butt is above head and the back is at a 45 degree angle to the ground.
- The feet are hip width apart.
- The front shin is at a 45 degree angle since they want to come out at a 45 degree angle.
- The front knee is at a 90 degree angle to create a Stretch Reflex in the Glute/Hamstring connection.
- The back knee is at a 120 degree angle so the back leg can push off of the pedals while creating a longer lever since the longer the lever, the faster the foot moves.
- The athlete will put their power/jumping leg in front. The power/jumping leg is usually their non-dominate leg. For righties, they would put their left leg forward and for lefties, they would put their right leg forward.
- The weight should be slightly to the inside balls of the feet because that is where the pressure is put when jumping.
- The Achilles should be stretched to get a slight Stretch Reflex.
- The hands are placed slightly wider than shoulder width apart to create a balanced stance and to allow for the arms to move fluidly without contacting the legs.
- A proper stance will eliminate all of the following false steps: Dipping to get to the Stretch Reflex, Moving the front foot first, or stepping in an undesired location.

Correct Track Stance

Incorrect Track Stance



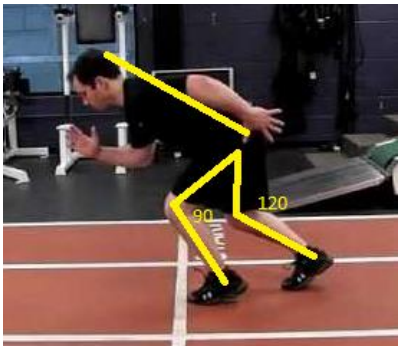
Correct Track Stance Video

2-POINT TRACK STANCE

When a track runner gets into a 2-point stance, proper technique involves:

- The back is as flat as it possibly can be so the Center of Mass does not move too far forward.
- The head is in neutral position to allow for the nervous system to effectively fire.
- The back is at a 45 degree angle.
- The feet are hip width apart.
- The front shin is at a 45 degree angle since they want to come out at a 45 degree angle.
- The front knee is at a 90 degree angle to create a Stretch Reflex in the Glute/Hamstring connection.
- The back knee is at a 120 degree angle so the back leg can push off of the ground while creating a longer lever since the longer the lever, the fast the foot moves.
- The athlete will put their power/jumping leg in front. The power/jumping leg is usually their non-dominate leg. For righties, they would put their left leg forward and for lefties, they would put their right leg forward.
- The weight should be slightly to the inside balls of the feet because that is where the pressure is put when jumping.
- The Achilles should be stretched to get a slight Stretch Reflex.
- There should be a little air underneath the heels.
- The hands should mimic the legs since the arms and legs should always be synchronized.
- A proper stance will eliminate all of the false steps: Dipping to get to the Stretch Reflex, Moving the front foot first, or stepping in an undesired location.

Correct Track Stance



UNIVERSAL ATHLETIC POSITION

When an athlete gets into the Universal Athletic Position, proper technique involves:

- The back is arched so the Center of Mass does not move too far forward. You should be able to read the writing on the player's chest.
- The head is in Neutral Position to allow for the nervous system to effectively fire.
- The feet are shoulder width apart.
- The shins are vertical so the athlete can move in multiple directions.
- The knees are at a 90 degree angle to create a Stretch Reflex in the Glute/Hamstring connection.
- The weight should be slightly to the inside balls of the feet because that is where the pressure is put when jumping. There should be pressure on the entire foot though.
- The knees should stay in line with the toes.
- The hands should be in whatever position is most advantageous for that moment.
- A proper stance will eliminate all of the following false steps: Dipping to get to the Stretch Reflex, Moving the front foot first, or stepping in an undesired location.

Correct Universal Athletic Position

******Incorrect Universal Athletic Positioning will be discussed in the section detailing "Taking a Lead"***

ACCELERATION MECHANICS

While going through the process of accelerating, proper technique involves:

- Both feet should push of the inside balls of the feet, jump, and try to cover as much horizontal distance as possible while still being able to stay at a 45 degree angle.
- The athlete should not pick their feet up and put them down before moving.
- The body comes out and stays in straight line, at a 45 degree angle, for the first 10 yards to keep the Center of Mass in the proper position and to ensure proper foot strike to cause horizontal displacement.
- If there is any bend at the waist, the Center of Mass will move too far forward and will cause a side-to-side motion like a speed skating motion. If a coach tells an athlete to "stay low", they will almost always bend at the waist.
- If the original stance is good, then the body will come out at the proper angle and an athlete does not need to concentrate on the proper angle.
- Initially, there is a big arm swing to match the big push from the legs. After the initial push, the stride frequency increases.
- The best way to increase horizontal displacement is to push through the back leg, not to reach and pull from the front leg.
- The length of the first step will vary with each athlete's height and force production. The main thing to check for is if the front shin lands at a 45 degree angle.

RUNNING FORM

While going through the process of running, proper technique involves:

- The athlete's limbs should stay in the anatomically correct position. The elbows should be under the shoulders and the knees should be under the hips.
- The shoulders should basically stay above or very slightly in front of the hips to keep the Center of Mass in place. The shoulders should not swing side-to-side.
- The shoulders should be in an anatomically correct position to allow the arms to swing forward and backward. If the shoulders are even slightly rolled forward, the arms will start swinging side-to-side.

- One of the difficult things about running is the parts of the body that are needed to run fast should move violently but the parts that are not needed should remain completely still and unengaged.
- There should be no body tension in face or the neck and that usually occurs by squinting their eyes or grinding their teeth.
- There should be no body tension in the hands or the forearms which occurs by clinching or completely opening the hands. The hands should sit in a relaxed position.
- The athlete should run perfectly straight to decrease the distance traveled. This is caused by all body parts either going in the intended direction or traveling 180 degrees away from the intended direction.
- For the arms, the athlete should concentrate on driving the elbows backwards to cause a Stretch Reflex in the shoulders. Most people keep their arms at 90 degree angles but the best runners open their arms up to a slight obtuse angle on the back swing and transition to a slight acute angle on the front swing. If that occurs the arm will correctly swing up to the cheek.
- The leg cycle should occur by lifting the knee up to their groin while the heel comes up to the Glutes, and then the foot is reached out in front of the body.
- The foot will land with the toes pointed forward or in a slight pigeon toe that is very slightly behind the hip to cause forward movement.

Correct Side View

Correct Side View

Correct Front View

Incorrect Front View:

- Shoulders are swinging side to side
- Shoulders are too far in front of the hips
- The foot placement is pointing to the outside
- His right hand has rotated backwards

Incorrect Front View:

- There is too much face and neck tension
- His head is not in Neutral Position

Incorrect Side View:

- The shoulders are swinging side-to-side
- The arms are traveling across the body

DECELERATING

While decelerating, an athlete…

- Will take more time to decelerate if they are running faster.
- Should not try to stop as fast as possible unless they are needing to run to the next base.
- Will create a lot of force to stop themselves. If this can be limited, the risk of injury will decrease.

BASEBALL DISTANCES & TIMING CONSIDERATIONS

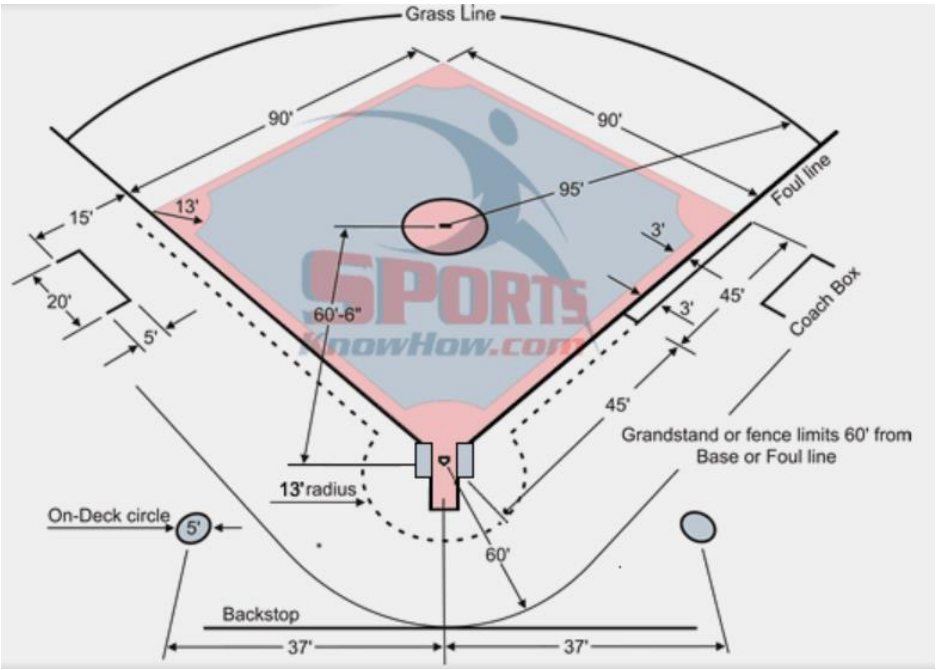
ACCELERATION & DECELERATION DISTANCES

In the 100 meter dash, every athlete:

- Stays in their leaned over position at about 45 degrees from approximately 0-10 meters (0-30 feet)
- Transitions from being leaned over to upright approximately from 10-20 meters (30-60 feet)
- Hits their maximum speed around 40 meters (120 feet)
- Maintains their top speed from about 40-80 meters (120-240 feet)
- Slightly decreases their speed from about 80-100 meters (240-300 feet)
- If they are running at their top speed, it will take about 20 meters (60 feet) to slow down

BASEBALL DISTANCES

The following picture has the traditional baseball field dimensions:



DISTANCES THAT SHOULD BE CONSIDERED WHILE RUNNING BASES

- If the distance from Home to 1st is 90 feet, players should not be upright until they reach 60 feet, which is two-thirds of the way down the base path. They should not be upright until after they hit the double lines.
- If a person does not fully go through the proper acceleration phases then they will never get to their maximum speed. Each phase has to be done correctly and in the proper order and if a phase is incorrect, you cannot fix it later and you will not be able to stay at your top speed for as long as possible.
- If they are stealing from one base to another, the players will take about a 10 foot lead and after they go through their acceleration pattern, they will be 70 feet down the base line before they are upright. Then when you add the distances for sliding, each player should only be upright for about 2 or 3 steps.

- If they take a lead and then shuffle when the ball is pitched, the chances of them being upright from one base to another is highly unlikely.
- In order for players to hit doubles and triples, they have to accelerate as quickly as possible out of the batter's box, so they can hit their maximum speed at the proper distances and so they can stay at their top speed as long as possible. Since it takes 180 feet to get to 2nd base, a runner can get to top speed and stay at top speed until they need to slide or slow down. Since it takes 270 feet to get to 3rd base, the runner needs to stay at top speed as long as possible because they will start slowing down at around 240 feet.

TIMING CONCEPTS

The average reaction time for humans is around .2 seconds. If you were hand-timing someone in a 60 yard dash, you would add .24 seconds to the hand-time to get an estimated electric time, to account for this reaction time. If you want to visualize how much .2 seconds is, take out your phone and start and stop your stopwatch as fast as possible. You will get a time that is slightly faster than .2 seconds since you do not have to react to anything and you know to hit the button as fast as possible.

A time of .2 seconds does not seem like a lot until you apply it to baseball. It is a lot because it is the difference in hitting a ball or not, catching a ball or not, stealing a base or not, and throwing out a runner or not. Think about how many bang-bang plays there are and how many times someone almost got a hit.

The reason why running the bases perfectly is so important is because if you can shrink the times between bases by even .2 seconds, the improvement of a team would be significant.

The most important aspect of running the bases is the acceleration phase. For the athletes that I train, approximately one-third (33%) of their time occurs during one-fourth (25%) of the distance. The ratio is not 1:1. You do not spend 25% of your total time in the first 25% of the total distance. An athlete spends more time in the first one-fourth of their distance than any other one-fourth distance. Because of this, the most improvement can be made in the beginning acceleration phase.

PROPER TECHNIQUE FOR RUNNING BASES

Now that all of the foundational information has been discussed, it is time to detail the techniques that are needed to be proficient base runners.

HOME PLATE TO 1ST BASE

- Batters should warm-up as much to run as they do to hit. Currently most baseball players spend all of their "On-Deck" warm-up time swinging and no time on running. If the players are going to train like track athletes then they should also warm-up like track athletes because that is what their body is used to. For a track athlete that has multiple events, they re-warm-up for each event and the warm-up is determined by what their body has already done during that day's events. Just as pitchers warm-up before each inning, hitters should also run before each At-Bat.
- Most players do a terrible job with getting into the proper acceleration position after they swing normally. Their biggest issue is they get upright too quickly because they are too busy looking for the ball. When they look for the ball, their head lifts and it makes their shoulders rise too quickly. They need to look for the ball but they can do it with proper acceleration mechanics and while still keeping a Neutral Head.

- If the player's first couple steps are incorrect, then they will never be able to get to as close to top speed as possible, because they will have wasted their acceleration window.
- If you truly want to know if a player is running full-speed or not, look at their deceleration phase after hitting 1st base. If they are able to stop very quickly, then they did not run through the bag at their maximum speed.
- After a person swings, they should immediately get into their leaned-over acceleration position. When players Drag Bunt, they do a great job with accelerating.

- To see videos of accelerating during and after drag bunting, click here.
- To see a video of correctly running down to 1st base click here and scroll down to watch the "Byron Buxton Home to First" video.
- To see a video of a very fast athlete beating out a grounder because of properly going through their acceleration phases, click here. Even though Billy Hamilton went through his phases correctly, his running form can be improved by him not shrugging his shoulders and swinging his arms forward/backward instead of side to side. Even though Billy Hamilton is very fast, he can still improve.
- To see a video of a slower athlete beating out a grounder because of perfect technique, click here.
- To see the importance of proper acceleration and the impact it can have on run production, click here.

- Players should never reach for the bag. Even though this could potentially make them safe for one particular play, the risk versus reward is not worth it and they should play the odds to stay healthy.
  - To see a video on the potential risk, click here.
- While running from Home to 1st Base, a player should never slide feet or head first at any time. Not only does it slow down your momentum but it also increases injury risk. Sliding only makes sense when you want to decelerate at a very fast pace and on most plays, the runner does not want to stop at 1st base.
- If a player is trying to lay down a Sacrifice Bunt, they are going to have a very hard time getting into the proper acceleration position because the bunting stance does not lend itself to accelerating. This is a situation where that is alright because the goal is to lay down a quality bunt and to move runners along. The main goal is not to try to get a hit.


TAKING A LEAD

- A proper stance will lead to proper acceleration mechanics to get the next base, get back to the base that they are currently on, react to any stimulus that occurs, and to shuffle correctly.
- The Universal Athletic Position should be used to lead off. While doing this the hands should be tight to the body and not hanging towards the ground. The longer the arm is the more over-rotation occurs when turning and it takes longer to move the arm to the intended slot. You should think of the concept of now allowing the non-pitching arm to be long and out of control.
- The right foot should be parallel to the left foot. Some people teach to turn the right foot towards second, and while that is conducive to a quicker turn towards the next base, it does not allow for proper mechanics to get back to the current base. A correct stance is below:

- The way that the 2nd Base leadoff is executed is usually not the same as the 1st Base leadoff but it should be the same. Players do not get into a good position because they know that they will probably not be trying to steal 3rd Base. Even though they are right, they are not allowing themselves to transition to the proper acceleration position because their initial stance is too tall and they have to bend their knees before they start running which wastes crucial seconds.
- The way that the 3rd Base leadoff is taught is not conducive to running forward or getting back to the bag. Most players have a very slight bend to their knee and their hip are pointing towards home. This stance does not allow for anything positive to occur.
- Most players try to "Get Low" instead of bending their knees until they feel the Stretch Reflex. They try to get low by bending at the hips instead of bending at the knees. This is a problem because it pushes their Center of Mass towards Home Plate which will cause them to not run in a perfectly straight line to the next base.

STANCE BREAKDOWNS FOR LEADS

- Knees are at the correct angle to create the Stretch Reflex
- The shoulders are rolled forward which is putting a lot of stress on the lower back and is pushing his Center of Mass forward.
- Since his shoulders are slouched forward, his head cannot be in Neutral Position because he still has to see.
- Shins should be more vertical since he does not know which way he will be running. Right now his shins are set-up to run towards home plate.
- Arms are not bent and his hands are too low. When he moves his arms there will be too much range of motion and he will over-rotate.

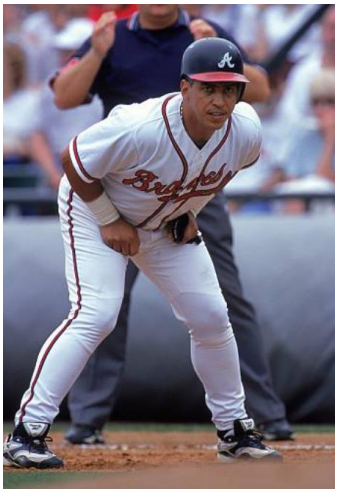
- Knees are not bent to create the Stretch Reflex.
- Arms are not bent to decrease the amount of rotation.
- The right foot is pointed too far towards the next base instead of being parallel with the left foot

- Left arm is on his hip
- Right arm is not bent
- Knees are not bent at a 90 degree angle

- They are trying to “Get Low” by bending at the hips instead of at the knees
- Their hands should be off the hips and closer to the chest

- Is not bending his knees
- Hands are wide and will cause over rotation when he runs

- The upper and lower-bodies are both turned towards 2nd base
- The hands should be closer to his chest



- His knees are not bent to 90 degrees
- His knees are not in line with his toes which will put pressure on the ACL while in his stance and when he pushes off
- Hands should not be tucked into the hips

- Their legs are too wide which will not allow them to generate enough force when they push-off
- The hands should be off of the legs

- He is on 3rd base but his feet are pointed to 1st base. He is not in a position to run towards Home Plate or to get back to 3rd Base
- His knees are not bent to 90 degrees

GETTING PICKED OFF

This summer I was at a Yankees v. Nationals game and the following situation occurred. I was able to film the replay on the Jumbo-Tron.

The runner below got on base, got into an incorrect stance, had to bend his knees before he got back to the bag, and got thrown out.

To see videos of multiple players getting into incorrect stances and then getting picked-off, click here. You might need to put the video on slow-motion to really see the “false-steps”. The best videos are at the following times:

- 1:44
- 2:09
- 2:22
- 3:33

STEALING BASES (ACCELERATING FROM THE UNIVERSAL ATHLETIC POSITION)

When accelerating, from the Universal Athletic Position, two things have to happen:

1. The body has to turn and get itself pointed towards the next base
2. The body has to get leaned over into the 45 degree acceleration position

To be able to accomplish these two goals:

- Arms should be bent and the hands should be close to the chest.
- When rotating, the upper part of the right arm should move parallel to the ground.
- The elbow should only cause enough force to get the chest pointed to the next base but not over rotate
- The right shoulder should be pushed out in front of the hips to allow for the head to be in front of the shoulders, the shoulders in front of the hips, and the hips in front of the feet.
- While the shoulders are turning and getting out in front of the hips, the left leg should also be coming across the body. This should all happen in one motion and not in two phases.
- The right foot should not be picked up and then put back down. There should only be rotation on the ball of the right foot.
- Many players only do this correctly if they are attempting to steal but it should be done at all times to create proper acceleration patterns.

Correct Side View

Correct Side View

Incorrect Side View:

- His head is not in Neutral Position which will cause his shoulders to rise to quickly
- He has already turned his shoulders but his left leg is not coming across

To watch Rickey Henderson running the bases, click here. The correct videos are at the following times:

- 1:20
- 1:37
- 1:50
- 2:20

The following videos are examples of when Rickey Henderson was incorrect because his head was not in Neutral Position or he picked up his right foot first before trying to accelerate:

- 0:52
- 3:25
- 3:44

To see a video of correct arm rotation, click here and watch the right side of the split screen. Do not listen to the audio because the presenter is discussing techniques that he thinks are correct but are actually not.

TAG-UP STANCE

When going to Tag-Up, each athlete should:

- Get into the 2-Point Acceleration Stance that was discussed above.
- There are some coaches that believe that the athlete should have different feet forward and the decision hinges on which base they are on and where the ball is hit. They believe that this is the best way to do it so the runner can turn their body to see when the ball is caught. I do not believe that it gives you an advantage to have different feet forward. I believe that every athlete should put their Power/Jumping leg in front to improve acceleration times and patterns.
- Even though the runner is looking for the ball, they should have a Neutral Head and then just turn their head.
- Their hands should be placed so that they have their opposite leg and opposite arm forward to simulate proper running mechanics.

Correct Tag-Up Stance

Incorrect View:

- His head is not in Neutral Position
- His feet are not pointed towards 3rd base
- His knees are not bent to 90 degrees
- The front shin is vertical

Incorrect View:

- Her head is not in Neutral Position
- Her hands should not be on her knees
- Her knees are not bent to 90 degrees
- The front shin is vertical

Incorrect View:

- She should have her right arm forward since her left leg is forward
- Her body is too far leaned forward so her Center of Mass will cause her to not run in a straight line

SHUFFLING

When shuffling out of a lead, each athlete should:

- Get into the Universal Athletic Position that was discussed above.
- They should shuffle with their shoulders level the whole time. Most runners bob up and down and do not stay in their Stretch Reflexes. The problem with this is if the runner decides to run when their legs are straight, they have to bend their knees before they run
- While shuffling, the runner should not reach with the front leg but should push through the back leg to create the most horizontal displacement.
- A runner should not click their heels together while shuffling. If he does this and when his feet are close together, he will not be able to do anything athletic until his feet spread apart.
- The following picture shows how to correctly shuffle. To watch the video, click here and skip to time 0:22.

Correct Shuffling

Incorrect View:

- His knees should be slightly more bent to make a 90 degree angle
- His heels are clicking together

Incorrect View:

- His knees are not at a 90 degree angle
- His arms are too far away from his chest and his arms are not balanced
- He is clicking his heels together
- In the second picture from the right, the right foot should be in the air and slightly reaching while the left foot pushes. His feet and shins are not in a straight line
- In the farthest picture to the left, his left foot is pronated to the inside and will cause him to not be able to continue shuffling in an efficient manner. His knees are also not in line with his toes

ROUNDING BASES

While rounding 1st Base, an athlete will:

- About 10 feet before the bag the athlete should "Bow Out" so they can make a curve to get on a straight line to 2nd base.
- The goal is to minimize the deceleration and to round 1st while not travelling towards centerfield.
- They will try to hit the left corner of the bag.
- While rounding a base, the goal is to minimize the number of steps taken around the bag.
- The athlete will lean towards 2nd base to push their forces in the intended direction
- The right arm will drive across the body and the hand will aim for the opposite side chest. This action will allow for the right arm to push forces towards 2nd base instead of out to centerfield.
- The left arm swings in the normal, straight-line running form.
- Once the runner hits the bag and is on a direct path towards 2nd Base, they can transition to running in the upright position.
- It is very important that the runner is looking at their coach, while keeping a Neutral Head, because if they look any direction, their shoulders will turn, make them unbalanced, and not allow them to run at their maximum speed.

While rounding 2nd or 3rd base, the differences from rounding 1st Base are:

- For theses bases, the runners will not "Bow Out" and will stay on their linear path. It does make it easier for the runner to not "Bow Out" if they are running from behind 1st Base and run diagonally to the left side of the next bag.
- The goal is to minimize the total distance traveled by staying as close to the linear path as possible.

The following pictures are good examples of properly rounding a base:

The following pictures are good examples of incorrectly rounding a base. In the 3 pictures, they show the incorrect over-rotation of the right side of the body and how off-balanced a player will be if they try to look for the ball instead of looking for their coach.

To see a video of correctly rounding the bases, click here.

To see a video of incorrectly rounding bases, click here and watch the "First to Third" Billy Hamilton video.

SLIDING AND TRANSITION TO RUNNING

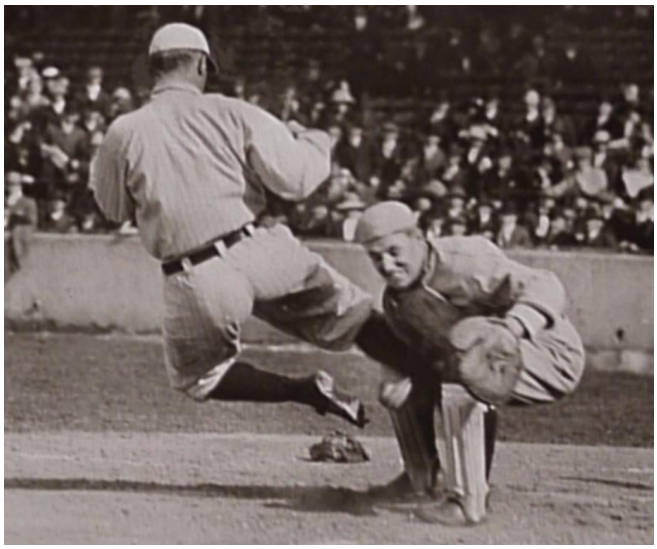
If an athlete is running and then slides feet first, an athlete should:

- Remember that the goal of sliding is to allow for deceleration and to allow a runner to get back to upright as soon as possible so they can continue to run.
- The runner should slide close enough to minimize deceleration and far enough away to not go past the bag. The longer the runner is sliding, the more deceleration will occur. Each runner's distance will vary off of weight and speed. Because of this, their finishing spot will determine if they need to adjust their initial sliding point.
- When preparing to slide, the motion should be down and forward. The runner should not jump up into the slide and cause a vertical component.
- The runner should slide through to bag instead of just sliding to the bag. When they come upright after sliding, they should have their back leg on the bag. If they do not come up to the upright position, then they should be touching the bag with their hand.
- The right leg should be completely straight to stretch towards the bag.
- They should tuck the left leg under the right leg to allow for the runner to get up properly. Having the left leg under the right leg will allow the runner to lean to their left, if they choose to lean at all. This will allow the body to prepare to run to the next base.
- The right foot should be pointed vertical or to the left to prepare for running to the next base. The toes of the right foot should be pulled back towards the head to make sure the toes do not get jammed into the base.
- The upper body will lean back to about a 45 degree angle to allow the runner to be able to get back to his feet. If an athlete leans back to far, they will not efficiently be able to get back up and if they are too upright, they will not slide as fast because the pressure on their hips will be vertical and cause too much friction.
- The arms should be pointed towards the ground and should not be in the air. If the arms are in the air, there is more body area for the defense to tag them. That being said, sometimes the arms and body need to be contorted in an "incorrect" fashion to make sure they do not get tagged. Athleticism will sometimes have to take over.
- If an athlete is trying to break-up a double play, they should cover their face and head to protect themselves from injury by crossing their forearms in front of their face.
- When coming out of the slide to upright, it is advantageous to come up with the feet and the chest pointed towards the next base.

Correct Pre-Slide Position

Incorrect Pre-Slide Position:

- The air time should be minimized
- This is a dangerous slide for both the runner and the catcher



Correct Feet & Body Position

Correct Arm Position

Incorrect Sliding Position:

- The right leg should be extended
- The arms are too wide

Incorrect Sliding Position:

- The back is leaned back too far and is not at 45 degrees
- The left leg is not tucked under the right leg

Incorrect Sliding Position:

- The right leg is tucked under the left leg which caused his body to lean away from the next base

Correct Arm Position for Breaking-Up a Double Play

Incorrect Arm Positions for Breaking-Up a Double Play

If an athlete is running and then slides head first, an athlete should:

- Remember that the goal of sliding is to allow for deceleration and to allow a runner to get back to upright as soon as possible so they can continue to run.
- The runner should slide close enough to minimize deceleration and far enough away to not go past the bag. The longer the runner is sliding, the more deceleration will occur. Each runner's distance will vary off of weight and speed. Because of this, their finishing spot will determine if they need to adjust their distances.
- When preparing to slide, the motion should be down and forward. The runner should not jump into the slide and cause a vertical component.
- The runner should slide through to bag instead of just sliding to the bag. When they are finished sliding, they should have their legs on the base.
- The arms should be completely straight to stretch towards the bag. In certain situations, it will be more advantageous to lengthen one arm or the other.
- While sliding, the arms, head, and the upper part of the chest should be off the ground. The lower leg and feet should also be slightly off the ground. The only things that should be touching the ground are the hands, chest, stomach, and thighs. This will allow for the least amount of friction as possible.
- The head should be lifted slightly to make sure they can travel up the base and not flip over. That being said, the head should not be vertical.
- The fingers should be at about a 45 degree angle to make sure that the shoulders and the fingers do not get jammed.
- The entire body should be in a straight line. The legs should be in the anatomically correct position and should not be pushed out to either side.
- If after they slide head-first and they need to continue running, they should come up at a 45 degree angle so they can get into their proper acceleration angle.

Correct Sliding Progression

Correct Pre-Slide Position

Incorrect Pre-Slide Position:

- He is too high off the ground

Correct Hand & Head Position

Correct Hand Position with Correct 1-Arm Reach

Incorrect Slide:

- The hips will raise if the head is not up

Correct Slide Finish

If you slide into a base and then have to take off running:

- The runner should get up and turn at the same time. They should not get up and then turn in two distinct movements.
- While turning, the runner should rip their elbow to get their upper-body turned while turning the foot to point towards the next base. If the elbow does not turn the upper-body, the body will be off-balance because the hips and chest will be disjointed.
- While turning, the runner should get leaned over into the proper acceleration position.
- To see the proper technique for getting up after diving back into 1st base, click here and go to time 0:33.

VIDEO BREAKDOWN OF STEALING BASES

To see the video of Andrew McCutchen stealing 2nd base, click here. Here are pictures and breakdowns of the video:

- His upper body is correct
- The left hand should be closer to the chest
- The right arm should be bent and the right hand should be closer to the chest
- His knees should be bent to 90 degrees and since they are not he is going to waste time by bending his knees before moving horizontally
- His feet are pointing towards third base instead of being parallel with the 1st Base baseline

- His right arm is too wide and will cause him to be off-balance and to slightly over rotate
- His left arm is correctly coming across the body
- He "false stepped" by picking up his right foot up first instead of just rotating on it
- The right shin is going to land correctly at a 45 degree angle
- He is correctly getting his shoulders out in front of his hips

- His upper-body and head position are perfect
- His body is leaned over at a 45 degree angle and the shins will land at 45 degrees
- He is perfectly pushing through the back leg to create horizontal distance
- He is perfectly swinging his left arm and his arm has opened up to slightly obtuse
- The right arm is the only thing that is incorrect. It is coming across his body to compensate for the over-rotation caused from the initial incorrect wide arm swing.

- He did an excellent job of staying in his acceleration phase and only taking a couple steps in the upright position
- The upright running form is correct.

- His body and head are still in a perfect straight line
- His body is in the correct 45 degree angle
- His left leg is tucked under his right
- His right arm should be pointing to the ground and not up in the air
- His left arm is correct

- He over-rotated when coming up from his slide
- He is in a position that is not conducive to going to the next base. Right now, his whole body and feet are pointed to Home Plate instead of 3rd Base.

APPLICATIONS TO FIELDING

INFIELDERS & OUTFIELDERS

While preparing for a pitch, a fielder should,

- Get into the Universal Athletic Position to eliminate any "false steps"
- The feet should always be even to be prepared to move in any direction.
- The hands should be close to the chest to reduce the amount of rotation and distance
- A fielder should get to their Stretch Reflex a split second before the batter swings. If an athlete sits in their stance for too long, they will tire themselves out over the course of a game and it will make it harder to jump out of the stance. To read how Mike Trout has utilized this method, click here or read below:

  Sometime last winter, Trout read that he was a lousy centerfielder. According to the metric Defensive Runs Saved, Trout, with a mark of –6, ranked 11th out of 17 qualified centerfielders in 2017. Though Trout cares little about analytics, reading this chapped him. As soon as he arrived at spring training, he asked for a meeting with Ebel, who is the outfield coach; general manager Billy Eppler; and the statistical analysts in the front office.

  "Take all the centerfielders in the game," he told them, "put them in a chart, show me their first step and my first step, and I'll just try to get better each and every day."

  Trout and Ebel would retreat to a back field in spring training to find a way to work his way up that chart. Trout would position himself in centerfield. Another coach would flip a baseball to Ebel, who would smash it with a fungo bat toward Trout. Together they changed how Trout prepared himself before the ball was hit.

  Before this year, Trout would move into a ready -position—feet apart, knees flexed, hands in front—as the pitcher began to deliver the baseball. What he had not realized was that by getting ready so early he had to hold that position for a beat and then get re-started if the ball was hit his way. Ebel and Trout decided he would wait until the pitch approached the hitting zone to get into the ready position. That way he would be moving as the ball was hit—thus eliminating that start-stop-start sequence.

  "It's a timing thing," Trout says, "so when the ball hits the bat, I go, as opposed to sitting and getting started all over again. That's helped me out a lot."

  He made one other change. Instead of picking his spots for when to lay out for balls and when to field them on a hop, he decided, "Catch everything. Just catch *everything*. I got to a couple of balls this year that I thought I couldn't even get to. I told myself, 'Don't give up on the ball too quick.' It's just try to catch everything and that's what's been helping me."

  Trout ranks fifth this year with a DRS of +7. He is the most improved centerfielder in baseball.

- The main purpose of this stance is to react quickly and in whatever direction is needed, without any "false steps" and to get into physically advantageous positions to accelerate correctly.
- While rotating to move, the fielder should lean over and turn at the same time while getting their first step pointed in the intended direction.
- Usually, infielders get into better stances than outfielders but they should be in the exact same stances.

- While running for a ball, all fielders should keep their heads in Neutral Position to allow for maximum force production.
- When receiving a ground ball, the fielder should bend at the knees instead of at the waste. If they bend at the waste, the Center of Mass goes too far forward and makes it hard to throw sideways.
- When a fielder has to run and look back for a ball, they have to concentrate on continuing to run full speed. Most humans slow their feet down when they look back and this skill has to be practiced.

Correct Fielding Stances

Incorrect Stance:

- Knees are not bent to 90 degrees
- Chest is leaned over too far to "get low" which will push the Center of Mass too far forward

Incorrect Stance:

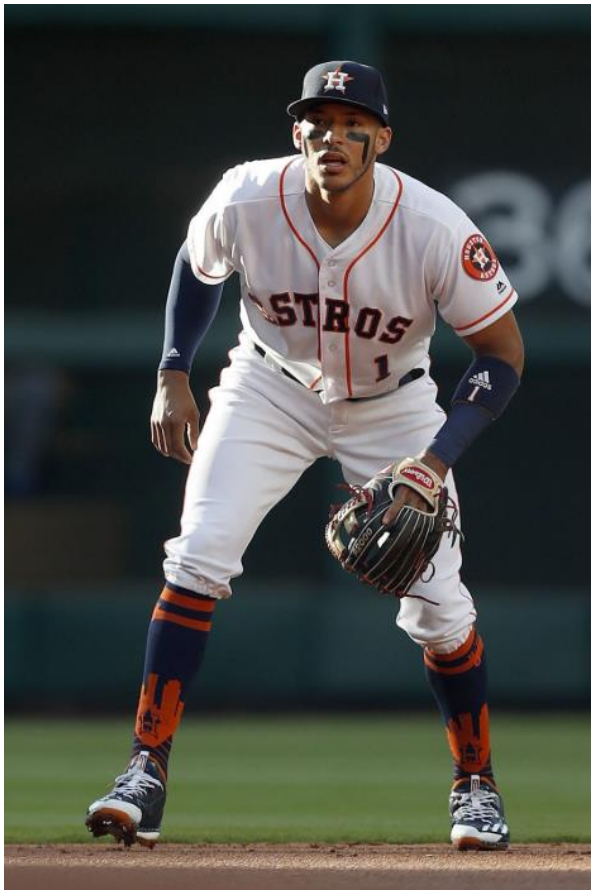
- Knees are bent too far which will not allow for a quick first step
- Shoulder are rounded over too far which will push the Center of Mass too far forward

Incorrect Stance:

- Knees are not bent to 90 degrees
- The hands should be close to the chest and not be on the knees
- Chest is leaned over too far which will push the Center of Mass too far forward
- Athletes get into this stance to look like they are “getting low”.

Incorrect Stance:

- Knees are not bent to 90 degrees
- The hands should be close to the chest
- The feet are staggered so certain balls will cause him to “false step”



Incorrect Stance:

- Chest is leaned over too far which will push the Center of Mass too far forward
- Athletes get into this stance to look like they are “getting low”.
- His feet are a little too wide

CATCHING A BALL ON THE RUN

When running for a fly ball or a line drive, a defender:

- Should not “false step” in any way
- Their first step should be in the direction of the ball. If they are going to make a mistake, they should step so their path is too deep than too short.
- While stepping in the proper direction, their body should lean over to get into the proper acceleration position.

Correct Acceleration

- Should keep their head in Neutral Position and turn their head exactly the way they should while running the bases. While turning the head, the defender's shoulders will turn but they should try to minimize the amount of shoulder rotation. Too much shoulder rotation will cause the defender to be off-balance while running, while transitioning to throwing the ball, and trying to adjust to the fly ball.

Correct Shoulder Rotation

Incorrect Shoulder Rotation:

- He has over-rotated his shoulders
- He is off-balance

- While turning the head, the defender has to concentrate on continuing to run at full speed. While turning the head, the feet usually slow down.
- Should run full speed with perfect running form until the last second and then put their arm(s) out to catch the ball. If they run with their arm(s) out, they will be off-balance and will decelerate.

Correct Arm Action

- Always prepare the body to throw the ball. This is not always possible but should be the goal. The shins should be leaned over so the body is prepared to immediately throw.

Will Be Able to Transition to Throwing

Will Not Be Able to Transition to Throwing

APPLICATIONS TO THE CATCHER STANCE

While preparing for a pitch, a catcher should,

- Have their back arched so they have a wide chest. The shoulders should not slouch forward.

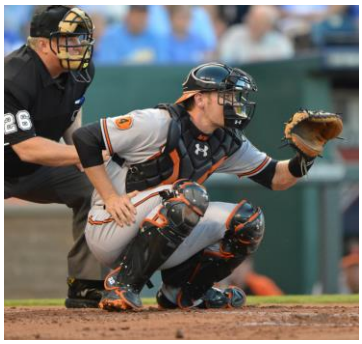
Correct Arched Back

- Have their knees in line with the toes and behind the toes to protect the catcher's knees.

Correct Knees in Line with Toes

Incorrect Knees in Line with Toes

Incorrect Knees in Line with Toes



- Set their shins to be vertical to allow for the catcher to move in whatever direction is needed. If the knees are dipped to the inside, the ACL will have an exponential amount of pressure going through it. The more a catcher wiggles back and forth, the more damage they will also cause to their knees.

Correct Vertical Shins

- If the catcher knows that the runner in on 1st Base, they should slightly lean their shins forward to allow for easy movement forward. This should be tempered by the fact that they should have their knees behind their toes.

Correct Leaned Shins

- Prepare their body to throw to certain bases. If they catcher has a good chance to throw a ball to 2nd Base, then they can get into a stance where the right foot is back.

-

Correct Foot Stagger

- Have their knees at a 90 degree angle and should not be higher or lower than that. Even if nobody is on base, they still have to field their position.

Correct Knee Angle

- Set the weight on their feet to an advantageous position. If there is a runner that could go to 2nd Base, then they should have more weight on the balls of their feet. If there is a runner that could go to 3rd Base, then the weight distribution on the feet should be even so they can move laterally.

Correct Balanced Feet

Incorrect Balanced Feet

DIFFERENT SPRINT VARIATIONS THAT NEED TO BE PRACTICED

For all of the skills above, sprint training has to be organized in a way to practice all of the above skills and the transitions between them. The following sprint variations are examples of how to train these skills:

- **Tagging-Up**
  For beginners, have the athlete line up in the 2-Point Track Stance and then sprint.
  For advanced athletes, start in a leadoff stance about 10 feet from the "bag". Throw a ball up in the air and have the players run back to the "bag" and then get into their 2-Point Track Stance. When the ball hits the ground the players will take off running.

- **Swing to Sprint**
  This will simulate the proper transition from swinging to sprinting down the 1st Base Line.
  The coach will act like he threw a pitch, the batter will swing and transition to sprinting in the proper acceleration form.

- **Looking Sideways With a Neutral Head**
  This will simulate running the bases while staying in the proper acceleration form.
  The athlete will take off running (from whatever start your choose) and while they run by the coach they need to properly turn their head, while keeping it in Neutral Position, and look at the coach. The coach can hold up fingers so the runner has to count them to tell if they looked or not.

- **Stealing**
  The athlete will start in their lead-off stance and then take off sprinting. The coach can use multiple stimuli to start the runner.

- **Shuffle to Sprint**
  This will simulate Delayed Steals and shuffling out of the lead-off stance after the pitcher throws to home.
  The athlete will shuffle a certain distance and then transition into their acceleration position. The coach can use multiple stimuli to start the runner.

- **Athletic Position to Sprint**
  This will simulate the fielding position and then chasing after a fly ball or a grounder.
  These sprints should be done while laying down and getting up to run forward, backwards, sideways, and diagonally.

- **On Stomach**
  This will simulate diving into a base or sliding head-first into a base and then having to transition to running. This will also simulate diving for a ball and having to get up to run because they missed the ball or because they need to transition to throwing.
  The athlete will lay on their stomach in the push-up position. They will get up while moving into the acceleration position. Getting up and leaning over should all be done in one motion and should not be two distinct movements.
  These sprints should be done while laying down and getting up to run forward, backwards, sideways, and diagonally.

- **Sitting Down**

  This will simulate sliding feet-first into a base and then having to transition to running. This will also simulate sliding for a ball and having to get up to run because they missed the ball or because they need to transition to throwing.
  The athlete will sit on their butt. They will get up while moving into the acceleration position. Getting up and leaning over should all be done in one motion and should not be two distinct movements.
  These sprints should be done while sitting down and getting up to run forward, backwards, sideways, and diagonally.

- **Running Curves**

  This will simulate rounding bases. Cones should be set up in the following pattern to simulate the proper running path:

  The athletes should stay as tight to the cones as possible

- **Sprinting with the Head Looking Back**

  This will simulate running for a fly ball or line drive while looking back for it.
  The athlete will take off sprinting in the desired direction and then they will look back for a ball while concentrating on continuing to move their legs full speed. The coach will tell them when to go and when to look for the ball.

- **Backpedal to Sprint**

  This will simulate a fielder transitioning during a defensive play.
  The athletes will start by backpedaling and then turn to run in a variety of directions. The coach will tell them when to start backpedaling and when to transition to sprinting in the desired direction.

- **Start and Stop Sprinting**

  This will simulate running for a ball, transitioning into another skill like throwing or accelerating to a bunt, or picking up a ground ball.
  The coach will tell them when to start, and blow the whistle each time they want them to stop or to start again. The key to this is making sure the players stop with as little horizontal movement as possible so they can translate into another skill and do not continue on their current path.

- **Sprint to Directional Shuffling to Sprint**

  This will simulate running for a ball and then transitioning to laterally shuffling to get to a ground ball.
  The coach will tell them when to start and when the coach points to the direction they have to shuffle, they shuffle back and forth until it is time to sprint again.

MY POTENTIAL INVOLVEMENT

I am interested in helping the Pittsburgh Pirates in the following ways:

- Help fix athletic movement flaws that are inhibiting performance and success

- Teach the running form that occurs between 10 feet and 90 feet

- Break down film of the Pittsburgh Pirates' minor league and major league players:
    - Stances and technique while running the bases
    - Sliding and transitioning to running
    - Defensive stances and starts
    - Fielding and transitions to throwing

- Break down film of opponents and potential prospects to decide upon if an athlete:
    - Should be traded for
    - Should you try to pick them off and if you should worry about them stealing
    - Is underachieving because of their athletic flaws

- Help develop the "Pittsburgh Way" for all baseball movements

- Teach the minor league players and help train them for the "Pittsburgh Way". This is where I think I could be the most useful. I can teach young players very well and help them develop the skills that are needed for them to excel in the majors.

- Have regular check-ins with the major league players and train them periodically

- Teach new acquisitions the "Pittsburgh Way"