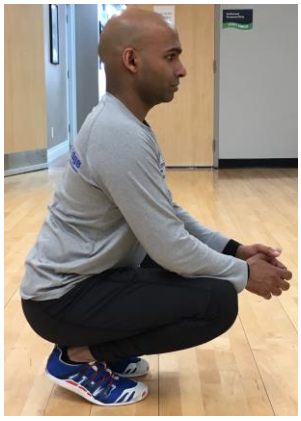
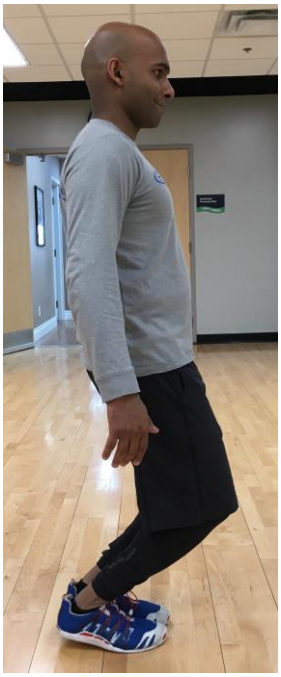
CONFUSED ON HOW TO DO SQUATS? READ THIS!

A: Squat 1

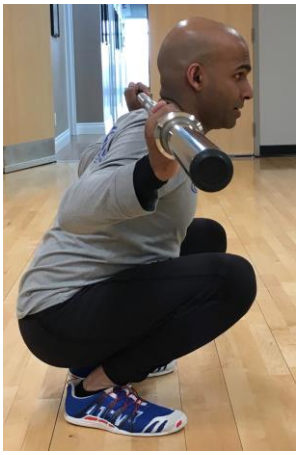
B: Squat 2



C: Squat 3



D: Squat 4



E: Squat 5

Multiple Choice Question:

Above are 5 pictures of different "type" of squats. Which one illustrates the best "good/proper squat"?

A. Squat 1

B. Squat 2

C. Squat 3

D. Squat 4

E. Squat 5

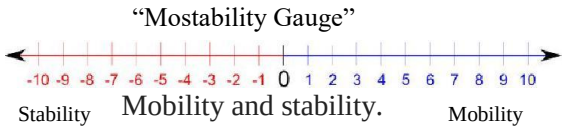
F All of the above

G. None of the above

The answer is "F," all the above. The best way to explain this answer is to first think of the definition of a squat. Think of your definition of a squat before reading the next line. A squat is no more than a vertical (that does not mean just straight down) displacement of pelvis downward. No where in the definition does it say, the pelvis MUST go straight down (by the way in function it that rarely ever happens), or that the spine MUST stay in a neutral spine. Whether the pelvis moves down and back (i.e., squat 4, down and forward (i.e., squat 3), or squats with the spine flex, they are all squats. To better understand why neutral spine is not always the best posture of the spine please read my article entitled " Good Posture is not what you think". Depending on what you want to accomplish will determine which squat is the best to do.

Before all the personal trainers, cross fitters and even some of my own colleagues send me hate tweets, I want you to think about the answer to this question before you hit the send button. What sport or activity is done on your heels? I will give you a few minutes to think about this. On my list the only thing I can think of is sometimes, snowboarding. If most of our sports require us to be on the balls of the feet (BOF) then why are we spending all of our time to prepare the body to do something it rarely ever does. Now, I am not saying squats in which your weight is on the heels is bad. All I am saying, all squats are good if chosen for the correct job. You just need to know which squat to do in the right situation. If I am in a situation where I need to move at any given time, I will squat where the weight is on the BOF. However, if I am in place where I need to squat, down, and be stable, not have to move (e.g., going to the washroom), then I will choose a squat in which my weight is on the heels.

To have a better understanding of my answer, let me refer you to the picture on the right. The "Mostability Gauge" is a fictional gauge I made up. The choice of squat will depend on 2 factors:



This is a fictional gauge. Depending what your primary goal is, more stability or more mobility, will determine what kind of squat you will do.

In a squat in which you want more stability, you want your centre of mass (COM) to stay slightly behind your belly button. To accomplish that you would have both feet on the ground with the weight on the heels. To further increase stability, you could have a wide base of support and hips turned out. Notice, the more stable you make the squat the less mobile you become. A good way to illustrate this is by doing the following: stand and shift your weight on to your heels such that your toes lift up. Now, try to move forward without shifting your weight on to your toes. You will, notice you cannot. However, you will notice, in this type of squat, your body will feel very relax (provided you have the prerequisite flexibility for this posture) because you are using less muscular energy to stay in this posture. In a squat in which you want more mobility, then you want your COM to be slightly ahead of your belly button. To accomplish that, you have your weight on the BOF. To further increase mobility of the squat, you could have a narrow base of support. You will notice as you increase the mobility of the squat, you will feel less stable. The way the gauge works is as follows. As you move the gauge to the left towards stability, you are putting more and more weight on to your heels. To covert a stable squat to a more mobile squat, you gradually shift your weight more and more to the BOF. The more the gauge moves to the right, the further you are on the BOF. Keep in mind, by moving the gauge to the right, you are less stable (i.e., your balance will be tested). A squat at a "0" on the "Mostability Gauge" would have one foot with the weight on the heel and other foot on the BOF.

Let's look at the above 5 squats, show how they are applicable in everyday activities and sports and explain the thought process to choose that particular squat over the others:

Squat 1: Squat 1, should look familiar especially for those persons who have kids. In this squat, the whole foot is on the ground, and the weight is on the heels. The advantage of this, is you are balancing the body on a greater surface area (entire foot vs part of the foot). Thus you have more stability. This is why EVERY baby will squat like the picture below. A baby has poor strength in their trunk and legs and on top of that, their body

proportions are not ideal (i.e., head is too big relative to their trunk). Thats why a baby will innately choose a squat that maximizes stability.

"Stability Squats" because the primary goal is stability

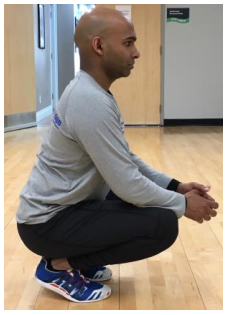


However, the disadvantage of this squat, is it is harder to move from that position. That's why commonly when a baby is in this position and it tries to move, they will sometimes fall on to their buttocks. Try this: In a squat in which your weight is on the heels, try to move forward or upward. You will notice you cannot until you shift your weight on to the BOF. If someone asked me to squat and stay in this position for a long period of time, then I would choose this one. This squat, requires very little muscular effort to stay in this position. I know some of you are thinking I forgot about the fact that the spine is flexed. I realize you have been told, when you squat, you should not flexed your spine. That statement is completely false!

You only need to keep your spine in neutral, when you are lifting heavy! Spinal flexion is very healthy for you and necessary to keep your spine healthy. For more information regarding why spinal flexion is healthy for you, please read my newsletter entitled "Good Posture, is not what you think". This type of squat is DECOMPRESSING your spine. Newton first law states this: "For every action, there is an opposite reaction". Gravity will push your pelvis down, but because the pelvis is not hitting anything (like it would if you were sitting), gravity will slowly decompress your spine. For those people who are suffering from any spinal injury (that includes disc bulges), this is a great squat to do!

Squat 2: This squat will likely draw some eyebrows because the heels are off the ground and the knees are past the toes. Before I explain why it is healthy to squat with your knees past your toes and heels off the ground, I want you to pretend you are an individual who catches a ball being thrown at knee level, and needs to be ready at any moment to throw a ball 127 Ft at an average 116 km/Hr (aka a catcher in MLB). Under those circumstances, you would move to the right on the "Mostability Gauge" and choose a more mobile squat. A baseball catcher needs to be ready to throw a baseball all the time. If you want to throw a ball as fast as you can and minimize stress to your shoulder and elbow, then you want to start with your spine in neutral and be on the BOF. Try on your own, to throw a ball in standing with your spine flexed. Added to that, try throwing a ball from a squat position with your weight on your heels. In both cases you will not generate any significant power and be susceptible to injury.

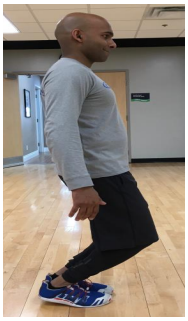
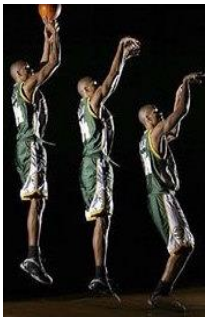
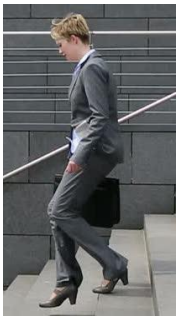
"Mobility Squats" because the primary goal is mobility



On a side note, if you are a volleyball player in the back court and need to dig up a ball from a very hard hit ball, then you will squat with your weight on the BOF and likely have your spine flexed. Spinal flexion will help absorb the impact of the ball hitting your forearms.

Squat 3: I call this type of squat, "Knee squat". I realize you might be thinking how can this be a squat. Recall the definition of a squat — it is a vertical displacement of pelvis. In this squat, the pelvis is moving downward and FORWARD. Traditional squats, have the pelvis move downward and BACKWARD. Believe it or not, we probably use this squat more than any other squat. See pictures below. Try to simulate the actions in the pictures below, and you will notice your pelvis will move FORWARD and downward, not backward.

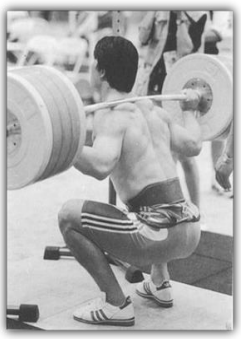
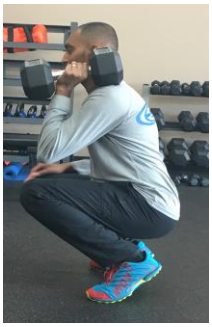
"Knee Squats" because the primary goal is to move forward


On a side note, you will notice when you go down the stairs, your knee will go PAST the toes. Try going down the stairs without knees passing the toes. It will be impossible. I am not sure where the statement "knees cannot go past the toes" came from. The most common reason I hear on why you "should not have your knees go past the toes" is because it is bad for the knees. That statement is false. I would in fact say it is imperative to have your knees be able to go past your toes because your daily activities (e.g., descending stairs) and sports require it. In addition, it puts your knee in a more stable position. Try this: Lunge forward with the right knee but do not allow your knee to go past your toes. From that position, move your knee side to side. You will notice there will be significant amount of motion. Compare that to lunging forward with the right knee with the knee well past the toes. There will be significantly less side to side movement in the knee. You do not want a lot of side to side motion in the knee. That leads to ACL tears. For those who have torn your ACL, you may want to check your ability to move your knee past your toes. This squat is not really intended for load (i.e., with weight). You could load this squat, but not much as the "traditional squat". I am not saying this squat is the strongest squat. I am just saying this squat is a functional squat that we use everyday, especially in sports! Therefore, we should practice it.

Squat 4: This squat is likely the most "famous" squat. It gets all the attention. But yet we rarely ever do this squat in daily activities. And there are a lot of negative consequences of this squat to the body. This type of squat requires both mobility and stability. If you are lifting a LARGE amount of weight relative to your ability, the body will almost ALWAYS choose stability over mobility. What that means to you is it will move the "mostability gauge" to the left, approximately-2/3. Your weight will be more on the heels vs the BOF.

"Traditional Squats" because the primary goal is lifting heavy

We have a conundrum. At the bottom of the squat your weight is on your heels. Ideally to get back up you want to shift your weight on to the BOF. But you cannot, because the weight is requiring you to stay in a more stable squat. The only way to get up is to move your spine forward (i.e., arch). Even though, on the way down, your spine is neutral, but on the way up the spine has to arch. If you do not believe me, go into a deep squat and keep your weight on your heels. Try to get up without shifting your weight on to the BOF. You will notice you arched our spine to get up. Doing this squat with a lot of weight will get your legs and stomach muscles stronger but almost invariably it will result in a spinal injury and it will COMPRESS your spine. If you wear weight lifting shoes, this will help reduce the low back strain because it will shift your weight slightly more towards the BOF. Keep in mind this squat is meant for heavy lifting. Ask yourself how often you do that a daily basis.

Squat 5: This type of squat would have the "mostability gauge" at 0. That means, one foot is on the heels and another foot is on the BOF. You choose this type of squat when you plan to be a squat position for long periods of time but you still need the ability to move around from time to time. For example, cutting weeds and picking up a ground ball in the outfield during a baseball game. In both of these pictures below you will notice the spine is flex. Remember a flexed spine is ok and healthy to have as long as the person is squatting with NO load or minimal load.

"Mostability Squat" because the primary goal is both mobility and stability

I realize this is a lot of information to take in. Just remember how we choose which squat to do depends on if you want more stability (i.e., squat with weight on the heels) or mobility (i.e., squat with weight on the BOF). ALL of us need to practice ALL the above squats because at some point in time we will need to do them in our daily lives. Clinically, I think we need to work more on squatting on the BOF (squat 2). In my opinion, too many people spend more time on their heels and not on the BOF. Here is one final test to do. Stand up, and focus on where your body weight relative to your foot. If you can lift your toes, then your weight is on your heels. If you can you lift your heels (without leaning forward), then your weight is on the BOF. I think you will find, your weight is on your heels more times than not. That kind of standing leads you susceptible to plantar fascitis, knee and back pain.

If you have any questions, or would like to discuss squats further please contact me via email or phone or stop by the clinic.