

As Essential as Brushing Your Teeth: The Deep Squat

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INTRODUCTION

The primary focus of this article is to discuss joint function through the lens of the deep squat. The ability to squat is not simply a trendy exercise performed under a barbell at the gym; we practice the squat movement everyday while sitting on our office chairs or sliding into our cars from the side. The deep squat from a joint hygiene perspective is akin to brushing our teeth. We do not simply brush the top one day, the bottom another day, and the side or back whenever we feel like it; we brush every angle of our teeth everyday. From my perspective, the deep squat movement is a toothbrush for our joints, ensuring they are all moving without any sticky or restricted areas.

The squat is defined differently by various sources, including “a sitting posture with dorsiflexed ankles, a deeply flexed knee and hip.”¹ The Oxford Dictionary of Sports Science and Medicine defines its application as a weight-training exercise performed with a barbell, and a range of motion that is two-thirds of a knee bend.² The Cambridge Advanced Learner’s Dictionary even more broadly defines the squat: “to position yourself close to the ground on the front part of your feet with your legs bent under your body.”³ The use of the first chair dates back to Egypt 5000 years ago, and 2000 years ago in China; in some areas of the world such as Japan and Korea, the squat is still used as a normal position of rest.⁴ Using my definition of the deep squat, its execution encompasses all of the above definitions, and then builds upon it to promote increasing joint range of motion (ROM), which will then allow the individual to train and strengthen this superior ROM within their particular context.

I am defining the deep squat as a position of rest, wherein one places their hip joint as close to the floor as possible limited by active end range flexion of the knee, while the entirety of the feet are in contact with the surface. In this position, the spine and upper extremity

should have the the ability to flex, extend, and rotate. The squat is a form of communication between the squatter and their physical or social environment. The ability to descend into the deep squat as described above and move within it requires a healthy mix of joint mobility, stability, strength, and coordination.¹ Priming the body for the deep squat, and utilizing it as much as possible, creates an opportunity for improved function and overall mobility.

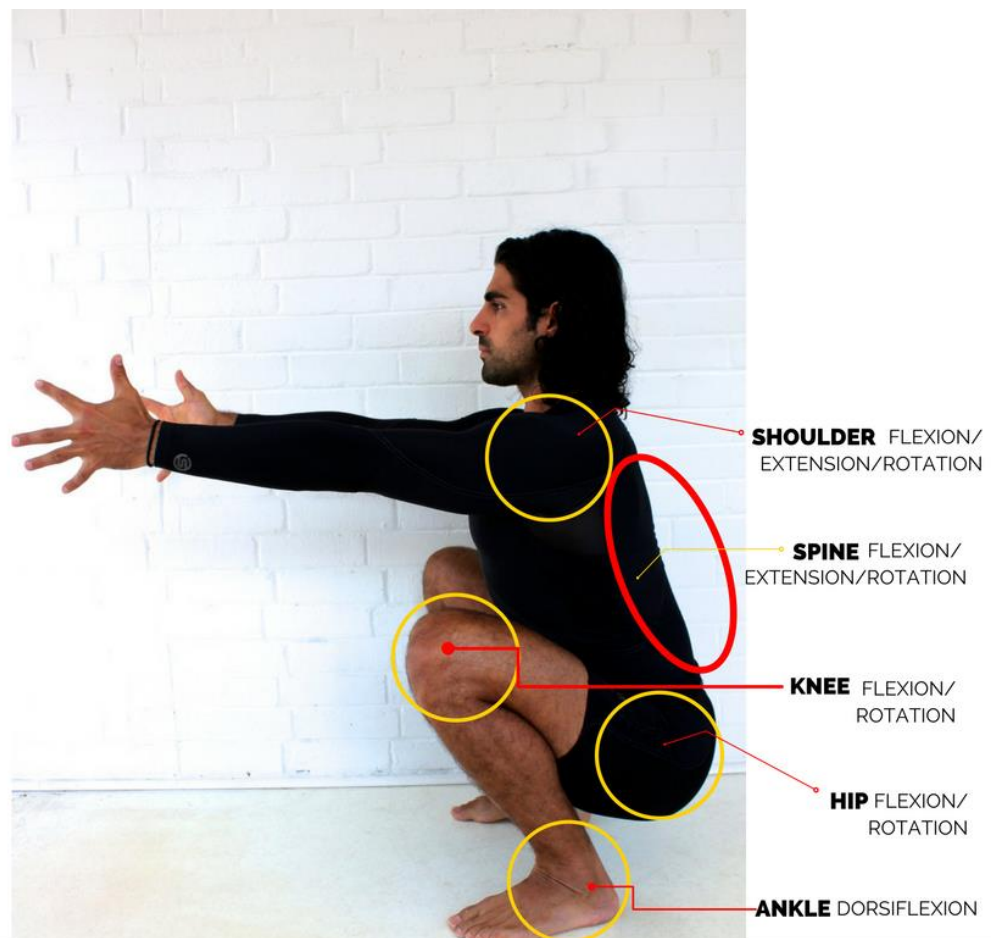


Fig 1. Deep Squat as defined above.

DEEP SQUAT AS FUNCTIONAL

What was once a universal position of rest for humans has become a position of intellectual debate. The ability to find rest apart from a fancy chair with an expected feature such as

lumbar support is quite rare. How can individuals move out of a chair and live life if their joints lack the ability to move themselves independently? Dr. Andreo Spina, DC, has been known to say that this lack of independence influences our joints' ability to be interdependent, or otherwise have the ability to rely on each other and be in a position of success upon demand. It is imperative that all ingredients, such as the muscles and joints in the body support overall health and function, particularly within the foundational ability to move. Functional movement should translate into every context and purpose, including sports playing, gardening, running after and picking up children, and even walking through the shopping mall.

When the body is free to move its joints and muscles in a healthy and balanced manner, it functions efficiently, applying the “less is more” principle. You will not be dependent on carrying a folding chair in the scenario you get tired, or looking for a rock, tree trunk, or bench during a hike for rest; rather, your body will have the ability to move itself and comfortably form that position on its own. As Dr. Donald Murphy, DC, puts it: “The goal is patient-practitioner independence, not interdependence,” empowering patients to be the primary actors in their own health.

DEEP SQUAT AND BACK PAIN

From a clinical perspective, I have been exposed to many patients disabled from spine pain with a specific emphasis on the low back, which is not a surprise as approximately 80 percent of adults experience LBP at some point in their life.⁵ “It is the leading cause of activity limitation”,⁶ ranking first as a “cause of disability and inability to work, as an interference with the quality of life, and as a reason for medical consultation in the world.”⁷

I would wager that the majority of us have experienced a backache at some point in our lives, whether this was due to activity or inactivity. A popular contemporary colloquialism is, “sitting is the new smoking.”⁸ If sitting is the new smoking, standing may be the akin to putting on a patch, a short upright static solution that eventually, if maintained beyond the

connective tissue capacity, is a common provocative source of lower back pain (LBP). Many patients I have encountered have complained that moving from a standing to seated position causes hip and low back pain, and the discomfort persists even after stretching. The majority of these pain descriptions as you might have noted or experienced can be both provoked and relieved by changing positions. This paints a picture of a mechanical source of pain resulting from dysfunctional connective tissue, such as disc pain, or facet dysfunction, and their communication with the brain via the central nervous system. Positional changes as strategy to empower the low back pain sufferer to manage their complaint has been researched in detail and published via Cornell University in the United States, and University of Waterloo in Ontario, Canada. Both of these reputable universities have come up with their recommended sit:stand and/or movement ratios: the Cornell University study suggests we should cycle between sitting for 20 minutes, standing for 8 minutes, and stretching every 2 minutes every half hour, known as Hedge's 3s ideal work pattern.⁹ The University of Waterloo approach seems a bit more straightforward, suggesting we should stand just as much as we sit or more, from a 1:1 to 1:3 sit:stand ratio.¹⁰

APPLICATION

My proposal is for people to incorporate one of our evolutionary resting positions, the deep squat,¹¹ as a strategy to increase ROM, thereby managing complaints; there are cases where increasing hip mobility alone resolved chronic LBP complaints.¹²

If we stand for a period of time that exceeds our connective tissue capacity, then my suggestion would be to enter the deep squat or train and mobilize the joints and surrounding connective tissue restrictions as progressions to the deep squat. This may be a superior approach to compressing our gluteal musculature against the chair, which encourages gluteal amnesia,¹³ while the deep squat active range of motion trains the gluteal muscles at multiple angles. Important to note: different positions of the squat require different levels of muscle recruitment based on leverage and anatomical position.¹⁴ While at the bottom of the squat, there is nothing pushing back up against your glutes, such as seat reaction force, which could

be “ why the incidence of degenerative change in the intervertebral disc in primitive squatting populations was considerably less than that found in civilised peoples,”¹⁵ as noted by radiographic studies.

CONCLUSION



Fig. 2 (a)

(b)

(c)

The Cat-Camel (a-b) can be performed segmentally with the intent of moving each spinal joint one after another. It has been traditionally used as a motion exercise encouraging the spine to achieve end ranges of flexion and extension independent of assistance from the upper extremities pushing into the floor. The rock back (c) challenges our ability to maintain a neutral spine position while increasing flexion at both the hip and knee .

In summary, “non-specific low back pain is a major worldwide public health problem, the most common cause of job-related disability, and a leading contributor to work days missed.”⁵ I am not proposing that the deep squat is an absolute solution and cure to low back pain of mechanical origin. However, independent connective tissue dysfunctional patterns arising during the execution of the the deep squat may serve as mobility prerequisites¹⁶ driving in-office conservative treatment, and active home care exercise recommendations. The deep squat tests joint mobility, muscle flexibility and strength, and coordination between all these variables mentioned.¹ Implementing patient joint-specific mobilizations such as cat-camel¹⁷ (fig. 2a-b) and movement transitions from that position into “rock back” variations (fig. 2c) that progress towards the deep squat may serve as a viable outcome measure and goal that the patient can aim for. The body is the most dynamic, sturdy, and transferable chair one could ever own. Empowering ourselves to manage our aches by

training our squat pattern and range of motion, and ultimately accessing the deep squat will support the pursuit of a healthy, functional body¹⁸, and a better quality of life.

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