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## Building Blocks for Bulletproof Athletes

Nathan Helming explains how “simple” movements contain the foundational elements needed to build outstanding athletes.

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By Nathan Helming with Emily Beers

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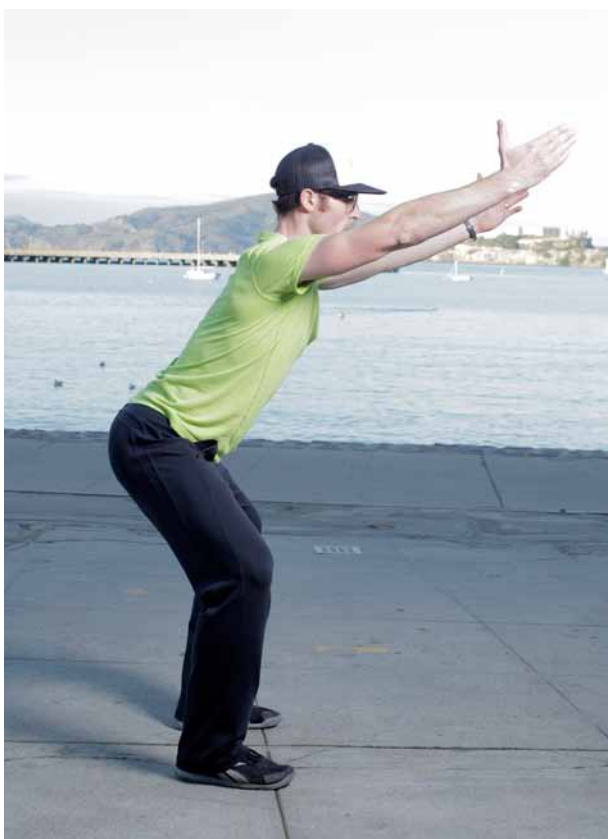
All images: Courtesy of Nathan Helming

At San Francisco CrossFit it's not just Kelly Starrett who takes the time to break CrossFit movements down into their most basic parts. His coaches have followed his lead, including Nathan Helming.

Helming's focus is on helping his athletes hit workouts hard but also develop a deeper understanding of the concepts behind each movement and exactly how their bodies should move.

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***A simple, hip-initiated squat teaches a host of lessons about midline stability, tension and torque.***

Helming, 29, is an endurance athlete. More specifically, he's a high-level triathlete, as well as a coach to other triathletes. When he found CrossFit in 2009, Helming had just qualified for the prestigious Kona event, but he couldn't shake a nagging hamstring injury that had turned into tendonitis.

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**“Doing functional movements like deadlifts started to heal me.”**

**—Nathan Helming**

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“I was constantly going to physical therapy trying to resolve it. I was doing every ball exercise on the planet to rehab it,” Helming said. But ultimately nothing was working.

“At the end, they basically said, ‘Sorry we can't help you,’” he said.

While trying to rehab his injury, Helming found CrossFit. At the time, he couldn't even walk down the street without pain, let alone consider lifting heavy weights. But soon, Helming found himself at the gym learning how to deadlift very light loads.

“I was so uncoordinated,” Helming said.

Despite his lack of coordination, Helming stuck with it and eventually learned to move properly and understand what correct movement patterns feel like. And as it turns out, learning how to squat and deadlift properly was just what he needed to heal his nagging hamstring injury.

Helming explains it this way: “All those little micro physical-therapy exercises didn't help me. But taking what I call a more macro approach—doing functional movements like deadlifts—started to heal me.”

This macro approach to movement has become the backbone of Helming's coaching style today.

“You can be doing all these little micro exercises, but if someone isn't looking at how you move as a whole, it's not going to work,” Helming explained.

“You have to teach people to move properly. For example, in a deadlift, this means loading properly and bending over while keeping a strong and stable back,” he continued.

One of the big influences on the way Helming coaches CrossFit has been Starrett.

“His level of knowledge, just being around him and listening to his videos and hearing him talk about ideas has been a huge influence,” Helming said. “Most physical therapists don’t talk like he does. He’s really setting a new trend.”

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And the trend they’re trying to set is one that promotes healthy movements that will ultimately maximize an athlete’s potential.

“The goal to our approach is to make ourselves as bulletproof as we can as athletes,” Helming said.

### **Understanding the Movement—By Nathan Helming**

As a CrossFit Coach, I spend several hours per week leading athletes of all abilities through our “basics” class and teaching our core curriculum of movements—squats, push-ups, deadlifts, presses, etc.—so they can safely and successfully enter our group classes.

We have a lot of ground to cover and not a lot of time to cover it. To make matters worse, some of the movements we cover, such as gymnastics skills and Olympic weightlifting, can be quite technical. Gymnasts and Olympic weightlifters spend their entire careers specializing in just one of these skill-based sports, and yet we ask our athletes to be fluent across all movements in just three to six sessions.

It’s easy and understandable when athletes get their heads stuck in the weeds and become overwhelmed trying to learn all that CrossFit requires. And athletes who start to overthink movements move worse, remember less and get frustrated. As a coach, it’s easy to get frustrated with athletes who don’t “get it,” especially when we rush them through a program the athlete doesn’t understand.



***If a coach explains the relationship, the core tension in a good push-up should translate to a stable midline in an overhead press.***

So I want people to understand the basics—to understand the concepts behind the movements in order to perform them safely.

To battle these potential frustrations, I find I have success when I focus on and constantly refer to three simple, basic movements: the body-weight squat, the push-up and the gymnastics hollow rock. These three movements help reiterate the important principles of midline stability, load and tension, and torque.



***The hollow position teaches athletes how to engage their core even while their limbs are moving.***

I start by breaking it down and taking more time introducing and continuously emphasizing these fundamental movements—the squat, push-up and hollow rock—and when it comes time to learn the more complex, skill-based movements, athletes start to learn faster.

For example, I teach an athlete a perfect push-up before we get him or her to go overhead. Then I'll say, "Hey, you're in a push-up position and moving that way, and now you're just in the same position standing up, with the same tension in your spine when you go overhead into a shoulder press." I always refer back to the basic movement to get them to understand the way their bodies should move.

Taking it one step further: the CrossFit movements introduce three athletic principles that apply to all CrossFit movements: how to create trunk stability, how to load and create tension, and how to create torque through external rotation in most cases and internal rotation in others (i.e., shoving the knees out in a squat, or "breaking the bar" in a shoulder press).

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**—Nathan Helming**

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We progress from simple to complex movements. Athletes who fail to understand the push press or push jerk, for example, have been moved along too quickly by their coaches. Period.

Chances are an athlete does not yet know how to keep his or her trunk stable in a push-up or how to initiate a push-up with the shoulder (versus the elbow). Similarly, the athlete likely doesn't know how to "screw" the hands into the ground to create additional torque to further stabilize the shoulders.

A push-up is a simple enough exercise that most people can do. Fortunately, it's also technical enough that we can apply the principles of midline stability, load/tension and torque, making it a very powerful skill-transfer exercise for all other upper-body and overhead exercises seen in CrossFit.

Ultimately, this skill transfer is how we become better overall athletes. Our athletes understand that we are interested in making better athletes (not necessarily just CrossFit athletes), and that these principles apply to other movements and to their sport as well.



## Mobility and Motor Control

Reiterating our basic fundamental movements helps athletes understand two other aspects of athletic movement: mobility and motor control.

Mobility captures the range of motion in a joint, in addition to the muscular flexibility surrounding that joint. For example, in the shoulder, we want to know that the shoulder can “slide and glide” in the socket, but we also want to look at muscle flexibility in the surrounding musculature, which equally affects the range of motion of that joint.

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**“We make the CrossFit movements relevant to athletes’ specific sports.”**

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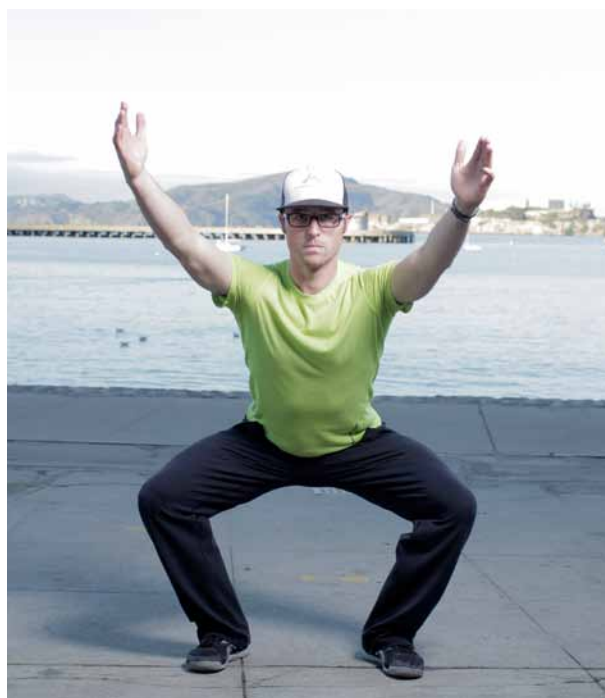
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Motor control, on the other hand, involves our ability to coordinate movements and muscular engagement in the right sequence, both consistently and repetitively. It does not require a massive amount of strength. For example, how strong do you have to be stand up tall and squeeze your butt?

By looking at these two components, we provide more specific feedback to help the athlete understand limiters, as well as how to overcome those limiters. In short, it allows us to decode pain, inefficient movement, and create a template for better positioning and strength.

### Applying the Principles to Push-up Instruction Trunk Stability

In a push-up position, the athlete’s legs have to be squeezed together with belly and butt squeezed tight. This trunk stability is a prerequisite to a stable push-up because it provides a firm foundation for the shoulder to stabilize. An unstable trunk equals an unstable shoulder that tends to pop out into an internally rotated position. Clearly, trunk stability falls on the motor-control side of the athletic equation, and without it shoulder stability will not happen.



***External rotation of the femur in a squat will create torque, which is key to proper lifting.***

### Load and Tension

We teach athletes to initiate a squat from the hips (not the knees). This keeps their weight on the heels and effectively loads the posterior chain for a deeper, more powerful squat that takes pressure off the knees—a good thing all around. In a similar vein, we teach athletes to initiate the push-up from the shoulder (not the elbows). Athletes often struggle with this. In order to load the shoulder effectively, athletes require sufficient internal range of motion in the shoulder joint.

(For more info, see Kelly Starrett’s [July 23, 2012, MobilityWOD post](#).)

Without this range of motion, the elbows tend to creep outwards and strain tends to increase in the front of the shoulder as well as in the neck. Attempting to perform a proper shoulder-loaded push-up makes this mobility problem easy to see and quite simple to solve with a lacrosse ball and some bands (again see MobilityWOD for videos). While it requires some motor control to initiate from the shoulder, proper load/tension falls on the mobility side of the equation.



***Proper mechanics in unloaded movements should produce proper mechanics when external objects are added.***

### Creating Torque

In flexion (think deep in a squat), we teach athletes to generate torque (for greater trunk, knee and ankle stability) by shoving the knees aggressively outwards and by pushing the floor “apart” on the way back up. Applied to the push-up, we cue athletes to screw their hands into the ground and flick their elbow pits forward on the way back up. Done effectively, this keeps the shoulders stabilized together by adding external-rotation torque.

Creating torque falls equally on the mobility and motor-control sides of the equation. It’s a new concept, and athletes require time to understand this cue and develop this skill. Furthermore, athletes who lack internal rotation at the shoulder will equally struggle to generate torque because they cannot find a strong position to push from.

And athletes who struggle with this mobility in the push-up will struggle even more when performing a parallel-bar or ring dip, handstand push-up or overhead press.

In terms of other sports, swimmers who lack internal range of motion fail to develop a strong, connected catch and pull. Runners who struggle in this area cannot drive their elbows straight back for an effective arm swing.

### Why We Coach This Way

By breaking down dysfunctional movements into mobility and motor control, we can better see the root of an athlete’s injuries and inefficiencies.

We can then better explain these concepts to the athlete so he understands, and we can easily empower the athlete to make the corrections himself.

Additionally, by introducing and applying the concepts of midline stability, load/tension and torque, we make the more complicated Olympic lifts and gymnastics skills easier to comprehend.

Perhaps most importantly, we make the CrossFit movements more relevant to athletes’ specific sports.



### About the Author

*Nathan Helming is a coach at San Francisco CrossFit and owns Helming Athletics, which provides coaching to endurance athletes. He discovered CrossFit in 2009 and competed in the 2012 Reebok CrossFit Games Open. He has also competed in triathlons, marathons and bike races.*