

# THE CrossFit JOURNAL

## June 2015

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A person is performing a handstand on a blue mat in a gym. The person's legs are spread wide, and they are wearing black athletic shorts and a black t-shirt with a red graphic. They have a white wristband on their right wrist. The background is blurred, showing other people and gym equipment.

THE  
**CrossFit** JOURNAL

# GYMNASTICS: THE LONG JOURNEY WORTH TAKING

Learning gymnastics skills can be frustrating, but Dave Durante explains why the return is well worth the investment.

BY DAVE DURANTE





True mastery in gymnastics means months, years and sometimes decades of relentless practice.



This type of body control takes years to develop, but the process of achieving such a goal is well worth it, says Dave Durante.

Be patient and limit frustration.

These are the first two points on a list I share whenever I'm speaking about gymnastics to a new group of CrossFit athletes.

Every aspect of the world we live in pushes us toward a constant need for instant gratification. We need everything now-now-now, so it can be tough for CrossFit athletes to hear they need to slow down, take a step back, refine each movement and appreciate the proper learning curve for gymnastics skills.

The reality of the situation is that if your goal is true mastery of gymnastics skills, the timelines are not measured in hours, days or weeks. They are measured in months, years and sometimes decades.

While this statement might be discouraging and frustrating for a lot of athletes, the primary focus should be the process itself, not the end result. Many athletes fail to realize the importance of learning and growing stronger on the road toward ultimate goals, and many stop trying because of perceived stagnation.

As athletes and coaches, always respect and take pride in the process of development. Gymnastics skills are not and should never be thought of as all or nothing. It's not accurate to say you have or don't have a muscle-up. You have a work in progress somewhere between the first tentative attempt and absolute virtuosity. Every skill develops on a continuum, and small improvements have incredible value and transferability to other skills.

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One of the most fundamental aspects of working on gymnastics and body-weight movements is the building of body awareness: the understanding of what the body is doing from fingertips to toes within space and time, whether the body is upright, inverted or somewhere in between. It's about being able to control your body rather than having your body control you. Imagine what improved body awareness and control could do when applied to other CrossFit movements involving objects such as barbells and kettlebells.

Here's a little test to provide a better appreciation of body awareness as it pertains to each athlete's skill set. Take a gymnastics skill you think you perform fairly well and record that movement from several different angles. Before watching the video, close your eyes and visualize that same action, imagining what you think it looks like on the video. Then review the footage. It's very likely what happens on the video will look vastly different than what you had pictured. This is true for the majority of athletes. If you watch the video carefully, you will start to notice inefficiencies and problem areas you didn't recognize while performing the skill. This is a completely normal part of the learning process. The important takeaway is that athletes should be able to recognize inefficiencies

and make necessary changes—even if that means taking a step back to refine technique. I highly recommend more videotaping of gymnastics skills much as athletes regularly film Olympic lifts to help analyze movement patterns.

A gym buddy is another tool we use in the gymnastics world to create awareness. When I got to Stanford University in 1998 for the start of my freshman year, I was assigned two things on the first day: my locker and my strength partner. My partner was someone who was learning the same movements I was and would be there to help spot, motivate and give corrections on skills. We helped push each other on days when we absolutely didn't want to be working on those weaknesses, and we became stronger because of it.

After a couple of years, I went from being very average on the rings to being one of the stronger guys in the United States. I attribute my strength transformation to the consistent and relentless partner training during those years. I'm sure most of you already have a perfect strength partner in mind. As soon as you're done reading this article, call the person and get him or her on board.





To improve your gymnastics skills, find a strength partner seeking to learn and refine the same movements. This person will help spot, motivate and provide correction.

The process of building strength and competence takes time, and improvements are not always obvious. But consider a river wearing away a rock: Progress is constant if not immediately apparent. Eventually the rock is worn away. Gymnastics is like that, and small improvements in strength and body control eventually result in new skills.

Performing a gymnastics skill for the first time can be one of the most exciting and rewarding parts of training. That moment when something clicks and a breakthrough occurs can make all those horrible training days worthwhile. For those of you who have made your first muscle-up, I'm sure that moment and feeling are etched into your memory.

I wish for each athlete to experience many of those moments, but it's also a coach's job to remind that successfully completing a skill one time is not the destination even if it is a major milestone. Performing a skill one time is far from mastery of that skill, and making your muscle-up does not mean you are ready to do a workout that has 30 muscle-ups in it. Performing a skill for the first time is a stepping stone toward true competency, and the accomplishment should be viewed that way.

Over time, your percentage of successful skill completion (hit percentage) will start to increase. That hit percentage will be a good indicator as to whether or not you are prepared to perform the skill in workouts. And even when your hit percentage approaches 100, you can still work toward virtuosity by refining the movement to add greater precision, control, technique and grace.

The last aspect I want to touch on is the importance of first working on the creation of body shapes and static holds before even thinking of working on dynamic action. Understanding how to manipulate your body through hollow/arch/tuck/pike/straddle/layout positions and applying the shapes when needed are fundamental prerequisites to eventually using the positions with dynamic action. The value of working on holds can't be overstated. Dynamic skills can never fully be appreciated or mastered without first learning to control movement.

**SPEED WILL UNDOUBTEDLY COME  
ONCE THE STRENGTH, STABILITY AND  
POSITION ARE SET IN STONE.**

For instance, it's common to see athletes repeatedly attempting kipping handstand push-ups against a wall in session after session. What's less common is seeing athletes away from the wall working on proper handstand positioning and balance techniques or performing strict work with a partner. When working on new movements, I believe your goal should be to set the foundation to allow for the understanding and development of the highest-level version of that movement, not just the completion of a rep for the purposes of going faster through a workout. What good is becoming incredibly fast at kipping handstand push-ups if the skill doesn't ever allow you to move away from the wall to perform a strict freestanding handstand push-up or possibly one day a strict ring handstand push-up? The speed will undoubtedly come once the strength, stability and position are set in stone.

These improvements are not always as obvious as a 10-lb. snatch PR, and gymnastics training is often frustrating because some skills seem so difficult as to be impossible. But small improvements provide a subtle yet rock-solid foundation for every aspect of your training, and there's value in using appropriate progressions and spotters to work toward difficult skills. Even if you never achieve a planche or lever, working on these skills can provide dramatic increases in strength, control and body awareness—and with enough effort, dedication and consistency you might indeed find yourself in your first planche.

While I'm completely aware my stance might be discouraging for some, gaining perspective on the true learning curve for gymnastics skills is critical to reaching your full potential. You've heard it before, but it's worth restating: There are not shortcuts to these skills.

The road can be challenging, but it will be one of the most rewarding parts of your athletic journey. Take pride in the process and celebrate the small achievements along the way! ■

## About the Author

Dave Durante is a multiple-time USA Gymnastics national champion and was part of the 2008 Beijing Olympic Team as an alternate. After retiring from competition, Durante helped coach his alma mater, Stanford University, to an NCAA team title in 2009. He's continued to be a part of the sport through his position on the Athlete Advisory Council with the United States Olympic Committee, as well as in his position as the athlete representative on the Men's Program Committee for USA Gymnastics. Dave is co-owner and operator of **Power Monkey Fitness**, a gymnastics-based fitness company that focuses on equipment, education and events including the biannual Power Monkey Camp. Dave was a lead coach with **CrossFit Gymnastics** course from 2013 to 2015 and wrote and developed the CrossFit Gymnastics Advanced Trainer Course. He is an avid CrossFit athlete and trains and coaches at **CrossFit Long Island City** in New York, New York.



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# THE CrossFit JOURNAL VIRTUOSITY

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## Virtuosity 8: Satisfaction

Business coach Ubaid Naseem learns a lesson he's actually been teaching for years.

By Ubaid Naseem

June 2015



Ubaid Naseem

Corydon "Coz" Larkin at CrossFit 606

One vivid CrossFit memory marks the beginning of my journey toward self-satisfaction. It was the day I clutched my knees, sweat beads dripping off my forehead, and thought, "I can't go on."

A figure overshadowed me, and coach Corydon "Coz" Larkin asked, "How many reps you got left?"

I controlled my breathing and said, "Five."

Coz asked me something simple yet profound: "Then why have you stopped? Finish it!"

And with that, I pushed myself to complete the workout.

### Better Than Yesterday

An ex-colleague told me about CrossFit almost two years ago, but I continuously put it off. I'm still not sure why—procrastination perhaps, maybe fear of change. As a business teacher, I educate students about making good investments and knowing when to pull out if they've made a bad one. Ironically, I wasted thousands on gym memberships before I realized it wasn't working. So, overweight and out of shape, I walked into CrossFit 606.

I got something much greater than a gym session when I was bitterly disappointed by failing to finish a workout as prescribed. Coz asked me a question: "Did you try your best?" After some reflection, I answered in the affirmative.

"Well, that's good enough for me, brother," he replied.

And that's when I realized my coach is there to push my boundaries even when I think I can't. He's there to

encourage me and ensure I walk out of the box knowing I did whatever I was capable of.

Many of the world's most successful people know a secret: Focus on one's own ability. You see, I am not competing with anyone. I don't have the desire to be better than anyone, either. There's no way I'll attain the fitness level of some athletes at CrossFit 606. But I know my coach is here to help me improve and ensure I am better than I was yesterday. I have immense respect for Coz because he will push me when I lose faith in my own abilities.

CrossFit has shown me I can achieve so much with a simple motto in mind: Work to the very best of your own ability, but when you think you can't achieve more, know that your coach will be there to support and guide you. Oddly enough, this is what I taught my students for years but only truly learned now.

If you aim to achieve a goal, you can face disappointment. But if you aim to do all that is in your ability and do exactly that, you leave with utter satisfaction.



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### Submission Guidelines

To be considered for publication, authors must satisfy the following:

1. Articles must be original, unpublished works. Authors of selected submissions will be supplied with legal documents to be filled out prior to publication.
2. Articles must be submitted in Word documents attached to an email. Documents should not contain bolding, italics or other formatting. Please submit in Arial font.
3. Articles can be 500 words maximum.
4. Each article must be accompanied by at least one high-resolution photograph to illustrate the story. The photo can feature the coach, the affiliate, the community—anything that illustrates the article. Photo guidelines are as follows:

- A. Photos must be original and owned by the person submitting. Photos taken by others may be submitted provided the owner has given permission.
- B. Photos must be in focus, well lit and free of watermarks. Minimum file size is 1 MB. Please review your camera's settings to ensure you are shooting high-resolution images. Cell-phone photos and thumbnails are not accepted.
- C. Photos must be attached to the email as JPEG files. Do not embed files in Word documents. Photo file names should list both the name of the subject and the name of the photographer in this format: SubjectName-PhotographerName.jpg. Examples: JohnSmith-JaneDoe.jpg or CrossFitAnyTown-JimJohnson.jpg.

Virtuosity@crossfit.com is open for submissions. Tell us why you train where you train, and do it uncommonly well.

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# THE CrossFit JOURNAL

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## Mind Over Muscle-Ups

Scientists and meditation experts explain how focus and mindfulness can help athletes rise above burning discomfort to improve fitness.

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By Hilary Achauer

June 2015

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Hunter Baxley

On the surface, pain seems straightforward.

You get poked with a sharp stick. It hurts. The end.

Or you do Fran. Your burning quads and forearms force you to put down the barbell. The pain was too much.

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As with many things involving the human body, pain—and our perception of it—is actually much more complicated. Scientists have discovered pain and emotion are deeply intertwined.

In a study designed to measure the link between emotion and pain perception, participants listened to slowed-down, sad music while reading depressing statements such as, “It seems such an effort to do anything,” or, “I’ve made so many mistakes in the past.”

Then, to add insult to injury, researchers touched the subjects with a hot probe and asked them to rate the level of pain. A control group listened to neutral music and looked at neutral statements before getting poked with the same probe.

Researchers found those who listened to sad music reported the pain experience as much worse than those in the control group. What’s more, functional magnetic resonance imaging (fMRI), a technique for measuring brain activity, supported their reports of increased pain by showing increased activity in the various pain receptors of the brain. (A full explanation of the study can be found [here](#).)

“When you’re more anxious, pretty much most people rate the same input as more painful. They wouldn’t believe it until it happens,” Dr. Irene Tracey, an expert in pain research at the University of Oxford, said in a [podcast](#).

The implications of this study, and others like it, are far reaching.

Instead of passively accepting pain, it’s possible to train the brain with techniques such as mindfulness and meditation to filter pain out—or at least mute the emotional reaction to the stimulus.

Understanding and learning how to manage the emotional side of pain is a powerful tool for both athletes and those suffering from chronic pain.

### Pain and the Brain

In the new book “Touch: The Science of Hand, Heart, and Mind,” neuroscientist David J. Linden explored how our state of mind influences pain perception.

“The brain is exerting control over the information that it receives. It controls which sensory information will be received by the spinal cord. The brain actively and subconsciously suppresses or enhances pain information on a moment-to-moment basis. It spins the media,” Linden wrote.

Pain is not perceived in just one area of the brain. In fact, in the chapter on pain and emotion, Linden wrote, “Pain perception is distributed over a group of brain regions, each involved in a different aspect of the pain experience.”

What’s more, the brain is not a helpless victim to pain signals. It’s more like an audio engineer at a soundboard, moving the levels up and down, determining the strength of each pain stimulus.

“The brain can send signals down to the pain and transmitting neurons in the dorsal horn of the spinal cord that can say either, ‘Speak up and say it louder,’ or ‘Shut up! Dial down the pain information!’” Linden wrote.



Chris Rosa

*When it comes to managing pain, scientists say it's mind over matter.*



The degree to which our mind can block pain is equal to the effect of powerful painkillers.

"If people are told they are receiving an analgesic that is unlikely to work, fewer people report pain relief, even if they are getting oxycodone or morphine," Linden wrote.

Statistics from "[Pain in Men Wounded in Battle](#)" show about 75 percent of the badly wounded soldiers studied reported such little pain they refused pain-relief medication when offered it in a forward hospital in World War II. Author Henry K. Beecher noted, "Pain is an experience subject to modification by many factors. ... Strong emotion can block pain."

When your body experiences pain—let's say you touch a hot skillet—there's an initial, sharp pain as skin receptors send electrical signals up the nerve fibers to the thalamus in the brain, which then directs the signals to the sensory cortex. Next, a slower, second wave of pain is conveyed to the brain by smaller-diameter neural fibers. As all of these pain signals are traveling through the body to the brain,

the brain sends messages to the spinal cord, which can either turn up the volume on the pain experience or mute it if there is something more important going on, like a battle—or Fran.

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### The degree to which our mind can block pain is equal to the effect of powerful painkillers.

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So if our brain can control the experience of pain to such a degree, how can we consciously reduce pain?

Linden reported recent studies show mindfulness-based practices such as meditation, yoga, tai chi and Feldenkrais reduce chronic pain and acute pain. In 2011, researchers at Wake Forest Baptist Medical Center in Winston-Salem, North Carolina, found that even people new to meditating could reduce the experience of pain and their pain-related brain activity. The study was detailed in the April 6 article "[Even Beginners Can Curb Pain With Meditation](#)," published on [NPR.org](#).

After attending four 20-minute meditation sessions, subjects were touched with a hot probe. The subjects reported a 40 percent decrease in pain intensity and a 57 percent decrease in pain unpleasantness. Brain scans showed an increase in brain activity related to cognitive control and almost no activity in the part of the brain that processes pain—which was highly active when the subjects experienced pain without meditating.

### Pain Is an Experience

Jim Cahill is a former brain researcher at the world-renowned Scripps Research Institute in La Jolla, California, and the developer of [Mindfulness-Based Biofeedback](#). The therapy combines meditation and biofeedback—which involves monitoring and consciously manipulating physiologic functions such as brainwaves or heart function—to treat everything from stress to chronic pain. He also trains athletes looking to improve performance.



*In the same way you train your body, you also can train your mind to quiet the stimulus you call "pain."*



Unlike surgery or a pill, training the brain to deal with pain takes effort and time.

"It's training the nervous system to make a fundamental shift, and it's done incrementally and over time," Cahill said.

"The essence of it is to train the attention to stay put on whatever you ask it to. And when the attention wanders, to bring it back. This gives us what is called 'chosen mind,'" he said.

The word "mindfulness," which is a translation of the word "sati," comes from the earliest Buddhist documents. Mindfulness is a state of focusing on the emotions, thoughts and physical sensations of the present moment. It can also be thought of as awareness, and in Buddhism it's one of the seven factors of enlightenment. Mindfulness is now used in psychology to help with obsessive-compulsive disorder, anxiety, depression and drug addiction. In psychology, mindfulness refers to both a meditation practice as well as a state of focused attention to everyday life. According to Psychology Today, mindfulness is "a state of active, open attention to the present."

Using meditation and mindfulness as a form of treatment has become common within cognitive psychology as more studies show its effectiveness. In 2013, a [study](#) at Brown University found mindfulness-based cognitive therapy reduced distress in chronic pain and decreased the risk of depression relapse. A [study](#) in 2000 by the University of Oxford found that mindfulness reduced the reoccurrence of depression from 66 to 37 percent.

Cahill meets with clients once a week, and he asks them to meditate twice a day, in 20-minute increments, learning deep control of the mental experience. He says practicing meditation and mindfulness helps manage pain, because pain is an experience, not a physical entity.

"You would more easily measure vapor than you could measure the experience of pain. Pain is what the person reports it is," Cahill said.

We need to feel pain—it's a useful signal, especially as a warning to prevent further damage—but there are times when we overreact to a mild pain signal or, in the case of a CrossFit workout, need to focus the mind on something other than how much thrusters hurt.



Chris Rosa

***As human beings, feeling pain is important to survival. However, we can overreact to pain and make ourselves believe thrusters hurt more than they do.***



"Pain is a signal of potential physical damage, and it is to be attended to. It is our friend. But pain is also a stimulus. And—as long as we are being reasonable with our dealing with the pain—we don't push ourselves into injury unnecessarily, then it becomes, 'OK, how do I tolerate the necessary pain in order for me to achieve my goals?'" Cahill said.

The first step is changing the word "pain" to "stimulus."

"We can develop a relationship to the stimulus that we have habitually called pain, just as we can develop a relationship towards any stimulus. Some stimuli are useful, and some are problematic. Some are simply habitual, some are just there because of imprints and expectations. And some are there because we've chosen them and we expose ourselves to them," he said.

In the example of CrossFit athletes, Cahill said focusing too much on one sensation—let's say the pain of thrusters—robs our mind of other jobs, like maintaining good form. If 80 percent of your mind is focused on the pain stimulus, and only 20 percent on your form, your experience of the pain will be much greater.

"The thread that is split—halfway on the pain and halfway on your technique and motivation and other things—is not serviceable. It's like a thread that's frayed and can't go through the eye of the needle," Cahill said.

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**Instead of focusing on and wallowing in the pain of the workout, Cahill suggests noticing the sensation ... and then directing your attention somewhere else.**

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He added: "You want to be able to shift attention, and that's what meditation in its essence is all about—it is 'attentional' training. So that you can choose the content of what's on your mind. And whatever you attend to, in a regular, consistent fashion—whatever you attend to regularly—you're actually physically, literally reconfiguring your brain cells to do that more easily."



Courtesy of Jim Cahill

***Jim Cahill, developer of a therapy combining meditation and biofeedback, says you can develop a relationship with pain that helps you achieve your goals.***

Instead of focusing on and wallowing in the pain of the workout, Cahill suggests noticing the sensation—shortness of breath, burning leg muscles—and then directing your attention somewhere else.

"This is the difference between having a mind that is out of your control and one that is in your control," Cahill said.

"If the sensation is going to be there but it's not damaging, it's just strong sensation. You don't even need to call it pain. Just shift all your attention over to whatever is helping you motivate to finish your workout, what your core motivation is and what is most useful," he said.

Our brain is quite good at making connections, and sometimes that can lead to our mind's making connections that aren't logical. Cahill gave the example of how negative thought patterns can turn a place you once loved—like your CrossFit gym—into a place with negative associations. If you always focus on the suffering in your workouts, both during and after, your mind will start associating the gym with negative thoughts. This can affect your performance and your enjoyment of the experience.



Cahill urges CrossFit athletes to practice good “mental hygiene.”

“Just like you’d wipe down your bar after you’re done, be sure to wipe your mind of unnecessary, unpleasant thoughts,” he said. “Make sure you are not sloppy in how you use your mind when you are (in the gym).”

It’s surprisingly difficult to consistently maintain a positive inner monologue. The first step is to recognize negative thoughts when they arrive and consciously direct the thought toward something positive.

### Managing Chronic Pain

Dr. Eva Selhub has been dealing with the emotional reverberations of chronic pain for 30 years.

The doctor, who is on staff at Harvard Medical School and is a Clinical Associate of the world-renowned Benson Henry Institute for Mind-Body Medicine at the Massachusetts

General Hospital, was in a terrible car accident when she was 15. The resulting back pain forced her to quit the swim team. Because she couldn’t do any type of athletics, she focused on academics instead and became a doctor of internal medicine.

While the physical pain eventually subsided, Selhub said the emotional pain remained.

“A lot of psychological baggage was wrapped up into my back,” Selhub said.

Over the years, she’d try to get fit and would start to get strong and healthy. Within a few months, she’d be injured and out for six months.

Selhub started CrossFit in 2012 but was scared to pick up any weights. She went a few times a week and only did body-weight workouts. At the time, most movements provoked lower back spasms, and she became so afraid of provoking pain she shied away from using any weights.

Finally, after about a year, Selhub felt her core and back were strong enough to start using weights. Working out at CrossFit Newton in Waltham, Massachusetts, Selhub began to enjoy the workouts. But every time she’d get into the groove and establish some momentum at the gym, her back began to spasm. When that happened, she fell apart.

“I would go into the next room and start crying. I’d have to work out separately from everybody else and not do the WOD. It was really sad. It would bring me to tears,” Selhub said.

Selhub was not just experiencing the pain at that moment. She was reliving the fear and anxiety resulting from 30 years of exclusion from athletics.

All pain is regulated by the brain. Whether you are suffering a recently broken leg or a decades-old injury, the pain is caused by nerve fibers sending messages to the brain. In the case of chronic pain, nerve fibers continue to fire even after the acute phase of the injury has passed. The more the pain messages travel to the brain, the more efficient those circuits become in transmitting pain signals. A 2013 [study](#) in the neurology journal *Brain* detailed how a group



***After decades of chronic pain, Dr. Eva Selhub trained her mind so she could progress athletically without pain.***

of patients started out with acute pain and ended up with chronic pain. The study showed how the neurological synapses transition from the acute pain center to the more emotional center, connected to the limbic system. Eventually, the pain becomes a self-contained feedback loop within the nervous system.

As the author of “Your Health Destiny” and an expert in mind-body medicine, Selhub began to see a pattern in her pain.

She realized her back would go out when she was worried or feeling stressed. She began to work through her deep-seated fears about her back pain while gradually building up her strength in the gym. Selhub said being in a CrossFit gym helped give her tools to manage the emotional and physical pain.

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### **Dr. Selhub said being in a CrossFit gym helped give her tools to manage the emotional and physical pain.**

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“What CrossFit taught me is not to be scared, to look at a hard WOD and say, ‘OK, it might hurt afterwards, but I’ll be better for it.’ As I got stronger, my back got stronger, and so did my own belief in myself, my own prowess, my own ability. Everything was building on itself,” she said.

Just recently, Selhub was doing a workout with heavy cleans and felt a twinge in her back. Rather than starting to panic, she refocused on her form. She did the workout and was fine afterward.

“The key of it is that I didn’t break down. Normally what would happen is I would get this pain and I would get upset. ‘Here it is again, or now I can’t work out,’ or (I’d) get angry at it,” she said.

Instead, Selhub said she asked herself what the pain was trying to tell her, saying to herself, “Let’s work together here.”

She said the key was to be mindful about the pain, which means being aware and nonjudgmental about the body’s signals.

“How does (my body) signal me when I need to stop, and how does it signal me when I need to shift position? How does it signal me when my negative stories are coming forward? That’s what your health destiny is all about,” Selhub said.

Without outlets of relief, our body is more susceptible to pain, Selhub said.

“Outlets of relief are meditation practice, social support—like how nurtured do you feel? How supported do you feel? How connected do you feel?” she said.

### **A Simple Technique**

For high-level, competitive CrossFit athletes, managing stress and anxiety translates to improved performance. Four-time CrossFit Games athlete and medical student Julie Foucher regularly practices meditation.

“I have found different forms of mindfulness and meditation to be very beneficial,” she said in an [interview for Reebok](#).

It’s simply not enough to work for hours a day training the body and neglect training the mind. The mind and body are interconnected, and a weakness in one will affect the other. It’s no coincidence CrossFit Founder and CEO Greg Glassman has said, “Mind-body dualism is a myth.”

The body has an extremely complicated way of processing pain: Emotion, state of mind, and level of attention and distraction all influence how we experience pain. As Cahill suggested, regular mediation might help you learn to cultivate the control and skill that are needed to redirect your thoughts away from pain, but finding ways around pain doesn’t have to be incredibly complex.

Theresa Larson is a doctor of physical therapy and a CrossFit Mobility Trainer Course Instructor. A former Marine, she works with [wounded and tactical athletes](#) and uses meditation as a tool in her own life.

She has a simple exercise that helps her when she’s feeling sad or anxious or overwhelmed: She thinks of 12 things that are good.



"The other day I was upset and overwhelmed," Larson said. So she took out her journal and began writing: "1. I like my shoes. 2. I like my skin," until she had listed 12 good things.

"It made me smile. And it made my anxiety of the sadness go down," Larson said.

This technique, which is a basic form of mindfulness, can be used anywhere, anytime—even in the middle of the workout.

"My mind will try to go to the negative. It's a battle, (but) you can retrain your brain the same way you retrain your body. It's called 'neuroplasticity,'" Larson said.

Next time you're feeling crushed by pain and the number of reps you have left, take a few seconds to say, "I like this barbell. I got my favorite spot on the pull-up bar. I'm wearing a really cool shirt today." Or just focus on one thing, like a favorite song playing in the background.

Mindfulness does not have to take place in silence on a yoga mat. You can practice mindfulness in the gym by detaching your emotions from the sensation of burning muscles and lungs during a tough workout. Acknowledge the sensations, but don't allow them to upset you.

The meditation guru Andy Puddicombe describes this emotional detachment as the difference between standing in the middle of a snowstorm versus watching it from inside, next to a fire. The storm is present in both cases, but in one scenario you are caught in the midst of it, and in the other you are simply watching, calm and composed.

Knowing how the brain works, and understanding the link between emotions and pain perception, is the first step in managing and controlling pain, and it can be a powerful tool inside and outside the gym.



James Richard Photography

***Theresa Larson, a doctor of physical therapy, says you can retrain your mind the same way you can retrain your body.***

### About the Author

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# THE CrossFit JOURNAL

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## Dehydrated and Dominant?

New study shows mild dehydration has no effect on athletic performance.

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By Emily Beers

June 2015

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Mike Warkentin/CrossFit Journal

Researchers from Brock University in St. Catharines, Ontario, have discovered evidence that suggests being dehydrated doesn't hinder athletic performance.

Stephen Cheung is the lead author of "[Separate and Combined Effects of Dehydration and Thirst Sensation on Exercise](#)"

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**Performance in the Heat**,” published in the June 2015 volume of the *Scandinavian Journal of Medicine and Science in Sports*. The study analyzed the performances of 11 experienced long-distance cyclists under different hydration conditions.

Testing was administered on a stationary bike in a laboratory set to 35 C (95 F), and participants were tested six times over the course of the study. Each time, they cycled at a steady pace for 90 minutes and then performed a 20-km time trial in which they pushed to race speed. In total, athletes rode for about two hours each time they were tested.

During the tests, each participant was connected to an IV. Some days, the IV replenished the participant’s lost fluid with saline. Other days the IV did nothing and acted as a placebo. Participants were not told when saline was ensuring their hydration levels remained normal nor when their IV was a sham.

Cheung and his team analyzed each participant, comparing performance data between hydrated and dehydrated rides. On the days participants became dehydrated, they lost up to 3 percent of their pre-race body weight, Cheung said. However, results showed participants’ performances were no different: Hydration status had no effect.

“There was no difference in average power output, no difference in time and no difference in their pacing,” Cheung said.

Most hydration guidelines suggest performance will suffer if an athlete loses more than 2 percent of his body weight during exercise, Cheung explained.

“The ACSM’s current guidelines say you don’t want to go below 2 percent, and below that there’s impairment of performance and physical stress,” Cheung said, referencing **“American College of Sports Medicine Position Stand. Exercise and Fluid Replacement.”**

“The goal of drinking during exercise is to prevent excessive (>2% body weight loss from water deficit) dehydration and excessive changes in electrolyte balance to avert compromised performance,” the position stand reads.

Bottled-water and sports-drink companies regularly market their products by suggesting even a small amount of dehydration is a threat to athletic performance. In but one of many examples, **Gatorade’s website** states,

“Consuming fluids during exercise keeps your blood volume up and your core temperature down. Both help you fight fatigue and perform better.”

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**Bottled-water and sports-drink companies regularly market their products by suggesting even a small amount of dehydration is a threat to athletic performance.**

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A **2014 Gatorade advertisement** noted the product is “created to help replace what you sweat out,” with the clear implication that replacing lost fluid is critical for performance.

Cheung said part of the rationale behind the ACSM guidelines relates to core temperature during exercise. Scientists have commonly assumed athletes should try to stop their core temperature from rising by drinking more, Cheung explained. Participants’ core temperatures did rise as they became dehydrated in his study, but Cheung said the increased temperature did not impair performance.

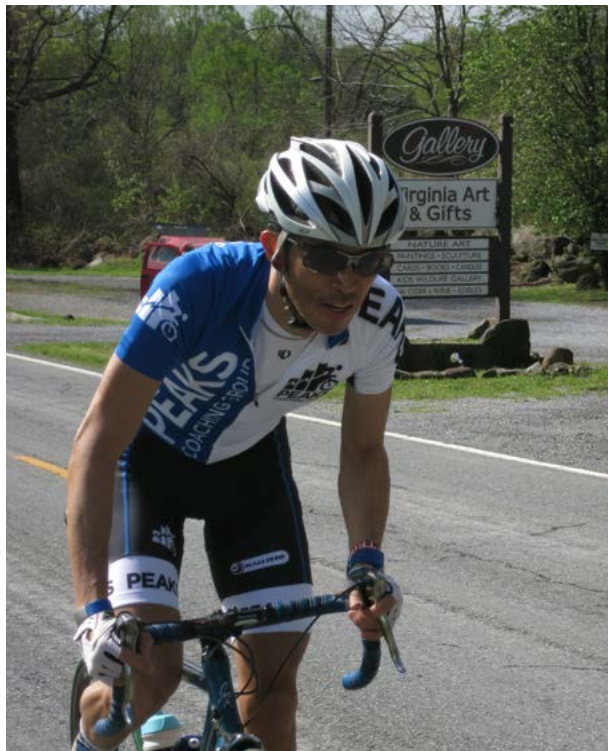
“And none of the subjects reached a dangerous level of core temperature,” he said.

Nobody was forced to stop cycling because of the increased temperatures, Cheung added.

These laboratory results were put to the test in the real world on May 2, 2015, when British cyclist Alex Dowsett set a new Union Cycliste Internationale hour record by cycling **52.937 km (32.89 miles)** in 60 minutes at the Manchester Velodrome in England.

Leading up to Dowsett’s race, Cheung consulted with Mikel Zabala—a sport scientist from the University of Grenada in Spain—to help set the right conditions in the velodrome. Zabala knew a hotter velodrome would keep air density and resistance lower, which would be advantageous for Dowsett, but Zabala feared a velodrome set to 29 C (84.2 F) would produce dehydration that would hinder Dowsett’s performance, Cheung said.

Courtesy of Stephen Cheung



***In his study of 11 experienced long-distance cyclists, Stephen Cheung found hydration had no effect on their performance.***

Cheung revealed the then-unpublished results of his study to Zabala and convinced the scientist to keep the velodrome hot without worrying about dehydration. Zabala listened to Cheung's advice: Dowsett rode in 29 C conditions and refrained from drinking during his race, as doing so would have slowed his pace, Cheung said. The result was a new record.

### A New Message

Cheung is hoping the results of his study can help change the information presented to the public about hydration and performance—information he believes is flawed.

"We're bombarded by public messages saying you need to drink all the time and any bit of dehydration is bad for your health and performance," Cheung said. "There's a disconnect between the public message and what elite performers are doing. Elite marathoners barely drink at all when they race."

(The April 2015 CrossFit Journal article "[Hydrating the Elite](#)" discusses this topic in depth.)

While elite marathoners, triathletes and cyclists keep their drinking to a minimum, Cheung noticed the "weekend warrior" still believes what the advertisements say: Drink at every opportunity and fuel with Gatorade to optimize performance.

As another example, CamelBak.com has an interactive page visitors can use to "determine how much water you need for maximum performance." CamelBak also widely uses the slogan "hydrate or die."

"Do you really need to stop at every aid station and wear a CamelBak? That was the context of my thinking (going into the study)," Cheung said.

One of the reasons Cheung's research is particularly groundbreaking is because it's the first time a study has prevented participants from knowing whether or not they became dehydrated.

"Most studies (have been) based on athletes coming into the lab and the researchers would let them drink while exercising one day, and then the next day they'd say, 'Tough luck, you're not going to drink today,'" Cheung explained.

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**Cheung's research is particularly groundbreaking because it's the first time a study has prevented participants from knowing whether or not they became dehydrated.**

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"Combine this with the fact that we have this constant bombardment of messages saying you need to drink, and then when you're not allowed to drink, it sets you up for a bad performance. It's a bit of a self-fulfilling prophecy. You (become) thirsty and grumpy because you don't get to drink," Cheung said.

His study, on the other hand, controlled variables by eliminating psychological factors so actual hydration status could be evaluated.



"We removed that psychological crutch that (causes athletes to believe) 'I always have to drink to be at peak performance,'" he said.

Cheung explained the crutch exists in many minds because of the message the public has heard for years from sports-science organizations they're told to trust. But science can sometimes suffer when marketing dollars are involved. The BMJ addressed the issue head on in the 2012 article "[The Truth About Sports Drinks](#)".

"There is an inherent conflict of interest with a lot of the people doing research or writing in the interest of being funded by the Gatorade Sport Science Institute (GSSI)," Cheung said.

He added: "Gatorade sponsors a lot of major organizations, like the ACSM, so that's always a potential issue."

Dr. Tamara Hew-Butler—an exercise physiologist from Oakland University in Rochester, Michigan—reiterated the point.



**Dr. Tamara Hew-Butler speaking at the 2015 CrossFit Conference on Exercise-Associated Hyponatremia in February.**

"(Sports-drink companies are) trying to sell products, so they'll do anything to convince you that you need (them) to perform," said Hew-Butler, who has dedicated her career to studying exercise-associated hyponatremia (EAH), a life-threatening condition that can be caused by drinking too much during exercise. EAH leaves an athlete with dangerously low blood-sodium levels, which in severe cases can lead to potentially fatal brain swelling called exercise-associated hyponatremic encephalopathy (EAHE).

In his book "Waterlogged: The Serious Problem With Overhydration in Endurance Sports," Dr. Tim Noakes noted 12 deaths from EAH or EAHE between 1981 and 2009. In August 2014, two high-school football players were killed by [EAHE after drinking too much water and Gatorade](#).

Despite the potentially serious consequences of drinking too much, Cheung said he believes most people continue to listen to the dehydration message.

"It's an easy message to broadcast for people to intuitively understand," Cheung said. "Water is our most important nutrient, and it's easy and logical to think you should drink."

It's much harder to send out a message that you can drink too much, Cheung explained. He's hoping his research can help change common perception so people understand sometimes less water is the best for great performance.

"The message from my study is that if you're peaking for a performance, like a half marathon, you don't need to overemphasize or obsess about hydration, and you can drink way less fluid than you think," Cheung said.

He added: "Maybe the message can become, 'It's not a big deal (if I can't drink). I can keep going. I can still do well.'"



### About the Author

Emily Beers is a CrossFit Journal contributor and coach at [CrossFit Vancouver](#). She finished 37th at the 2014 Reebok CrossFit Games.



# WHERE STUDENTS BECOME COACHES

Exercise-science students and professors say learning how to become a coach happens in the gym—not in a lecture hall.

BY EMILY BEERS

THE  
**CrossFit** JOURNAL





Many college graduates holding degrees in exercise science and kinesiology lack the practical experience necessary to provide clients with fitness.

A dentist, an orthopedic surgeon and a personal trainer—you would expect formal education to teach them how to fill a molar, repair a ruptured tendon and teach a squat.

But when it comes to personal trainers and coaches, college graduates with degrees in exercise science, personal training and kinesiology say the opposite is true.

Jack Langley is one of these graduates.

During Langley's kinesiology education at George Mason University in Fairfax, Virginia, many of the tools needed to become a good coach and personal trainer weren't acquired in the classroom.

Five years of lectures focused on the science behind human movement, on theories about why people should squat and what muscles are active in a squat. While information about

sarcomeres and actin-myosin interaction is valuable, Langley said what was missing from his education was the how.

"We never learned how to actually teach the squat."

Because students aren't being taught how to teach, graduates enter the workforce ill-prepared to become trainers and coaches, Langley said.

Even graduates from highly acclaimed universities such as Pennsylvania State University in State College, Pennsylvania, aren't churning out job-ready coaches, Bryan St. Andrews explained.

Since 2011, close to 20 Penn State kinesiology students have completed their internships under the guidance of St. Andrews, owner of CrossFit Nittany, also in State College. Many of these students have been in their final year of college just weeks away from finishing degrees.

St. Andrews said CrossFit Nittany has become a highly regarded facility for students to complete internships, **a requirement of their degree**. Each semester, St. Andrews receives as many as 50 Penn State applications, of which he chooses anywhere from one to three.

Still, most graduates of Penn State's kinesiology program don't meet St. Andrews' standard for a coaching job at his affiliate. Their knowledge of anatomy and physiology might be sound, but they don't yet know how to coach when they show up to intern, he said.

When asked if he'd hire any of them upon graduation, he answered with two words.

"No way."

## Studying to Study

Holden MacRae, a 27-year sports-medicine professor at Pepperdine University in Malibu, California, said there's a dearth of college-level programs teaching students how to become coaches and trainers.

One reason for this, MacRae said, is because there aren't as many physical-education and coaching programs in universities as there once were. Some of this is due to the post-1950s reformist movement in education, which saw a shift away from physical education toward more academic disciplines, such as exercise science and kinesiology.

In the book "Introduction to Physical Education, Fitness, and Sport," author Daryl Siedentop explained, "Physical educators were forced to begin to redefine their field as an academic discipline rather than as an applied, professional enterprise. It was within that political-intellectual climate that programs for human-movement studies, kinesiological studies, human ergonomics, and exercise science developed."

MacRae said he believes this shift has led to a serious loss.

"How many physical-education programs are there at universities now? Very few. That's where you learned how to become an educator who could evaluate movements among a diversity of individuals, to develop strategies to improve the movements and to learn how to optimize the movements," he said. "I think (this is) one of the tragedies in the area of human movement or exercise science or sports science."

Instead of preparing students to become coaches and trainers, the focus of many of today's exercise-science departments is on preparing students for additional studies, like grad school, explained Tommy Boone, former professor of exercise physiology at The College of St. Scholastica in Duluth, Minnesota, in the article **"Exercise Science Is Not a Sound College Investment."** "When an academic web page states that the exercise science major provides a pre-professional background for those interested in pursuing physical therapy, occupational therapy, medicine, and other health-related professions, students aren't aware that it is not a career-driven major," Boone wrote.

He added: "Graduates are not being prepared for a job but for 'further study.'"

The College of St. Scholastica's exercise-physiology program isn't specifically designed for students who want to become personal trainers or strength-and-conditioning coaches, explained Joseph Warpeha, a current exercise-physiology professor at the school. At least 50 percent of his students intend to continue their studies in graduate school. However, he said he's noticed a recent trend: More and more students are expressing interest in becoming strength-and-conditioning coaches.

The College of St. Scholastica offers a broad program, Warpeha said. Students are required to take courses in diverse subject areas, such as clinical exercise physiology, biomechanics and nutrition.

"In our program, there's no specializing," Warpeha said.

Because of this, students who know they want to become trainers or coaches might be better off selecting a program at a school that offers coaching-specific classes, he added.

"We don't have any coaching classes. ... We're a smaller school. We can't offer every potential class to students. It's hard to teach coaching skills in a classroom."

Skidmore College in Saratoga, New York, also describes its **exercise-science degree as one that prepares students for more study**: "The bachelor of science degree in exercise science is designed to prepare students for graduate study and careers in exercise science and allied health fields. The exercise science major serves as the academic foundation for advanced studies in several sub-disciplines of the field, including: exercise physiology, bioenergetics, nutrition, sports medicine, biomechanics, and kinesiology."

Looking at a random sample of 10 post-secondary exercise-science programs—from Auburn University in Alabama



to Southern Illinois University in Carbondale, Illinois, to the University of Scranton in Pennsylvania—four of the schools don’t require students to complete a practical internship to graduate. Meanwhile, when internships are required, they’re often specified as clinical internships, such as at a cardiac-rehabilitation ward of a hospital as opposed to a fitness facility.

“My education did nothing to help me be a better coach in terms of understanding proper movement, coaching, assessing or teaching.”  
—Mike Giardina

Samples of 10 post-secondary personal-training programs and 10 kinesiology or human-kinetics programs reveal a similar statistic. Of the 10 personal-training programs, five of them don’t require students to complete internships. Meanwhile, six of the kinesiology or human-kinetics programs either do not require internships or make them optional.

And many schools that advertise themselves as providing practical experience present misleading information.

Mike Giardina, a member of CrossFit Inc.’s Seminar Staff, said his exercise-and-health-science degree didn’t live up to the promise of providing students with the necessary tools to become trainers.

“There was very little practical application in both undergrad and graduate school,” he said of his undergraduate degree from Kennesaw State University in Georgia.

[Kennesaw State’s department of exercise science website states](#), “The Exercise Science program offers a diversified program that includes both introductory and advanced coursework, laboratory experiences and the opportunity for practical application of knowledge through community and research based experiences.”

This was not the case, Giardina said.

“I was coaching CrossFit (while earning my degree) and my education did nothing to help me be a better coach in terms of understanding proper movement, coaching, assessing or teaching.”

## Preaching Without Practice

Strength-and-conditioning classes are common requirements of most exercise-science or kinesiology degrees. This is where Giardina expected to get some hands-on coaching experience.

Instead, his one-credit strength-and-conditioning class was “a joke” as it was almost 100 percent theory-based. Giardina said he thinks a strength-and-conditioning class needs to be based on assessing and teaching proper movement mechanics as opposed to being focused on exercise prescriptions for cardiac-rehabilitation patients.

“The vast majority of graduates don’t go on to get a master’s or Ph.D. They end up with no practical knowledge on how to train others. This is a problem,” Giardina said.

The Kennesaw State program isn’t out of the ordinary.

In 2010, the University of Southern Florida approved a strength-and-conditioning course that required no practical experience. The [course synopsis](#) stated, “field-based experiences” are “not applicable for this course.”

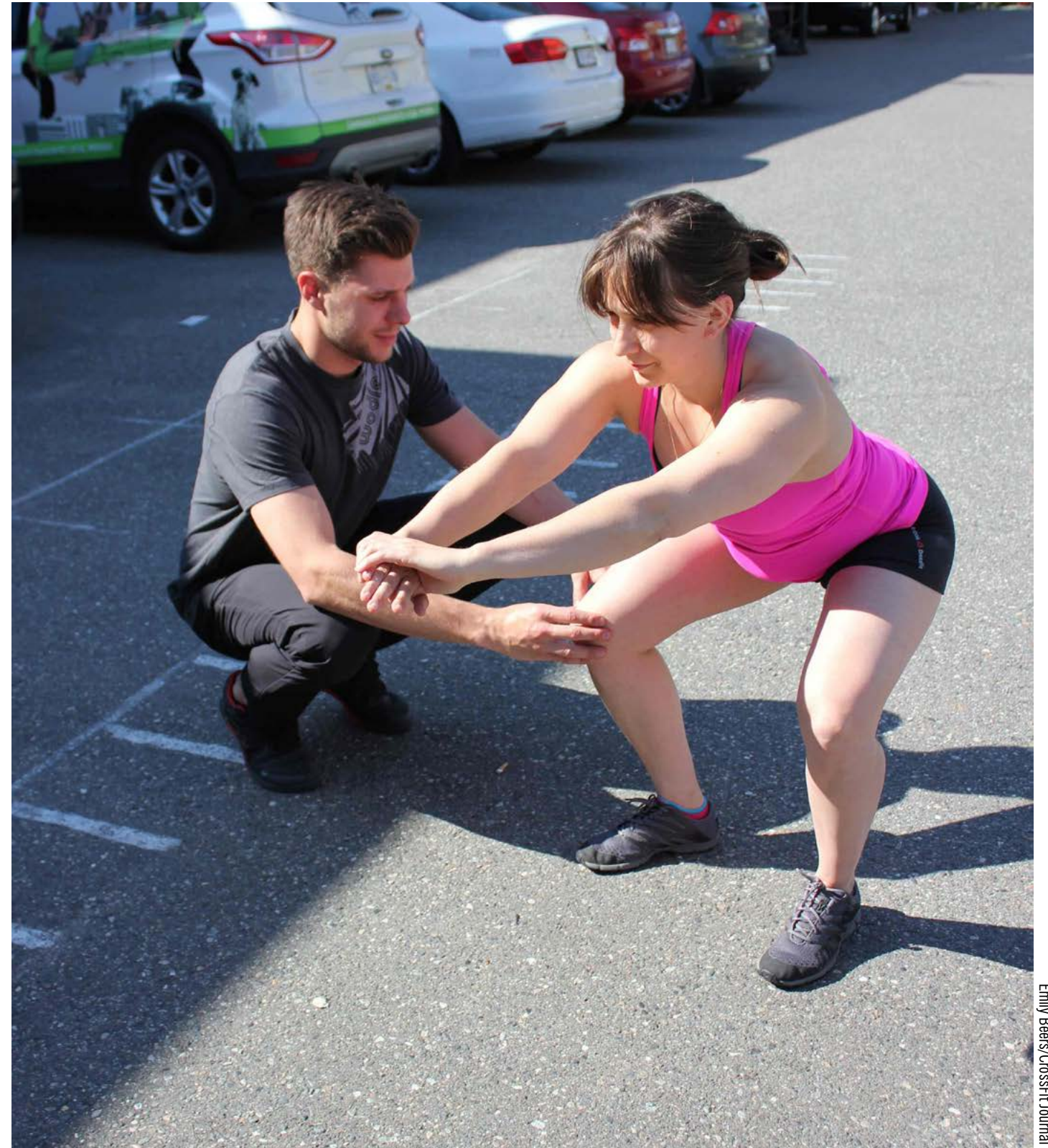
It’s a similar story north of the border at the University of British Columbia in Vancouver, a highly regarded research university. UBC offers a strength-and-conditioning class to human-kinetics students. The focus of the class is on “special populations”—on prescribing sets and repetitions for people with diabetes, heart disease or other auto-immune disorders. The only hands-on parts of the class involve evaluations such as a  $VO_2$  max test, Wingate test and so on.

Langley had a similar experience in his strength-and-conditioning class at George Mason.

“We didn’t learn much about the regular population. When we did, a lot of the exercises we talked about involved sitting down on machines. There wasn’t a whole lot of functional fitness other than running or biking on stationary bikes.”

Students completed the course wanting more knowledge, Langley explained.

“Walking out of my strength-and-conditioning class, if you asked all of those students to teach someone how to do an air squat, they wouldn’t have been able to,” he said. “For kids who were studying (kinesiology at George Mason) and weren’t getting hands-on experience elsewhere, they wouldn’t have been able to teach a squat, even though they would have had the background knowledge of how an air squat benefits you.”



Emily Beers/CrossFit Journal

Improving movement is a hands-on task, and many graduates who lack practical experience will quickly find themselves struggling in the field.



Langley learned how to teach clients to squat, deadlift and press outside school through his experiences volunteering as an assistant strength coach at Georgetown University in Washington, D.C. He also got comfortable with practical application of training principles at a CrossFit Level 1 Certificate Course and by working with Jamie Gallagher at CrossFit Burke in Fairfax, Virginia. Langley has been coaching at CrossFit Burke since it opened in 2013.

“Walking out of my strength-and-conditioning class, if you asked all of those students to teach someone how to do an air squat, they wouldn’t have been able to.”  
—Jack Langley



Courtesy of Mike Giardina

It was time spent at a CrossFit affiliate—not in a classroom—that taught CrossFit Inc. Seminar Staff member Mike Giardina how to be a great coach.

At the University of Nevada, Las Vegas (UNLV), Gabriele Wulf has spent 15 years [exploring methods that help people learn physical skills and move efficiently](#).

Despite her emphasis on researching tools and coaching cues that best teach human movement, her motor-control-and-learning class at UNLV on the subject does not have a practical component. Students learn about her theories through lectures, seminars and class discussions, in which they’re asked to give verbal examples of how they might apply coaching cues. They do not, however, get the opportunity to practice cueing real people.

“They get several lectures on (the subject), and hopefully they’ll apply it,” Wulf said. “But there’s no lab for them to apply it in class directly.”

She paused before adding: “That would probably be quite helpful for them.”

## The Purpose of Coaching

Jessica Newton is a former student at Pepperdine University in Malibu, California, where she completed her sports-medicine degree in 2011. The program required she complete a 14-week practical internship at a fitness or health facility; it contributed three credits toward her degree.

Newton completed her 150-hour internship at CrossFit Malibu. While Newton learned many aspects of her profession in the classroom, she said she believes her four-year degree would have been incomplete without the internship.

“You get the science education in class, but then you get to apply it during your internship. My internship helped complete everything,” she said.

One of the skills Newton learned at CrossFit Malibu was how to train people with different anatomies and abilities.

“In school, you’re taught that certain movements are supposed to look a certain way, but everyone has a different anatomy, so learning how to coach people differently was really important,” she said.

“Coaching is not just about having book knowledge. There are a lot of other factors that contribute to being an effective coach.”  
—Holden MacRae

CrossFit Malibu also helped Newton with her confidence. Ordinarily a shy person, her experience at the gym helped her come into her own.

“I feel like coaching and interning helped me find out who I was as a coach, and (I learned how to) public-speak a lot better and not be as afraid in front of large groups,” she said.

MacRae, one of Newton’s former professors, said he believes an extensive internship helps students develop valuable attributes.

“Coaching is not just about having book knowledge. There are a lot of other factors that contribute to being an effective coach,” MacRae said.

Being a great coach also involves being able to adapt to meet individual client’s needs, as well as being able to connect with people socially, which is difficult to teach in a lecture, MacRae said.

MacRae is in charge of vetting internship facilities to make sure students get placed at locations where they’ll learn the tools they need.

Not all students are as lucky as Pepperdine graduates.

St. Andrews completed an internship during his kinesiology degree at Penn State in 1999 but didn’t find it useful. He was placed at a local YMCA.

“I got experience setting people up on machines and telling them, ‘You need to have your seat on a four and your back pad on a three,’” he said. “Unless you did an internship with the football team, you didn’t get much practical, hands-on experience.”

Almost 16 years have passed since then, but today St. Andrews said his gym is one of just a few decent options for students. This is mostly because Penn State is located in a college town of approximately 40,000 people, so there simply aren’t that many appropriate facilities for interns to gain valuable experience.

On-the-floor learning is necessary for becoming a great coach, MacRae said. It teaches students not only how to teach, assess and correct movements but also how to understand people.

Acquiring these skills doesn’t always mean a university degree is required, he noted. A degree might give a coach an edge, but it certainly doesn’t make a great coach, MacRae explained.

“If I was coaching and I have a background in metabolism and functional movements, I might have an advantage over someone who doesn’t. (But) as long as you’re willing to learn, I don’t think having an academic degree makes you a better coach.”

MacRae added: “Ultimately, (coaching) is about helping people be better at what they do. That’s what a coach is there for: To improve human potential. And there are many ways you can go about doing that that doesn’t always require you have an expansive background in exercise science.” ■

## About the Author:

Emily Beers is a CrossFit Journal contributor and coach at [CrossFit Vancouver](#). She finished 37th at the 2014 Reebok CrossFit Games.

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# THE CrossFit JOURNAL

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## A Theoretical CrossFit Model for Professional Baseball Players

Former Oakland A's outfielder Danny Putnam creates a CrossFit training plan to keep ball players in top shape all year long.

By Danny Putnam

June 2015



Courtesy of Christie Putnam

*"Baseball is 90 percent mental, and the other half is physical." —Yogi Berra.*

Baseball players have long held onto the idea that the mental aspect of the game is what sets the elite apart. Mastering the mental game has always been presented as a sort of Holy Grail for players—the difference between long-term success or a quick decline into obscurity.



However, a new element is affecting baseball culture and the rest of the professional sports world: fitness. While that might seem odd considering the physical nature of most sports, note that some players get by only on great skill and sport-specific training but actually have glaring fitness deficiencies. Some less-than-fit athletes certainly perform at a very high level, but could they be better if they were fitter? Could injuries be avoided, careers lengthened and performance improved if fitness was a greater part of baseball culture?

CrossFit has been a driving force in challenging existing training practices in general, and its influence comes at a time when baseball players are finally starting to pay attention to Yogi's "other half."

The purpose of this article is not to lay the foundation for why baseball players or other athletes need to incorporate CrossFit methodology and programming into their training cycles. Volumes have already been written about the benefits of general physical preparedness and improving the 10 physical skills—cardiovascular/respiratory endurance, stamina, strength, flexibility, power, speed, coordination, agility, balance and accuracy. We know the 10 physical skills are universally beneficial to athletes, and at this point we should be able to agree that improving these skills would help any athlete in his or her sport. Instead, this article is about how CrossFit methodology can be applied to create a successful fitness program for baseball players.

In addition, it should be made clear that this programming methodology is not attempting to turn professional baseball players into CrossFit Games athletes or even competitive CrossFit athletes. Nor is it meant to replace a player's sport-specific skill work. CrossFit is not a substitute for time spent working on swing mechanics, fielding and so on.

This model is designed to allow a baseball player to more fully express his skills on a consistent, prolonged basis. In other words, a player's natural baseball skills will be enhanced with more strength, power, flexibility, stamina, balance, endurance and so on. Through this program, players will be able to maintain and employ those skills at a higher level longer into the season and ultimately later into a career. Players have always been evaluated on their consistency and longevity, and the fitness created by this theoretical model will provide athletes with a key tool for developing these attributes.

How does CrossFit programming work for a professional baseball player? The theoretical model outlines a year-long periodization schedule that reflects the demands and challenges unique to a professional player. This is CrossFit applied very deliberately to a sport, and the model accounts for the specific demands of that sport. It provides the structure to improve fitness in the offseason and maintain fitness throughout the grind of the season.

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**CrossFit is not a substitute for time spent working on swing mechanics, fielding and so on. This model is designed to allow a baseball player to more fully express his skills.**

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The model is designed to affect three key metrics: injury resistance (fewer games missed due to injury), overall statistical production and increased productivity in the critical August-September period. The model also sets the pattern for fitness improvements year after year, creating the foundation for a lengthy and successful career.

### The Grind of the Season

The professional season is best understood as a marathon as opposed to a sprint. A Major League campaign spans a six-month period and includes 162 games, with another month spent in spring training and another month on the field in October if a team goes deep into the postseason. During the season, teams will have frequent stretches with 10 or more games in a row and zero rest days. There are 12-hour bus rides, cross-country flights, extra-innings games, limited nutrition options (primarily an issue in the minor leagues)—and yet baseball players are expected to maintain top performance all season.

The physical and mental toll is usually apparent in the diminishing performances of players in the months of August and September, aka the dog days of summer. This is typically when players break down, either outright with



Courtesy of Ryan Bergh

***CrossFit can be layered upon professional baseball players' sport-specific training to improve fitness, reduce injuries and allow for superb performance in critical games late in the season.***

injuries or in more subtle ways revealed by inconsistency and declining productivity. The August-September period is also when teams push to lock down playoff spots, so the costs of missing players and poor output are amplified.

When players wear down, it looks different for each: a pitcher's losing sharpness on his slider, a catcher's weary legs causing swing mechanics to break down, an outfielder's pulling an oblique due to overuse or imbalances in the core muscles. Poor performances cost games, and injured stars cost organizations millions.

Unfortunately, few players have an effective year-round plan to combat season-long attrition, and shortly after spring training, the number of players at the gym starts to decline due to insufficient programming. Players don't have a program that is stimulating or exciting enough, so they lose motivation and stop out of boredom. If they don't see why the effort is worth it or how it will help, some players are unwilling to invest their time. Other players get stuck doing the same set of workouts for the whole season, and the dreary boredom wears on them until they just go through the motions. Some baseball players simply

get tired of trying to figure out what to do every time they step into the gym.

Regardless of the program in place, fatigue has negative effects as the season wears on. When players get tired, they often give up on the gym because they don't know how to scale back. Even the few dedicated players who stick to a program often struggle with soreness caused by an excess of isolation movements, and that soreness can carry over into games.

Players need a stimulating program to help them survive and thrive over the course of the season, and it must fit into their schedule. The workouts need to be scalable to fit the equipment available, which often is limited, especially in the minors or on the road. Workouts also need to follow a periodization schedule so they are appropriately intense with regard to the stages of a player's year—a key aspect of this theoretical model.

Workouts for baseball players must take a relatively short period of time. Sometimes the travel schedule leaves only 30-minute training windows just before batting practice or after a game is over. For the professional player, sometimes



	Sept.–Oct.	Nov.	Testing No. 1	Nov.	Dec.	Jan.–Feb.	Testing No. 2	
Description	Early offseason			Prime training time				
Phase	Active recovery			Fitness development				
Period	Active rest	Structured activity		Foundations	Strength	Volume		
Focus / Goal	Physical and mental recovery	Mobility/movement		Build aerobic and anaerobic capacity	Strength and workload capacity	Increased volume		
Days On	1+	2+		3-4+	4+	4+		
Week 1	M	S M		M S M	M S M S	L S L M		
Week 2	S	L S		S M	M S M L	M S L L		
Training Time (minutes)	20-40	45-75		60-90	60-90	60-90		
	Feb.	March	Testing No. 3	April–June	All-Star Break	July–Aug.	Sept.	Testing No. 5
Description	Spring training			Season				
Phase	Transition			Maintenance				
Period	Tapered strength	Maintain		Maintain	Testing No. 4	Tier down	Taper volume and working loads	
Focus / Goal	Acclimate body to games + fitness training	Settle into season maintenance		Maintain high-intensity fitness, workloads and volume		Maintain intensity, strength with tapered volume and working loads	Intensity, varied stimuli and tapering	
Days On								
Week 1	3+	3+		3+		2-3	2	
Week 2	M S S	S M S		M M S		M S	M S	
Week 2	M S L	M M L	M S L	S M S		S M S		
Training Time (minutes)	25-60	25-60	25-60		20-45	20-30		

\* S=Short, M=Medium, L=Long

**Table 1—A theoretical year-long template for CrossFit programming for a professional baseball player.**

it's just about "getting it in," and they need a program that delivers big returns for a minimal time investment. They simply don't always have time for a 60- or 90-minute session at a gym.

In-season programming can easily be worked into a player's pre- or post-game schedule without threatening his ability to perform on the field, and variety in the scheduling of workouts is encouraged. In fact, hitting an appropriate workout before batting practice will get the body warmed up and mobilized for the sport-specific activities to follow. After all, functional movements prepare us for performance as functional athletes.

On the other hand, players are already warmed up for post-game workouts, so they'll need less time in the gym. Training after a game also mixes up the stimulus and prepares the body to perform under fatigue—something regularly required during a season.

Additionally, the workout must apply enough stress to generate results, but it needs to leave a player fully functional. With 10-game stretches common, a workout can't be allowed to create excess soreness, and it can't exceed the recovery capabilities of athletes who are constantly traveling, warming up, practicing and playing. What good is a heavy leg day if an outfielder is so sore he can't

run at 100 percent for three days? To limit the strain on any body part, the program needs to have a foundation of multi-joint functional movements as opposed to isolated loading.

While the majority of current players participate in some kind of offseason training program, they seldom have an executable plan during the season. What happens during spring training and the first half of the season, and what happens when a pennant is on the line and performance is critical in the dog days of summer? Without a plan or any way to track progress, players can be plagued by doubt as they try to play through fatigue and nagging injuries to make it to the end of the season.

"Am I doing enough? Will I still be strong in August? Do I have an edge over the competition?"

These questions are poison to a professional athlete, but we can remove their doubt with a data-driven fitness program that can be applied all year round.

## The Periodization Schedule

This key feature of this one-year periodization schedule is that it takes the grind of the season into account while addressing the primary goals: bolstering injury resistance, improving performance and sustaining performance late in the season.

The model also includes various testing phases, which allow a player to see quantifiable progress throughout the year. In some cases (testing in-season), players will see numbers that only indicate capacity is being maintained. While this might initially appear to be a negative, keep in mind that if a player's fitness is sustained over a brutal 162-game season, this is very much a positive. The time for improvements is in the offseason, when players are fresh and can dedicate more time and effort to training. Quantifiable improvements and repeated confirmation of retained fitness validate the program but also provide players with a mental edge during the remainder of the season.

The programming is designed to maintain a higher baseline level of fitness each year, allowing for year-after-year gains and dramatic performance improvements over a career.

The periodization schedule outlines the number of training sessions per week, the length of each session, the focus of each session and an example of the time domains that are appropriate in each stage of the year: active recovery, fitness development, transition and maintenance. Each phase has a unique goal and focus, and the work builds on the preceding stage and becomes the foundation for the next.



Courtesy of Danny Putnam

***Danny Putnam was a first-round draft pick and made it to the Major Leagues in 2007. His experiences as a professional athlete are the basis for the theoretical template in this article.***

Players need mental and physical rest after a long season, so the early offseason phase is designed to give the athlete ample time to recover. At the same time, it provides the framework to keep athletes moving with a purpose. The active-recovery phase is not a concession, nor is it optional to skip this stage and move right into fitness development after a period of total inactivity. Baseball players need to rest, but some momentum is required to ensure continuity.

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### **A player will see greater improvements from high-intensity training, and the limited time investment leaves a great deal of time to focus on baseball activities.**

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The active-recovery phase is broken out into two periods. The period of active rest gets the player moving but having fun. In this period, the athlete should not feel like he is in training. This is programmed rest with movement. Activities could be anything from hiking, swimming and running to doing yoga or playing a sport other than baseball.

The second period is structured activity, with an emphasis on improving mobility and technique and building a foundation for the fitness-development phase that follows. Workouts are more structured, intensity starts to increase, and technique is king. In this phase, Olympic lifts are learned or reviewed and refined. Speed and intensity only increase as the athlete proves he is capable of maintaining technique in each prescribed movement.

The fitness-development phase is broken down into three components: foundations, strength and volume. Once players are able to display proper technique in strength work and under duress in a conditioning workout, they are able to move past the foundations stage and into the strength stage. During the strength stage, the goal is to increase cardiovascular capacity and overall strength and power. Athletes will train four to five times per week, with a greater focus on Olympic lifts in strength sessions and conditioning workouts. This stage is where athletes will see



the most dramatic improvements in their 1-3-rep maxes and work capacity in conditioning workouts. During the volume stage, greater emphasis is placed on increasing total repetitions in any workout, and greater priority is given to longer domains in order to prepare players for the volume of work they will encounter during the season.

Even with the high level of intensity and increased volume during this phase, players will have plenty of time and energy to work on sport-specific skills. A player will see greater improvements from high-intensity training, and the limited time investment leaves a great deal of time to focus on baseball activities.

The transition phase is spring training. During spring training, athletes will be adjusting to full days of baseball activities—including games—while maintaining their workout schedule. Players will cut back workout sessions to three times per week, also scaling back the time of each session in order to compensate for the increased baseball activities. Athletes taper strength work in this period, and intensity and technique are the top two priorities. We still expect to see athletes performing conditioning workouts with the same loads they used in the fitness-development phase, and the workout durations and rep schemes will remain fairly consistent, with only a small decrease in overall work considered ideal.

During the second half of spring training, the transition phase will prepare for maintenance mode. As spring training reaches its peak, players may not be able to complete a full strength session and a conditioning session, so the key is to program so both elements are included in many workouts. For example, a player could combine strength work and intensity by doing 3 power cleans every minute for 10 minutes, increasing weight each round. In this way, a player can do strength work with enough intensity to reap some conditioning benefits, all in a relatively short amount of time.

The maintenance phase is all about keeping a player's physical capacity at or near the levels seen at the beginning of spring training. Some deterioration is unavoidable; it's expected and even accepted. However, this model is designed to minimize the physical and mental breakdowns that derail all too many players' seasons and careers. If a player can end the season at 90 percent off spring-training physical capacity as opposed to 70 percent, it really means

the player has improved capacity by 20 percent. It is simply not possible for a player to maintain 100 percent of his fitness level over 162 games in six months, so this model is designed to preserve as much fitness as possible, giving fitter players an edge over those who are broken down, injured or exhausted. For example, consider a pitcher whose fastball velocity remains very consistent as opposed to dropping 2 mph or more over the course of a season.

In addition, a player is then able to start the next yearly programming cycle at a higher level because deterioration has been avoided as much as possible. That results in greater fitness capacity year after year, which helps improve a player's longevity.

The maintenance phase is broken down into three time periods during the season. In the first half of the season, the player will work out fewer times per week than in previous phases, but the goal is maintaining a high level of intensity and solid workload. Only during the first period of the maintenance phase will a player be exposed to a conditioning workout longer than 25 minutes, and this is only programmed once per month.



***Maintaining fitness throughout the year means longer careers and fewer injuries for professional baseball players, says Danny Putnam.***

Target	End of Active Recovery	Fitness Development	Spring Training	First Half of Season	Second Half of Season
Workout Testing	For best time/ reps	For best time/ reps	For best time/ reps	For best time/ reps	For best time/ reps
Workout Training Time Target (minutes)	Under 15:00	Under 10:00	Under 11:00	Under 12:30	Under 13:30
Testing Load	3-rep max	3-rep max	3-rep max	3-rep max	3-rep max
Strength Session Load	Body/PVC	3-rep-max overhead squat	3-rep-max overhead squat	80% of last 3-rep-max overhead squat	70% of last 3-rep-max overhead squat

**Table 2—Training versus testing guidelines.**  
*The table uses the sample conditioning and strength tests detailed below.*

During the second period, which begins after the all-star break and runs to the beginning of September, players will only do two or three workouts per week depending on their schedule and how their bodies feel. During this period, loads will be decreased even if a player feels like he can do more. This practice might seem counterintuitive, but remember the end goal of consistent on-field performance for the entire season. A planned reduction in training load takes into account the cumulative stress of 100 or so games.

In the final maintenance period, workout loads are decreased again, as are the number of training sessions per week. The goals for the final maintenance phase are keeping a player moving regularly, continually stimulating the body and mind to keep both fresh, and retaining high levels of aerobic and anaerobic capacity. Intensity is still maintained, but workout times are not expected to improve even with a reduction in loading. In fact, some drop-off in conditioning performance is expected, and some training intensity is sacrificed in order to support late-season on-field performance.

## Testing

Testing phases are also in place at key periods in the season to track a player's fitness throughout the year. Data will reveal an athlete's improvements during the offseason, maintenance levels during the season and year-over-year increases in fitness. The mental benefits of data have already been noted, but the significance of these benefits cannot be overstated: When players know without a doubt that they are fitter, stronger and have more endurance than the year before, it has a dramatic effect on their confidence and performance. When players have proof they are in top physical condition as rivals falter late in the season, the mental edge is a game changer.

Below are a pair of test workouts that evaluate multiple components of fitness and are safe for athletes during any phase or at any point during the season.

### Sample Conditioning Test

2 rounds for time of:

Run 400 m  
 40 air squats  
 30 sit-ups  
 20 push-ups  
 10 pull-ups

### Sample Strength Test

10 minutes to establish a 3-rep-max overhead squat

Each testing phase should include one or two test workouts that are easily accessible (no specialized equipment). Tests should avoid high-skill gymnastics movements in order to decrease the risk of injury if a player is fatigued late in the season. The workload of any tests must be manageable at any point in the testing phases of the schedule—even when players are fatigued during the all-star break after playing half the season.

Along with a conditioning test, a 3-rep-max squat, clean, overhead squat, deadlift or barbell complex will help coaches evaluate strength numbers. Why not a 1-rep-max? While a 1RM is an important part of the fitness-development phase and can be used to calculate percentages for working weights during strength sessions later in the year, 1RMs will be avoided for testing to reduce the likelihood of injury and excessive stress. We can get the numbers we need from a 3RM.

Table 2 shows how a test is treated differently than a training session during the schedule.



To illustrate, assume the conditioning workout on the previous page is our primary testing workout but also shows up as a general workout in a training session during each phase. For the test, we want the player to go all out to give us the data we need. In training, we expect different results based on what phase we are in. This is part of the periodization plan that takes into account the stress of a baseball season. It is therefore acceptable if a player completes task-priority workouts slower or performs fewer reps in time-priority workouts as the season progresses.

For strength work, testing parameters remain the same—maximal effort—but in general strength sessions we program a lower percentage of the maximum load for the working weights.

While this periodization schedule is built for a professional baseball player, the four stages and scaling options can easily be adjusted and applied to college, high-school or youth programs. While the periodization schedule follows a systematic approach, trainers and athletes can use the framework to scale in other ways according to each player’s needs and ability. This is where CrossFit combines the science of intensity with the art of individualized programming and scaling.

Programming Samples

Let’s take a look at sample programming to build on the foundation of the periodization schedule.

When possible, a baseball player’s training session should have a warm-up and core segment, a skill or strength component, and a conditioning workout. However, as the season progresses or as the schedule demands, it might be necessary to adjust the plan by removing the strength/skill portion. As you will see, high-skill gymnastic movements should be scaled unless the athlete has shown mastery of technique. For example, strict pull-ups are preferred over butterfly chest-to-bar pull-ups. In general, kipping pull-ups and strict pull-ups are more appropriate for baseball players because we need to consider the stress already on the shoulders from baseball activities, and eliminating butterfly pull-ups can reduce intensity—a good thing in this case.

Another key element in programming for baseball players is the decreased prescribed weights. With regard to Table 3, could the athlete still be physically able to complete the conditioning workout with 135 lb. for the snatch and 185 lb. for the deadlift as the season progress? Yes, but we are programming for sustained on-field performance, and reductions in loading will facilitate success in games. Therefore, we scale the load back in order to retain

	Warm-up/Core	Skill/Strength	Workout of the Day		
	<ul style="list-style-type: none"><li>•Stretching</li><li>•Active warm-up</li><li>•GHD mobility</li><li>•3x7 GHD sit-ups</li></ul>	Snatch technique: 20 minutes to work full squat snatches	4 sets: 5 snatches, 135 lb. 7 burpees over the bar 9 chest-to-bar or strict pull-ups 1-minute rest between sets  Rest 2 minutes  4 sets: 250-m run 10 deadlifts, 185 lb. 20 double-unders (or 50 singles) 1-minute rest between sets		

Target	End of Active Recovery	Fitness Development	Spring Training	First Half of Season	Second Half of Season
Workout Completion Time (Minus Rest)	Under 13:00	Under 12:00	Under 13:00	Under 14:30	Under 15:00
Strength Load	Technique (be able to pause at key points)	Establish 1-rep max	Work to 90% of 1-rep max	Work 3 reps at 70% of 1-rep max	Work 3 reps at 60% of 1-rep max
Workout Load	Keep technique and hit time	135/185 lb.	135/185 lb.	115/155 lb.	115/155 lb.

Table 3—A sample workout with recommended scaling throughout the year.

Warm-up/Core	Skill/Strength	Workout of the Day
<ul style="list-style-type: none"> <li>• Active warm-up</li> <li>• Toes-to-bars</li> <li>• Windshield wipers</li> </ul>	Front squats Fitness development and transition 5-5-5-3-3-3-2-2-1  Maintenance 5-5-5-3-3-3-3	Baseball Diane: 21-15-9  Plyo hand-release push-ups Deadlifts, 225 lb.

Target	End of Active Recovery	Fitness Development	Spring Training	First Half of Season	Second Half of Season
Workout Time/ Reps	Keep moving, few breaks as possible	Establish best	Within 110% of best time or 90%+ of best reps	Within 120% of best time or 80%+ of best reps	Within 130% of best time or 70%+ of best reps
Strength Load	Establish baseline	Work for 1-rep max	Work to 90% of 1-rep max	Work 3 reps at 70% of 1-rep max	Work 3 reps at 60% of 1-rep max
Workout Load	Keep technique	225 lb.	225 lb.	185 lb.	185 lb.

**Table 4—A second sample workout with recommended scaling throughout the year.**

intensity but reduce stress, recognizing that a player might complete the workout after a 12-inning game or before a 10-hour bus ride. During the second half of the season, it might be necessary to scale back even further, and the athlete needs to understand that it is not about pride but rather setting himself up for success. Playing 162 games is a dramatic increase in workload, so training loads must reflect that volume.

### Playing 162 games is a dramatic increase in workload, so training loads must reflect that volume.

Similarly, the expected times listed for conditioning workouts show that we plan for some decline later in the season. This is based on the reality of the grind of the season.

Table 4 shows a fun variation of one of the classic benchmark Girl workouts: Diane. While I am not a fan of messing with the classics, this is a good example of how programming is adjusted for professional ball players. Overhead stability is critical to being more injury resistant when diving for a ball or diving into a base, and it's critical to avoiding the injuries common to repetitive throwing. While I believe baseball players need more functional overhead training, I will not program high-volume handstand push-ups for a baseball player given

the demands already placed on that joint every day of the season. Therefore, a baseball version of Diane would include a plyometric hand-release push-up as opposed to a handstand push-up. We still get an explosive pushing movement without risking irritation to a joint that's used hundreds of times in practice and games.

Again, you'll see that the working weight is scaled back at various points in the season.

### Hall-of-Fame Fitness

As stated earlier, CrossFit isn't a replacement for sport-specific training. But I believe it can provide greater fitness to baseball players, keeping them on the field and performing at a very high level year after year.

Attitudes toward fitness are changing in baseball, and aspiring athletes are encouraged to experiment with this program to generate the best results when the umpire yells, "Play ball!"



### About the Author

*Danny Putnam was an All-American at Stanford University and a first-round draft pick of the Oakland Athletics in 2004. He made it to the Major Leagues in 2007. He holds CrossFit Level 1 and Level 2 certificates, and he trains at [Fallbrook CrossFit](#) in San Diego, California. He is the managing director and co-founder of [Lurong Living](#).*



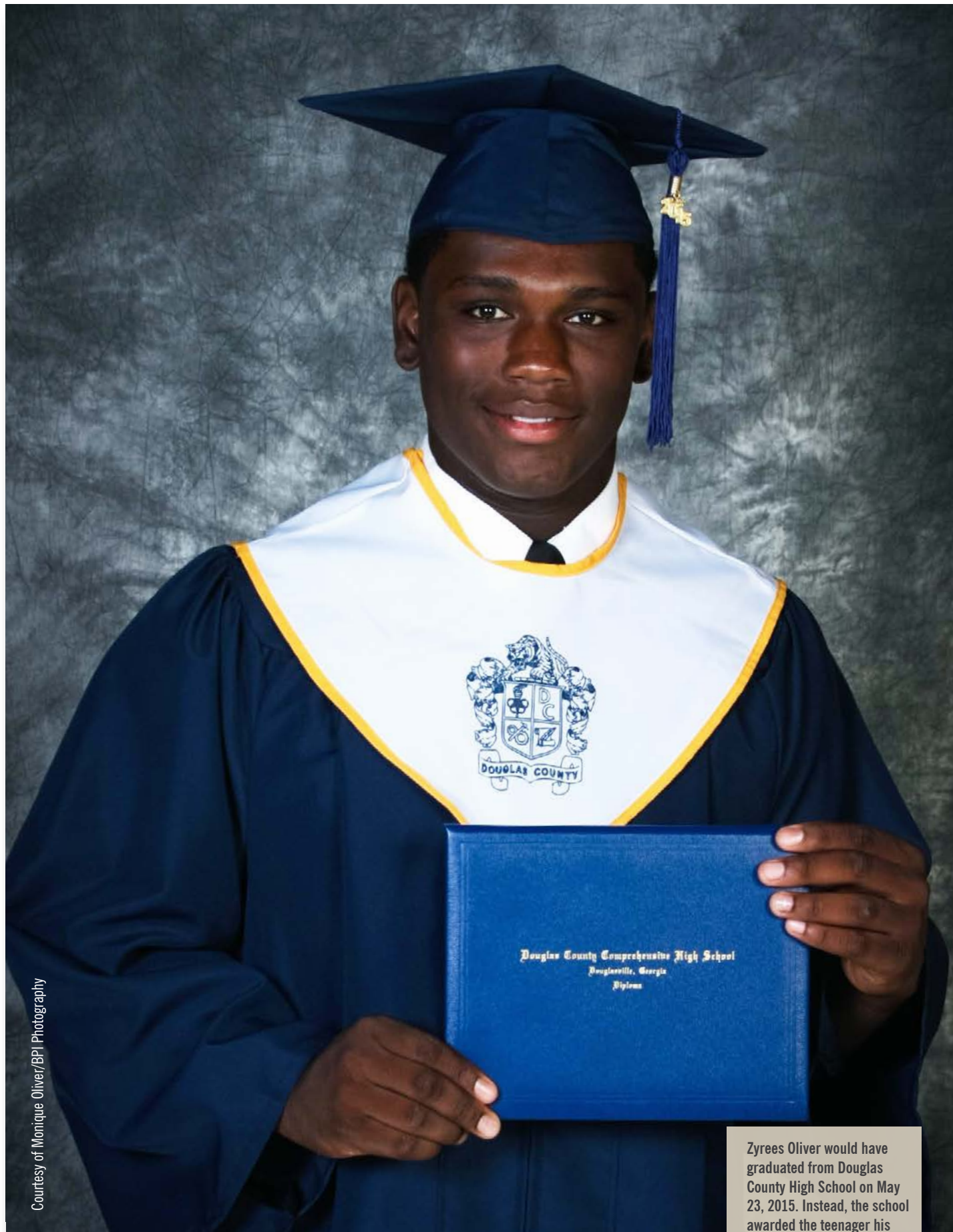
# DEADLY MYTH

Smart and athletic, Zyrees Oliver had a bright future washed away when widely accepted hydration advice ended up killing him. Andréa Maria Cecil investigates.

BY ANDRÉA MARIA CECIL







Zyrees Oliver would have graduated from Douglas County High School on May 23, 2015. Instead, the school awarded the teenager his diploma posthumously.

The words hung in the air: brain dead.

Only days earlier he was a strong, healthy, God-fearing 17-year-old who in little more than a year at his high school had become captain of the football team and boasted a 3.8 GPA. He planned to play college football. Then he wanted to go into the NFL—his path plainly divergent from that of his incarcerated father.

Now he lay unresponsive in a bed in the ICU of an Atlanta hospital, his mother struggling to comprehend the neurologist's words.

Brain dead.

## “The Best Son”

It was May 2013 when Monique Oliver moved with her four boys to Georgia. They needed a fresh start. And 826 miles south seemed as good a place as any.

New Jersey was home. It also was the place where Hashim Israel Cooper—the father of three of her sons—had been jailed since early 2010 on various drug-related offenses.

Most teenagers would have been anxious about leaving their friends, starting at a new school, being so far from home. Not Zyrees Oliver.

“Zy, are you scared to go to Georgia? Are you scared to go to a new school?” his mother, Monique, remembered asking him.

Not scared at all, he responded.

“He didn’t have a problem with making friends,” explained Monique’s sister and Zyrees’ aunt Tammy Chavis.

Plus, he knew high schools in the South were heavily dedicated to their football programs, giving the 6-foot, 240-lb. offensive lineman an improved opportunity to catch the eye of a Division I recruiter.

Of Monique’s four sons, Zyrees was the second oldest and the most mature.

“My oldest is 21. He acted more mature than him. He had a bank account,” Monique remembered before stopping to wipe away tears.

Besides being a star student and a standout athlete, Zyrees worked two jobs—one at a fast-food restaurant, the other at a flower shop. That left little time for much else.

“He was paying us to do his chores,” Zyrees’ older brother, Eric Mosley, recalled with a smile. “He was at practice so much, he was tired.”

And if the quality of his siblings’ work wasn’t up to snuff, Zyrees let them know.

“He would come in and say, ‘You’re not cleaning the bathroom right. I’m not paying you if you’re not gonna clean the bathroom right,’” Chavis said, laughing.

He also made time for important things.

“He was the best son—giving, caring. He made sure he told me he loved me all the time,” Monique said.

And he would take her out to dinner.

“He never left my side,” Monique continued. “He was a momma’s boy, I guess you could say that.”

Within his tightly knit family, Zyrees made certain he demonstrated his affection.

On many a Valentine’s Day, he sent Chavis a text message: “Happy Valentine’s Day, auntie. I love you.”

“He was that kind of kid, ya know,” Chavis said.

She added: “He was the type of kid that ... you would want for your own, ya know what I mean? And I’m not just saying that because I’m his auntie. I’m saying that because (he was) a real good kid.”

At 8, Zyrees was known to dress himself and walk down the street to church. By himself.

“He went to church every Sunday,” Monique recounted. “He got saved by himself. He loved God. He prayed in the morning. He prayed at night.”

Zyrees was someone people admired, said multiple family members.

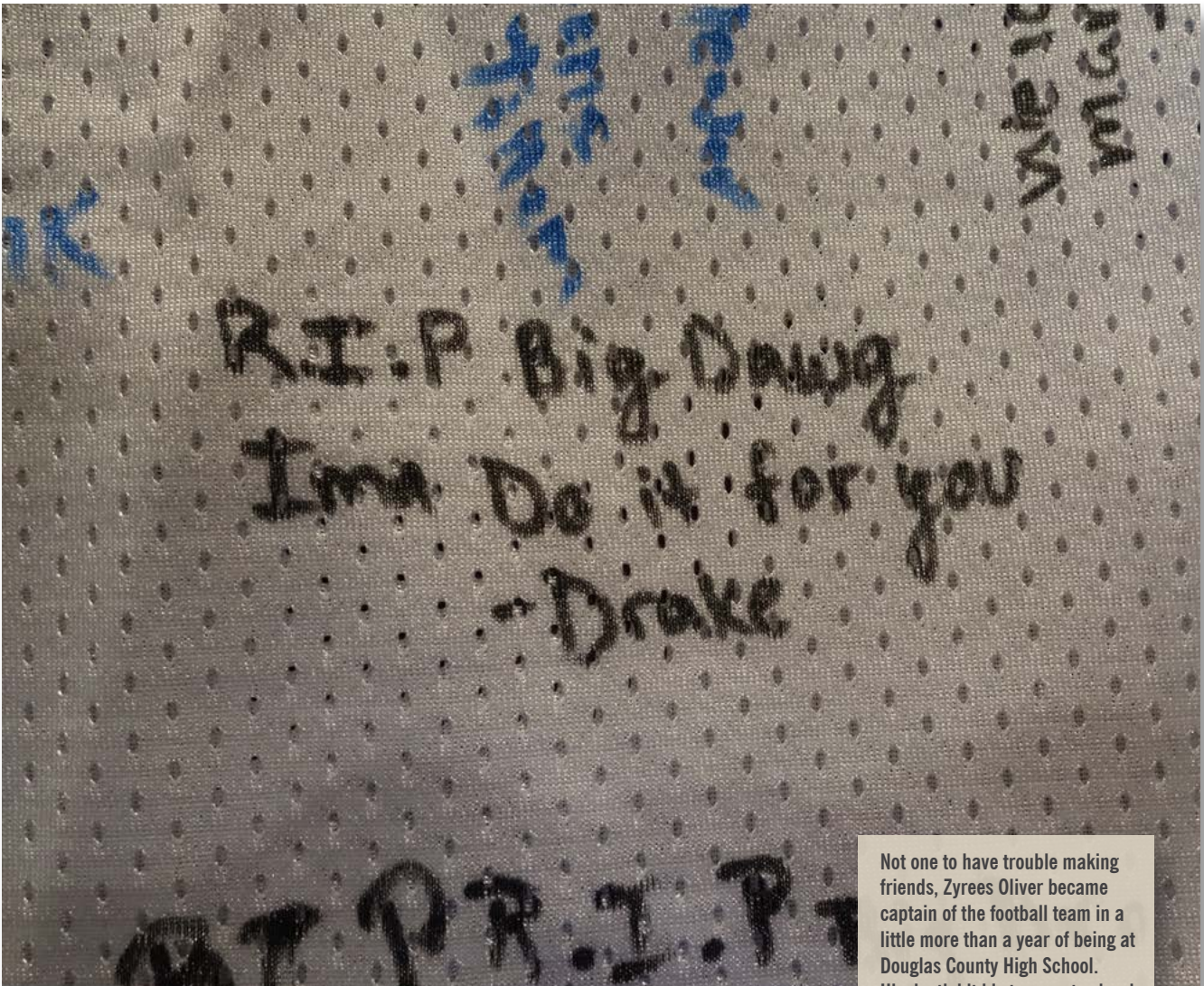
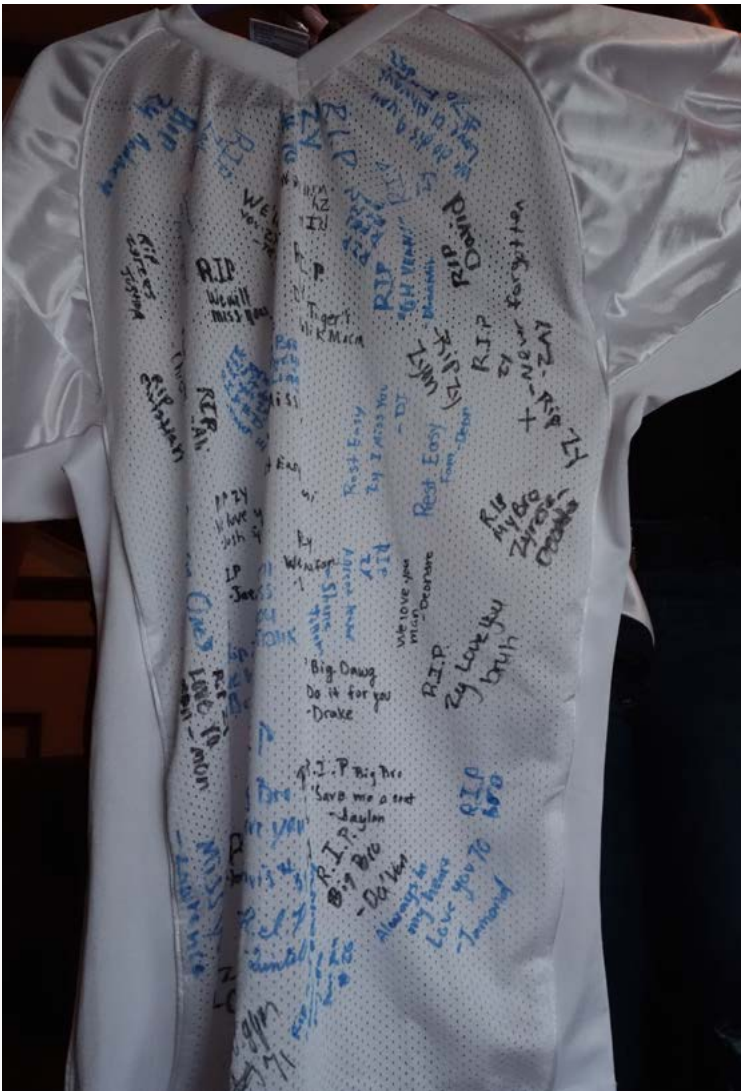
“He’d turn a negative situation into a positive one,” said Matt Smith, Chavis’ godson and a close friend to the family. “He always had words of encouragement. ... That’s how he was able to lead so quickly.”

By the time the teenager was preparing to enter his final year of high school, he was captain of the football team—after only having been at Douglas County High School for little more than a year.





Andréa Maria Cecil/CrossFit Journal



Not one to have trouble making friends, Zyrees Oliver became captain of the football team in a little more than a year of being at Douglas County High School. His death hit his teammates hard.

Chavis’ husband, Darrell, said Zyrees was a rarity among his peers.

“Kids that age are selfish. And he wasn’t. He was a giving boy.”

The teenager attended every single one of his youngest brother Hashim’s baseball and football games.

“He treated the 8-year-old like a baby,” Chavis said warmly.

More than 500 people attended Zyrees’ funeral on Aug. 23 in New Jersey, filling Route 130 for nearly two miles, with three police cars escorting the procession to the burial site in Burlington.

“He touched so many lives in the short time that he was here,” Chavis said.

## Senior Year

It started as muscle cramping. Intense muscle cramping.

On the evening of July 22, Monique took Zyrees to WellStar Douglas Hospital about 3 miles from their home in Douglasville, according to Zyrees’ medical records, which his family shared with the CrossFit Journal.

*“He touched so many lives in the short time that he was here.”*  
—Tammy Chavis

The next morning, an ambulance transferred him to Children’s Healthcare of Atlanta at Scottish Rite in Atlanta.

The teenager complained of intense full-body cramping that lasted 30 minutes after his first day of preseason football practice. Doctors kept him for two nights, eventually diagnosing him with rhabdomyolysis.

The syndrome is one in which muscle tissue breaks down and releases into the blood. Rhabdomyolysis has myriad causes: severe trauma, burns, heatstroke, seizures, metabolic derangements, viral infections, alcohol, some medications, genetic defects of lipid and carbohydrate metabolism, intense exertion.

When Zyrees was free to go home, the discharge orders read, “recommend drinking liquids frequently.”

He responded dutifully to the medical advice, carrying a gallon of water with him everywhere he went. He didn’t want to end up in the hospital again. And he certainly didn’t want rhabdomyolysis again. Because of his condition, the discharge orders also said, “Would not recommend intense exercise until next week at the earliest.” That meant taking it easy at football practice.

But at the time of his admission, the teenager was suffering from more than rhabdomyolysis. When hospital staff measured his blood-sodium level the evening of July 22, it was 133 millimoles per liter (mmol/L), according to Zyrees’ medical records. In a healthy person, that number is between 135 and 145 mmol/L. By drinking excessive amounts of fluid, he had become overhydrated and diluted the sodium in his blood. The condition is called hyponatremia, and it can be fatal.



Drinking too much fluid—and not being able to urinate because of an increased production of a hormone regulating the body’s retention of water—can cause the brain and lungs to become flooded. At that point, it can be difficult for doctors to alleviate the swelling, particularly in the brain because the skull does not expand. More specifically, this condition is known as exercise-associated hyponatremic encephalopathy (EAHE).

There was no mention of Zyrees being hyponatremic in his medical records from WellStar Douglas Hospital or Children’s Healthcare of Atlanta. And by the day he was discharged, his blood-sodium level had risen to 139—within the normal range.

During his follow-up visit at Douglas Pediatrics nearly a week later, staff noted he was “consciously (maintaining) hydration.”

Exactly two weeks after his previous hospital visit—on Aug. 5—Zyrees, having been responsibly following the medical advice to hydrate as much as possible, passed out at a late-afternoon football practice, teammates told his family. They took him to the head coach’s office to rest, Chavis said in a written account provided to the CrossFit Journal. At around 9 p.m., the coach called Monique. He told her Zyrees was still at school because he had been cramping during practice, wasn’t feeling well earlier, but was doing a bit better and would drive home as soon as he felt up to it, according to the account. Considering her son’s state, Monique didn’t want Zyrees driving, so she and Mosley went to pick him up. They found him lying on the coach’s office floor, having consumed 2 gallons of Gatorade and 2 gallons of water, according to the account. When the teenager rose from the floor, he vomited.

Monique wanted to take Zyrees to the hospital. But Zyrees—ever the optimist and rarely a complainer—assured her he would be fine. His plan was to drink Gatorade, water and some pickle juice, and rest.

“I’ll be all right. I just need to lie down,” family members said he told his mother.

They were the last words he spoke to her, family members said.

Once back home, Mosley said he monitored Zyrees while his mom left to continue doing the family’s laundry at a friend’s house. As soon as she arrived there, Mosley called her. Zyrees was breathing abnormally.

Several minutes after Monique had left, Zyrees complained to Mosley that he was hot. He had ingested another 3 gallons of fluid at home, bringing his total up to 7 gallons for the evening, his mother estimated.

“He kept throwing up water,” the older sibling remembered.

Then Zyrees’ body “froze up,” Mosley said.

He called 911.

When the ambulance arrived, Zyrees was not talking but was breathing rapidly, Mosley said. Then he stopped breathing.

“I saw his body shut down.”

Zyrees was foaming at the mouth.

“Then the EMTs said they got him breathing again,” Mosley recounted.

Monique, hysterical at this point, was asked to stay outside while the first responders worked on her son.

The ambulance transported Zyrees to a nearby park from where a helicopter flew him roughly 20 miles to WellStar Kennestone Hospital in Marietta.

By the time he was admitted—in the early-morning hours of Aug. 6, the neurological exam gave little hope.

“Patient was unresponsive to pain, pupils were non reactive bilaterally,” read the neurologist’s comments.

Zyrees’ blood-sodium level was 122 mmol/L. He was nearing severe hyponatremia. Hours later, he was to attend his first day of his senior year in high school.

### Hoping for a Miracle

Shortly before 6:30 p.m. Aug. 6, a staff chaplain visited Zyrees’ hospital room in the ICU.

Monique was asleep. The chaplain instead spoke to her boyfriend, Robert Jermaine Barney.

“The family is holding up and they have everyone praying,” the chaplain wrote in the hospital records’ progress notes.

Zyrees’ gym bag—which had practically become a permanent fixture on his body—sat in the room.

The chaplain encouraged Barney to “bring anything else that he loved and liked to the room.” Then she “offered words of comfort and blessing.”



Zyrees Oliver was not only captain of the football team but also boasted a 3.8 GPA. He aspired to play football in college and in the NFL.





Andréa Maria Ceci/CrossFit Journal

Tammy Chavis, Zyrees Oliver's aunt, has a collection of her deceased nephew's jerseys and other paraphernalia she hopes to one day display.



Danaesha Chavis, one of Zyrees Oliver's cousins, pays homage to him by donning a custom-made football jersey bearing his photo, name and number.

The next morning, Zyrees failed the day's first brain-function assessment. Another was planned for 2 p.m.

"Family aware however continues to pray for a miracle," wrote one of the doctors in the hospital records' progress notes. "Will continue to assist as needed during this most difficult time."

That afternoon, Zyrees failed the second brain-function assessment.

By Aug. 8—two days after he was admitted to WellStar Kennestone Hospital—the progress notes were unchanged.

"Family remains hopeful for a miracle," wrote a nurse practitioner just after noon.

The following evening, another neurologist exam confirmed what doctors suspected.

"Patient's MRI angiogram of the brain was consistent with brain

death. Apnea test and neurological exam was done followed by repeat neuro exam confirming brain death. Patient was pronounced at 845pm," read a doctor's note filed just after 9 p.m. Aug. 9.

The estimated 7 gallons Zyrees drank had flooded his brain and lungs. Despite administering sodium, doctors could not reverse the effects. A ventilator was helping the teenager breathe. A miracle seemed out of reach.

"He was never going to be himself again. Even if he had a little bit of activity, he would be like a vegetable laying in the bed. It would just be selfish to," Chavis started.

Doctors told Zyrees' family that his organs would wither.

"He would die eventually anyway. It's just that you would see him go down to nothing," Chavis said.

At around 10 p.m. Aug. 10, Monique had decided when she wanted to end Zyrees' life support.

"Mom said after midnight tonight. That would allow enough time for friends and family to say last goodbyes," a nurse wrote beneath a section titled "significant event" in the hospital records.

Roughly three hours later, the respiratory specialist arrived in Zyrees' room to stop the ventilator.

*"I have never experienced a pain like that in my entire life. You know how you're at a place but it's just not really real?"*  
—Tammy Chavis

"Mom came to bedside and said she was ready to turn off life support at 1am. Life support stopped at 1:11am with family at bedside and everyone in agreement that they were ready. Mom outside of the room during this time per her request," the same nurse wrote.

After the ventilator was stopped, Monique returned to the room, intending to lie in the bed with her dying son as he took his final breaths.

She leaned in. He flatlined. The heart-rate monitor released its prolonged "beep." Monique passed out flat on the hospital-room floor.

"I have never experienced a pain like that in my entire life," Chavis said. "You know how you're at a place but it's just not really real?"

Zyrees Oliver, 17, was pronounced dead at 1:34 a.m. Aug. 11, the fourth day of what was to be his last year in high school.





Andréa Maria Cecil/CrossFit Journal

Zyrees Oliver loved all things Superman. When “Zy” died, older brother Eric Mosley got this memorial tattoo on his arm.

## The Aftermath

Today, nearly nine months after Zyrees’ death, Monique and her three living sons continue to go to therapy. Her 14-year-old suffers from anxiety attacks, while her 8-year-old searches his imagination for ways to bring his brother back.

“I cry all the time,” she said.

She has nightmares and takes Prozac.

Barring inclement weather, she visits Zyrees’ grave every single day.

“If I don’t go see him, I’d be very upset,” she said.

And when she can’t, she simply stays home and talks to him out loud.

“I feel numb. ... I’m just here.”

*“You don’t know how good that boy was. He was a great boy. He was absolutely loveable. I say every day, ‘Zy, I love you.’ It’s so hard.”*  
—Rose Oliver

Rose Oliver, Monique’s mother, said she’s still mad at God for taking away a grandson with whom she had a particularly close bond.

“He was so young. I just don’t understand why did he take him from me.”

She visits his grave each Saturday.

“Every time I go up there, I write in the dirt, ‘Nana love you.’”

Rose continued: “You don’t know how good that boy was. He was a great boy. He was absolutely loveable. I say every day, ‘Zy, I love you.’ It’s so hard. ... You couldn’t want no better

grandson in this whole wide world. I love him, I love him, I love him. I love my baby.”

Mosley remembered his brother as “the perfect 17-year-old.”

“I’ve just been holdin’ strong for my mom and little brothers. Every time I go to the grave site, I cry,” he said, then paused. “Sometimes I dream about it.”

Zyrees loved to work out, sometimes bringing along his older brother and telling him he needed to push himself harder. So when Mosley visits his grave, he gets on the ground and knocks out 10 push-ups.

“It reminds me of the happy times with my brother.”

The worst of it all, said Darrell, is no one will ever know what Zyrees’ future held.

“The thing we’re going to miss about Zyrees is what he could have been. ... We’re going to miss the possibility of ‘what if, what could he have been?’ He could have been a father. He could have been president.”

Darrell added: “Everybody is taking it day by day. It’s a process. ... When you gotta bury a child, it’s really hard.”

## The Mission

On Zyrees’ autopsy, the chief coroner wrote that Zyrees died of “dilutional hyponatremia.” Chavis, who has a doctorate in public health, had to explain it to him.

Among scientists who have been studying the condition for decades, it’s known as EAHE. And Zyrees wasn’t the only high-school football player to die from it.

Two weeks after his death—to the day—Walker Wilbanks, also 17, died of EAHE in Mississippi.

“The only deaths recently have been in American football players,” Dr. Tim Noakes, author of the 2012 book “Waterlogged: The Serious Problem of Overhydration in Endurance Sports,” told the CrossFit Journal.

“It’s very difficult to get the condition if you’re a football player.”

Unlike marathon runners or triathletes, football players are not met every few hours by medical personnel who wrongly advise them to regularly hydrate lest their performance suffer.



“It wasn’t what he was actually doing on the football field but what he was doing the other ... 22 hours of the day,” Noakes said of Zyrees’ carrying a gallon of water with him everywhere he went.

“You’ve got to drink hard for four or five hours (to get hyponatremia),” he added. “Football practice, I would guess, seldom goes four hours.”

The problem, said Sandra Fowkes Godek, is that many coaches, athletic trainers and even those in sports medicine are misinformed.

“There’s a huge myth ... in the world of football, in particular, that muscle cramping comes from dehydration. That has been so ingrained for so many decades that the majority of athletic trainers say that,” said Fowkes Godek, professor of sports medicine at West Chester University in Pennsylvania and director of the Heat Illness Evaluation Avoidance and Treatment (HEAT) Institute at the institution.

Even collegiate and professional players are led to believe that drinking more fluids—especially sports drinks—will stave off or prevent cramps, as noted in the CrossFit Journal article “[Brain Cramps](#).”

Further exacerbating that problem is the fact many don’t want to hear otherwise, Fowkes Godek added.

“There’s always a push back because this is so ingrained,” she explained.

Athletic trainers, coaches, parents, even family physicians have been led to believe that the advertising is true and the science is sound: Not only will dehydration cause muscle cramps and a performance slump, but it’s dangerous, she explained.

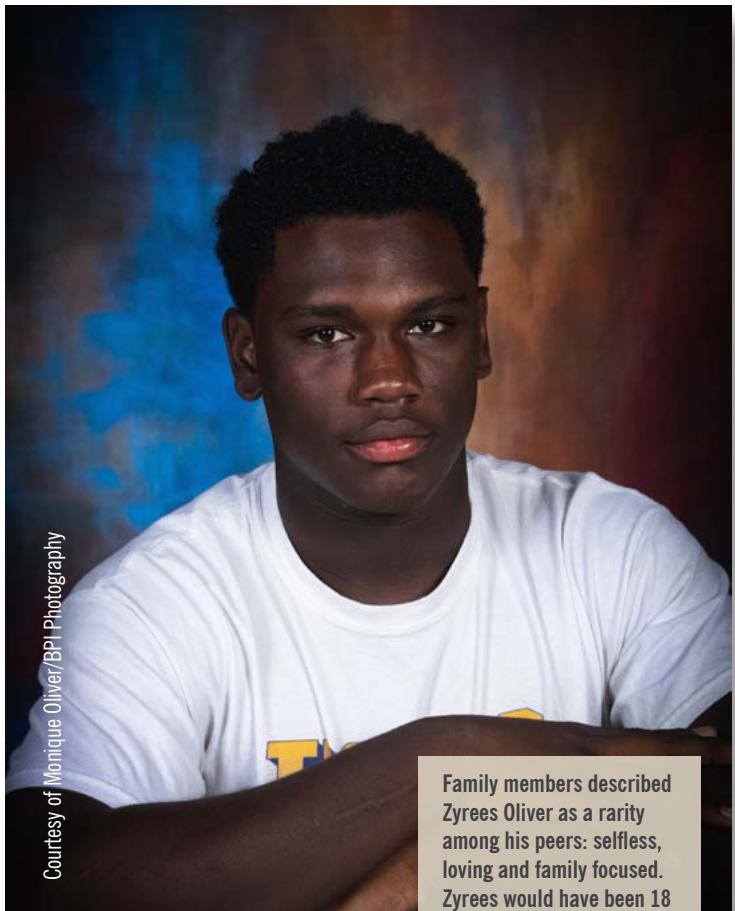
“There’s so much advertising around this topic,” Fowkes Godek added.

Noakes, professor of exercise science and sports medicine at the University of Cape Town in South Africa, echoed her statements.

Awareness, he said, is directly tied to “how strong the sports-drink industry is in your country.”

He continued: “The industry doesn’t want to change. It wants to make sure people overdrink.”

Specifically, Noakes named Gatorade, which has become ubiquitous in college and professional sports through its sponsorships and advertisements declaring its drinks superior



Courtesy of Monique Oliver/BPI Photography

Family members described Zyrees Oliver as a rarity among his peers: selfless, loving and family focused. Zyrees would have been 18 on April 17, 2015.

to water. All the while Gatorade [promises](#) its drinks improve performance by eradicating dehydration.

“When you let people do what they’ve always done in the right way, they’ll be fine,” Noakes said. “You can’t get hyponatremia if you drink to thirst.”

And there’s no reason to force fluids on someone who’s not thirsty, Fowkes Godek said.

“It’s really pretty simple. ... If you’re thirsty, you drink whatever you want to drink ... drink whatever you like to drink whenever you’re working out. If you’re not thirsty, there’s no reason to drink.”

The human thirst mechanism has been developed over the course of thousands of years, Fowkes Godek emphasized.

“There’s no reason to have to tell yourself to ... do very simple things like this.”

Yet, misinformation continues to dominate amongst athletes—both professional and amateur. Correcting it would be “impossible,” Noakes said.



Andréa Maria Cecil/CrossFit Journal

This collection of photos from Zyrees Oliver’s high-school football days proudly sits on display inside the home of his aunt Tammy Chavis.

“Because Gatorade controls them all. Gatorade controls the NFL. It controls all the trainers in the NFL. ... Gatorade pays the pensions of the support teams in the NFL. And so there’s no way it’s ever going to happen.”

In 2014, 100 percent of NFL properties reported Gatorade as a sponsor, [according to IEG](#), a source of sponsorship-information analysis for news media. Meanwhile, [Gatorade boasts](#) it’s the official drink for men’s and women’s intercollegiate sports at 70 Division 1 colleges.

“They control the science as well,” Noakes added, referencing the [Gatorade Sports Science Institute \(GSSI\)](#).

Gatorade has even gone so far as to say athletes need not worry about hyponatremia, according to a video titled “[Preventing Hyponatremia](#)” on its GSSI website.

“Hyponatremia is not very common, so the typical athlete doesn’t have to concern him or herself with hyponatremia too much unless they’ve shown in the past to be particularly sensitive to it,” says Nina Stachenfeld, of Yale University’s School of Public Health, in the video.

But in “Waterlogged,” Noakes documented a dozen deaths from 1981 to 2009 from either exercise-associated hyponatremia or EAHE.

“I just wish someone would take legal action,” he said. “That’s the only way it’s going to change in the U.S.—until the first family does something about it. The evidence is there. We know what causes it. I just get frustrated because these deaths are completely preventable.”

For their part, Zyrees’ family members are on a mission to tell everyone about the dangers of overhydration and the myths perpetuated by the sports-drink industry. Chavis, who has come to be the family’s spokeswoman, is spearheading that effort.

“I made a promise to him in that hospital room: ‘You will not die in vain,’” she said. “When people think ‘hyponatremia,’ I want them to think of Zyrees Oliver.” ■

## About the Author

Andréa Maria Cecil is a CrossFit Journal staff writer and editor.



THE  
**CrossFit** JOURNAL

# ZONE MEAL PLANS







*Originally published in May 2004.*

Our recommendation to “eat meat and vegetables, nuts and seeds, some fruit, little starch and no sugar” is adequate to the task of preventing the scourges of diet-induced disease, but a more accurate and precise prescription is necessary to optimize physical performance.

Finely tuned, a good diet will increase energy, sense of well-being and acumen, while simultaneously flensing fat and packing on muscle. When properly composed, the right diet can nudge every important quantifiable marker for health in the right direction.

Diet is critical to optimizing human function, and our clinical experience leads us to believe that Barry Sears’ Zone Diet closely models optimal nutrition.

CrossFit’s best performers are Zone eaters. When our second-tier athletes commit to strict adherence to the Zone parameters, they generally become top-tier performers quickly. It seems that the Zone Diet accelerates and amplifies the effects of the CrossFit regimen.

Unfortunately, the full benefit of the Zone Diet is largely limited to those who have at least at first weighed and measured their food.

For a decade, we experimented with sizing and portioning strategies that avoid scales and measuring cups and spoons, only to conclude that natural variances in caloric intake and macronutrient composition without measurement are greater than the resolution required to turn good performance to great. Life would be much easier for us were this not so!

The meal plans and block chart (on the following pages) have been our most expedient approach for eliciting athletes’ best performances and optimal health.

Even discounting any theoretical or technical content, this portal to sound nutrition still requires some basic arithmetic and weighing and measuring portions for the first weeks.

Too many athletes, after supposedly reading Sears’ book “Enter the Zone,” still ask, “So what do I eat for dinner?” They get meal plans and block charts. We can make the Zone more complicated or simpler, but not more effective. We encourage everyone to weigh and measure portions for a couple of weeks because it is supremely worth the effort, not because it is fun. If you choose to “guesstimate” portions, you will have the result of CrossFit’s top performers only if and when you are lucky.

Within a couple of weeks of weighing and measuring, you will have developed an uncanny ability to estimate the mass of

common food portions, but, more importantly, you will have formed a keen visual sense of your nutritional needs. This is a profound awareness.

In the Zone scheme, all of humanity calculates to either 2-, 3-, 4-, or 5-block meals at breakfast, lunch and dinner, with either 1- or 2-block snacks between lunch and dinner and again between dinner and bedtime. We have simplified the process for determining which of the four meal sizes and two snack sizes best suits your needs. We assume that you are CrossFit athletes; i.e., active.

Being a “4-blocker,” for instance, means that you eat three meals each day, where each meal is composed of 4 blocks of protein, 4 blocks of carbohydrate and 4 blocks of fat. Whether you are a “smallish” medium-sized guy or a “largish” medium-sized guy would determine whether you will need snacks of 1 or 2 blocks twice a day.

The meal plans we give stand as examples of 2-, 3-, 4- or 5-block meals, and the block chart gives quantities of common foods equivalent to 1 block of protein, carbohydrate or fat.

Once you determine that you need, say, 4-block meals, it is simple to use the block chart and select four times something from the protein list, four times something from the carbohydrate list and four times something from the fat list every meal.

One-block snacks are chosen from the block chart at face value for a single snack of protein, carbohydrates and fat, whereas 2-block snacks are, naturally, composed of twice something from the carbohydrates list combined with twice something from the protein list and twice something from the fats.

Every meal, every snack, must contain equivalent blocks of protein, carbohydrate and fat.

If the protein source is specifically labeled “non-fat,” then double the usual fat blocks for that meal. Read “Enter the Zone” to learn why.

For those eating according to Zone parameters, body fat comes off fast. When our men fall below 10 percent body fat and start approaching 5 percent, we kick up the fat intake. The majority of our best athletes end up at X blocks of protein, X blocks of carbohydrate, and 4X or 5X blocks of fat. Learn to modulate fat intake to produce a level of leanness that optimizes performance.

The Zone Diet neither prohibits nor requires any particular food. It can accommodate paleo or vegan, organic or kosher, fast food or fine dining, while delivering the benefits of high-performance nutrition.





## What Is a Block?

A block is a unit of measure used to simplify the process of making balanced meals.

- 7 g of protein = 1 block of protein
- 9 g of carbohydrate = 1 block of carbohydrate
- 1.5 g of fat = 1 block of fat

(This assumes that there is about 1.5 g of fat in each block of protein, so the total amount of fat needed per 1 block meal is 3 g.)

When a meal is composed of equal blocks of protein, carbohydrate and fat, 40 percent of its calories are from carbohydrate, 30 percent from protein and 30 percent from fat.

The following pages contain common foods in their macronutrient category (protein, carbohydrate or fat), along with a conversion of measurements to blocks.

This block chart is a convenient tool for making balanced meals. Simply choose 1 item from the protein list, 1 item from the carbohydrate list and 1 item from the fat list to compose a 1-block meal. Or choose 2 items from each column to compose a 2-block meal, and so on.

Here is a sample 4-block meal:

- 4 oz. chicken breast
- 1 artichoke
- 1 c. of steamed vegetables with 24 crushed peanuts
- 1 sliced apple

This meals contains 28 g of protein, 36 g of carbohydrate, and 12 g of fat. It is simpler, though, to think of it as a 4-block meal.

## Block Prescription Based on Sex and Body Type

Breakfast	Lunch	Snack	Dinner	Snack	Total Blocks	Body Type
2	2	2	2	2	10	Small female
3	3	1	3	1	11	Medium female
3	3	2	3	2	13	Large female
4	4	1	4	1	14	Athletic, well-muscled female
4	4	2	4	2	16	Small male
5	5	1	5	1	17	Medium male
5	5	2	5	2	19	Large male
4	4	4	4	4	20	Extra-large male
5	5	3	5	3	21	Hard gainer
5	5	4	5	4	23	Large hard gainer
5	5	5	5	5	25	Athletic, well-muscled male

## Sample Day | Block Requirements for Small (16-Block) Male

	Breakfast	Lunch	Snack	Dinner	Snack
Protein	4	4	2	4	2
Carbohydrate	4	4	2	4	2
Fat	4	4	2	4	2



Block Chart for Protein, Fat and Favorable Carbohydrates

Protein (Cooked)			
beef	1 oz.	ham	1 oz.
calamari	1½ oz.	lamb	1 oz.
Canadian bacon	1 oz.	lobster	1½ oz.
canned tuna	1 oz.	pork	1 oz.
catfish	1½ oz.	protein powder	1 oz.
cheese	1 oz.	ricotta cheese	2 oz.
chicken breast	1 oz.	salmon	1½ oz.
clams	1½ oz.	sardines	1 oz.
corned beef	1 oz.	scallops	1½ oz.
cottage cheese	¼ c.	seitan	1 oz.
crabmeat	1½ oz.	shrimp	1½ oz.
deli meat	1½ oz.	soft tofu	3 oz.
duck	1½ oz.	soy cheese	1 oz.
egg substitute	¼ oz.	soy burgers	½ patty
egg whites	2 large	soy sausage	2 links
feta cheese	1½ oz.	spirulina (dry)	½ oz.
firm tofu	2 oz.	swordfish	1½ oz.
flounder/sole	1½ oz.	tuna steak	1½ oz.
ground beef	1½ oz.	turkey breast	1 oz.
ground lamb	1½ oz.	veal	1 oz.
ground pork	1½ oz.	whole egg	1 large
ground turkey	1½ oz.		

Favorable Carbohydrate (Raw)			
alfalfa sprouts	7½ c.	lettuce, romaine	6 c.
apple	½	lime	1
applesauce	⅜ c.	mushrooms	3 c.
apricots	3 small	nectarine	½
bean sprouts	3 c.	onion	⅔ c.
blackberries	½ c.	orange	½
blueberries	½ c.	peach	1
broccoli	2 c.	pear	½
cabbage	2¼ c.	peppers	1¼ c.
cantaloupe	¼	pineapple	½ c.
carrot	1 large	plum	1
cauliflower	2 c.	radishes	2 c.
celery	2 c.	raspberries	⅔ c.
cherries	7	salsa	½ c.
cucumber	1 (9 in.)	snow peas	¾ c.
fruit cocktail	⅓ c.	spinach	4 c.
grapefruit	½	strawberries	1 c.
grapes	½ c.	tangerine	1
honeydew	½	tomato	1 c.
kiwi	1	watermelon	½ c.
lemon	1	zucchini	3 c.
lettuce, iceberg	1 head		

Favorable Carbohydrate (Cooked)			
artichoke	1 small	kale	1¼ c.
asparagus	12 spears	kidney beans	¼ c.
beet greens	1¼ c.	leeks	1 c.
black beans	¼ c.	lentils	¼ c.
bok choy	3 c.	oatmeal	⅓ c.
broccoli	1¼ c.	okra	¾ c.
brussels sprouts	¾ c.	onion	½ c.
cabbage	1⅓ c.	sauerkraut	1 c.
cauliflower	1¼ c.	spaghetti squash	1 c.
chick peas	¼ c.	spinach	1⅓ c.
collard greens	1¼ c.	swiss chard	1¼ c.
dill pickles	3 (3 in.)	tomato sauce	½ c.
eggplant	1½ c.	tomatoes	¾ c.
fava beans	⅓ c.	yellow squash	1¼ c.
green beans	1 c.	zucchini	1⅓ c.

Combo Items*			
milk	1 c.	tempeh	1½ oz.
soy milk	1 c.	yogurt (plain)	½ c.
soybeans	¼ c.		

Fat			
almonds	~3	olive oil	⅓ tsp.
avocado	1 tbsp.	olives	~ 5
bacon bits	2½ tsp.	peanut butter	½ tsp.
butter	⅓ tsp.	peanut oil	⅓ tsp.
canola oil	⅓ tsp.	peanuts	~ 6
cashews	~3	salad dressing	½ tbsp.
coconut oil	⅓ tsp.	sesame oil	⅓ tsp.
cream cheese	1 tsp.	sour cream	1 tsp.
cream, light	½ tsp.	sunflower seeds	¼ tsp.
guacamole	½ tbsp.	tahini	⅓ tsp.
half and half	1 tbsp.	tartar sauce	½ tsp.
lard	⅓ tsp.	veg. shortening	⅓ tsp.
macadamia nuts	~1	vegetable oil	⅓ tsp.
mayo, light	1 tsp.	walnuts (chopped)	1 tsp.
mayonnaise	⅓ tsp.		

\*Note: combo items contain 1 block of protein and 1 block of carbohydrate

Block Chart for Unfavorable Carbohydrates\*

Vegetables			
acorn squash	¾ c.	peas	⅓ c.
baked beans	⅛ c.	pinto beans	¼ c.
beets	½ c.	potato, baked	⅓ c.
black-eyed peas	¼ c.	potato, boiled	⅓ c.
butternut squash	⅓ c.	potato, mashed	⅕ c.
cooked carrots	½ c.	refried beans	¼ c.
corn	¼ c.	sweet potato, baked	⅓ (5 in.)
french fries	5		
hubbard squash	⅔ c.	sweet potato, mashed	⅕ c.
lima beans	¼ c.	turnip	¾ c.
parsnips	⅓ (9 in.)		

\*Note: When building meals with “unfavorable carbohydrates” quantity becomes critical.

Fruit			
banana	⅓ (9 in.)	kumquat	3
cranberries	¼ c.	mango	⅓ c.
cranberry sauce	4 tsp.	papaya	⅔ c.
dates	1	prunes	2
figs	¾	raisins	1 tbsp.
guava	½ c.		

Fruit Juice			
apple juice	⅓ c.	lemon juice	⅓ c.
cranberry juice	¼ c.	orange juice	⅜ c.
fruit punch	¼ c.	pineapple juice	¼ c.
grape juice	¼ c.	tomato juice	¾ c.
grapefruit juice	⅔ c.		

Grains and Breads			
bagel	¼	melba toast	½ oz.
barley	1 tbsp.	muffins	¼
biscuit	¼	noodles	¼ c.
bread	½ slice	pancake	½ (4 in.)
bread crumbs	½ oz.	pasta, cooked	¼ c.
breadstick	1	pasta, high protein	⅓ c.
buckwheat	½ oz.		
bulgur wheat	½ oz.	pita bread	¼
cereal	½ oz.	popcorn	2 c.
corn bread	1 in. square	rice	3 tbsp.
cornstarch	4 tsp.	rice cake	1
croissant	¼	roll (dinner)	½
crouton	½ oz.	roll (hamburger, hot dog)	¼
donut	¼	taco shell	1
English muffin	¼	tortilla (corn)	1 (6 in.)
flour	1½ tsp.	tortilla (flour)	½ (6 in.)
granola	½ oz.	udon noodles	3 tbsp.
grits	⅓ c.	waffle	½
instant oatmeal	⅓ c.		

Condiments			
barbecue sauce	2 tbsp.	maple syrup	2 tsp.
brown sugar	1½ tsp.	molasses	2 tsp.
catsup/ketchup	2 tbsp.	pickle (bread & butter)	6 slices
cocktail sauce	2 tbsp.		
confectioner's sugar	1 tbsp.		
		plum sauce	1½ tbsp.
		relish (sweet)	4 tsp.
granulated sugar	2 tsp.	steak sauce	2 tbsp.
honey	½ tbsp.	teriyaki sauce	1½ tbsp.
jelly/jam	2 tsp.		

Alcohol			
beer	8 oz.	wine	4 oz.
liquor	1 oz.		

Snacks			
chocolate bar	½ oz.	potato chips	½ c.
corn chips	½ oz.	pretzels	½ oz.
graham crackers	1½	saltine crackers	4
ice cream	1/4 c.	tortilla chips	½ oz.



Sample Zone Meals and Snacks | 2-Block Menus

Breakfast		
<b>Breakfast Quesadilla</b> 1 corn tortilla ¼ c. black beans 1 egg (scrambled or fried) 1 oz. cheese 2 tbsp. avocado	<b>Fruit Salad</b> ½ c. cottage cheese Mixed with ¼ cantaloupe, cubed ½ c. strawberries ¼ c. grapes Sprinkled with 6 chopped almonds	<b>Oatmeal</b> ⅓ c. cooked oatmeal (slightly watery) ½ c. grapes ¼ c. cottage cheese 2 tsp. walnuts, chopped 1 tbsp. protein powder Spice with vanilla extract and cinnamon
<b>Breakfast Sandwich</b> ½ pita bread 1 egg (scrambled or fried) 1 oz. cheese Served with 2 macadamia nuts	<b>Smoothie</b> Blend together: 1 c. milk 1 tbsp. protein powder 1 c. frozen strawberries 6 cashews	<b>Easy Breakfast</b> ½ cantaloupe, cubed ½ c. cottage cheese 6 almonds
<b>Steak and Eggs</b> 1 oz. steak, grilled 1 fried egg 1 slice toast with ⅔ tsp. butter		

Dinner				
<b>Fresh Fish</b> 3 oz. fresh fish, grilled 1⅓ c. zucchini (cooked), with herbs Serve with large salad with 1 tbsp. salad dressing of choice	<b>Beef Stew</b> Sauté: ⅔ tsp. olive oil ⅓ c. onion (raw), chopped ⅝ green pepper (raw), chopped ~4 oz. beef (raw), cubed Add: 1½ c. mushrooms (raw), chopped ¼ c. tomato sauce Seasoned with garlic, Worcestershire sauce, salt and pepper	<b>Chili (Serves 3)</b> Sauté: ⅓ c. onion (raw), chopped ⅝ c. green pepper (raw), chopped in garlic, cumin, chili powder and crushed red peppers Add: 9 oz. ground beef, browned 1 c. tomato sauce ½ c. black beans ¼ c. kidney beans 30 olives, chopped Add fresh cilantro to taste	<b>Turkey and Greens</b> 2 oz. turkey breast, roasted 1¼ c. kale, chopped and steamed Sauté garlic and crushed red peppers in ⅔ tsp. olive oil, add the steamed kale and mix. Serve with 1 peach, sliced	<b>Easy Chicken Dinner</b> 2 oz. chicken breast, baked 1 orange 2 macadamia nuts

Lunch		
<b>Tuna Sandwich</b> 2 oz. canned tuna 2 tsp. light mayo 1 slice bread	<b>Deli Sandwich</b> 1 slice bread 3 oz. sliced deli meat 2 tbsp. avocado	<b>Grilled Chicken Salad</b> 2 oz. chicken, grilled 2 c. lettuce ¼ c. tomato, chopped ¼ cucumber, chopped ¼ c. green pepper (raw), chopped ¼ c. black beans 2 tbsp. avocado
<b>Tacos</b> 1 corn tortilla 3 oz. seasoned ground meat ½ c. tomato, cubed ⅓ c. onion (raw), chopped Lettuce (as garnish), chopped 10 olives, chopped Served with Tabasco to taste	<b>Quesadilla</b> 1 corn tortilla 2 oz. cheese 2 tbsp. guacamole Jalapeños and salsa as garnish Serve with ½ orange	<b>Easy Lunch</b> 3 oz. deli meat 1 apple 2 macadamia nuts





Sample Zone Meals and Snacks | 3-Block Menus

Breakfast				
<b>Breakfast Quesadilla</b> 1 corn tortilla ¼ c. black beans ⅓ c. onions (raw), chopped ⅝ c. green pepper (raw), chopped 2 eggs (scrambled or fried) 1 oz. cheese 3 tbsp. avocado	<b>Breakfast Sandwich</b> ½ pita bread 1 egg (scrambled or fried) 1 oz. cheese 1 oz. sliced ham Serve with ½ apple and 3 macadamia nuts	<b>Fruit Salad</b> ¾ c. cottage cheese ¼ cantaloupe, cubed 1 c. strawberries ½ c. grapes Sprinkle with 9 chopped almonds	<b>Smoothie</b> Blend together: 1 c. milk 2 tbsp. protein powder 1 c. frozen strawberries ½ c. frozen blueberries 9 cashews	<b>Oatmeal</b> ⅔ c. cooked oatmeal (slightly watery) ½ c. grapes ½ c. cottage cheese 3 tsp. walnuts, chopped 1 tbsp. protein powder Spice with vanilla extract and cinnamon
	<b>Steak and Eggs</b> 2 oz. steak, grilled 1 fried egg 1 slice toast w/ 1 tsp. butter ¼ cantaloupe, cubed	<b>Easy Breakfast</b> ¾ cantaloupe, cubed ¾ c. cottage cheese 9 almonds		

Lunch		
<b>Tuna Sandwich</b> 3 oz. canned tuna 3 tsp. light mayo 1 slice bread Serve with ½ apple	<b>Deli Sandwich</b> 1 slice bread 3 oz. sliced deli meat 1 oz. cheese 3 tbsp. avocado Serve with ½ apple	<b>Grilled Chicken Salad</b> 3 oz. chicken, grilled 2 c. lettuce ¼ c. tomato, chopped ¼ cucumber, chopped ¼ c. green pepper (raw), chopped ¼ c. black beans ¼ c. kidney beans 3 tbsp. avocado
<b>Tacos</b> 2 corn tortillas 3 oz. seasoned ground meat 1 oz. grated cheese ½ c. tomato, cubed ⅔ c. onion (raw), chopped Lettuce (as garnish), chopped Serve with Tabasco to taste 15 olives, chopped	<b>Quesadilla</b> 1 corn tortilla 3 oz. cheese 3 tbsp. guacamole Jalapeños and salsa as garnish Serve with 1 orange	<b>Easy Lunch</b> 3 oz. deli meat 1 oz. sliced cheese 1½ apples 3 macadamia nuts



Dinner		
<b>Fresh Fish</b> 4½ oz. fresh fish, grilled 1⅓ c. zucchini (cooked), with herbs Serve with large salad with 1½ tbsp. salad dressing of choice 1 c. strawberries	<b>Beef Stew</b> Sauté: 1 tsp. olive oil ⅓ c. onion (raw), chopped ⅝ green pepper (raw), chopped ~6 oz. beef (raw), cubed Add: 1½ c. zucchini (raw), chopped 1½ c. mushrooms (raw), chopped ½ c. tomato sauce Season with garlic, Worcestershire sauce, salt and pepper	<b>Chili (Serves 3)</b> Sauté: ⅔ c. onion (raw), chopped 1¼ c. green pepper (raw), chopped in garlic, cumin, chili powder and crushed red peppers Add: 13.5 oz. ground beef, browned 1 c. tomato sauce ¾ c. black beans ½ c. kidney beans 45 olives, chopped Add fresh cilantro to taste
<b>Turkey and Greens</b> 3 oz. turkey breast, roasted 2½ c. kale, chopped and steamed Sauté garlic and crushed red peppers in 1 tsp. olive oil, add the steamed kale and mix Serve with 1 peach, sliced		<b>Easy Dinner</b> 3 oz. chicken breast, baked 1½ oranges 3 macadamia nuts



Sample Zone Meals and Snacks | 4-Block Menus

Breakfast		
<b>Breakfast Quesadilla</b> 1 corn tortilla ½ c. black beans ⅓ c. onions (raw), chopped ⅝ green pepper (raw), chopped 2 eggs (scrambled or fried) 2 oz. cheese 4 tbsp. avocado	<b>Steak and Eggs</b> 3 oz. steak, grilled 1 fried egg 1 slice bread with 1⅓ tsp. butter ½ cantaloupe, cubed	<b>Smoothie</b> Blend together: 2 c. milk 2 tbsp. protein powder 1 c. frozen strawberries ½ c. frozen blueberries 12 cashews
<b>Breakfast Sandwich</b> ½ pita bread 2 eggs (scrambled or fried) 1 oz. cheese 1 oz. sliced ham Serve with 1 apple and 4 macadamia nuts	<b>Fruit Salad</b> 1 c. cottage cheese ½ cantaloupe, cubed 1 c. strawberries ½ c. grapes Sprinkled with 12 chopped almonds	<b>Oatmeal</b> 1 c. cooked oatmeal (slightly watery) ½ c. grapes ¾ c. cottage cheese 4 tsp. walnuts, chopped 1 tbsp. protein powder Spice with vanilla extract and cinnamon
	<b>Easy Breakfast</b> 1 cantaloupe, cubed 1 c. cottage cheese 12 almonds	

Lunch		
<b>Tuna Sandwich</b> 4 oz. canned tuna 4 tsp. light mayo 1 slice bread Serve with 1 apple	<b>Deli Sandwich</b> 2 slices of bread 4½ oz. sliced deli meat 1 oz. cheese 4 tbsp. avocado	<b>Grilled Chicken Salad</b> 4 oz. chicken, grilled 2 c. lettuce ¼ c. tomato, chopped ¼ cucumber, chopped ¼ c. green pepper (raw), chopped ½ c. black beans ¼ c. kidney beans 4 tbsp. avocado
<b>Tacos</b> 2 corn tortillas 4½ oz. seasoned ground meat 1 oz. cheese, grated ½ c. tomato, cubed ⅓ c. onion (raw), chopped Lettuce (as garnish), chopped 20 olives, chopped Serve with Tabasco to taste Serve with ½ apple	<b>Quesadilla</b> 2 corn tortillas 4 oz. cheese 4 tbsp. guacamole Jalapeños and salsa as garnish Serve with 1 orange	<b>Easy Lunch</b> 4½ oz. deli meat 1 oz. cheese 1 apple 1 grapefruit 4 macadamia nuts

Dinner				
<b>Fresh Fish</b> 6 oz. fresh fish, grilled 1⅓ c. zucchini (cooked), with herbs Serve with large salad with choice 2 c. strawberries	<b>Beef Stew</b> Sauté: 1⅓ tsp. olive oil ⅓ c. onion (raw), chopped ⅝ green pepper (raw), chopped ~8 oz. (beef (raw), cubed Add: 1½ c. zucchini (raw), chopped 1½ c. mushrooms (raw), chopped 1 c. tomato sauce Season with garlic, Worcestershire sauce, salt and pepper Serve with 1 c. strawberries	<b>Chili (Serves 3)</b> Sauté: ⅔ c. onion (raw), chopped 1¼ c. green pepper (raw), chopped in garlic, cumin, chili powder and crushed red peppers Add: 18 oz. ground beef, browned 2 c. tomato sauce ¾ c. black beans ¾ c. kidney beans 60 olives, chopped Add fresh cilantro to taste	<b>Turkey and Greens</b> 4 oz. turkey breast, roasted 2½ c. kale, chopped and steamed Sauté garlic and crushed red peppers in 1⅓ tsp. olive oil add kale and mix Serve with 2 peaches, sliced	<b>Easy Dinner</b> 4 oz. chicken breast, baked 2 oranges 4 macadamia nuts





Sample Zone Meals and Snacks | 5-Block Menus

Breakfast			
<b>Breakfast Quesadilla</b> 2 corn tortillas ½ c. black beans ⅓ c. onions (raw), chopped ⅝ c. green pepper (raw), chopped 3 eggs (scrambled or fried) 2 oz. cheese 5 tbsp. avocado	<b>Steak and Eggs</b> 3 oz. steak, grilled 2 fried eggs 1 slice bread with 1⅔ tsp. butter ¾ cantaloupe, cubed	<b>Smoothie</b> Blend together: 2 c. milk 3 tbsp. protein powder 2 c. frozen strawberries ½ c. frozen blueberries 15 cashews	<b>Easy Breakfast</b> 1¼ cantaloupe, cubed 1¼ c. cottage cheese ~ 15 almonds
<b>Breakfast Sandwich</b> ½ pita bread 2 eggs (scrambled or fried) 2 oz. cheese 1 oz. ham, sliced Serve with 1½ apples and 5 macadamia nuts	<b>Fruit Salad</b> 1¼ c. cottage cheese ½ cantaloupe, cubed 1 c. strawberries 1 c. grapes Sprinkle with 15 chopped almonds	<b>Oatmeal</b> 1 c. cooked oatmeal (slightly watery) 1 c. grapes 1 c. cottage cheese 5 tsp. walnuts, chopped 1 tbsp. protein powder Spice with vanilla extract and cinnamon	

Lunch			
<b>Tuna Sandwich</b> 5 oz. canned tuna 5 tsp. light mayo 1 slice bread Serve with 1½ apples	<b>Tacos</b> 2 corn tortillas 6 oz. seasoned ground meat 1 oz. cheese, grated ½ c. tomato, cubed ⅓ c. onion (raw), chopped Lettuce (as garnish), chopped 25 olives, chopped Serve with Tabasco to taste Serve with 1 apple	<b>Deli Sandwich</b> 2 slices bread 4½ oz. deli meat 2 oz. cheese 5 tbsp. avocado ½ apple	<b>Grilled Chicken Salad</b> 5 oz. chicken, grilled 2 c. lettuce ¼ c. tomato, chopped ¼ cucumber, chopped ¼ c. green pepper (raw), chopped ½ c. black beans ½ c. kidney beans 5 tbsp. avocado
<b>Easy Lunch</b> 4½ oz. deli meat 2 oz. cheese 1½ apples 1 grapefruit 5 macadamia nuts		<b>Quesadilla</b> 2 corn tortillas 5 oz. cheese 5 tbsp. guacamole Jalapeños and salsa as garnish Serve with 1½ oranges	

Dinner			
<b>Fresh Fish</b> 7½ oz. fresh fish, grilled 1⅓ c. zucchini (cooked), with herbs Serve with large salad with ¼ c. black beans and 2½ tbsp. salad dressing of choice 2 c. strawberries	<b>Beef Stew</b> Sauté: 1⅔ tsp. olive oil ⅔ c. onion (raw), chopped 1¼ c. green pepper (raw), chopped ~10 oz. beef (raw), cubed Add: 1½ c. zucchini (raw), chopped 1½ c. mushrooms (raw), chopped 1 c. tomato sauce Season with garlic, Worcestershire sauce, salt and pepper Serve with 2 c. strawberries	<b>Chili (Serves 3)</b> Sauté: ⅔ c. onion (raw), chopped 2½ c. green pepper (raw), chopped in garlic, cumin, chili powder and crushed red peppers Add: 22.5 oz. ground beef, browned 2 c. tomato sauce 1 c. black beans 1 c. kidney beans 75 olives, chopped Add fresh cilantro to taste	<b>Turkey and Greens</b> 5 oz. turkey breast, roasted 2½ c. kale, chopped and steamed Sauté garlic and crushed red peppers in 1⅔ tsp. olive oil, add steamed kale and mix Serve with 3 peaches, sliced
		<b>Easy Dinner</b> 5 oz. chicken breast, baked 2½ oranges 5 macadamia nuts	





Sample Zone Meals and Snacks | 1-Block Snacks

Snacks							
1 hard-boiled egg ½ orange 6 peanuts	1½ oz. deli-style ham or turkey 1 carrot 5 olives	1 c. strawberries ¼ c. cottage cheese 1 macadamia nut	3 oz. soft tofu ½ apple ½ tsp. peanut butter	Blend: 1 c. water 1 tbsp. protein powder ½ c. grapes ⅓ tsp. coconut oil	1 oz. cheddar cheese melted over ½ apple Sprinkled with 1 tsp. walnuts, chopped	1½ oz. salmon 12 asparagus spears ⅓ tsp. olive oil	¼ c. cottage cheese 1 c. sliced tomato ⅓ tsp. olive oil
½ c. plain yogurt Sprinkled with 3 cashews, chopped	1 oz. mozzarella string cheese ½ c. grapes 1 tbsp. avocado	1 poached egg ½ slice bread ½ tsp. peanut butter	1 oz. tuna 1 large tossed salad 1 tsp. salad dressing of choice	Blend: 1 c. water ½ oz. spirulina 1 c. frozen strawberries 3 cashews	¼ c. cottage cheese ½ c. pineapple 6 peanuts	1½ oz. shrimp 2 c. broccoli (raw) 6 peanuts	1½ oz. scallops 1 sliced cucumber 1/2 tsp. tartar sauce
1 oz. cheese ½ apple 1 macadamia nut	1 oz. jack cheese 1 tbsp. guacamole 1 c. tomato	¼ c. cottage cheese ½ carrot 3 celery stalks 5 olives	1 hard-boiled egg 1 large spinach salad 1 tsp. salad dressing of choice		1 oz. sardines ½ nectarine 5 olives	1 oz. Canadian bacon 1 plum 1 macadamia nut	1 oz. lamb ¼ c. chick peas ⅓ tsp. tahini
1 oz. canned chicken or tuna 1 peach ½ tsp. peanut butter			1 oz. grilled turkey breast ½ c. blueberries 3 cashews		1½ oz. feta cheese 1 c. diced tomato 5 olives	1½ oz. deli-style turkey 1 tangerine 1 tbsp. avocado	





THE  
**CrossFit** JOURNAL

# PERISH THE THOUGHT BY LON KILGORE

Lon Kilgore explains how the pressure to publish has created libraries full of useless exercise-science publications.







Why doesn't exercise science answer even the most basic questions about creating fitness?

In answer, many publications in recent years have pointed out problems in exercise science:

"Paradigm Lost"

"Conventional Wisdom and the Fitness Industry"

"Exercise Science Is not a Sound College Investment"

Some of these pieces have been written without an understanding of the inner workings of modern academia, while some are written from within the belly of the beast.

Although it's tempting to lay blame for the shortcomings of the exercise-science field at the feet of university faculty, it's not necessarily academics who are the sole problem; the modern university system has played a large part in whatever shortcomings exist. A number of issues in modern academic administration have created the current perception that exercise-science publications are inadequate and even meaningless.

## Tenure and Promotion

As an academic device, tenure is often misunderstood. Although it's defined as holding an academic post on a permanent basis without periodic contract renewals, it is not intended to signify a cushy slide into retirement. Rather, it is intended as a safeguard for academic freedom of speech, and it is both reward for a proven career and stimulus for additional productivity. Tenure can open doors to lines of thought and research outside the norm, and it ensures employment is not terminated due to controversial research or thinking outside the box.

In general, tenure is not easy to obtain. Every young assistant professor has to prove himself or herself in three areas: teaching, research, and service to the profession, university and community. After about five years of employment—this term varies by university—an assistant professor is eligible to apply to the university for the award of tenure. This timeframe is essentially aligned with the time required before an assistant professor can be promoted to associate professor. As such, these applications generally go forward at the same time: You can apply for tenure, apply for promotion or apply for both.

Specific to the research component, it is publication, or, more pointedly, the number of publications and grant dollars obtained, that determines success in this area of application evaluation.

Most universities will only say publication is required and do not provide a specific expected number of publications for someone moving from assistant to associate professor or from associate professor to professor. This provides a great deal of leeway, uncertainty and potential bias for the reviewing committee when determining promotions. Some universities provide very specific guidelines. One notable medical school, [Duke University](#), has published guidelines for tenure and promotion that require a minimum of 25 publications for promotion to associate professor with tenure. That works out roughly to one experiment and one published paper every 10 weeks for the first five years of employment. Even if half this productivity rate was required—it often is—it represents a large undertaking.

What happens at Year 5 if an assistant professor applies for tenure and does not receive it? The candidate is provided a second opportunity within a certain period—frequently one year—to strengthen the application and resubmit. If it fails the second time, that generally marks the end of the applicant's career at that university, as he or she will need to seek employment elsewhere and begin the promotion-seeking process again. The pressure to publish successfully is overwhelming because employment and financial stability are at stake.

Nobel laureates from less than 50 years ago have suggested they would not be able to meet current standards in frequency of publication

It hasn't always been this way. Nobel laureates from less than 50 years ago—such as Peter Higgs and Sydney Brenner—have suggested they would not be able to meet current standards in frequency of publication and grant acquisition. This suggests tenure and promotion are no longer a means of providing the best and brightest with the academic benefits that allow them to meaningfully extend knowledge. Brenner commented on a host of problems in the scholarly world in the [Kingsreview.com](#) article "[How Academia and Publishing Are Destroying Scientific Innovation: A Conversation With Sydney Brenner](#)."





The calm, stately face of universities hides a pressure-filled environment in which frequent publication is part of the relentless struggle toward tenure and promotion.

Even if the process does not fulfill its noble intent, getting tenure is a watershed moment in an academic career because it establishes professional and personal stability. Due to publication pressures, it also unfortunately provides a stimulus for poor and often-meaningless research, shoddy paper production, and, as we have seen in the headlines, data manipulation and fraudulent papers.

It's easy to criticize exercise scientists, but they are simply following their job descriptions—at least the majority who are not manipulating data or writing fraudulent papers. These job descriptions are created by university committees run by committees. Brenner has an interesting and insightful take on university committees in the previously mentioned Kingsreview.com article: “Nothing happens because the committee is a regression to the mean, and the mean is mediocre.”

So it appears following committee guidelines creates an environment where average is excellence and mediocrity is framed as cutting edge for PR purposes. Institutions of higher education seem to have devolved from places of thought and experimentation to factories characterized by bureaucracy and standardization.

## Follow the Money

Two types of money are important to all academics: salary and grant funds. Despite popular portrayals in film and TV, the academic's life is often far from affluent. In some places, academic offices approximate a call center. In others, several academics share a small office space, while others might have a private but very small office equipped with shoddy furnishings that were the result of a lowest-bid government contract some decades prior.

While media makes it seem as though academics make a great deal of money, the average starting salary of exercise-science educators has been published on numerous job-search and academic websites at between US\$43,000 and \$61,000—the low end of the scale for all disciplines of higher education. To put this into perspective, here are a few numbers from the U.S. Bureau of Labor Statistics and Inside Higher Education:

- The overall (across all occupations and demographics) U.S. average gross annual income is \$47,000.
- The U.S. average gross annual income for anyone with an associate's degree is \$41,184.

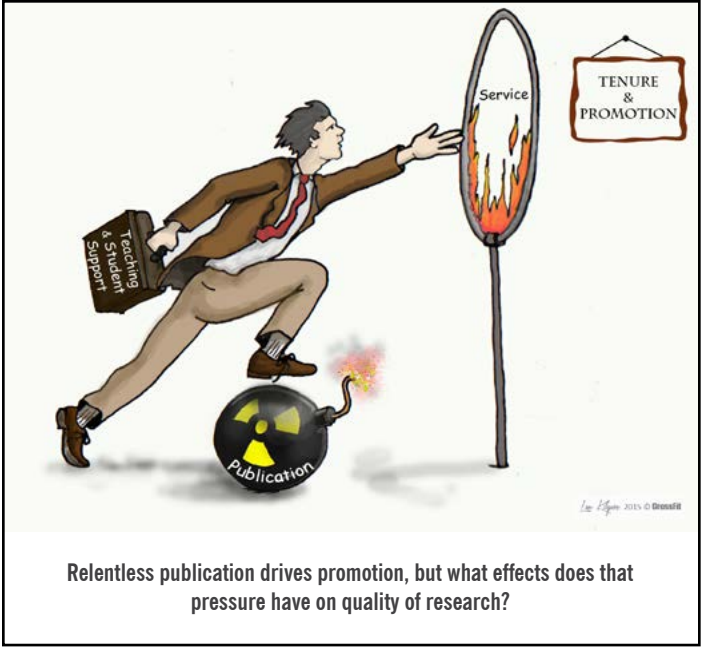
- The U.S. average gross annual income for anyone with a bachelor's degree is \$57,252.
- The U.S. average gross annual income for anyone with a master's degree is \$68,952.
- The U.S. average gross annual income for anyone with a doctorate (excluding medical doctorates, juris doctorates and so on) is \$82,732.
- The average academic faculty member works 61 hours per week.

Considering the average starting wage of \$43,000-\$61,000 and the fact that the majority of exercise scientists have a doctorate, it is important for these educators to move up the ranks as quickly as possible. With the average annual academic-merit salary increase of 2.1 percent, it takes someone at the low end of the salary scale five years to bring the salary up to the national average for all workers. This is especially important when you consider academic debt load.

According to The Institute for College Access and Success, almost 70 percent of graduating seniors had student loans in 2013, with the average debt being \$28,400. Add on \$58,000 of post-graduate debt and you have \$86,400 of long-term debt. This equates to payments of approximately \$1,006 per month for at least the first 10 years of professional life at current rates. Given the starting salary of \$43,000 listed above, 28 percent of the pretax monthly income of \$3,583 is gone before taxes, insurance, housing, food, transportation or any other living expenses are considered. Factoring in the 61-hour work week noted above means the gross hourly rate of a fledgling academic is between \$18 to \$26 per hour—a decent rate but hardly supportive of Hollywood's portrayal of the professorial lifestyle.

And we can't forget the overall economic picture. Economic inflation rate for the past century has averaged around 3.22 percent. That means the average 2.1 percent raise ensures academics regularly go backward in economic well-being if they do not get promoted.

These salary pressures drive academics to aggressively climb the ladder, and they must publish regularly to gain tenure and promotion. Already burdened with teaching and service requirements, academics are not provided the time or support to conduct intensive, large-scale experimentation that would support creation of a major opus of exercise science. Instead, they are rewarded for numerous small and rapidly created



reports of research. These reports provide the most efficient way to meet publication requirements and eliminate the possibility of the elegantly designed research of the past.

The other type of money important to an academic is extramural funding—money obtained from external sources to aid in the conduct of research or in support of some academic activity or program. Obtaining a grant or many grants is critical to obtaining tenure and promotion. Even though the current state of exercise science and exercise-science journals enables publication of small-scale, unfunded research, tenure and promotion committees use grant acquisition as a quality standard when evaluating the research conducted by faculty. If academics are able to attract funds, their research is deemed to be of acceptable quality.

But the world of grants is very murky. In a grant application, the researcher creates a budget to conduct the proposed research, and the university will then add on an “overhead” budget line that can be half or even up to two-thirds of the proposed research budget. Overhead is touted by university administration as the price of supporting researchers by bearing the costs of utilities, administrative salaries and building depreciation. Therefore, active and successful grant writers pay for their own research and contribute to overall university operations.



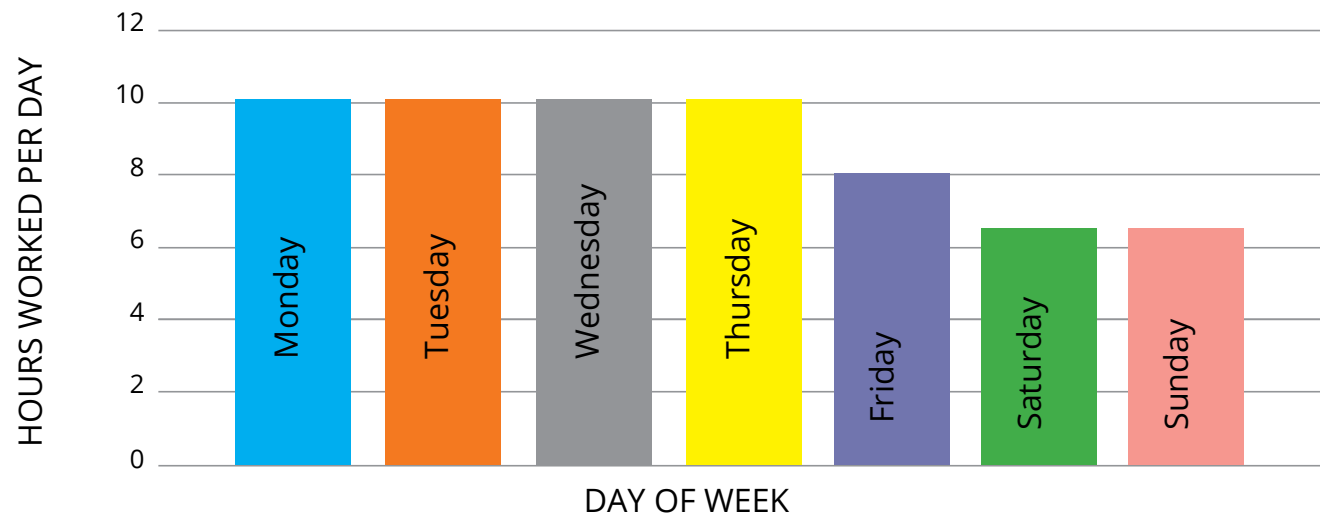


FIGURE 1: A typical academic workday. (Source: [The Blue Review](#) and author's professional experience.)

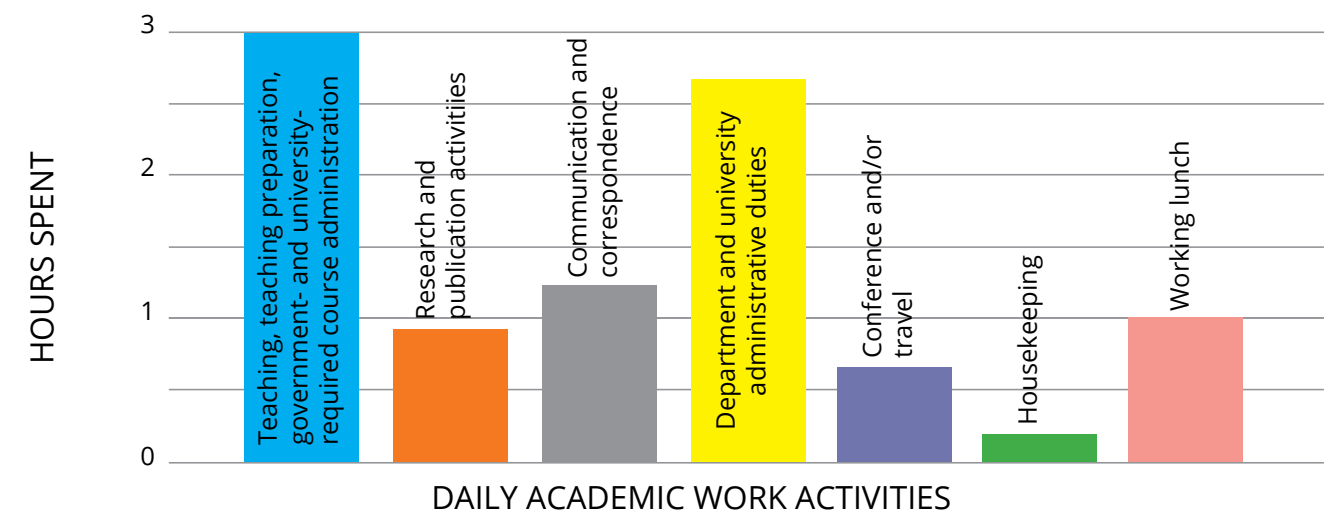


FIGURE 2: A typical academic work week. (Source: [The Blue Review](#) and author's professional experience.)

The public perceives exercise research as a sort of sexy topic, and people generally believe lots of organizations and businesses want to spend money on exercise-and-sport research, but this is not the case. For the majority of the last half-century, it has been the shared experience of exercise scientists that almost no grantors were willing to fund research if the focus was sport performance or fitness. Exercise research was only funded as a tool for investigating health and medicine.

Only about 21 percent of all grant applications actually get funded, according to [National Institutes of Health data](#). In this environment, funding sources such as the Gatorade Sports Science Institute became major players in the exercise-science field because money was available for research into their products and for development of new products.

Think about what companies benefit from research identifying the best methods for becoming fit or better at sports. Are they fitness-machine companies? Barbell manufacturers? Supplement companies? Professional sports organizations? Cost-benefit issues generally preclude such companies from speculating in research support and drive them instead toward creative marketing. While there are instances of small investment in research by exercise-equipment and supplement companies, they are very few and far between. Gatorade, however, spends a great deal on sports and fitness research, as it pioneered funding exercise science as a tool for product promotion and development.

It is a rare instance that academics interested in research in fitness or sports performance will find significant funding in their specific area, so exercise scientists are forced to seek very small grants for very

small studies, do research with no funding or seek research funds for projects that don't directly support their primary interest. In a worst-case scenario, they change their area of specialization completely in order to move toward tenure and promotion. Interestingly, a history of publication relevant to the proposed research is required when seeking grants, so once again we see academics are financially tied to regular publication.

**If academics are able to attract funds, their research is deemed to be of acceptable quality.**

All this does nothing to produce a cohesive body of excellent research that would help the public get fitter. Instead, the overall output can be characterized as the fractured product of those who are using research—anything that can be published—as a means to climb the academic ladder and escape debt. Obscure studies with no practical application dot the landscape. Questionable or lazy research can be found with little digging. Outright fabrication is exposed all too frequently. And even the best research might have been done better with less artificial pressure to publish and more time and resources.

And in those rare cases in which excellent research has been completed and published, its limited accessibility often removes any impact.

Every exercise scientist wants to believe his or her work will somehow make a difference. But the likelihood of a single paper creating change in the fitness industry is small. The obsequious nature of academic writing, the lack of public availability of the articles, and a frequently perceived lack of relevance mean exercise-science papers are written for other exercise scientists and will generally have little or no effect on fitness professionals.

Many academics will argue that their work is easily accessible, but the majority of research articles are guarded by their publishers and can only be read for a subscription fee. The average price of a subscription to a scholarly periodical in the U.S. stands at [\\$1142](#)—a great expense considering that many of the journal's articles will be of no interest to a fitness professional. In most cases, journals can be accessed on a per article basis, but will a personal trainer pay \$35 to buy access to a single eight-page research paper? Can he or she afford to read even a dozen papers in a year? A dozen papers—\$420 at \$35 each—would represent a microscopically small fraction of 1 percent of the papers published in exercise-science journals in any given year.

If it is unlikely fitness professionals are the intended audience of exercise-science papers, exercise scientists must be the primary target audience—at least sort of. Academic journals are rated by “impact factor,” a squishy statistical assessment related to how many times an article is cited by other publications. Articles in publications with a higher impact factor are assumed to be of higher quality. Publication in higher-impact journals is used primarily to make a stronger case for tenure and promotion.

The lowest score is obviously zero. The current maximum value of a journal is 54.4 (New England Journal of Medicine). The average impact factor of exercise-science-related journals hovers around 2.3, according to my research—definitely not a stellar impact. Explore impact factors for a large selection of exercise-related journals [here](#). It also has to be understood that a large number of exercise-science journals are not included in impact-factor calculations (for a variety of reasons), so the actual average impact factor is likely much, much lower than current figures. Based on these figures, exercise scientists appear to be the only readers of exercise-science papers, and those papers are not read often, so their utility in informing practice or future research is very low.

Academic publication is a requirement for tenure and promotion at universities, but where the publication appears generally has only a moderate effect on the process, and actual readership has none whatsoever.

A number of factors have combined to create chaos the public apprehends but academics do not: the artificial but required link between publication and professional progression, the fragmentation and lack of overall disciplinary direction in exercise science (see “[Paradigm Lost](#)”), the disconnect between exercise academia and true practical application, and the failure of the peer-review system to create a reliable and approachable collection of publications on exercise science (“[Peering Through the Academic Blinds](#)”). Those in academia are simply following the rules, doing their jobs and working toward success as defined by their employers. They are operating within the given parameters of the system. They are excellent employees.

The rest of the world has historically looked to academia for answers, but being given incomplete or irrelevant information creates professional chaos and generates a list of important questions.

Where is the trustworthy information on which to make decisions about fitness practice? If the clinical or disease-related aspects of exercise are researched most frequently, can those findings legitimately be generalized to apply to the healthy gym-going population? How can practitioners in the field defend themselves against criticism and legal action if there are few areas of academic data and practical agreement?

## Where is the trustworthy information on which to make decisions about fitness practice?

### Fixing What’s Broken

How can the publication process be fixed?

Asking and researching questions relevant to the practicing trainer would be a start. Scientists have a stake in this renovation because they are the source of all data and publication. It is only through their efforts that we can realize improvement in research and publication. They must gather together to demand that universities provide them with the time and resources to publish quality and meaningful research that is of use to more than tenure and promotion committees. And they must demand that those same tenure and promotion committees are charged to treat applicants fairly in evaluation of their pursuit of realistic publication demands.

If exercise science is to occupy a place in the ivory tower, then academics must be encouraged and nurtured to produce larger, deeper, more relevant and more applicable research projects and papers. We need to end the myopic mad dash for publication to earn tenure and promotion. Even though this approach requires more time applied to single projects, the quality-over-quantity mindset might reduce the artificial and overwhelming pressures of publication and funding, which can only benefit academia, the fitness industry and the public.

Exercise-science journals need to participate in change. The acronym-riddled perfunctory method of journal writing needs a facelift. Endless acronyms and the word-limited, short, terse structure of scientific papers is a function of the cost of old-school typesetting and printing—processes no longer relevant in our world of technological marvel and cloud storage.

Exercise-science journals need to allow scientists to write for clarity and understanding by people who are not exercise scientists. Peer review—held up as a gold standard but very much in need of reconsideration—needs to be refashioned into a functional means of quality control or abandoned for **some other model**.

Exercise scientists need to publish useful data in outlets that are affordably accessible to a real target audience. This can be accomplished through **open-access journals** and by publishing accounts of how data and research can be applied in journals and magazines fitness professionals actually read. Doing so would push vague pseudo-science, fluff and product placement to the back pages of these magazines and give them renewed relevance to the fitness industry. Publishing academic research in fitness-related blogs will wrinkle the noses of stodgy professors who are satisfied with the status quo and believe they currently connect with fitness professionals, but we need to try new avenues of dissemination so we can succeed in finally getting information to people who will actually use it.

This is where university tenure and promotion regulations must be altered and committees must change their approach. Only within the past decade has online journal publication been viewed as academically legitimate. Publication in fitness magazines and blogs has not and still does not count toward publication credit at all. Yet if a university truly wants its exercise academics to deliver data and a message to the world and make a difference in the fitness industry, these types of publications should be counted toward tenure and promotion.

If universities fail to modernize publication requirements and exercise academics continue to have publication dialogs with only themselves, nothing in the fitness industry will change, and exercise science will continue to become marginalized to the point of irrelevance.

That is a waste of academic talent and of no benefit to anyone. ■



Restricted by quotas and archaic methods of publication, many exercise scientists fail to push the discipline forward and increase knowledge.

Mike Markentin/CrossFit Journal

### About the Author

**Lon Kilgore** graduated from Lincoln University with a B.S. in biology and M.S. in kinesiology from Kansas State University, and he earned a Ph.D. from the Department of Anatomy and Physiology at Kansas State University’s College of Veterinary Medicine. He has competed in weightlifting to the national level since 1972 and coached his first athletes from a garage gym to national-championship event medals in 1974. He has also competed in powerlifting, the first CrossFit Total event, wrestling and rowing. He has worked in the trenches, as a coach or scientific consultant, with athletes from rank novices to professionals and the Olympic elite, and as a collegiate strength coach. He was co-developer of the Basic Barbell Training and Exercise Science specialty seminars for CrossFit (mid-2000s). He was a certifying instructor for USA

Weightlifting for more than a decade and a frequent lecturer at events at the U.S. Olympic Training Center. He is a decorated military veteran (sergeant, U.S. Army). His illustration, authorship and co-authorship efforts include the best-selling books “Starting Strength” (first and second editions) and “Practical Programming for Strength Training” (first and second editions), “Anatomy without a Scalpel,” “FIT,” and recent release “Deconstructing Yoga,” magazine columns, textbook chapters, and numerous research-journal publications. His professional goal is to provide the best quality, most practical, most accessible and highly affordable educational experiences to fitness professionals through his university work and through his curriculum-development work for universities and for continuing education for the fitness industry. His students have gone on to become highly notable figures in weightlifting, powerlifting, cycling, fitness and academia.





THE  
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# TRUE WARRIORS

In one of America's safest communities, an affiliate owner and his wife found themselves in a desperate fight for their lives.

BY ANDRÉA MARIA CECIL

24





King County Sheriff’s deputies believe the assailant who invaded Tennyson Jacobson’s childhood home (background) monitored it from this wooded area.



Inside the house where it all happened, Tennyson Jacobson recounts to CrossFit Journal staff writer Andréa Maria Cecil how a stranger invaded her home twice in a 24-hour span in 2013.

There was no reason to lock the door.

In North Bend, Washington, no one locks the door.

“We haven’t had keys in 10 years,” Tennyson Jacobson said of her childhood home across from a farm at the base of Mount Si.

A picturesque place, North Bend is quintessentially Washington. It sits in the foothills of the Cascade Range roughly 30 miles east of Seattle, its streets lined with small flowering trees complemented by the backdrop of lush, gargantuan hills. Along with neighboring city Snoqualmie, it was the filming location for the 1990s TV drama “Twin Peaks.”

“It’s a pretty quiet community,” said Det. Christina Bartlett of the King County Sheriff’s Department Major Crimes Unit.

In all of 2012, the city of 6,200 people reported one criminal homicide and zero residential robberies, according to the sheriff’s office.

“Home robberies—we do get some. In terms of home-invasion

robberies, they’re infrequent, and when they are, they are typically targeted,” said Bartlett, who has been with the sheriff’s office for 25 years.

So when a 6-foot, 220-lb. man approached the French doors of Jacobson’s parents’ house just after 1 p.m., her first thought was to greet the visitor at the home’s entrance.

It was the last time she would leave a door unlocked.

## MOTHER’S DAY

It was Sunday, May 12, 2013—Mother’s Day. Jacobson wasn’t expecting anyone.

“He’s walking with intent and purpose,” she recounted while standing in the dining room of the home where she, her husband and her then-7-month-old daughter had been living two years ago.

In that fraction of a second, she realized the stranger’s intentions were not good. He opened the door and walked in the house.

# In that fraction of a second, she realized the stranger’s intentions were not good.

Panicked, she quickly turned away from the door and in the direction of her baby, who was lying on the floor. But the stranger already had her.

“He grabbed me by the ponytail and threw me over the couch,” Jacobson said.

She started screaming.

“He covered my mouth and said, ‘Don’t worry, I won’t hurt you. I just want your money.’”

Jacobson had \$41 in her child’s diaper bag.

The stranger—still holding tight to her hair—led her over to the bag near the French doors. After he pocketed the bills, he stopped and stared 26-year-old Jacobson in the eyes.

She described his gaze as “possessed.”

“It was this look of ... ‘I hate you.’”

Then he slapped her across the left side of her face so hard she fell to the floor, twisting her right ankle. The stranger’s hat fell off. Then he ran out the French doors, jumped over the white railing and headed south.

Jacobson’s mother, Rosalyn Kaplan, had been showering. About 30 seconds after the stranger fled, she came out of her room to find her daughter hysterically crying. That’s when Jacobson called 911. As the dispatcher asked an audibly shaken Jacobson for details, Jacobson’s baby wailed in the background.





This was Kyle Jacobson's vantage point when he saw the stranger come around the bend in the hallway and then charge him in the early morning hours of May 13, 2013.

“Did they break in the door or what happened?” the female dispatcher asked.

“He just walked right in the door,” Jacobson said indignantly.

“Was it unlocked?”

“Yes.”

King County Sheriff’s deputies arrived at the home nearly seven minutes later. A tracking team with a dog was called to search the area for the stranger. But the scent went cold and the team ended its efforts after about 40 minutes.

Jacobson called her husband, Kyle, who grabbed a buddy and rushed 10 miles home from Cascade CrossFit, the affiliate the couple runs.

Meanwhile, officers assured Tennyson she would be safe.

“In 35 years,” one officer told her, “I’ve never seen someone come back.”

“WHY DID HE COME BACK?”

Later on May 12, Kyle took Tennyson out for a Mother’s Day dinner. She couldn’t relax.

“I was scared to death.”

Before going to sleep, she checked, double checked and triple checked the home’s windows and doors, ensuring every single one was locked.

At around 10:30 p.m., the couple went to bed, with their baby fast asleep in a neighboring bedroom. Leaning on the wall next to him, Kyle had the same 31-inch wooden Louisville Slugger he had kept by his bedside for years. On the nightstand, he set a can of Hot Shot wasp spray he had bought months earlier. A cop buddy had told Kyle, a firefighter, wasp spray was as effective as pepper spray.

Roughly three hours later, the couple’s pair of Yorkshire terriers started barking. That was not unusual. Given their tiny bladders, it was normal for Lola and Lily to require a middle-of-the-night outing.

“They would always get up and go to the bathroom,” Tennyson explained.

Kyle coaxed himself out of bed.

“She says, ‘Grab the bat.’ And I wasn’t thinkin’ anything,” he said. “I went to take out the dogs.”

As he walked out of the bedroom—wasp spray in hand—and headed toward a second door leading directly into the hallway, Lola and Lily started growling.

Concerned they would wake up his daughter, he gave the Yorkies a tight-lipped “shut up.” Then he opened the door to the hallway. Only Lola darted out. Kyle followed her down the hallway. But when she reached the French doors, she ran right back from where they had come. Kyle, confused, was left standing in front of the doors. His eyes followed Lola’s path back to the bedroom. That’s when he saw someone emerge around a bend in the dimly lit hallway, roughly 30 feet away—near the door Kyle had just exited.

“I remember saying, ‘Oh my God, oh my God.’”

The stranger charged.

Kyle squirted wasp spray into his eyes.

“It just looked like it pissed him off. It did nothing.”

Kyle—5-foot-10 and 185 lb. at the time—grabbed the stranger’s shirt with his left hand and started punching him with his right.

“I hit him probably 15 times in the face and he didn’t react.”

He only growled.

“He took me down but I got on top of him. I got in front of him, put him in a headlock and tried to knee him in the face.”

By that point, Tennyson had heard the commotion.

“I knew right away,” she said of it being the same stranger.

She came running out of the bedroom with the bat just as the men went to the ground. She immediately began beating the stranger across the back.

“Fuck you, fuck you, fuck you!” she yelled as she struck him six times.

“The guy never even flinched,” Kyle remembered. “It was insane.”





Dave Re/CrossFit Journal

Kyle and Tennyson Jacobson re-enact Kyle's four-minute fight with the stranger who invaded the home where they lived in May 2013.



Courtesy of Kyle Jacobson

During the May 13, 2013, home invasion, the perpetrator pushed Kyle Jacobson backward about 20 feet across carpet. Kyle was wearing only shorts.

The bat broke into two jagged pieces. Tennyson briefly considered stabbing him with one of them.

“I can’t do that,” she thought.

So she grabbed the wasp spray and shot it directly in his eyes. Nothing.

Kyle, a former high-school wrestler, was trying to choke him out.

“I thought he was close, but I was tired.”

The two men had been fighting for more than 3 minutes. Then the stranger started to push.

Via an Army crawl, he moved Kyle, who was wearing only shorts, backward about 20 feet across carpet to the edge of the dining room. Kyle’s knees became open wounds from the rug burn. He didn’t notice.

The stranger resorted to trying to bite Kyle’s fingers and grab his testicles.

Kaplan, meanwhile, had rushed from her bedroom when she heard her daughter, who rarely curses, repeatedly yelling, “Fuck you.”

“It was like watching pure evil and pure good meet,” Kaplan said. “I’m remembering now it felt like slow motion.”

She hit the stranger in the crotch with the remaining halves of the bat and turned on her iPhone after Kyle told her to call 911.

Kyle was spent. He wouldn’t be able to hold the stranger much longer. The attacker was 35 lb. heavier and didn’t seem to feel pain.

“Tenny, I need help, I need help!” he yelled to his wife.

“As soon as he said, ‘I need help,’ it was a light switch,” Tennyson said.

She ran into the kitchen to the butcher block. It held two knives—one that was flimsy and the other that wasn’t. She grabbed the latter: a 9-inch “big, fat kitchen knife.”

“I just came over and started stabbing him.”

Tennyson plunged the butcher knife eight times into the stranger’s back and twice more into his abdomen, according to a sheriff’s report.

Kyle felt the air leave the stranger’s body. The stranger stopped moving. Kyle kept him pinned.

“I was so freaking petrified, I stayed on top of him for (another) three minutes.”

“I just came over and started stabbing him.”

—Tennyson Jacobson

More than a minute-and-a-half into Kaplan’s 911 call, Kyle can be heard in the background: “He’s dead.”

“He’s dead,” Kaplan repeated, then immediately asked, “Is he dead?”

She went on, hysterical to the point of almost being indiscernible: “He’s dead! No way, he’s dead! Oh, he’s dead!”

The dispatcher began to ask about the weapon; Tennyson took the phone.

“Hi, where is the knife at?” the male dispatcher calmly asked.

Tennyson spoke slowly with a childlike innocence: “It’s in my hand.”

She was wearing a tank top and shorts. Both were soaked in the stranger’s blood, which had also splattered over her arms and legs, the wall, and the carpet.

“Can you put it down?” the dispatcher asked.





Tennyson and Kyle Jacobson stand in the home where they were attacked in May 2013.

“I don’t want to put it down. What if,” she started, then sobbed.

Moments later, she set the knife on the floor.

“I didn’t know what to do,” she told the dispatcher.

Nearly two minutes later, Kyle got on the phone. As he stood 5 feet from the stranger’s lifeless body, he inhaled deeply and spoke like a man who didn’t believe what had happened.

“Oh my God, that creeped me out. Fuck.”

First responders arrived at the home about nine-and-a-half minutes after Kaplan made the call. Firefighters performed CPR on the stranger to no avail.

“Tennyson was visibly shaken,” read a sheriff’s report, “and kept saying ‘why did he come back, who is he....I killed him.’”

## THE STRANGER

Kenneth Boonstra’s criminal history might look insignificant to most: two shoplifting charges in Snoqualmie to which he pleaded guilty, according to police and published reports. There were also a handful of traffic citations, a charge of possessing alcohol as a minor in 1985 and a charge of third-degree theft that was later dismissed in a plea bargain, according to published reports.

The 48-year-old had a wife of 19 years and five children but got divorced in 2008. That, relatives told police, was Boonstra’s unraveling.

When detectives arrived at his parents’ home at 9:30 a.m. May 14, 2013, only his stepfather was there. He explained Boonstra had been living a normal life up until the split with his wife.

“He said that after the divorce Ken changed,” read a sheriff’s report.

His ex-wife “took him to the cleaners,” the stepfather told detectives.

“He said that she turned his kids against him so he is estranged from them,” according to the report.

Then Boonstra’s mother came home.

Bartlett asked her if she had heard about the previous day’s break-in.

“Yes, is that Ken?” she asked.

When Bartlett confirmed, Boonstra’s mother broke down crying.

“She said that he was a good boy. He was the oldest of her three sons and he would always try to help his brothers,” according to the report.

Boonstra’s mother told detectives her son had been paying his ex-wife \$5,000 a month in alimony until about two years ago, when he informed the state he could no longer afford it, quit his job and temporarily moved in with his biological father.

“She said that Ken told her that he was tormented and he couldn’t sleep. She said that they tried to help him and offered to pay for counseling, but he refused. He sent her emails talking about hallucinations like monkeys dragging him across his trailer and snakes. She said that he was a Christian when he was married, but after the divorce he seemed to give up on his spirituality. She said that she could hardly read his emails because they were too ‘freaky,’” the report read.

Bartlett asked if Boonstra had any girlfriends.

His mother answered that he did not.

“He didn’t like women after the divorce.”

Boonstra had maintained a YouTube channel known to his family. There he posted long rants—some nonsensical—in more than 30 videos often recorded inside his trailer that sat on the nearly 7 acres of land in North Bend he received in an estate settlement. His stepfather described them to detectives as “‘preachy’ and anti-women.”

In one pair of videos, Boonstra described girls and women as “miserable, horrible creatures” who have “rejected their natural function to be domestic” and are therefore “Satan’s minions, tools of the devil.”

“They have only one purpose and that’s to destroy you—to turn you into a eunuch. That’s what a girl wants to do because she wants to be equal to a man. A girl cannot be equal to a man. It’s impossible—physically, emotionally, mentally impossible—because she’s a girl. It’s just a fact.”





At nearly 5 foot 7 and usually 110 lb., Tennyson Jacobson described herself as “strong for my size.”



When Tennyson Jacobson is at Cascade CrossFit—the affiliate she runs with her husband, Kyle—her 2-year-old daughter usually comes along.

## “ALL PEOPLE ARE HUMAN WEAPONS”

Choice.

Boonstra had it when he chose not to walk out those French doors.

“(He) could have run down the hallway and run out the front door. He had been in the house earlier that day,” Bartlett said. “He made a conscious decision to not escape.”

Kyle had it when he stood his ground as Boonstra charged.

“I would venture to guess that if we could go back and measure that, he, for certain, had less than half a second to assess and respond. But by that time, Boonstra had already gotten to him,” the detective continued. “By that time, he’s already behind; Boonstra’s already on him.”

And Tennyson had it when she chose the sturdy butcher knife.

“When Kyle had been fighting for so long ... the way she came to his aid was so overly impressive,” Bartlett said. “She made that decision that she’s going to decide the outcome.”

“When you’re really in the fight for your life, you either fight or you give up. And that’s who you are.”

—Det. Christina Bartlett

While those in law enforcement frequently rehearse would-be scenarios in their minds so they can be prepared when a real-life situation erupts, most civilians do not, she noted.

“When you’re really in the fight for your life, you either fight or you give up. And that’s who you are. I don’t think that, for the most part, that’s something that’s a conscious decision. And both of them are very strong—both physically and emotionally.”

Bartlett added: “The great thing about this case is that Kyle and Tennyson survived. Because in a lot of our cases, they don’t survive.”

Still, Tennyson has said that had she been alone in the house, she wouldn’t have stood a chance.

“Even though I’m strong and I’m scrappy ... you have to be realistic,” said the nearly 5-foot-7, 110-lb. woman.

Bartlett and Tony Blauer disagreed with the idea that Tennyson wouldn’t have been able to successfully defend herself.

“Could she have held her own?” Bartlett said. “We have lots of (female) deputies that are very small in stature, and they were still able to overcome.”

And the fact of the matter is Tennyson—contrary to her statement to the 911 dispatcher—knew exactly what to do.

“The bottom line is this wasn’t a sport fight. ... She found the weapon. The knife didn’t stab the guy. It wasn’t an electric knife ... it wasn’t a Bluetooth knife,” explained Blauer, founder of Blauer Tactical Systems, a company specializing in the research and development of close-quarters tactics and scenario-based training for law enforcement, military and professional self-defense instructors. Blauer is also the founder of the CrossFit Defense program.

“What I believe is that all people are human weapons. They just don’t realize it. ... Cavemen didn’t get their yellow belt.”





Dave Re/CrossFit Journal

After the incident in which Kyle and Tennyson Jacobson killed a home intruder, they couldn't so much as sleep alone.

All too often, Blauer hears women in his course identify their size and strength as reasons why they wouldn't be able to fend off a male attacker. During a recent trip to Spain, a course participant kept insisting, "But if somebody's bigger, you can't."

"I went, 'Listen, yeah, size matters. But you can look at it as, 'He can deadlift 500 lb. and I can only deadlift 50 lb.'" You need to drop your 50 lb. on his head before he drops his 500 lb."

Blauer continued: "'The big guy is stronger, but maybe you're looking at the wrong part of his size.' People look at a big guy and they see how big he is and they're looking at his muscles."

But just as his muscles are larger, so, too, are all the places that can be attacked—like his neck and his crotch.

"Oh, good ... he's got bigger balls for me to hit," is what you should be thinking, Blauer said. "It might seem like I'm being cute and cavalier, but it's the only way to think."

And in those seconds on the morning of May 13, 2013, Tennyson made the choice that saved her and her family.

"Clearly this could have gone either way. Easily," Bartlett said. "If even one of them hesitated, it would have been a different outcome. They're amazing people."

She added: "They're truly warriors. Both of them."

## TWO YEARS LATER

Today, life is different for Kyle and Tennyson.

They finished building their own home in an unincorporated city in another part of King County. The home has a fence with a gate, an alarm system and security cameras monitoring the perimeter. They also have a 75-lb. German shepherd named Ludo, two revolvers and a metal baseball bat.

"Now I'm a freak about locking the door," Tennyson said as the couple sat at the dining-room table.

And it's given them a different perspective.

"For me, it's opened my eyes (that) the world can be a scary place," she continued. "We go to church, we don't do crazy things, we don't meet weird people."

"It made us big gun believers," Kyle added.

If Boonstra had had any kind of weapon, "I would have been so screwed."

Kyle continued: "If I hadn't been in shape, it would have been no bueno."

The incident also made the couple hyper aware of its surroundings.



Dave Re/CrossFit Journal

In the months following the attack, members and coaches at Cascade CrossFit pulled together to assist the Jacobsons.

"I feel like I judge everyone," Kyle said.

Immediately following the incident, neither could so much as drive anywhere.

"It was a month, honestly, where we didn't do a damn thing," Kyle said.

When his station found out what happened, it took about 30 minutes for Kyle's fellow firefighters to volunteer to cover all his shifts for the next three months.

It would be another month before they could coach at their affiliate again. And when they did, it was only for the classes that occurred during daylight.

Admittedly, Tennyson said, they were "not the best" at running the business during that time. But the community stepped in with coaches covering classes, members establishing a meal train and writing letters of support, and other area affiliate owners hosting fundraisers.

Hours after the incident, the couple moved in with Kyle's parents, pulling a mattress into their bedroom so they wouldn't have to sleep alone.

"I would never do that now," Tennyson said, laughing.

They saw a therapist and took medication for their anxiety and to help them sleep. Tennyson is still on antidepressants.

"I used to wake up all the time making noises like I was getting choked," Kyle said.

In the months following the incident, if Tennyson had to make a visit to the house where it happened—even in the middle of the day—her heart would pound and she would start to sweat.

And Kyle still doesn't like coming home when it's dark. When he does, he sends Ludo in ahead of him to clear every single room in the house before he can relax.

"It changed us a lot—that's for sure."

Their experience also affected their family and friends.

"It was a real eye-opener, especially out here," said Cody Turcotte, a Cascade CrossFit coach. "Growing up, we left the doors unlocked all the time."

Turcotte went to high school with the couple and wrestled with Kyle, who is a member of Cascade CrossFit's competitive team.

For Turcotte, the incident highlighted one thing: "How important it is to be strong."





## FIGHT, FLIGHT OR FREEZE

To this day, police do not know how Boonstra got into the home in the early morning hours of May 13. They will also never know his intentions. But they have educated guesses.

“Sexual assault, probably,” Bartlett said.

In his pockets, Boonstra had a flashlight, duct tape, a digital camera and a tripod. He died wearing blue-and-white gardening gloves.

“In my entire career, I cannot remember a single case in which we had a stranger come in, do a home-invasion robbery and return that same night.”

Deputies tried to ease Tennyson’s concerns after the first incident, Bartlett said.

Instead, it was Tennyson’s “worst nightmare come true.”

Sometimes, when she’s out among strangers, Tennyson wonders if they’d be frightened of her if they knew she killed someone. Although she was shaken by her own act in the hours that followed, Boonstra’s death does not bother her today.

“Right when I asked  
for help, she didn’t  
hesitate. She grabbed the  
knife and stabbed him.  
She doesn’t have a mean  
bone in her body.”

—Kyle Jacobson

“I don’t care at all. At all. I thought I would struggle with that. But I do not,” she said. “He looked so evil to me. I just knew he was so bad.”

For his part, Kyle is impressed with his wife.

“Right when I asked for help, she didn’t hesitate. She grabbed the knife and stabbed him. She doesn’t have a mean bone in her body.”

Tennyson noted: “Kyle asked for help—that never happens.”

In the investigation that followed Boonstra’s death, Bartlett told them that their options were fight, flight or freeze.

“What I chose to do under pressure was fight,” Tennyson said.

“It wasn’t a choice,” Kyle added. “I wasn’t going to run away.”

“He was going to try to hurt us. ... He was going to rape me,” Tennyson said.

Kyle also said he feels no remorse for Boonstra’s death.

“It makes me know we can get done what needs to get done,” he said.

Still, he does have one regret: He wished he could have warned Boonstra.

“You’re about to get stabbed. I hope it was worth it.”

Stabbed, no less, by one of the “miserable, horrible creatures.” ■

## ABOUT THE AUTHOR

Andréa Maria Cecil is a CrossFit Journal staff writer and editor.

The lead detective on the case called Kyle and Tennyson Jacobson “true warriors” for choosing to fight when an intruder got inside their home in May 2013.



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# THE CrossFit JOURNAL

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## Drink According to Thirst, Scientists Advise

Updated consensus statement on hydration and hyponatremia published June 29 in Clinical Journal of Sport Medicine.

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By Andréa Maria Cecil

June 2015

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*In February 2015, CrossFit Inc. sponsored a conference on hyponatremia. Seventeen scientists from around the world gave presentations and answered questions.*

The dogma is pervasive: Dehydration is bad.

For more than a decade, scientists from around the globe have been working to fight that doctrine. Their advice is simple: Drink only when you're thirsty.

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1 of 3



"Everybody has this little barometer in their brain that they were born with that measures the appropriate amount of sodium in your blood and the appropriate amount of water going through your circulation," explained Dr. Tamara Hew-Butler, an associate professor of exercise science at Oakland University in Rochester, Michigan. "Inside (your brain), when you need water, you will get thirsty."

Hew-Butler was among 16 scientists who wrote a consensus statement on hyponatremia that the [Clinical Journal of Sport Medicine](#) published on its website today.

Hyponatremia occurs when a person drinks so much hypotonic fluid—such as water or sports drinks—that blood-sodium levels are reduced. Symptoms can be as mild as dizziness and nausea or as severe as vomiting, seizures and coma. Because drinking excessive fluid can flood the lungs and brain, hyponatremia can be fatal.

The 18-page "[Statement of the Third International Exercise-Associated Hyponatremia Consensus Development Conference, Carlsbad, California, 2015](#)" summarizes the most current information on the prevalence, etiology, diagnosis, treatment and prevention of so-called exercise-associated hyponatremia (EAH) for medical personnel, athletes, athletic trainers and the general public. EAH is hyponatremia that occurs during or up to 24 hours after physical activity, according to the consensus statement.

The 16 scientists represent four countries and nine medical and scientific sub-specialties related to athletic training, exercise physiology, sports medicine, water/sodium metabolism and body-fluid homeostasis.

The authors—all of whom hold doctorate degrees or are medical doctors—convened at the 2015 CrossFit Conference on Exercise-Associated Hyponatremia organized by the HEAT Institute on Feb. 20 in Carlsbad. CrossFit Inc. sponsored the conference but did not participate in the development of the consensus guidelines.

The [Clinical Journal of Sport Medicine](#) published the group's [first statement](#) in 2005 and [the second](#) in 2007. Updates are issued when there's "enough evidence to change or update the statement," Hew-Butler said.

"But it was accelerated by the deaths of the two football players."

[Zyrees Oliver](#) and [Walker Wilbanks](#), both 17-year-old high-school football players, died of EAH within two weeks of one another in August 2014.

"These football players were encouraged to ingest copious volumes of hypotonic fluids and sports drinks to prevent or relieve exercise-associated muscle cramps (EAMC) in the belief that EAMC was caused by dehydration and electrolyte imbalance," the authors wrote.

But studies speculate that EAMC might be caused by neurological changes brought on by fatigue—not uncompensated water and sodium losses incurred during exercise in some cases, according to the statement.

In the past, EAH was relegated to long endurance events, such as triathlons, marathons and ultra-marathons. In recent years, that's changed.

"The culture of 'drinking a lot of fluids will prevent heat stroke, muscle cramps, dehydration' is really being pushed in ... team sports without anyone realizing that there's hazards," Hew-Butler said.



***Dr. Arthur J. Siegel was among the scientists who authored the third consensus statement on hyponatremia. Like his colleagues, his advice is simple: Drink to thirst.***





***Years of bad hydration recommendations to guzzle water and sports drinks have trumped common sense, said Dr. Mitchell Rosner.***

Thirst, they added, is “an evolutionarily conserved, finely tuned, regulatory mechanism. ... There are physiological sensing mechanisms in place to prompt when to drink and therefore guard against excessive dehydration.”

Widely accepted hydration advice now permeating all levels of sports has made hyponatremia a growing concern, Hew-Butler said.

Excessively drinking beyond thirst is “not a panacea for all instances of fatigue, collapse, muscle cramping, or exertional heat stroke,” the scientists wrote.

“The drinking of fluid volumes sufficiently above sweat and urinary losses before, during and after activity and the accrual (of) a positive water balance, is the primary underlying pathophysiological mechanism of symptomatic and fatal EAH cases,” they continued.

Prevention, therefore, must focus on drinking behavior, the authors said.

“What’s frustrating is the information has been out there for 10 years,” Hew-Butler noted. “How do you convince people that thirst is adequate?”



Additionally, statement authors pointed to 21-year-old Matthew Carrington, **who died of hyponatremia** in February 2005 during a hazing incident at California State University, Chico, and to 25-year-old Washington, D.C., police officer James C. McBride, **who also died** of hyponatremia in August 2005 after a 12-mile bicycle ride for training purposes.

“It is likely that other cases of symptomatic hyponatremia have either not been recognized or reported,” the scientists wrote.

Hydration is a balance, Hew-Butler said.

“But drinking too much will kill you. That’s No. 1.”

Preventing EAH is dependent on drinking less, according to the statement.

“Thirst should provide adequate stimulus for preventing excess dehydration and markedly reduce the risk of developing EAH in all sports,” the authors wrote.

### About the Author

*Andréa Maria Cecil is a CrossFit Journal staff writer and editor.*