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THE CrossFit JOURNAL
VIRTUOSITY

Virtuosity 9: Heroes

Sgt. Shawn Wray explains how CrossFit allowed him to share a dying friend's last moments.

By Shawn Wray **July 2015**

Courtesy of Sammy Keener and Heather Peterson

Shawn Wray has done 136 Hero workouts in honor of the fallen.

It's an honor to be present for someone's final moments, and CrossFit enabled me to share the last few minutes of a dying cop's life. For that I will be forever indebted.

Feb. 28, 2010, about 2 a.m. on a cold, rainy night in East County, San Diego, California. My friend and partner Deputy Sheriff Kenneth James Collier of the San Diego County Sheriff's Department had responded to a call of a drunk driver going the wrong way on the freeway. Ken was trying to intercept the drunk when wet and foggy conditions caused

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him to drive his patrol SUV over a steep cliff. Ken was ejected and lay gravely injured. A fellow deputy found Ken and called out "11-99" (officer needs help!). Everyone answered the call, and some of us climbed down to Ken to begin the rescue.

When I first got to Ken, he was alert, and he spoke to me in crystal-clear words. Ken related to me that he loved his fiancée, Karen, very much. Ken spoke about Karen with carefully chosen words, and it was an honor to hear them.

Ken was lying on his back, and from my vantage point he looked a little banged up but OK. I thought he was going to be fine, but Ken knew different. I later learned his skull was crushed on the back side and he had been mortally wounded.

The 45-minute climb out of the canyon with Ken was awful; it was steep, slippery and exhausting. Ken was a huge man, and footing was impossible, especially with your hands on a gurney. For most of the ascent, we had to hold Ken overhead and take large steps on wet, slippery, steep ground. It was comparable to body-weight overhead lunges at incline on ice.

I comforted Ken the best I could. We continued to talk, but his speech got slower and he began falling asleep as we neared the top of the canyon. Ken passed away just after we got him out.

The poignancy of the last few moments of his life is chiseled into my mind forever. I replay those moments each and every time I hit a Hero workout. I'm at 136 RX'd Hero workouts and counting.

I owe each one of those moments to CrossFit because my fitness allowed me to carry on. My coach at CrossFit Pride, Caren Stewart, was there for me. She prepared me for those moments, comforted me after they happened and encouraged me through all the Hero workouts I've done to honor Ken.

When other deputies and fire personnel needed relief during the ascent, I was able to continue and spend the entire time with Ken. I believe that's because of CrossFit. I cashed in every minute of gym time that night. I pushed through because I had experienced discomfort in the gym and prepared myself for it in the real world.

CrossFit prepares you for life—for the best and hardest parts of it.

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.

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   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.

LOCKING IT DOWN

BY LON KILGORE

Lon Kilgore examines the potential negative effects of licensing on the fitness industry—and those it serves.

Mike Warkentin/CrossFit Journal

Licensure for personal trainers has recently created a tremendous amount of banter, politicking and press.

In March 2014, Washington, D.C., became the first area to require licensure of personal trainers, although the law has not been enforced due to very confusing details and a subsequent review process. In May 2015, the Department of Health's Physical Therapy Board—the governing body, according to the Omnibus Health Regulation Amendment Act—was still reviewing the act and its details. Interestingly, President Barack Obama earmarked US$15 million in his 2016 budget for states to identify "areas where occupational licensing requirements create an unnecessary barrier to labor market entry or labor mobility."

If the president is actively attempting to reduce frivolous employment regulation, why do people believe a license to work in certain occupations is needed? And what will happen if states actually begin to require such licensure?

PROFESSIONS AND OCCUPATIONS

People in general have been led to believe that licensure of a personal trainer—or anyone, for that matter—guarantees good service or high skill.

Licensure is based on a lack of faith that an individual will deliver quality service and employ good business practices without some motivating oversight. Licensing is touted as a means to protect the public from quacks, cheats and charlatans. In order to ensure physicians, attorneys, barbers, masseurs, plumbers or any other occupational practitioners are able to deliver to a specified standard, they are required to fulfill a set of requirements for issuance of a government license.

Originally only three professions were recognized: clergy, medical practitioners and lawyers. Everything else was an occupation or vocation. The terms "occupation" and "vocation" describe an individual's means of earning a living. Occupation and profession are often incorrectly used interchangeably. An occupation or vocation generally does not require extended and formalized education and prolonged training. Occupations have training requirements, but they can generally be delivered with a short period of instruction or on-the-job training. Historically, personal training and coaching have been occupations.

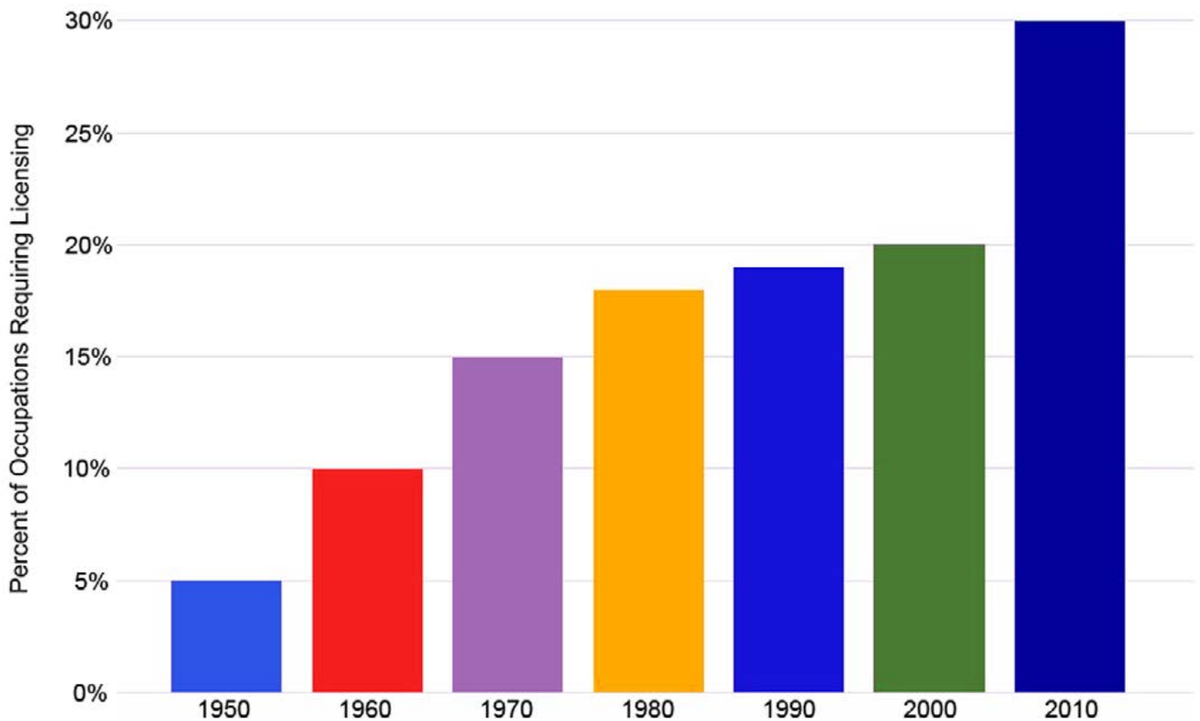
In the 1950s, the number of licensed professions had grown from three recognized professions to a point where slightly less than 5 percent of the total U.S. workforce required licensing. By the 1970s, the figure had grown to about 15 percent. By 2000, an estimated 20 percent of the work force needed a government license to work, with approximately 30 percent requiring a license by 2008, according to "Analyzing the Extent and Influence of Occupational Licensing on the Labor Market." It is interesting that the number of occupations requiring licensing increased faster in the past decade than at any other time in history, more than doubling the rate of increase in any other decade.

The Council of State Governments now estimates that at least 1,100 occupations are currently licensed in U.S. states. The steady growth in numbers of licensed professions mirrors the rate of conversion of U.S. employment patterns from manufacturing to service industries.

The structure of the process of licensure derives from a definition of "profession"—an undertaking that requires a body of knowledge, an education and licensing by an overseeing body, generally a government office. This widely adopted concept of professions is most directly articulated in "The New Fontana Dictionary of Modern Thought" as "the development of formal qualifications based upon education, apprenticeship, and examinations, the emergence of regulatory bodies with powers to admit and discipline members, and some degree of monopoly rights."

Many press releases and articles explain the benefits of licensed professions. For example, if you listen to the hype from organizations that certify personal trainers, you will be presented with the rationale that licensure is a means of controlling the quality of service delivery to fitness clients. It seems these organizations believe a stroke of a government pen would ensure personal training would become cohesive and uniformly executed.

But could it be that those organizations actually feel incapable of influencing and policing their membership or of extending their influence to the body of fitness professionals in entirety? By seeking required licensure, are they attempting to marshal support from the government to force their ideals, membership and training upon the working masses? Possibly.



Increase in licensed professions over time. (Source: adapted from "Analyzing the Extent and Influence of Occupational Licensing on the Labor Market")

> The alphabet soup of fitness-professional organizations all compete against each other for influence and membership dollars. Are those organizations that are lobbying for licensure simply attempting to reap some type of monopolistic benefit?

The last clause in the passage above might identify a more telling motive. The alphabet soup of fitness-professional organizations all compete against each other for influence and membership dollars. Are those organizations that are lobbying for licensure simply attempting to reap some type of monopolistic benefit?

As early as 1962 in "The Economics of Occupational Licensing," Simon Rottenberg had already noted "the requirement that practitioners be licensed is either a low-cost device for enforcing rules of behavior, or a revenue measure." While the former device—standardizing practitioner work output—is an attractive and oft-used rationale for promoting the implementation of licensing law, it is the latter measure that's most likely at the heart of the matter.

In the investigation "A License for Protection," Morris M. Kleiner estimated that "regulation redistributes between $116 and $139 billion (2000 dollars) from consumers and reduces economic output by $35 to $42 billion per year." That amount equates to about 1 percent of total U.S. consumer spending.

This is a significant financial encumbrance on the consumer and an artificial restriction on economic output and employment. Kleiner further stated, "With no obvious benefits, the net effects of licensure for the occupations examined appear to be negative."

Surely there has to be some quality improvement in products or services by virtue of simply establishing standards for professions. Can monetary gain and limitation of competition actually be the only motives of those who push for licensure? With specific reference to the fitness industry, is money at the heart of the mantra "exercise is medicine" and the desire to expand scope of practice for members of many exercise and fitness organizations?

If we look at objective data about the effects of licensing on the quality of products or services, the picture is not what the professional fitness organizations portray. A 2010 Institute for Justice Report demonstrated that unlicensed and licensed workers produced equivalent work in terms of quality. In 2001, the Canadian Office of Fair Trading reviewed existing literature and noted that only 13 percent of studies on the effects of licensing of professions demonstrated a positive outcome of regulation on outputs. That means 87 percent of all the studies reviewed either showed professional outputs were not improved by regulation or—worse—negatively affected them.

Mike Warkentin/CrossFit Journal

With regard to trainers, it's unlikely more red tape will improve their ability to increase their clients' fitness.

Mike Warkentin/CrossFit Journal

Many people find it difficult to get to a gym. Licensing costs will be passed on to clients, placing yet more barriers in their way.

So if licensure does not protect the customer or improve the service received, what is it actually doing? It appears licensure protects and benefits the organizations and governments that propose and operate the system. In the 1989 article "The Effects of Economic Regulation," Paul L. Joskow and Nancy Lin Rose asserted that, "Rather than seeking to provide consumers with the benefits of economies of scale or scope, regulation may protect firms that are not natural monopolies from the threat of competition and lower prices. Rate structures are likely to reflect interest group politics rather than narrow efficiency criteria. New technologies may be discouraged, rather than encouraged, to protect incumbents."

It is a very troubling concept that professional organizations will champion and actively lobby for government regulation of their membership and profession if they do so for financial gain and limitation of market competition rather than for a benefit to their membership and to the consumers they serve. It is not responsible behavior to restrict innovation and advance additional costs and legal encumbrance upon membership if there is no tangible increase in quality or safety of licensed activities.

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Despite the lack of benefit to the customer, more and more occupations seek licensure. Government officials and offices have rarely turned down licensure requests because regulation adds another revenue stream for the government. The Wall Street Journal article "A License to Shampoo: Jobs Needing State Approval Rise" indicated that the state of Connecticut reported $21 million net revenues from license fees over a two-year period. In 2008, the California state government borrowed $96.5 million from its licensing branch in order to pay for other state operations.

THE WHAT-IF WORLD OF LICENSED FITNESS PROFESSIONALS

It's tough to say what the world of personal training would look like if a nationwide effort to require licensing of personal trainers succeeded, but numerous examinations of the aftermath of implemented regulation have produced a list of inevitable outcomes:

INCREASED OPERATIONAL COSTS TO THE PRACTITIONER

The bureaucracy of licensure costs money, and that money is supplied by the practitioner before he or she draws any income from work. Other indirect costs to the worker come in the form of required memberships, examinations (85 percent of licensed professions have entry exams) and reporting; regulations on where and how business is to be conducted; and, very importantly, the education required to be eligible for licensing.

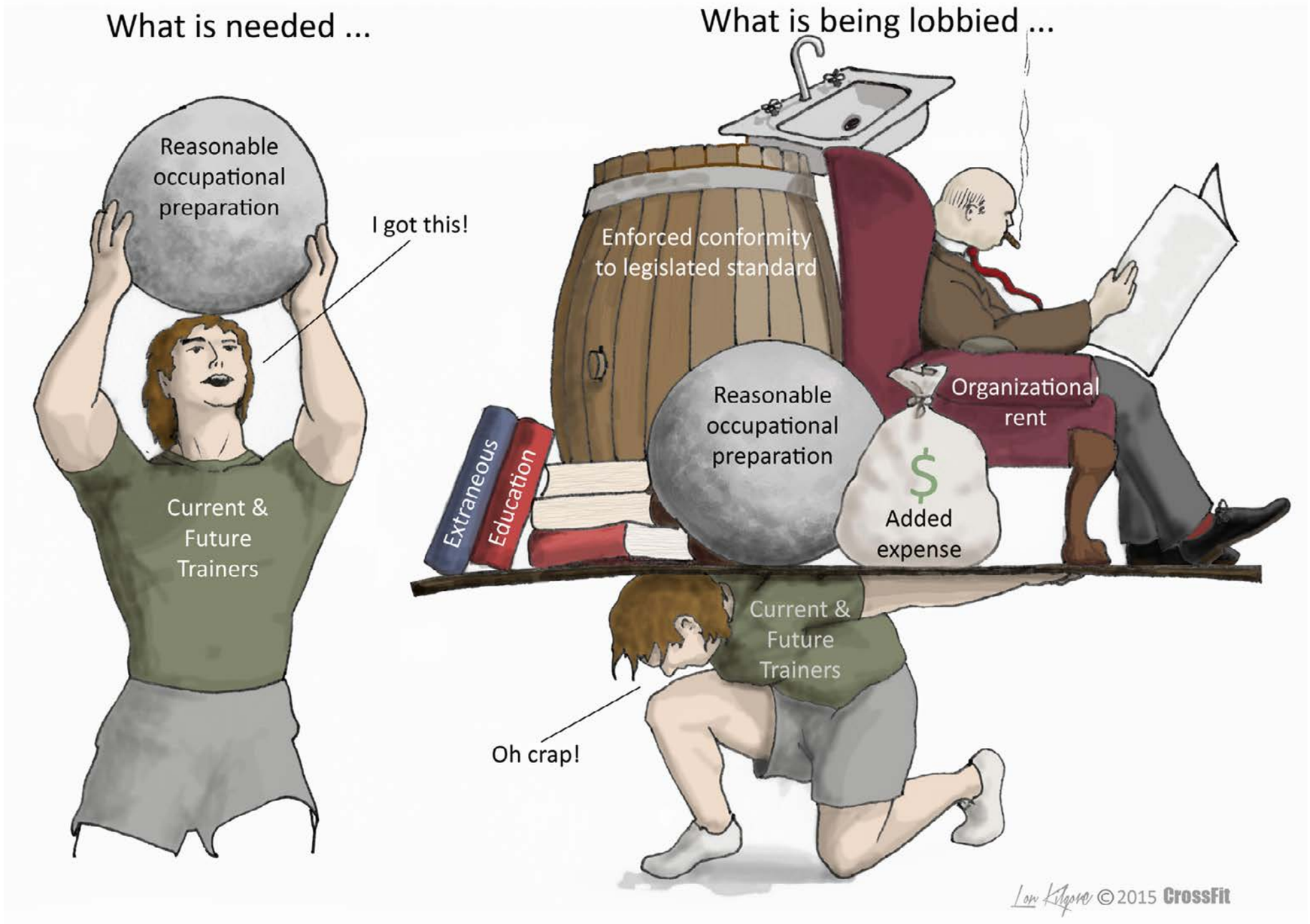
If commercial education becomes the standard, the burden is only mild, ranging from several hundred to several thousand dollars. If a university education is required—about 43 percent of all licensed professions require a university education—the burden becomes many tens of thousands of dollars.

Any increase in the cost of entering a profession restricts the number of people who can practice.

Ongoing educational costs also increase, as 70 percent of licensed professions require their practitioners to obtain some type of continuing-education credit in order to maintain licensed status.

INCREASED INCOME FOR THE PRACTITIONER

The groups lobbying for licensing of personal trainers often spout data that suggests practitioners can expect about an 18 percent increase in wages if an occupation becomes a licensed profession. The reality is that several studies, including "Analyzing the Extent and Influence of Occupational Licensing on the Labor Market," have found the increase to be quite variable, ranging from no increase up to the commonly promulgated 18 percent.



How does this play in exercise-related occupations? A bachelor's education for the unregulated (except for Louisiana) and small occupation of exercise physiologist creates a median annual income of $46,270, according to U.S. Bureau of Labor Statistics data. There are currently 6,600 U.S.-based exercise physiologists working primarily in hospitals, clinics and physician's offices. Athletic trainers—a roughly similar exercise-related occupation also working in allied-health and clinical environments—are heavily regulated and licensed and earn a median annual wage of $43,300, also according to U.S. Bureau of Labor Statistics data. Are the 22,400 currently practicing athletic trainers enjoying the increased income benefit of professional licensing?

Even if wages increase, a question arises: Do the increased wages exceed the new financial burden of obtaining and maintaining licensure? Also of note is that it is only federal or state licensure that seem to produce increased income. Local legislation tends to have no effect, as noted in "Analyzing the Extent," cited above.

INCREASED COSTS TO THE CONSUMER

Increased costs to the practitioner are offset by raising the fees charged to the customer. This is a well-documented association. Within the commercial gym industry, two current business models exist: pay for access and pay for results. The former describes membership structures in which clients pay to access the equipment and facilities with no training services delivered. The latter describes a system in which clients pay for access as well as the delivery of services that produce fitness gains.

If legislated licensure becomes reality in the fitness industry, increased costs will motivate clients paying for access only to drop memberships at commercial gyms in favor of home fitness. Clients who pay for services would be more likely to reduce their financial investment in exercise and move to paying for access only.

This phenomena has been seen in other occupations: Where electricians and plumbers are highly regulated and thus highly priced, the amount of do-it-yourself activities by homeowners is much larger than in areas of less regulation and lower prices, according to S.L. Carroll and R.J. Gaston in "Occupational Restrictions and the Quality of Service Received: Some Evidence," published in the Southern Economic Journal in 1981. The higher the cost of service, the more people will do it themselves. Or, invariably, participation might completely cease, as cost is a critical barrier that influences an individual's choice to not start or prematurely end engagement in exercise, according to "Understanding Participation in Sport and Physical Activity Among Children and Adults: A Review of Qualitative Studies."

Increased cost also has an unintended consequence in that it can potentially price services outside the range available to some income brackets. For example, the poorest might not be able to afford access to gyms at all, to say nothing of using the services of a personal trainer or acquiring home fitness equipment. If "exercise is medicine"—as several professional organizations espouse—then their lobbying for licensure will affect the health prospects of the economically disadvantaged.

MONOPOLY

This is tremendously important: If a single organization is able to sway government representatives to pass legislation containing its dogma, anyone who is not trained in that dogma cannot be licensed.

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This means Organization X's personal-training instruction is valid and Organization Y's is not, nor is that of any other groups. Customers, therefore, will only have access to training according Organization X. If customers want to partake in any other type of training, they are out of luck unless they want to find someone willing to break the law and risk fines or arrest.

The concept might seem far-fetched, but it really isn't. Take, for example, the National Strength and Conditioning Association (NSCA), a group that constantly lobbies both for regulation and to be involved in setting the standards of regulation. Imagine the government installs any group's professional standards in legislation. If the NSCA became the gatekeeper to fitness, CrossFit trainers, martial-arts instructors or yoga instructors would be forced to try and fit their educational experiences into the noose of NSCA documentation. The financial windfall to any gatekeeper should be obvious.

LIMITATION IN NUMBER OF SERVICE PROVIDERS

After an occupation becomes a licensed profession, the number of practitioners goes down significantly, according to "Analyzing the Extent." This is generally due to changes in entry requirements.

How bad could this reduction actually be? If university education is part of the licensing requirement for fitness professionals, it could be catastrophic: An estimated 70 percent of fitness professionals do not have a university degree, according to "Importance of Health Science Education of Personal Fitness Trainers." Seventy percent of practicing fitness professionals would no longer be able to work, leaving a significant number of clients without access to personal trainers.

Proponents of licensure will say existing practitioners would be "grandfathered" into licensure. If 70 percent of licensees do not meet the criteria for actual licensing and are licensed anyway, has anything been accomplished? If the overseeing body is happy to have the majority of licensees failing to meet standards for the next 10 or 20 years, what is the real motive behind the desire for oversight?

If university education is not required but certification through another organization is, that organization becomes the gatekeeper described above. What if that organization only represents 10 percent of the total body of personal trainers in the U.S., as the NSCA does? Employability will be lost and customer service will decline as 90 percent of fitness practitioners scramble to fulfill licensing requirements.

LIMITATION IN PRACTITIONER MOBILITY

Since the 1888 decision of the U.S. Supreme Court in the matter of Dent v. West Virginia (1888), licensure has been the realm of states and municipalities. As regulations will always vary by state and city, licensure restricts a practitioner's ability to move and start up a practice without going through licensure processes again. This can prevent migration of professionals to underserved areas or to markets of opportunity.

PERSONAL TRAINING AND LICENSURE: STRANGE BEDFELLOWS

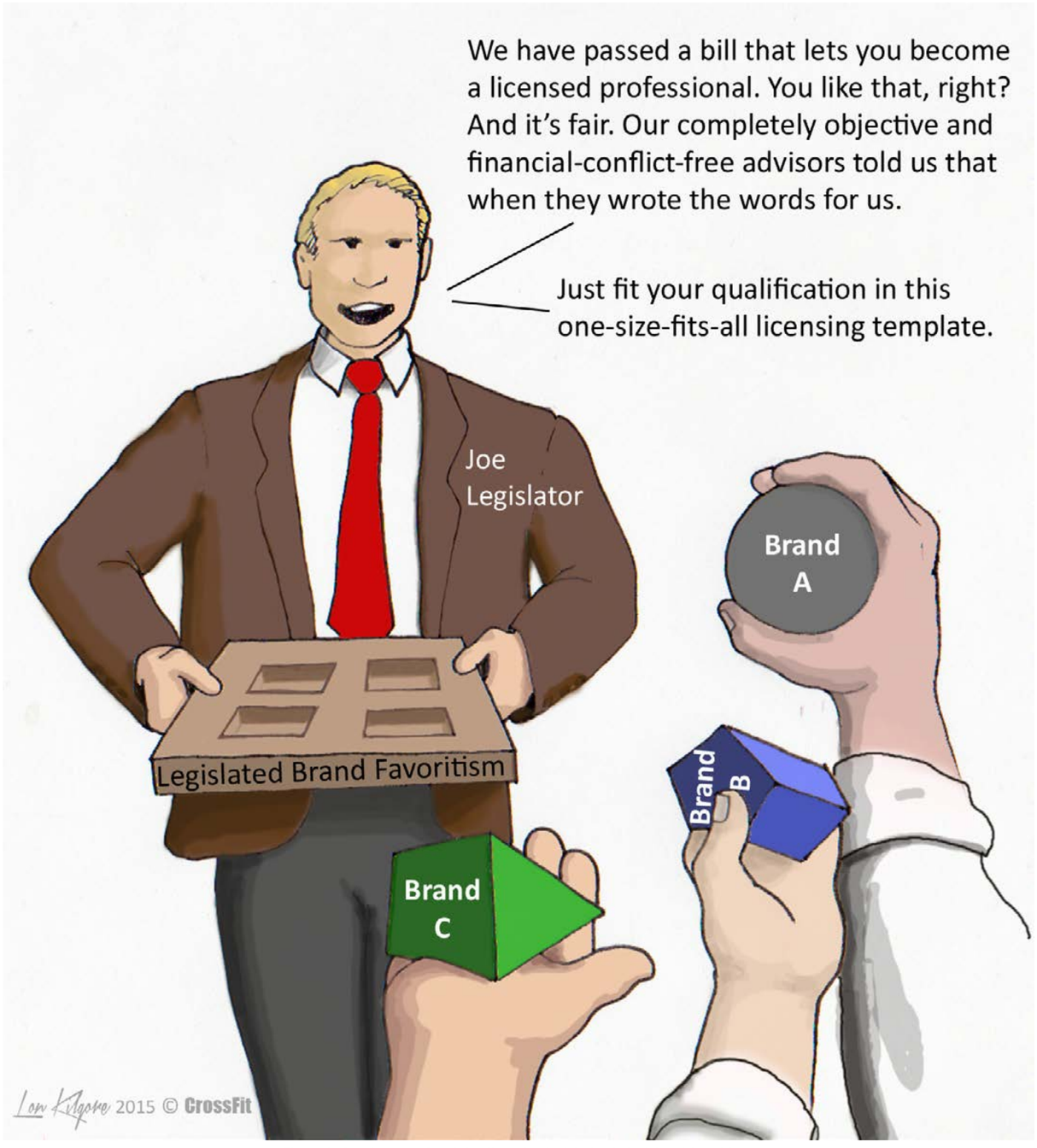
It seems the drawbacks of licensing for personal trainers are manifold and the benefits few, especially given the fragmented and under-informed state of the fitness industry. But it is also certain professional organizations will always lobby aggressively for legislation. Can organizations such as the NSCA, the American College of Sports Medicine (ACSM) and the United States Registry of Exercise Professionals (USREPS) go forward and make a strong case?

In answer, we must ask if personal training currently possess all the characteristics of a profession.

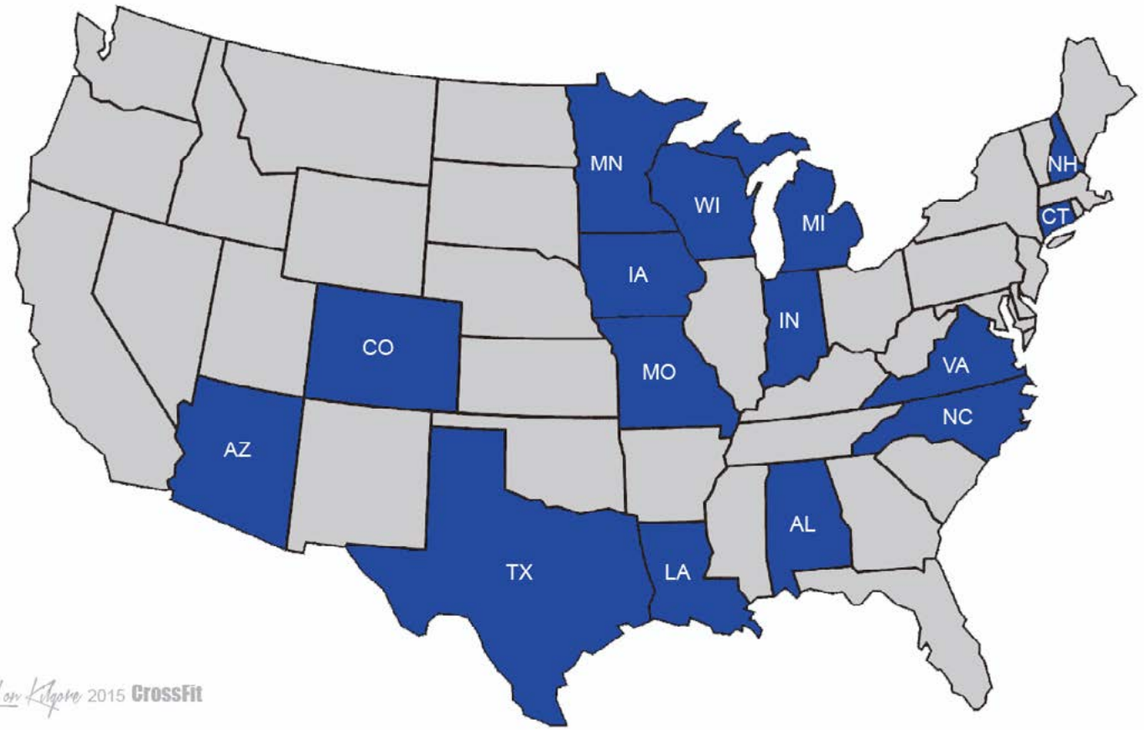
BODY OF KNOWLEDGE

Fitness has a body of knowledge, but is it relevant? Just look around for authoritative information on improving fitness. Can you find a cohesive, evidence-based, and universally agreed-upon body of literature that informs and guides personal-training practice? Of course not.

Remember that we are not just talking about science but also general literature on effective practice. Every fitness organization has its own brand of content that differs from its competitor, and



The majority of personal-training licensing legislation is legislated favoritism, protecting the interests of a select few organizations who do not represent the majority of fitness-industry workers.



U.S. map identifying 16 states with recent or current government actions on restricting licensing of new professions or de-licensing existing regulated professions.

academic knowledge is more directly related to health and medicine than fitness. Can we say we are any more informed about fitness training now than we were in 1961, when the Fisher Act (California Licensing and Certificated Personnel Law of 1961) classified physical education as a non-academic discipline?

IN-COMMON EDUCATION

There is no agreement upon how much education is needed. No education, a four-hour workshop, up to four years of university education—they can all allow a person to practice as a personal trainer. Further, every fitness organization has its own method of instruction, and the content varies dramatically. And if we look at university course catalogs across the globe, a trend will be noted: Academic offerings are most frequently related to health, medicine and disease. That's fine and can be useful in some contexts; it's just not the study of fitness and fitness instruction.

OVERSEEING BODY

Yes, there are many overseeing professional bodies. They are legion and so variable in number that absolute enumeration and identification cannot be obtained. When the number of organizations claiming authority is in the dozens, no unified or coordinated oversight can be found.

With all of the above points taken together, personal training in the U.S. cannot be accurately classified as a candidate to be a licensed profession. Personal training is, however, a firmly established and thriving occupation. This is not an insult or a bad thing. It simply means the occupation requires work to be done before anyone—or any organization—moves the practice toward status as a licensed profession. But it does mean that the existing fitness organizations have not attended to achieving the tenets of professionalism. There are too many holes, too many questions, too many inconsistencies and too many competing agendas that do not benefit personal trainers or their clients.

Even though the fitness industry is far from classification as a licensed profession, attempts will still be made to get states or municipalities to enact legislation requiring licensing of personal trainers. Some of these attempts might even be successful. The promise of revenue has a way of swaying philosophies and votes. It is, however, unlikely licensure legislation will be easily accepted and enacted.

In 2013, Indiana Gov. Mike Pence tried to push his state to eliminate licensing from more than a dozen occupations and vetoed two bills that granted licensed professional status to three occupations. In 2014, Michigan's legislature deregulated eight occupations. And Texas Gov. Greg Abbott is proposing deregulation of many occupations and abolishment of criminal penalties for practitioners who do not comply with licensing requirements except in cases of bona fide risk to public health and safety. And President Obama's $15 million might motivate more states to eliminate pointless legislation.

Personal trainers are important. They exert as much influence on the public as workers in any occupation. Can you think of any occupation where its practitioners work with their clients in excess of 150 days per year (assuming a client trains three times per week)? A physician sees the same patient for a few minutes on average of four times per year, according the Centers for Disease Control and Prevention. School teachers clock in at an average 180 days per year with their students and represent the high end of personal influence by a licensed occupation. Personal trainers will likely see an individual client approximately 150 times per year, and it is not unheard of for a CrossFit trainer to see clients far more than that if you assume athletes are training four or five times per week, as many do.

This interaction represents a profound potential impact upon the lives of fitness customers, and proponents of regulation could use this as fodder for their barrage on politicians. Shouldn't such an important job be regulated and licensed? Of course not: Just because a job can be done poorly does not provide a justification for regulation, nor does regulation prevent someone from doing a poor job.

Licensure would threaten the livelihoods of a huge percentage of current practitioners, and the economic effects would be far-reaching. These practitioners need only unite in voice and put forth cohesive arguments that overwhelm those of the minority who would prefer licensure.

And that can happen. But it will require fitness trainers to stay alert and actively oppose regulation. They must watch for proposed legislation and participate in any forums in which it is debated. They must contact each other and local representatives to create a united front. And they must educate their clients and their colleagues as to why licensure would be nothing more than a barrier to life, liberty and the pursuit of fitness. ■

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, coaching, fitness and academia.

THE CrossFit JOURNAL

Analyzing the Handstand Position

Identifying and correcting range-of-motion, stability and technique issues will pay dividends when athletes are upside down.

By Zachary Long and Jennifer Iskat **July 2015**

Hai Tran

CrossFit demands that its athletes have the capacity to perform a wide range of movements and skills. Many exercises commonly used in CrossFit are also frequently used by athletes participating in other sports. However, the handstand—fundamental to gymnastics—is a rarely employed training tool in other sports but an essential part of CrossFit.

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Anderson Vieira

"Being upside down exposes the athlete to, what is for many, a brand new world." —Greg Glassman, "Handstands"

The handstand requires considerable amounts of both joint mobility and stability if it is to be performed with optimal technique. Of CrossFit's 10 fitness domains, the handstand (and its progressions) requires six: strength, flexibility, coordination, balance, agility and accuracy (3,4). Some degree of stamina is also required for lengthy holds, and Event 4 in the recent CrossFit Games regionals added an element of speed as athletes walked 250 feet on their hands for time.

The basic handstand distinguishes itself from other skills because it provides an unconventional way of strengthening the shoulder complex. The typical athlete strengthens the shoulder and other joints of the body in the upright position. When standing and walking, the hip is the focus and must have sufficient strength to support body weight and provide stability.

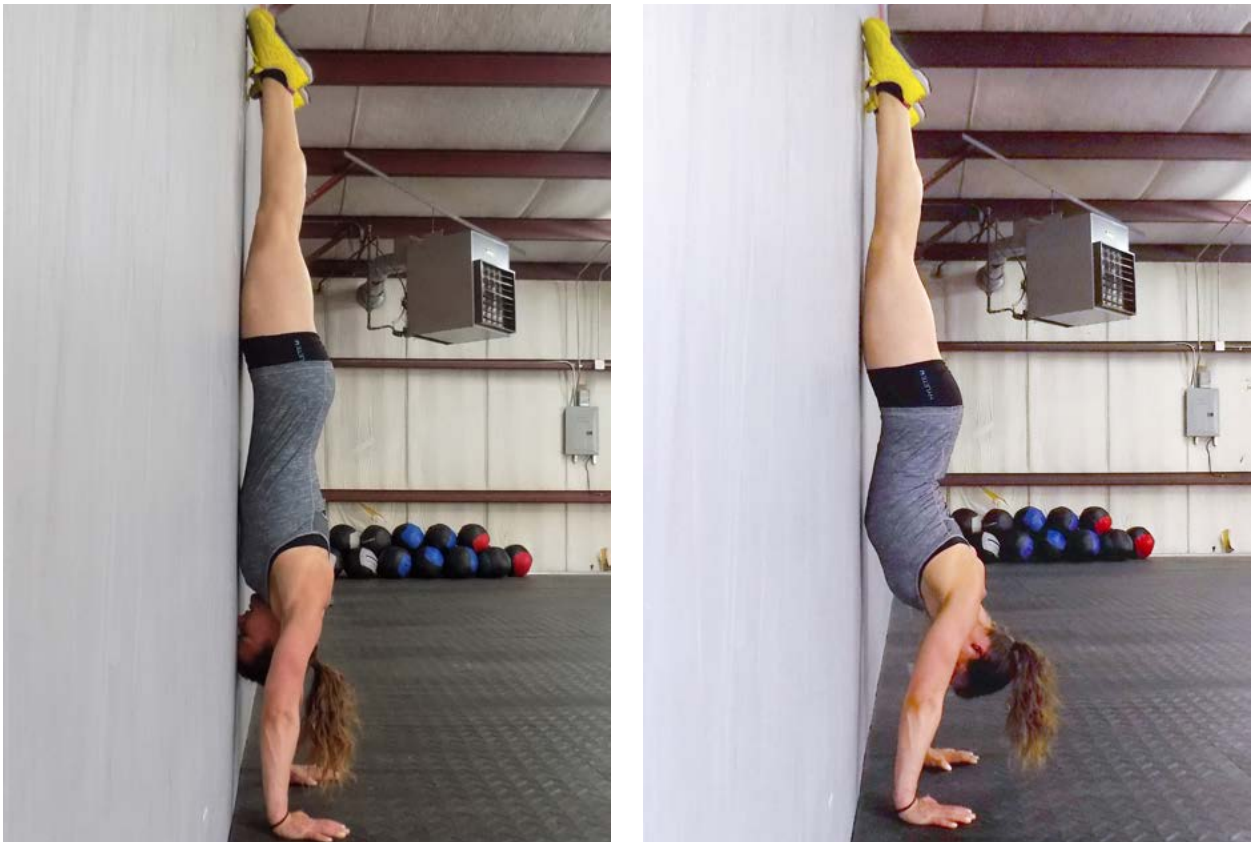
The handstand, however, reverses the conventional approach. The shoulder becomes the main joint providing stability to the body. This inverted position helps develop "shoulders strong as hips," increasing shoulder strength in ways other skills or weight-training exercises cannot (4). Because of the inverted position, increased demands are placed on the wrists, elbows and shoulders, as these three joints become the body's weight-bearing joints. An analysis of the joints and muscles involved in a handstand can help identify limitations that must be addressed to perfect this skill and improve athleticism.

Handstand Analysis

To best analyze handstand positioning, we suggest a wall-facing handstand with hands shoulder width apart. This allows for the easiest visual analysis of joint positions. Positioning the hands at shoulder width challenges shoulder mobility more than a wider stance would. The hands should be flat on the ground and pointed away from the wall with the fingers splayed. This position challenges wrist extension and provides a slightly larger base of support with the fingers spread. The athlete should strive to keep the chest, front of the thigh and top of the foot against the wall.

If positioning is lost with breathing, the athlete is likely holding the breath as a means of creating false stabilization.

Analysis of the handstand should begin at the wrist and then move upward. From the side, the coach or partner should examine wrist extension by looking to see if the forearm is perpendicular to the ground. At the elbow, the coach or partner shoulder look for full extension. Moving to the shoulder, the joint should be fully "opened up," with the humerus nearly vertical. The lumbar spine should be in a neutral position without excessive arching, and the hips should be fully extended. The athlete should be able to complete several breath cycles without losing this positioning. If positioning is lost with breathing, the athlete is likely holding the breath as a means of creating false stabilization.



Courtesy of Zachary Long

A handstand performed with proper form (left) versus a handstand performed with limited shoulder flexion, excessive lordosis and unopened hips

If an athlete's form deviates from that described above, the coach or partner should provide verbal and/or tactile cueing to improve positioning. This feedback will allow the coach to see if the faulty positioning is due to an athlete's limited knowledge of correct positioning or the athlete's having a mobility or stability deficit preventing proper positioning, which would warrant further investigation.

Joint-Specific Testing

Due to the inverted position of the body, the wrist has a much more significant role in the handstand than it does in any other CrossFit movement. Without sufficient range of motion in the wrist, an athlete will have to compensate elsewhere in the kinetic chain, leading to poor positioning of the shoulders, lumbar spine or hips. This would be similar in nature to the effects of poor ankle range of motion leading to improper mechanics in the knees, hips, torso or shoulders during an overhead squat.

If range of motion at the wrist is limited, specific testing can provide insight as to whether the deficit is caused more by joint stiffness or muscular inflexibility. To test, we start with the palm and fingers flat on a box with the elbow extended (see Page 4). The athlete then moves the wrist into maximum extension and observes the angle of the forearm relative to the box. Next, wrist extension in retested with the fingers off the end of the box while keeping the palm flat. Optimal mobility in both positions should have the forearm approximately vertical. If the second position has greater mobility, wrist extension is more likely limited by flexibility of the wrist-flexor muscles. If range of motion is limited in both positions or the athlete feels a pinch in the wrist joint during testing, wrist extension is more likely limited by the wrist joint itself. Corrective exercises for these limitations will be discussed later.

To test flexibility of the pectoralis major, have the athlete stand completely upright with the elbow bent to 90 degrees and raised to shoulder height, the fingers pointing

upward and the palm facing away. The forearm should rest against a stable vertical structure such as a squat-rack upright. Have the athlete stretch the arm back while watching him from the side. If he has good flexibility of the pecs, the forearm can be stretched to a point behind the shoulder joint. If the athlete is unable to reach this point, pec flexibility should be addressed. It is important to note that this test should not be administered to individuals with instability of the shoulder.

To test lat flexibility, examine an athlete's overhead shoulder motion first when he's lying on his back with legs flat on the ground and then with hips flexed to 90 degrees. The athlete raises the hands as far overhead as possible with the arms staying parallel (no deviation to the sides) and leading with the thumbs. If overhead motion is decreased with the hips flexed, lat tightness is present (1). Be sure to also watch the athlete's lumbar spine during the test, as excessive arching of the back when the legs are flat will alter the test. If overhead position is unchanged and less than full range of motion is seen in both positions, flexibility limitations may be present in the teres major or minor, subscapularis, rhomboids, thoracic spine or gleno-humeral joint capsule. Flexibility testing for other structures such as the teres muscles, rhomboids and levator scapulae can be very difficult and is best addressed using test-treat-retest principles, to be discussed below.

The thoracic spine and shoulder complex are closely related in their function. Often, limitations in overhead mobility are associated with decreased thoracic mobility. The lumbar-locked internal-rotation test allows for assessment of thoracic-spine rotation and extension (see Page 5). To perform, have the athlete sit on his heels with one arm flat on the ground in front of his or her knees and the other behind the back. The athlete then rotates toward the back arm without shifting weight to either side. The raised shoulder should create an angle of 50 degrees or more relative to the ground (1). Decreased rotation to one side would indicate thoracic-rotation restriction to that direction, and decreased motion to both sides would indicate a thoracic-extension limitation.

Many athletes who cannot maintain a neutral spine during the handstand do so as a compensation for limitations elsewhere. Therefore, assessing and treating dysfunctions in the shoulder and wrist should be performed prior to addressing those in the lumbar spine (2).

Assess wrist extension with the fingers flat on a box (top) versus off the end of a box to help identify whether range-of-motion deficits are caused by muscular or joint issues.

Flexibility of the latissimus dorsi muscle is assessed by evaluating shoulder range of motion in the supine position with the hips extended (top) and flexed.

Courtesy of Zachary Long

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The lumbar-locked internal-rotation test can be used to analyze thoracic rotation and extension.

Courtesy of Zachary Long

A resistance band can be used to measure the point at which an athlete can no longer maintain a flat back while lowering the legs.

For those requiring evaluation specific to midline stabilization, we suggest two tests. First, the trunk-stabilization push-up has been previously discussed in the April 2015 CrossFit Journal article "The Hip and Athletic Performance." A more objective test can also be employed. Attach a resistance band to a squat rack or other stable surface. Apply tension to the band before having the athlete lie supine with the band running under and perpendicular to the lumbar spine. Begin with both legs vertical and the knees extended. The athlete then lowers both legs together while keeping the low back flat on the ground. The weight of the legs challenges the abdominal muscles' ability to resist lumbar extension. If the athlete loses neutral positioning of the spine, the resistance band will slide under the back. An athlete with great midline stabilization can lower the legs to just above the ground and back to upright without loss of core positioning. Lowering 45-80 degrees would indicate good but non-optimal control. Anything less than 45 degrees should be addressed quickly for both positioning during the handstand and midline stability in all CrossFit exercises.

Evaluation of hip-extension flexibility with the Thomas test was discussed "The Hip and Athletic Performance." This test is used to analyze flexibility of the rectus femoris and iliopsoas muscles—the primary muscles that flex the hip. To perform the Thomas test, have the athlete sit on the edge of a box or table and lie back while holding both knees against his or her chest. Then, passively lower one of the legs down. Examine the amount of hip extension as well as how much knee flexion is apparent at the bottom position. If the knee is not bent to 90 degrees, rectus femoris tightness is present. If the hip does not reach full extension, iliopsoas flexibility is the likely limitation. If the Thomas test is negative for inflexibility, cue the athlete to activate the glutes during the handstand to extend the hips.

Corrective Exercises

After testing to determine if wrist range of motion is limited by joint stiffness or muscular flexibility, an athlete can begin corrective exercises to target specific deficits. If wrist extension is limited by muscular tightness, the athlete can perform soft-tissue work by working a lacrosse ball or foam roller over the anterior forearm (the palm side). Stretching should follow soft-tissue work.

One very effective wrist-stretching exercise is performed when kneeling on hands and knees with palms down on the ground and fingers straight forward. The athlete will rock forward, moving the wrist into extension as far as his flexibility will allow. Tension or stretching should be felt in the inside of the forearm, indicating the wrist flexors are being stretched. Adequate flexibility is achieved when the athlete can hold the shoulders directly over the wrist or directly over the fingers for increased flexibility.

If wrist range of motion is more limited by joint stiffness, resistance bands can be used to perform mobilization of the joint. The athlete should position a resistance band around the wrist joint as close as possible to the crease in the hand, and the hand should be placed flat on a box or table. The other end of the resistance band can be attached to a rig or other anchor. The athlete should then move far enough away from the anchor to create tension. Most often, the band is used to provide a glide in the direction of the fingers as shown in the photo below, but a lateral glide in either direction can be employed as well. The athlete can then rock back and forth over the wrist.

If lat flexibility is found to be a limiting factor in shoulder range of motion, a combination of soft-tissue mobilization and stretching can be employed. An effective soft-tissue mobilization of the lats involves lying on the side with a foam roller placed directly along the lats. The athlete can then roll up and down and side to side.

Many stretches can be used for the lats, but we prefer having the athlete hold a band, ring or rig at about chest height. The athlete will bend at the waist and shift body weight backward, moving the hand overhead. A slight twist of the lower back/hips away from the extended arm will increase the intensity of the lat stretch.

As with the lats, a combination of myofascial release and stretching is great for improving flexibility of the pectorals. Following foam rolling or work with a tool such as a lacrosse ball, have the athlete stretch the pectorals in the same position described earlier for testing of pectoral flexibility.

The teres minor, rhomboids and levator scapulae are other muscles that commonly cause some limitation in the shoulders. As mentioned previously, these muscles can be identified through a process of elimination (test, treat, retest). An efficient way to target these muscles in soft-tissue work is by using a foam roller or a lacrosse ball to roll around the scapula at the superior and inferior angles, as well as between the spine and the scapula.

One other way to address soft-tissue restriction of the rhomboids is with an across-body stretch. The affected arm should reach across the front of the body at shoulder height while the other hand applies pressure at the elbow to pull the arm further across the body.

To target the thoracic spine, the athlete should assume a position on hands and knees and place one hand behind the head. He should keep the arm on the ground straight

Courtesy of Zachary Long

Utilizing bands to glide the joint can help athletes reduce joint stiffness and increase range of motion.

Repeatedly performing this movement can improve thoracic rotation as well as extension.

while rotating the chest toward the elevated arm. The rotated position should be held for three to five seconds before returning to the start position and performing several additional reps. Improving rotation bilaterally will improve extension as well.

With athletes demonstrating poor core stabilization, corrective strategies are extremely important because a lack of midline stabilization will affect performance in a wide range of movements.

Another technique, this one focused on thoracic extension, utilizes a foam roller. The athlete should lie on his back with the foam roller running across the spine at the shoulder blades. The athlete should then raise his arms overhead repetitively to improve thoracic extension. The butt and feet should remain on the ground to ensure mobility is coming from the spine. The athlete can also perform a hold in this position while grasping a weight to increase extension. This movement can be performed with the foam roller positioned at various levels of the thoracic spine to target different segments.

The 90-degree wall stretch is a great tool for improving both shoulder and thoracic range of motion at the same time. During this stretch, the athlete should stand facing a wall with feet about 3 to 4 feet away (depending on height), and then place the hands on the wall at shoulder height. The athlete bends at the hips, stretching the shoulders into end-range flexion by moving the torso toward to the ground. More flexible athletes will be able to lower the chest more than inflexible athletes. This stretch is even more effective when a partner applies some overpressure through the thoracic spine to increase the stretch.

With athletes demonstrating poor core stabilization, corrective strategies are extremely important because a lack of midline stabilization will affect performance in a wide range of movements. An improvement in core stabilization will carry over to many CrossFit movements and produce improved results. The previously discussed test for lower-abdominal strength also makes a great exercise for improving midline stability. As explained above, the athlete should lie supine with hips flexed to 90 degrees and the lower extremities raised to the ceiling. The athlete should slowly lower the legs toward the floor while the lumbar spine maintains contact with the ground. The athlete should find the last point at which he can no longer maintain a "flat back" determined by contact with the floor, and he should hold this position for 10 to15 seconds.

Courtesy of Zachary Long

The 90-degree wall stretch hits any limitation in overhead mobility between the shoulders and the thoracic spine.

The hips are the final joint assessed in order to improve positioning for the handstand. The couch stretch is a great tool for addressing flexibility of the psoas and iliopsoas muscles, as well as the rectus femoris. The athlete should kneel on the floor facing away from the wall. One knee should be placed as close to the wall as possible with the knee flexed and the top of the foot against the wall. The other knee should be at placed at 90 degrees with the foot flat on the floor in front while the athlete tries to extend the trunk and maintain a neutral lumbar spine (see Page 8).

In order to target the rectus femoris more effectively, the athlete should strive to increase knee flexion and hip extension of the back leg by placing the front foot so as to create a more upright trunk. The end goal should be for the gluteals to meet the ankle against the wall, with the trunk erect while the abdominals and gluteal muscles remain engaged to assist in maintaining a neutral spine.

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Courtesy of Zachary Long

The couch stretch is a great way to address hip inflexibility caused by either the rectus femoris or iliopsoas muscles.

In order to address the iliopsoas more than the rectus femoris, the athlete may decrease the amount of flexion at the knee joint by leaning forward while sustaining the neutral spine position (preventing trunk flexion or lumbar lordosis).

Conclusion

Addressing limitations discovered through this testing will help the CrossFit athlete develop better positioning in the handstand. In turn, this improved positioning will allow the athlete to more easily progress to advanced gymnastics movements such as handstand walking. Overall, these improvements will also translate into better performance in other exercises requiring shoulder and hip mobility as well as midline stabilization.

✦

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About the Authors

Zach Long is a physical therapist and CrossFit Level 1 trainer at CrossFit Kaiju in Matthews, North Carolina. He attended the University of North Carolina at Chapel Hill, where he majored in exercise and sport science, and East Carolina University, where he earned his doctorate in physical therapy. Zach specializes in the prevention of and rehabilitation from sports-related injuries. He currently runs TheBarbellPhysio.com and works at Carolina Sports Clinic in Charlotte, North Carolina.

Jennifer Iskat is a physical therapist in Charlotte. She attended Liberty University, where she majored in kinesiology with a specialization in exercise science. She later went on to Lynchburg College to earn her doctorate of physical therapy. Jenn trains at CrossFit Kaiju and has previously competed in track and field and gymnastics, and she has completed two ultramarathons. She is regularly sought out by CrossFit athletes looking to optimize performance and rehab injuries.

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THE CrossFit JOURNAL

BEHIND THE BEASTS

All photos: Michael Brian/CrossFit Journal

Barbells don't load themselves, and bloody hands don't heal on their own.

While all eyes are focused on the athletes vying to be crowned CrossFit Games champion, an army of staff and volunteers works behind the scenes. Beneath the StubHub Center and at regional events around the world, they're moving gear, loading barbells, tabulating scores, updating websites, putting equipment together or taking it apart. Others are putting athletes back together in the medical room or caring for them in warm-up and recovery areas.

Media teams bring the stories and images to the world, and judges spend countless hours watching hips, knees and shoulders while counting reps with laser focus. Marshalls usher the athletes to the floor, and ushers assist fans who have come to cheer on their favorites. Many members of the crew have job descriptions that simply read, "Show up and do whatever needs to be done," and they arrive with a can-do attitude and a desire to make the event better.

Overall, there's more work than Rich Froning could do in a lifetime, and CrossFit Inc. unites with the global community to get it done.

These invaluable people all fade into the background as thousands leap to their feet to cheer on Froning, Fraser, Leblanc-Bazinet and Thorisdottir. But they're always there.

The Games rely on these staff members and volunteers who dedicate themselves to the success of the competition, from the first day of the Open to the last day of the Games. They want not to sit in the stands but to labor just outside the limelight, to build the pyramid the Fittest on Earth will climb.

Those who support the sport they love are a throwback to the early years of the Games, when a group of friends essentially got together to work out and see who was fittest on a dusty ranch in Aromas, California.

The growth of the Games is a direct result of the vision and efforts of those who sweated in the sun at The Ranch and ensured a fledgling sport had all the momentum it needed to become a global phenomenon. And the continued growth of the Games will be a result of the work of the staff and volunteers who support events from the West Coast of California to Wollongong, Australia.

To those who answered the call in the past, and to those who hear it in 2015, thank you.

LET THE GAMES BEGIN.

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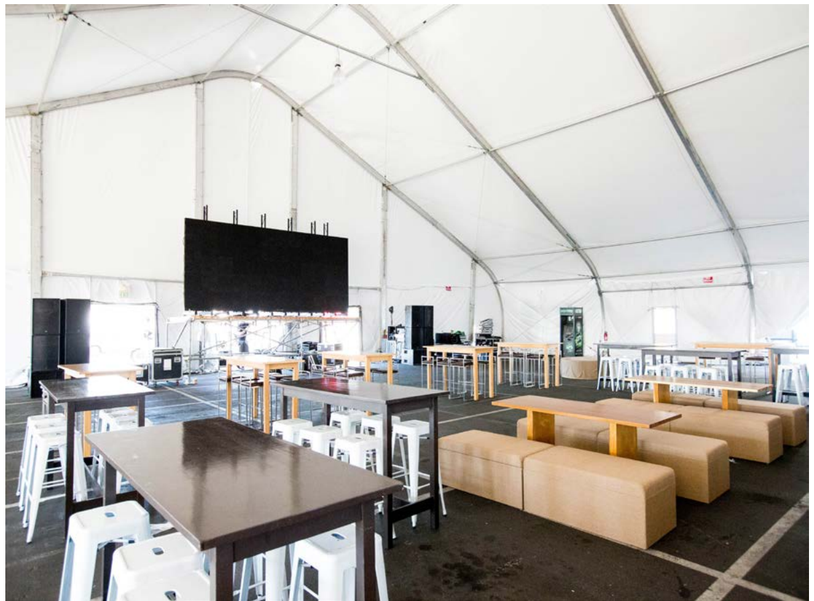

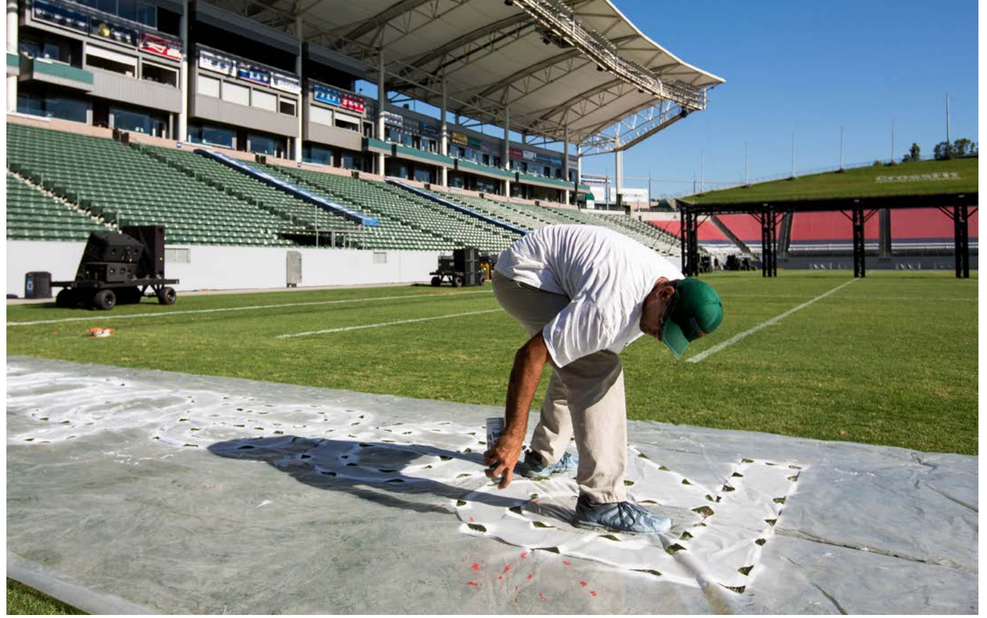


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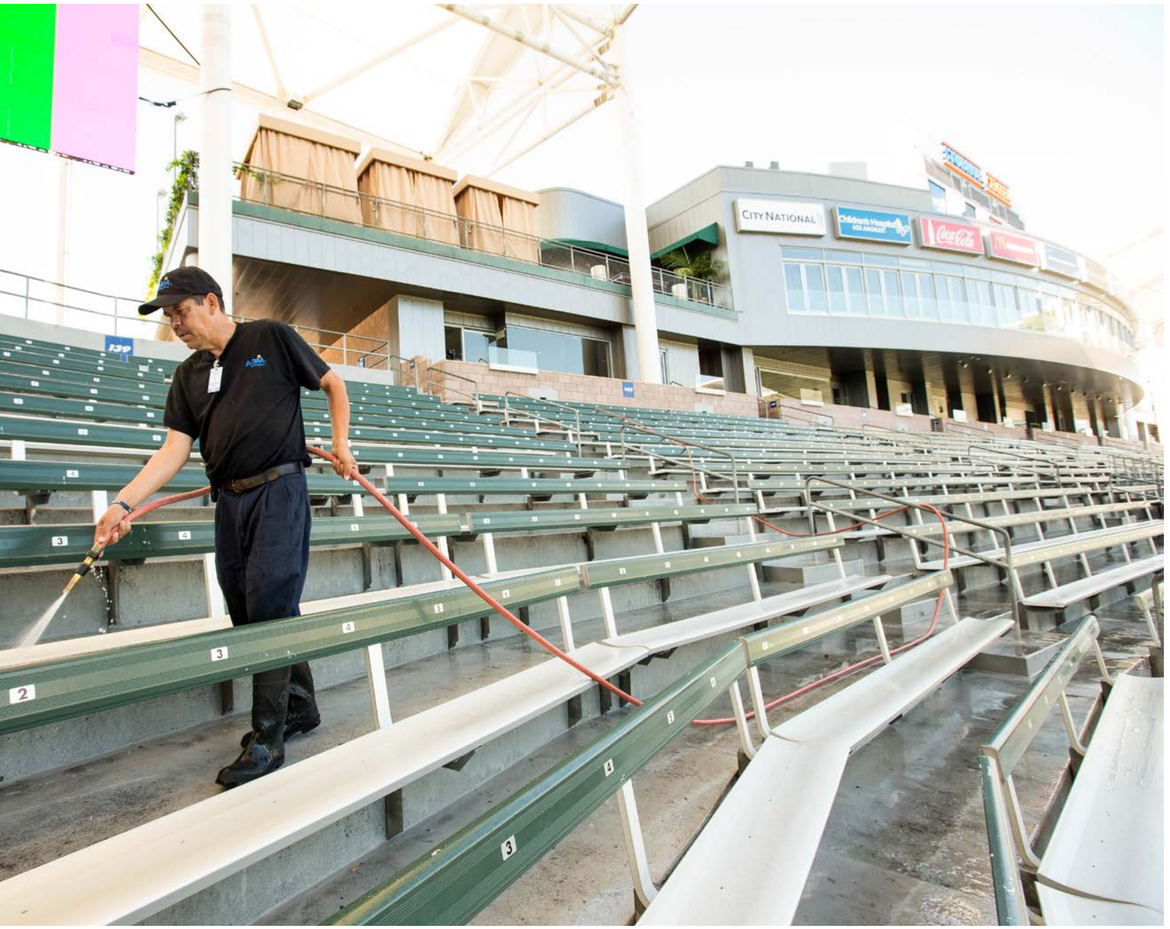
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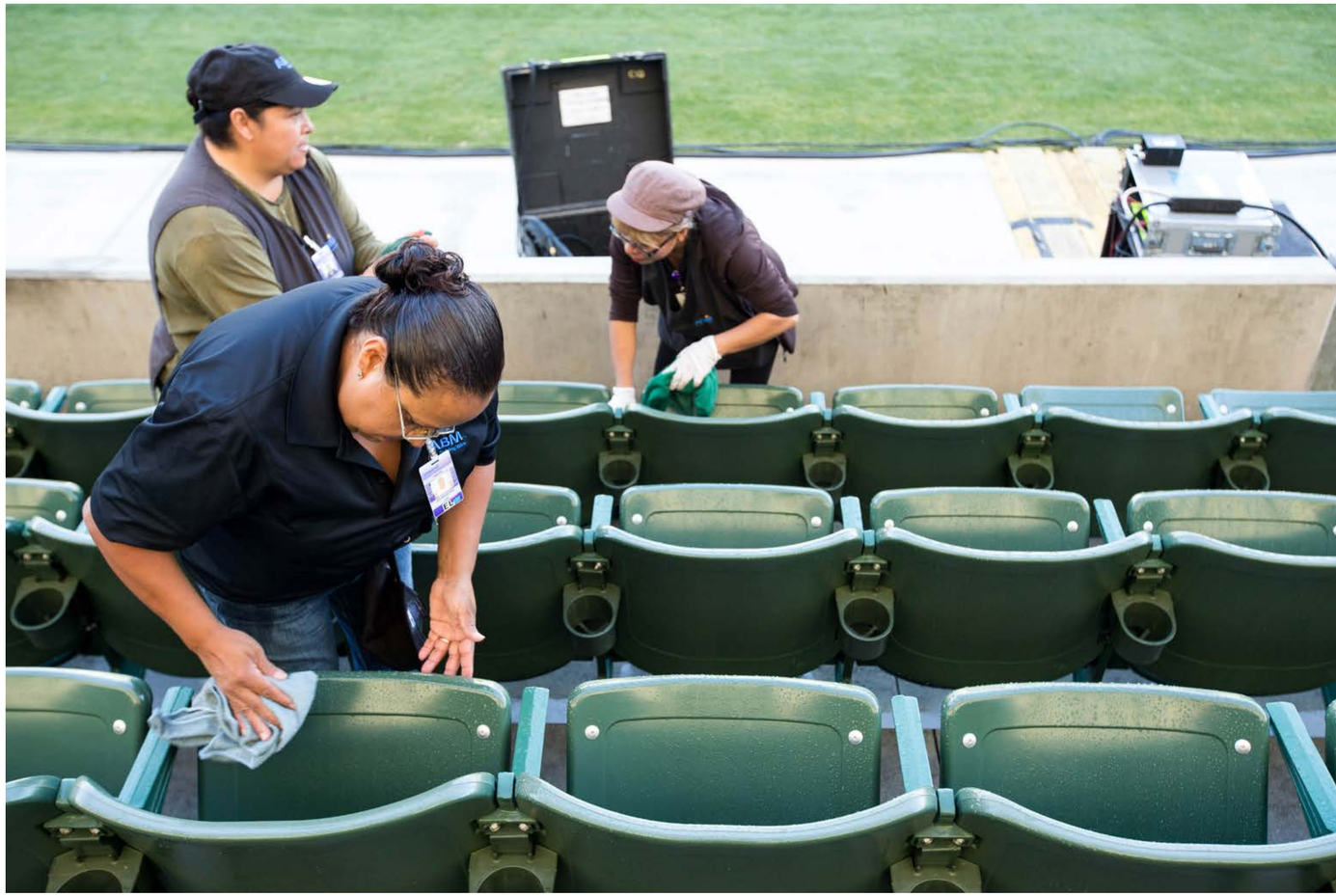


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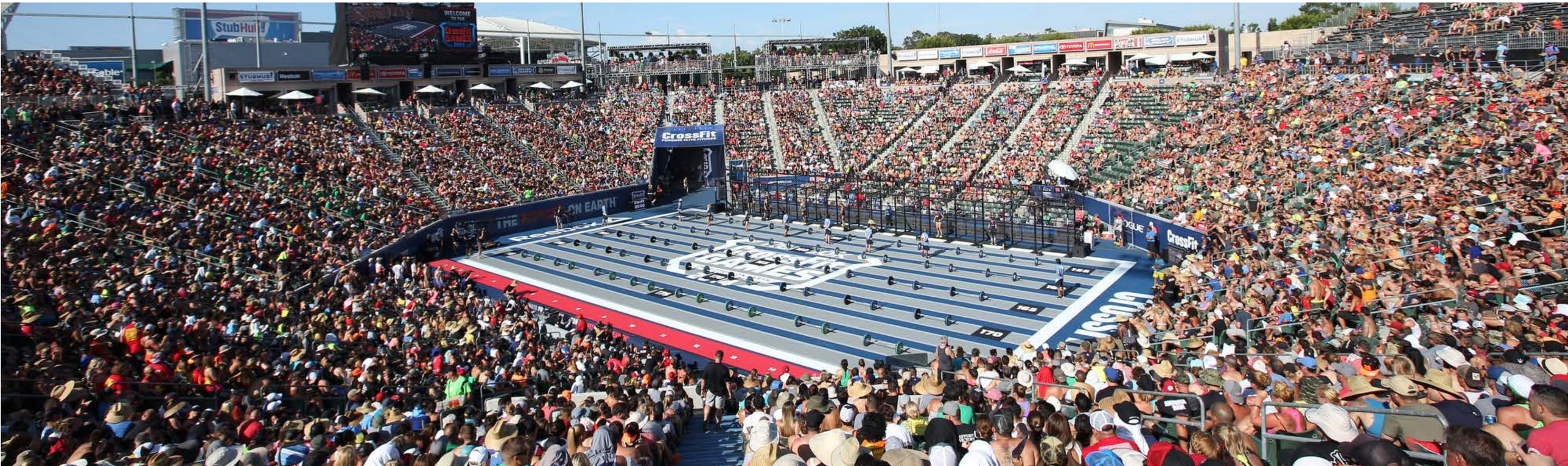
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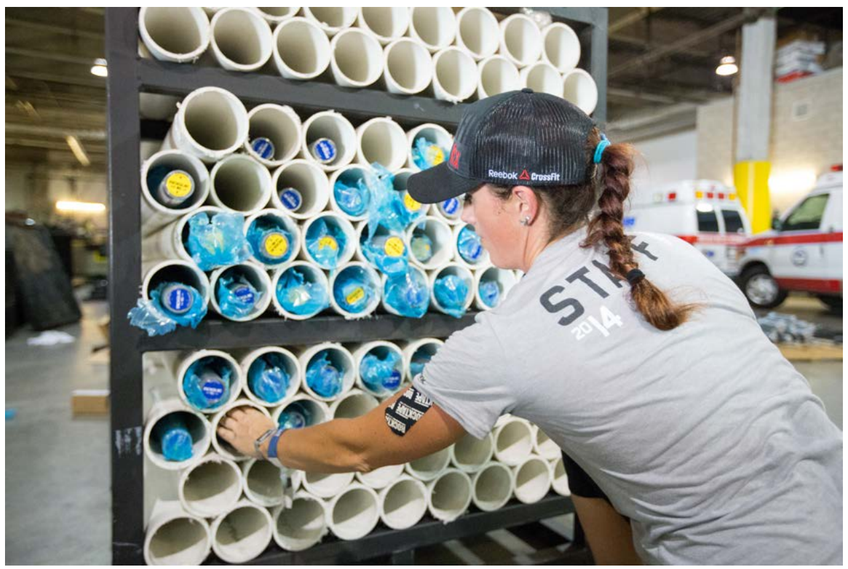

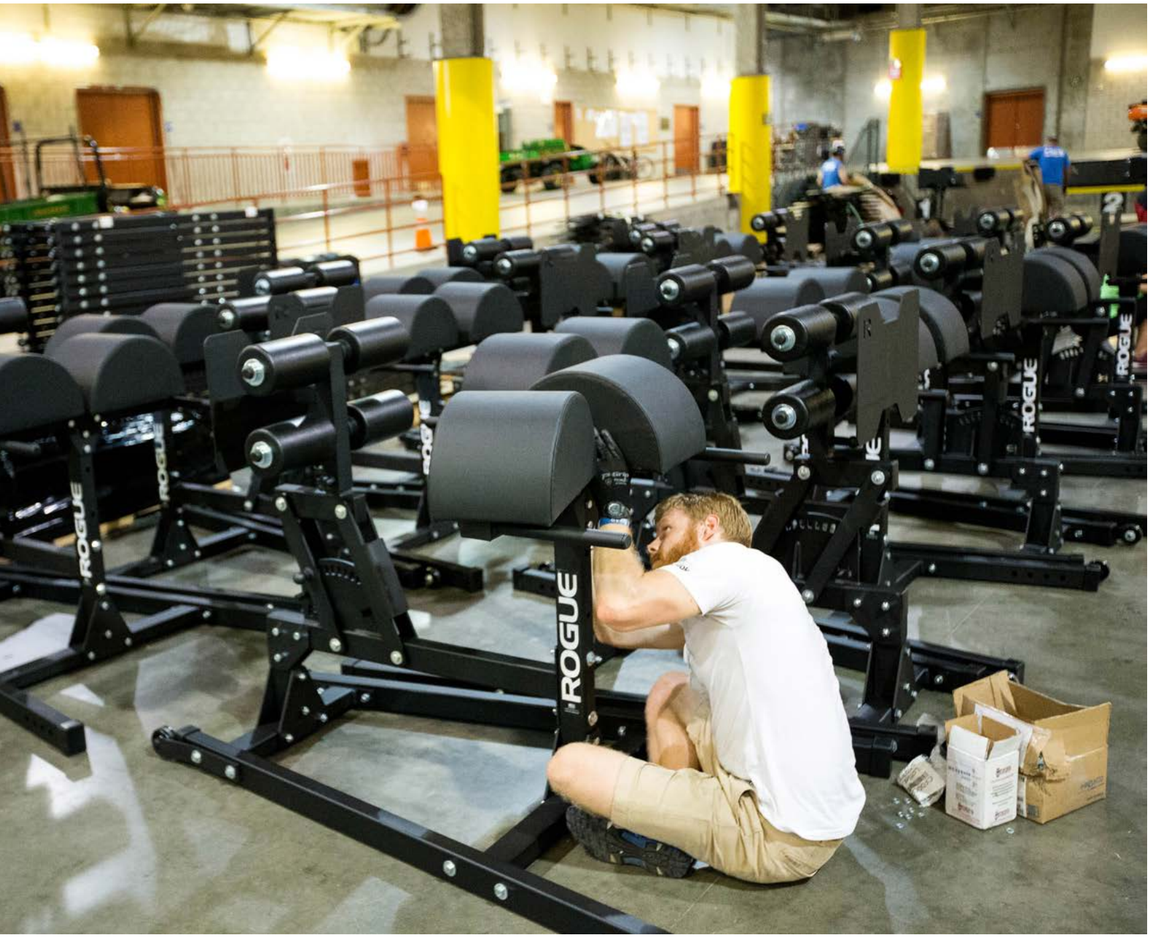
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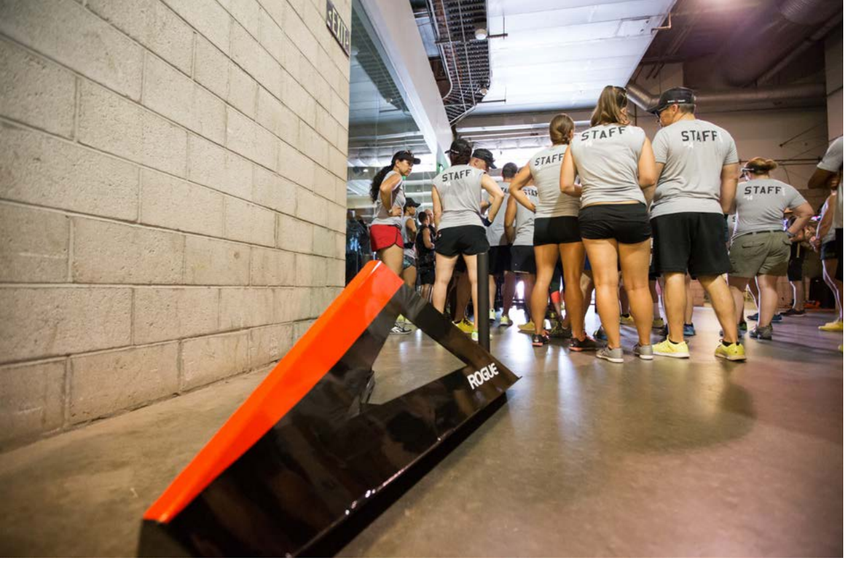
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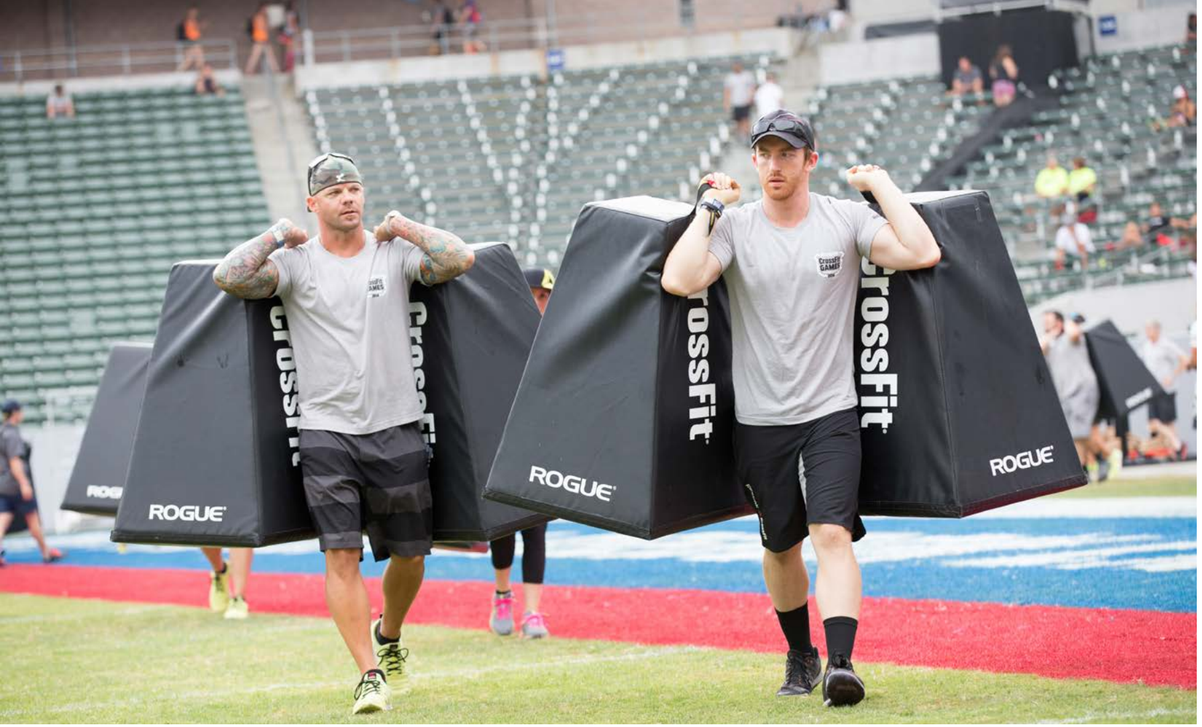
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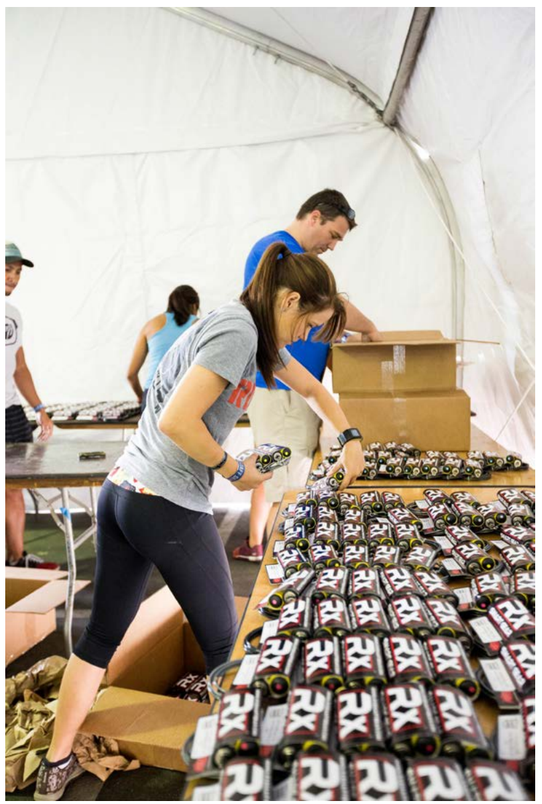

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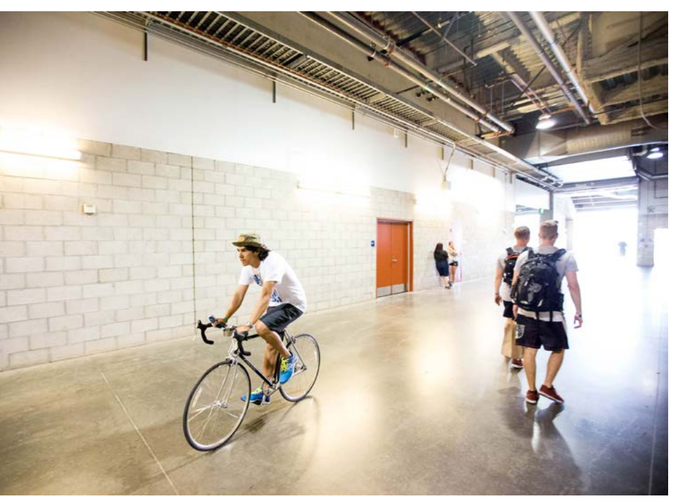

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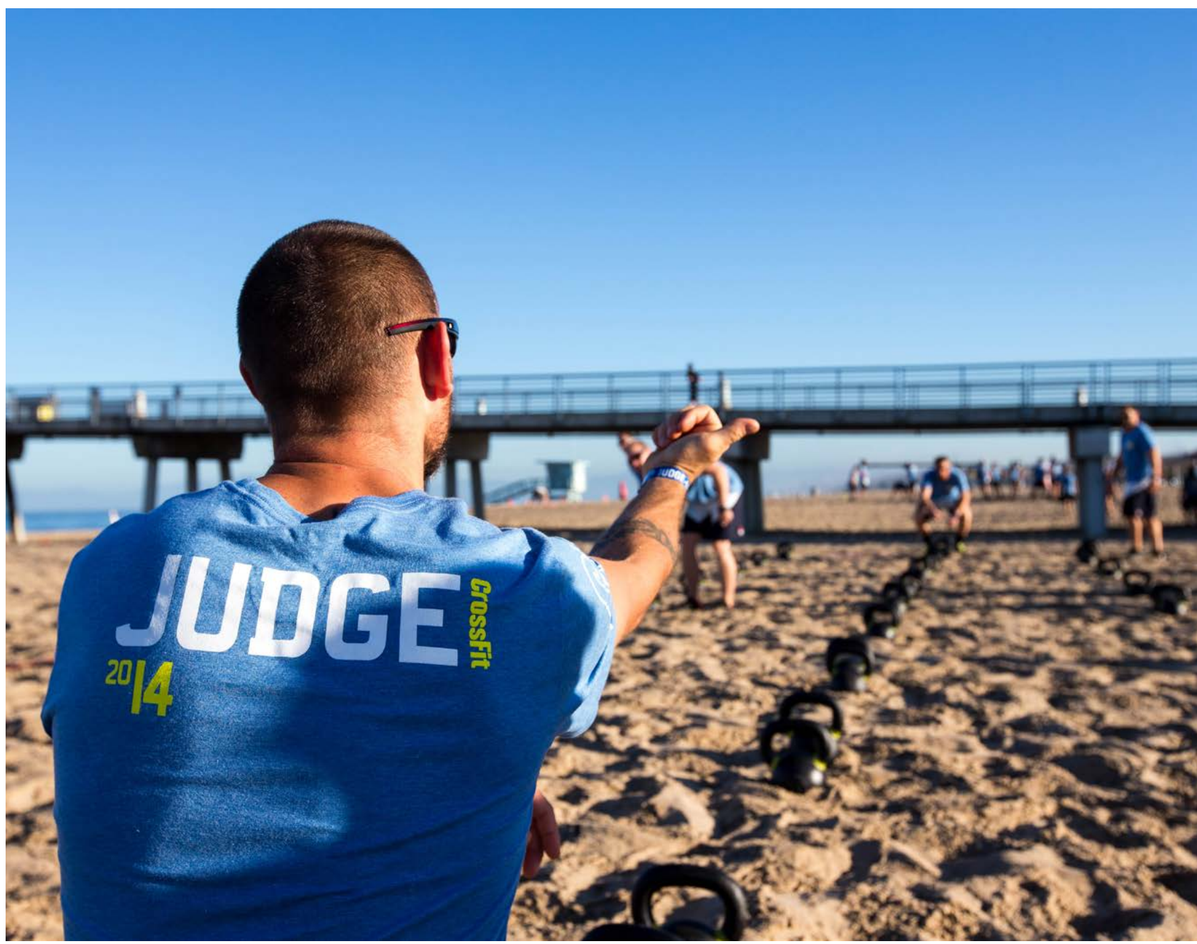


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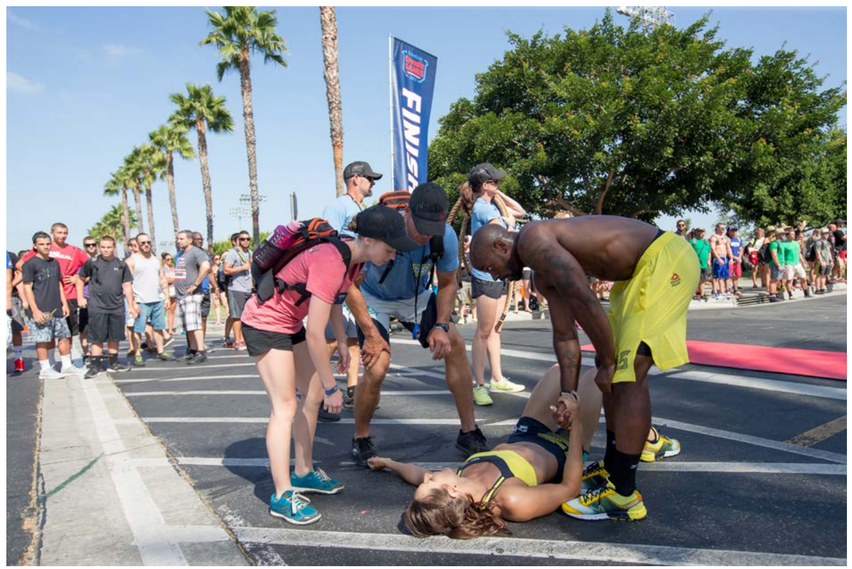

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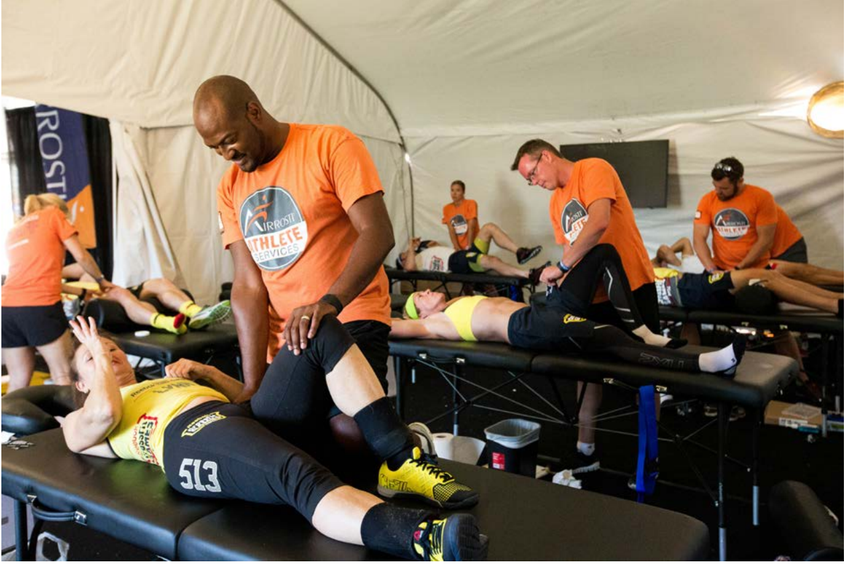
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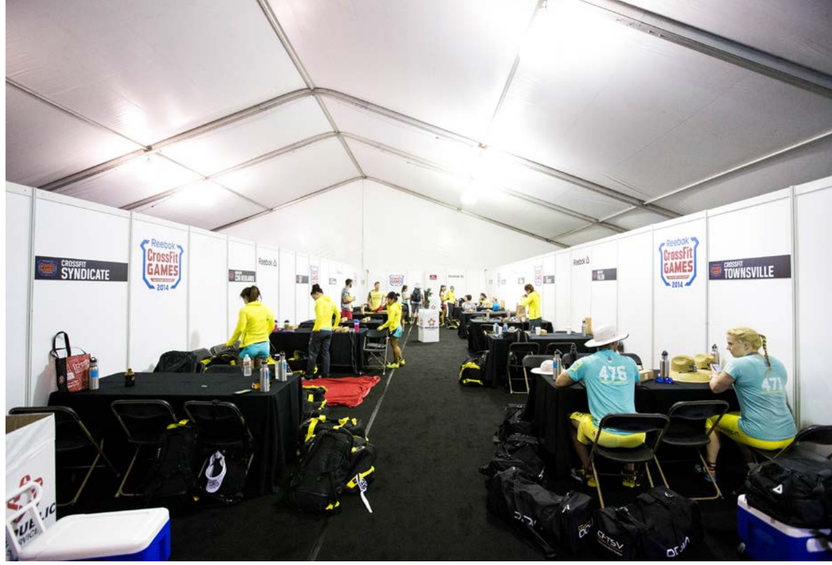
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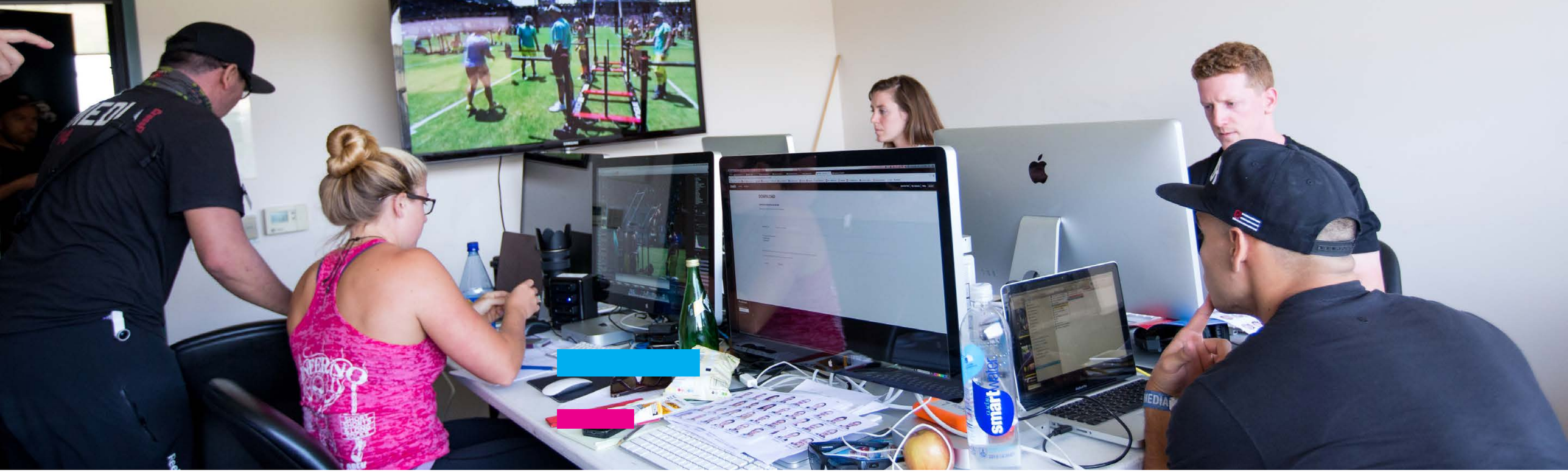
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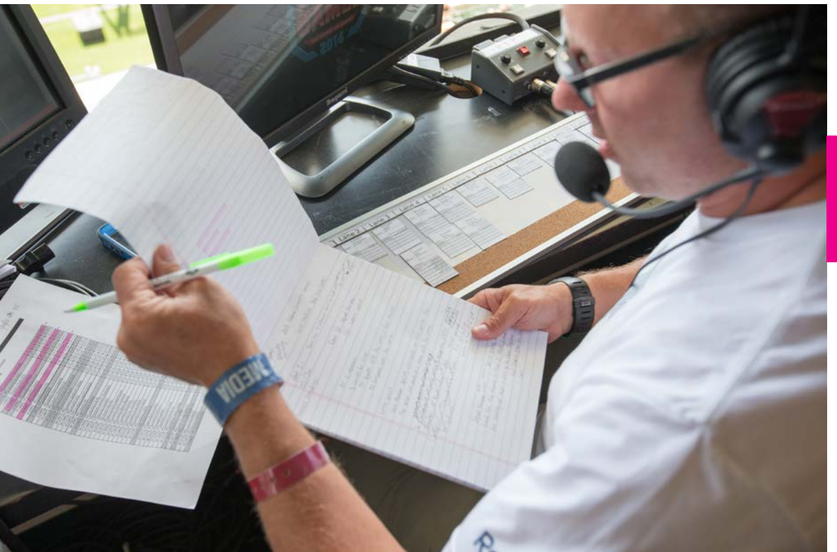


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THE CrossFit JOURNAL

Human Defense System

CrossFit Defense shows Theresa Smith she already has the tools she needs to defend herself.

By Theresa Smith **July 2015**

Bek Houston

Theresa Smith's feeling of vulnerability while alone at her affiliate led her to seek out a CrossFit Defense seminar.

Like many other CrossFit gyms, Raise the Bar CrossFit in Ontario, Oregon, is in a crime-ridden industrial area.

We want our members to be able to work out in a place where they can be themselves, and industrial areas are home to large warehouse spaces where weights can be dropped and music played loudly at all hours of the day without pissing

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off the neighbors. Rent is often cheaper in industrial areas, but these affiliate-friendly parts of town can be places where we have to look out for each other and ourselves.

The small city in which I run my affiliate has the reputation of being the most dangerous in the state. We've had break-ins, vandalism, drug busts and even murders in the neighborhood in which I go to work every day, and safety is a very real concern.

Graffiti peppered my back walls a few times, I had threatening situations with passers-by, I started to feel like I had to lock my doors when I was there alone, and I had a bad situation with a neighbor who—seemingly in a drug-fueled rage—physically threatened an entire class during an early-morning session. Except for one week of taekwondo as a teenager, I have no history in self-defense or martial arts. In my gym, I felt exposed and vulnerable to criminal elements. I didn't like that feeling and wanted to take control of the situation.

I felt exposed and vulnerable to criminal elements. I didn't like that feeling and wanted to take control of the situation.

The final straw was when someone broke into a coach's car. It happened in broad daylight: A class of athletes worked out just 20 yards away while a thief smashed a window and stole a wallet. The incident destroyed the sense of safety at my gym. A couple of weeks later, we learned it was not just a thug who had stolen the wallet but rather a member of a large group of identity thieves and sex traffickers who had made their way up to Oregon from Georgia.

Around the time of that event, I posted on a Facebook page for CrossFit affiliate owners to see what others do to stay safe when they are at the gym alone so often. The response was tremendous and very passionate. Among almost 100 responses, I received advice ranging from "get a big dog" to "get a gun" to "learn a martial art." All I knew was that I wanted to feel safe right now—not years or months from now after training a dog, mastering a martial art or mastering use of a weapon.

Courtesy of Theresa Smith

Raise the Bar CrossFit is located in Ontario, Oregon, a small city that has the reputation of being the most dangerous in the state.

One answer that kept coming up intrigued me: Check out Tony Blauer's CrossFit Defense course. I decided it was worth a shot and booked myself into the Trainer Course at CrossFit Unbroken in Denver, Colorado, set for the following month.

Knees to Elbows—or Groin

For some reason, I always thought of self-defense as what you do the moment someone physically attacks you. It turns out that's just a small part of it.

As Blauer pointed out at the course, self-defense begins before the danger. He went over his Cycle of Behavior, and one phrase that stuck with me is "false expectations appearing real," or FEAR. The concept made me more aware of my thought processes: Do I set up a bad situation without cause? Do I give power to a person trying to instill fear? How do I react when my own false expectations appear to be real?

Dave Re/CrossFit Journal

At his CrossFit Defense courses, Tony Blauer relates self-defense movements to those commonly found in CrossFit workouts.

For Blauer, mindset and tactics are a winning combination. He teaches simple, effective techniques based on how a person will actually react to an attack. These tactics are not five-finger death punches that require a Bruce Lee level of skill and focus in an attack. Instead, Blauer's program teaches you to use simple movements that capitalize on the body's natural flinch reflex.

One of the first drills we learned was "splayed fingers and outside 90." Blauer paired class members as attackers and victims and had the attacker go in for a bear-hug tackle. He demonstrated what happens if you simply try to push the attacker away, and he showed us the impressive difference when you do the same thing with fingers splayed open and the elbow joints open past 90 degrees to create mechanical advantage. These simple techniques—which can be deployed from the flinch/reflex position of throwing the hands up in front of the face when attacked—recruit the strong extensor muscles and put the victim in a much better defensive position.

We also learned how to slam an attacker's chin, with the ever-familiar medicine ball playing the role of the assailant's head. Blauer explained that the chin slam works no matter which direction the attacker's head turns, and the chin is a big target compared to, say, an eye or a nose. The movement is very similar to the finish of a wall-ball shot, and Blauer made that connection obvious. The wall-ball shot is ingrained deep into muscle memory of CrossFit athletes, and the link between fitness and defense saved hours of practice. I know how to finish Karen, so I know how to slam an attacker in the chin and fend off a bear hug.

As a coach and athlete, my favorite part of the course was the time spent doing defense WODs (D-WODS). In the "taking-the-garbage-out WOD," athletes took turns posing as attackers and victims, playing out a scene in which a coach is taking the garbage out behind the gym. Turning from the garbage can, the victim encounters an assailant who dives in for an attack. The victim throws his hands up in a reflexive action, deploys the fingers-splayed/outside-90 defense and then slams rapid-succession knee kicks to the ribs of the attacker—a medicine ball—before scrambling under a nearby fence.

We also had an opportunity to come up with our own D-WODs, which allowed us to practice the techniques we learned and see how different movements can be used in different situations. Creating workouts allowed us, as trainers, to understand how we can bring Blauer's techniques back to our own gyms.

Throughout the course, Blauer provided links between self-defense techniques and movements CrossFit athletes regularly perform. The maneuvers and protective tactics used in CrossFit Defense build on movements we already use in our box every day. I might not know how to do advanced martial arts, but I can always remember to "wall-ball a chin" because I've done the movement thousands of times in CrossFit. Similarly, those unfamiliar with knee strikes only have to review the mechanics of knees-to-elbows and apply the same pattern.

Using the body's hard-wired programming is key to Blauer's system, and it's what makes self-defense accessible to anyone.

Bek Houston

At her affiliate, Theresa Smith coaches Defense WODs (D-WODs) a couple of times a month in her all-women's class.

Upon returning home, I felt secure knowing that if I were attacked, I have tools I can use to defend myself. While I still lock the gym when I'm alone, I no longer feel like a victim. I'm more aware of my surroundings and I take precautions—but not out of fear. Now I'm acting on education and awareness.

Throughout the course, Blauer provided links between self-defense techniques and movements CrossFit athletes regularly perform.

I've also put a program into place with my 8-a.m. all-women's CrossFit class. Every month or so, we spend one or two days doing D-WODs in place of the regular workout, and we invite athletes from other classes to join us. They take the training seriously but also enjoy the community-building aspects of the class. We take the time to discuss any areas of concern, and as a group we create D-WODs to practice movements and eliminate our fears in situations we might come across.

In the future, I plan to build out an entire CrossFit Defense specialty program as a separate offering at Raise the Bar CrossFit, and I hope to host a CrossFit Defense seminar in the near future. I want to pass on the skills I learned and create athletes who feel empowered and safe when they are in my gym and in our community.

I spent a powerful weekend and now understand that fear is manageable, my reaction to that fear is controllable, and I am my own bodyguard.

✦

About the Author

Theresa Smith is owner of Raise the Bar CrossFit in Ontario, Oregon. She is a CrossFit Level 2 trainer and holds a CrossFit Defense certificate.

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SICKLY SWEET

BY BRITTNEY SALINE

San Francisco becomes first city to require warning labels on soda while local university seeks long-term deal to put sugary beverages in front of students.

It's in our homes; it's in our universities.

It lurks in the corners of our children's schools, and it won our loyalty with its pocketbook and a mountain of sugar.

It's Big Soda, and it's got us right where it wants us: addicted.

"Over the past 50 years, consumption of sugar has tripled worldwide—much of which can be attributed to the consumption of sugar-sweetened beverages," Fred Brousseau, San Francisco budget and legislative analyst, wrote in a 2013 report.

Brousseau defined "sugar-sweetened beverages" as those with "added sugar or other caloric sweeteners, such as high fructose corn syrup, including sodas, sports drinks, fruit drinks, teas, flavored/enhanced waters, and energy drinks."

He noted that "at the same time as consumption of sugar and sugar-sweetened beverages has increased significantly throughout the U.S., the rates of obesity and diabetes have also increased," citing 22.5 and 11.4 percent increases in obesity among U.S. adults and children, respectively, from 1980 to 2010. Brousseau's report estimated that in San Francisco alone sugar-sweetened beverages incur diabetes- and obesity-related costs of up to US$28.05 million annually.

San Francisco decided to do something about it.

On June 9, 2015, the San Francisco Board of Supervisors became the first in the U.S. to pass legislation requiring warning labels on posted ads for sugar-sweetened beverages. The legislation also banned ads for sugary beverages on city property and the use of city funds to purchase sugary beverages. The ban includes sweetened coffee drinks as well as sports drinks such as Gatorade, whose 12-oz. "Thirst Quencher" contains 21 g of sugar, just 18 fewer than a 12-oz. serving of Coke.

"This is a public-health crisis in the making," San Francisco Supervisor Scott Wiener said in a phone interview. "If you try to envision a society where 40 percent of the people have Type 2 diabetes, 50 percent in communities of color, that's a health-care disaster. ... We have to aggressively take steps to prevent that from happening, and one of them is to get people to drink less liquid sugar."

Warning labels will take up 20 percent of ad space and read as follows:

"Warning: Drinking beverages with added sugar(s) contributes to obesity, diabetes, and tooth decay. This is a message from the City and County of San Francisco."

"THIS IS A PUBLIC-HEALTH CRISIS IN THE MAKING. ... WE HAVE TO AGGRESSIVELY TAKE STEPS TO PREVENT THAT FROM HAPPENING, AND ONE OF THEM IS TO GET PEOPLE TO DRINK LESS LIQUID SUGAR."

—SAN FRANCISCO SUPERVISOR SCOTT WIENER

The legistation, which is scheduled to come into effect this summer, will not affect ads in place before it was passed, and there will be a one-year grace period for new advertising.

Less than a month before the legislation was passed, San Francisco State University (SF State) announced it was looking for a deal with Big Soda, issuing its first Request for Proposals (RFP) for exclusive campus pouring rights.

The deal will grant one beverage provider "exclusive or near exclusive rights for Beverage promotion and availability on the San Francisco State campus" for the next eight to 10 years, according to the RFP, which was obtained by the CrossFit Journal. In exchange, the beverage provider will make a one-time minimum contribution of $2 million and minimum annual contributions of $125,000 for the contract's duration. Additionally, the contract gives the provider the opportunity "to name the University's Athletic Complex for ten-years" and to "establish a corporate named endowed chair in the college of its choice," according to the RFP.

"We were just stunned," said An Bui, an SF State senior and co-president of the university's chapter of Real Food Challenge, a national network of student food activists.

Health authorities are clear: Consumption of added sugar is contributing to the obesity epidemic.

The announcement of the RFP came on the heels of the Real Food Challenge's recent successful campaign to prevent the establishment of a well-known fast-food chain restaurant on campus.

"After (the administration) had acknowledged that they were going to pursue a more democratic process for food and beverage selection on campus, they turn around and weasel their way into pouring rights," Bui said.

FUELING OBESITY

Today, more adult Americans are overweight than not, The Washington Post reported on June 22, citing a June JAMA Internal Medicine article reporting that 75 percent of men and 67 percent of women 25 and older are overweight or obese.

According to the SugarScience Team, a consortium of health scientists from the University of California, San Francisco (UCSF); the University of California, Davis; and Emory University, excessive sugar consumption is a driving force responsible for this weight gain.

"Eating sugar increases levels of glucose in the bloodstream, which leads the pancreas to release insulin," the SugarScience team reported. "Higher levels of insulin, in turn, cause the body to store more food calories as fat."

But it's not just about cakes and cookies. According to SugarScience, liquid sugar represents the highest source of added sugar in the American diet, at 36 percent, with one 12-oz. can of regular cola containing just under 40 g—about nine teaspoons—of sugar. This type of sugar is also the most dangerous because of its rapid absorption into the bloodstream and overloading of the liver and pancreas. The result is an increased risk of developing heart disease and diabetes, two of the leading causes of death in the U.S., according to the Centers for Disease Control and Prevention.

"In fact, drinking just one 12-oz can of soda per day can increase your risk of dying from heart disease by nearly one-third," SugarScience wrote.

Liquid-sugar consumption is problematic particularly with regard to children and teenagers. Between 1999 and 2000, "Carbonated soft drinks and fruit drinks/ades provided 13 percent of teenagers' calories," according to "Liquid Candy: How Soft Drinks Are Harming Americans' Health" by Michael F. Jacobson, who has a doctorate in microbiology. By 2002, 50 percent of beverages consumed by U.S. teens 12 to 19 were sodas, according to "Out of Balance," a document published by Consumers Union and California Pan-Ethnic Health Network. The statistics aren't surprising when you consider Big Soda's marketing budget, as detailed by Jacobson. In 2000, the soda industry spent more than $700 million on advertising, according to "Liquid Candy." Four years later, it took home a $22 billion haul from beverage sales.

But kids aren't just slurping sodas at corner stores. For years, it's been just as easy for kids to get a fizzy fix at the place they spend most of their waking hours: school.

SODA SELLS—TO STUDENTS

Big Soda has been in school for a while. After amendments to the Child Nutrition Act of 1966 permitted sales of soft drinks in schools, vending machines became common fixtures on junior-high and high-school campuses.

More than a decade of revolving regulatory and deregulatory measures ensued, as parents, school officials, Congress, the USDA and the soda industry argued over to what extent sugary beverages should be regulated. After soft-drink producers took the USDA to court in the late 1980s, claiming the USDA's regulations were "arbitrary, capricious, and an abuse of discretion," the Appeals Court ruled that the USDA had no right to restrict the selling of competitive foods, including soda, outside meal-service periods. (1).

Since the 1990s, soft-drink companies have negotiated with colleges and universities for pouring-rights contracts in which companies make financial contributions to the institution in return for the right to sell and market their products—often exclusively—on campus.

But in the '90s, the soda industry turned its attention to elementary, middle and high schools. According to Marion Nestle in "Soft Drink 'Pouring Rights': Marketing Empty Calories," 180 school districts across 33 states held such contracts in the year 2000. Nestle is professor of nutrition, food studies and public health at New York University.

In 2012, MotherJones.com reported that by 2005 almost half of elementary schools and 80 percent of high schools in the U.S. held pouring-rights contracts with a major sugary beverage provider.

Pouring-rights contracts typically span between three and 10 years, and benefits to schools include no-strings-attached funding for otherwise-unaffordable expenses such as scoreboards, athletic stadiums and equipment, computer labs, extra-curricular programs, and even scholarships. With their logos etched on scoreboards, vending machines, cups and sports uniforms, soda companies enjoy nearly ubiquitous marketing opportunities in addition to the chance to establish "loyalty among young people who have a lifetime of soft drink purchases ahead of them," according to Nestle in "Soft Drink 'Pouring Rights.'"

Look to almost any scoreboard in a school or college and you'll see soda ads nearby.

Eat meat and vegetables, nuts and seeds, some fruit, little starch and no sugar."

—Greg Glassman, CrossFit Inc. founder and CEO

In 1998, the North Syracuse Central School District in New York signed a 10-year contract with Coca-Cola, requiring each of its schools to sell Coca-Cola products exclusively in all 135 vending machines and at all athletic, community and booster-club activities. In return, Coca-Cola paid the district $900,000 upon signing and annual installments of $70,000, totaling $1.53 million over the contract's duration (1). Around the same time, Colorado Springs District 11 signed a 10-year deal with Coca-Cola, worth between $8 million and $11 million.

Many contracts provide opportunities for schools to generate extra revenue in the form of commissions for sales exceeding targets. In 1999, The New York Times reported schools from across 63 systems even hired a marketing consultant to help negotiate contracts and devise strategies to increase soda sales among students.

Given the ever-dwindling availability of state funding for education, it's not hard to understand why schools cut deals with Big Soda. In 2002, Burbank Unified School District in California faced a $3 million deficit, according to the Los Angeles Times. Today, many school systems still suffer from blows dealt by the Great Recession of 2007-2009. According to the Center on Budget and Policy Priorities, 35 states provided less funding per student during the 2013-14 school year than before the recession.

Lance Thurman, Ph.D., superintendent of Riverton Community Unit School District (CUSD) 14 in Illinois, described his district as in being in "serious financial distress." Though the district is supposed to receive $6,119 per student in state aid each year, the total received per student for over the past five years averages around $5,815 per student, resulting in an annual loss of approximately $500,000.

In 2013, Riverton CUSD 14 signed a five-year pouring-rights contract with PepsiCo. Thurman said that a major benefit of the deal, which services the district's 1,650 students and 200 employees, is funding to support physical-fitness education programs and buy fitness equipment.

"WE ARE DESPERATE FOR MONEY, AND SODA SELLS."

—LANCE THURMAN, RIVERTON COMMUNITY UNIT SCHOOL DISTRICT 14 SUPERINTENDENT

"We have to do that because we have no money," Thurman said in a phone interview. "We are desperate for money, and soda sells."

Neither are colleges and universities immune to budget crises. In 2014, the United States Government Accountability Office reported that from 2003 to 2012, "State funding decreased by 12 percent overall while median tuition rose 55 percent across all public colleges."

"That puts the universities in quite a bind, and they are desperate to look for funding, whether it's philanthropic or other sorts of funding," Michael Goldstein, who has a doctorate in sociology, said in a phone interview.

Now retired, Goldstein was associate vice provost of the University of California, Los Angeles (UCLA), and he oversaw matters of strategic planning, budget and financial aid across the university's graduate programs. When UCLA developed its Healthy Campus Initiative in 2013, a "campus-wide effort to promote healthy lifestyle choices and develop best practices that may help other communities seeking to do the same," Goldstein served as chair of the Initiative's steering committee.

The same year the Healthy Campus Initiative was launched, UCLA signed a $15.4 million pouring-rights contract with Coca-Cola.

"Money that was available for things like support for student services has declined tremendously," Goldstein said. "The money that (universities) get from these contracts goes to subsidize those activities. It's an unfortunate situation, but that's the reality."

POURING-RIGHTS PROBLEMS

Not everyone agrees pouring-rights contracts are an appropriate solution to a lack of funding.

"Principally, they harm students by encouraging the frequent consumption of soft drinks, which increases obesity," David S. Alemling wrote in a note appearing in the Duke Law Journal in 2003.

Though critics might argue that students should be responsible for their own choices, Alemling contends sugary beverages' mere presence in schools has a negative impact on students' abilities to make educated decisions.

"Pouring-rights contracts dilute the effect of a school's curriculum," he wrote. "Specifically, the sale of soft drinks in schools contravenes the lessons of nutrition classes by promoting a healthy diet

in class and then permitting children to consume unhealthy soft drinks when they are not in class. This contravention is particularly dangerous because students perceive soft drinks sold in school as endorsed by the school."

In the case of Colorado Springs' 1998 contract, that endorsement was more explicit that implicit, Eric Schlosser reported in his book, "Fast Food Nation," citing a memo sent to school principals by District 11 administrator John Bushey.

"Allow students to bring Coke products into the classrooms, he suggested; move Coke machines to places where they would be accessible all day," Schlosser wrote. "At the end of the memo, John Bushey signed his name and then identified himself as 'the Coke dude'" (2).

But the more schools pad their pockets with Big Soda dollars, the less incentive there is for state and federal agencies to provide aid.

"(Pouring-rights contracts) take the pressure off school boards and districts to address such deficits and to advocate for more efficient and higher quality meals for students," Nestle wrote in an email.

DO AS WE SAY, NOT AS WE DO

"The Coca-Cola contract, which is currently in effect, will generate significant cost savings and new revenue for UCLA," read a release detailing UCLA's 10-year deal with Coca-Cola. It lists among the contract's benefits a "commitment to support UCLA's Healthy Campus Initiative" by "developing and providing products that support efforts to shift beverage consumption away from high sugar/high calorie/low-nutrient options to healthier alternatives."

"The key word is 'shifting,'" said Goldstein, who served as chair of the Initiative's steering committee.

"My guess would be if you had seen a contract like this 10 or 15 years ago, you wouldn't have seen the word 'shifting' in there," Goldstein continued.

Goldstein maintained that while certain populations of UCLA are in favor of limiting sugar consumption, that message doesn't necessarily hold with the administrators who balance the books.

"The university is just a set of cross-currents … that hold a different set of values, and values around health have not been very important in America," he said. "They're asserting themselves now, and that's what's happening with (the Healthy Campus Initiative), but they co-exist with all sorts of other values."

He went on to emphasize the Initiative's focus on providing students with arguably healthier alternatives to soda, like fruit juice and diet colas, alongside sweetened beverages.

Nestle was unsurprised to hear of the split interests at UCLA.

"This has to do with the usual silos in institutions of any type," she wrote. "One group promotes public health. The other keeps the institution financially viable. In my experience, the bean counters invariably win out."

She continued: "Of course this is hypocrisy, and shameless at that … . When you add up all the costs, the contracts don't make enough profit for the universities to justify their continuation."

UCLA athletic directors and media-relations representatives did not return requests for comment.

RESISTANCE RISES—AND FALLS

While Big Soda wields a mighty sword, it has not gone unchallenged.

In 2014, Berkeley, California, became the first city to pass a soda tax, and San Francisco is right on its heels, with 56 percent of voters in favor of a 2-cent-per-ounce tax in 2014.

"As with cigarettes, we need to take various public-policy approaches to address (sugar consumption)—like taxation and health warnings," Supervisor Wiener said. "I don't think the explosion of Type 2 diabetes has gotten nearly enough focus, and this is one way we can focus on it."

Even in the advent of pouring-rights contracts, opponents voiced concerns, and the fight extended to the schoolyard.

In 2000, the California Center for Public Health Advocacy recommended a ban on the sale of soft drinks, sports drinks—including Gatorade and Powerade—and beverages containing less than 50 percent fruit juice in elementary, middle and high schools. California State Sen. Martha Escutia proposed a bill in line with these standards, but after school officials resisted due to fear of revenue loss, a new draft of the bill passed in 2001. This version banned the sale of sugary beverages in elementary schools but permitted middle schools to sell them until the end of the lunch period. High schools had no restrictions.

Three years later, California banned the sale of beverages not meeting nutritional standards (meaning diet sodas were still on the menu) in middle and junior-high schools. The ban was extended to high schools in 2005.

Schools are desperate for funding, but critics say students don't need to be flooded with soda choices on campus.

Sugar might help fix finances in schools, but it won't do anything for health.

"AND IT WASN'T THAT THEY WERE BRINGING (SODA) TO SCHOOL. IT WAS THAT THE TEACHERS WERE SELLING IT TO THEM."

—LAVONNE SHEFFIELD, FORMER ROCKFORD SCHOOL DISTRICT SUPERINTENDENT

In 2010, the Rockford School District in Illinois pulled sodas out of its vending machines after the expiration of its 10-year, $7.5 million contract with Coca-Cola. LaVonne Sheffield, who was the superintendent at the time, said she had noticed a growing population of obese children in her schools. Many had trouble climbing the risers for school assemblies.

"And it wasn't that they were bringing (soda) to school. It was that the teachers were selling it to them," she said. "I ultimately said, 'No more.'"

Though some officials feared a loss of revenue, Sheffield didn't care.

"If you view your revenue as more important than the health of your children, then there's something wrong with that," she said.

Today, all schools participating in the National School Lunch Program must adhere to food restrictions set in place by the Healthy, Hunger-Free Kids Act, passed in 2010 and first implemented in the 2014-2015 school year. The act restricts vending-machine snacks to 200 calories per item and soda and sports drinks (sold only in high schools) to 60 calories or less per 12-oz. serving. The act does not place any limitations on products with artificial sweeteners.

Participating schools receive federal subsidies for the meals they sell or provide freely to children from families with incomes at or below 130 percent of the poverty level. Currently, schools are reimbursed $2.93 per free meal, $2.53 for reduced-price meals and $0.28 for full-priced meals. Additional reimbursements are given for snacks, and schools with higher percentages of low-income students receive more. For Bozeman High School in Montana, that means $117,500 annually.

Though many schools, such as Riverton CUSD 14, have adapted their pouring-rights contracts to meet these standards, some schools, fearing revenue loss, have opted out of the National School Lunch Program. In June, Bob Burrows, support-services and food-service director for the Bozeman School District, requested permission from the school board for the high school to drop from the program.

According to a June 14 article in the Bozeman Daily Chronicle, Burrows said the revenue loss from unsold meals and restrictions on sugary beverage sales would be worse than what the school would lose in subsidies if it dropped from the program.

"We used to sell nine cases or more a week of Gatorade," Alison Beckman, a cafeteria worker, told the Bozeman Daily Chronicle. "I'm told we can't sell it because it's got calories in it."

Meanwhile, Texas Agriculture Commissioner Sid Miller recently proposed lifting a ban on soda machines—and deep fryers—in schools in the name of "freedom," according to the Texas Tribune.

GOTTA GET A SUGAR FIX

As Bui, an international student, watched his fellow students fill their cups and flood their bloodstreams with sugar, he thought about school back home in Vietnam, where there are no pouring-rights contracts and schools sell fresh fruit juice and tea, supplied by local vendors.

He supports San Francisco's warning-label legislation but lamented the fact that it will have no jurisdiction on campus at SF State, a state school where sugary beverages will be marketed to young people even more ferociously after the university partners with the San Francisco Giants to build a "multibillion-dollar youth academy with training facilities, classrooms, batting cages and baseball fields." According to the RFP, the selected beverage partner will enjoy "advertising space" and "other targeted marketing and promotional opportunities in relation to the SF State athletics program."

"I think it's a terrible association, not just for the athletes but for the people who are going to be watching the sports teams and seeing all these advertisements, including families and kids," Bui said.

Bui said he believes SF State President Leslie Wong is seeking a pouring-rights contract specifically to bolster the university's athletic program—the RFP singles out the program as a primary beneficiary—in the hopes of bolstering philanthropic support. But Bui said a focus on athletics is ill-suited for SF State, a commuter school where few students travel for purposes other than class.

"Most of the student body does not really care about sports," Bui said of his institution's eight sports for men and women combined.

"I don't think (President Wong) really understands what can make the school a better place," he continued. "Our school can be a real model of sustainable food systems. … We're in the hub of food justice, and that's the direction we should be heading."

SF State officials declined to comment on the pending agreement.

Less than 10 miles northeast, the University of California, San Francisco will in July launch a campus-wide ban on sugar-sweetened beverages, eliminating beverages from cafeterias and vending machines across all of its 20-plus campuses and hospitals over 16 weeks.

"I want San Francisco State to be like that," Bui said. "It really has the potential to be like that. … The food movement is growing and it's growing here, and San Francisco State can get involved in that movement. San Francisco State could be a forerunner." ■

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