CrossFit Certification
February 10 – 13, 2006

Seminar Notes

All the info, none of the pain.

Larry Lindenman.

"For what level of mediocrity are you willing to settle?"

Perhaps more than any other, it is this quote from Brandon Lee that distills the disparate thoughts of the CrossFit many into our focused expression of purpose. If you are reading this and the notes that follow, it is likely that you are not a mere passenger on the drab one-size-fits-none fitness bus, but are instead the driver of a brilliant red Lamborghini carving your way at a blistering pace down the well maintained but sometimes difficult to traverse road that Glassman Incorporated has laid down for us.

Being the eclectic collection of disparate disciplines that CrossFit is we were fortunate enough to have the extraordinarily skilled and gifted teacher Larry Lindenman available for a 2-hour Kali seminar at CFHQ on February 9th for 17 eager students some of whom were not even CrossFitters. (See Appendix I for his training class).

Fifth year anniversary of CrossFit today
February 10, 2006

Day 1 Morning

Wow. There's over a 100 attendees, students, noobs, wannabes, snuffies…whatever we are, here to absorb what coach and his 30 or 40 trainers have for us. Surely the award for greatest distance traveled to get to the seminar goes to Fiona from Australia. That's so far away she stopped in Japan on the way and looked up people to fight. Mind you she didn't use the New Yawk method, "Hey you lookin at me?" but rather went to Shoot Fighting and other MMA gyms to roll around with their fighters. Be very nice to Fiona.

Coach brought up Nicole and had her turn away from the crowd and showed us her backside…of her shirt, we were looking at her shirt. The trainers are in blue shirts this year so whenever I refer to the blue shirts throughout the rest of the notes, that's the reason why. Anyway someone told me later there was something written on the back of

Nicole's shirt and since it was on everyone else's shirt I will assume it is true. Under the CrossFit banner shouts the warning:

DANGEROUS

The danger of CrossFit and the potential for injury and even death, speaks to the potency of the prescription. If the dose-response curve from your exercise program is flat, that is to say if your exercise program is producing minimal results, it is not worthy of your time. Dump it. CrossFit's potency is revealed both in the extraordinary nature of the results of the program but also in the danger evident in its high intensity execution. Coach told us he would love to get rid of the whole Pukie image and have CrossFit workouts be pleasurable, fun or at least not be hideous. But, since intensity is where the results are and since pain and Pukie cohabitate with intensity we are stuck with this relationship.

Pukie is a familiar commodity in CrossFit gyms. Though not necessarily a welcome visitor his arrival does signal a rite of passage, a certain indicator that you have brought intensity into your training. A much less frequent visitor is Rhabdomyolysis. "Rhabdo-" is from the Greek term meaning "rod or rod like" (in reference to the muscle cells), "myo-" refers to muscle, and "lysis-" means to split or tear apart. Rhabdomyolysis then, is damage to the muscle cells that is characterized by muscle pain, tenderness, weakness, swelling, increased levels of muscle components in the blood and urine after strenuous, overexertion or exercise. Although the incidence of severe rhabdomyolysis is rather low, this condition can be dangerous and even fatal. What exactly occurs during excessive exercise to cause muscle damage is not fully understood. Eccentric accentuated type movements (any activity that has a high amount of bouncing such as rope-jumping, running, box jumping push-ups, sit ups) seem to be a common class of movement that plays a part in this problem. Rhabdomyolysis rarely if ever occurs from a wsingle overload that would cause a muscle tear or rupture. Anyone who has performed forced "negative" repetitions is familiar with the severe muscle soreness that such exercise can produce. This soreness and damage is probably related to the shock absorber role played by the Series Elastic Component (the connective tissue between the cells) of the muscle. This intercellular connective tissue acts like a spring to absorb energy during the eccentric (lengthening) phase of muscle activity. If overloaded, this tissue will fatigue and tear, opening the cell and allowing muscle contents such as myoglobin to diffuse into the surrounding spaces and into the blood. It may also be due to the inability of the muscle cell to

keep up with the energy demand of the muscle's metabolic processes and the production of chemical free radicals.

WHAT IS CROSSFIT?

*"CrossFit is a strength and conditioning program built on constantly **varied**, if not randomized, **functional** movements executed at **high intensity**."*

Functional movements are not the exclusive property of the gym…unlike the pec deck, leg extensions, curls and lateral raises which you don't see on the athletic field, in combat or in every day life. If the only place you do a particular movement is in the gym then that exercise does not have a particularly potent transfer to the challenges of life and of sport outside the gymnasium. Functional movements are universal motor recruitment patterns that you find in your every day life. Putting the heavy cat food bag on that shelf over the washing machine is every bit the clean and push jerk as doing the movement with a barbell or lifting up the garage door and pushing overhead when that heavy coiled spring breaks. You are good at what you do. You might as well get good at things that are functional and that you can use all the time.

Proper muscle recruitment is like a symphony. **Training in a segmented fashion develops a segmented capacity**. You must not try to develop your muscles separately, but rather in the fashion in which they are designed to be used and the way you will use them in whatever it is that your are doing. Compare the pec deck, flyes or the abductor/adductor machine to deadlifts, thrusters and the push press. One set of movements will only be found in a gym setting, whereas the others are constantly represented in everyday life. Since functional exercise is irreducible (more on that in the next section) you can't take movement apart to single joint exercises and expect it to do you any good…except for what you look like in the mirror. Superior athleticism is developed through functional, multi-joint movements that involve substantial muscle recruitment patterns, in a variety of methods and applications at great intensity.

Functionality: Functional movements are *common, universal motor recruitment patterns*, they are things you see and do all the time. We have to bend down to pick things up, lift things up over our heads to put them on a high shelf but we never put our elbows under some weighted object and lift it with our outer delts…except on that machine in the gym. Functional movements are *efficient and effective* and are not single joint movements but rather multi-joint movements. They are *compound and irreducible* in that taken down to smaller components (the pec deck and tricep press down do not even begin to add up to equal the bench press) and maintaining their integrity is not possible. They are thus *elemental* and are (as Mark Twight brilliantly says) the *primary colors of all movements*. Functional movements are safe, develop very powerful and useful *core* strength, provide a tremendous *neuro-endocrine response* (a systemic adaptation) and is the best *cardio* and best *rehab* training you can do. Additionally, functional training always moves from *core to extremity*, never the other way around. That systemic adaptation thing is why doing deadlifts makes you stronger all over and why squats, especially if you have not been doing them, will improve your bench. So what exactly are Universal Motor Recruitment Patterns? Universal motor recruitment patterns are safe, in fact the safest kinds of movements you can do. Adduction/abduction

machines, lateral raises and flyes are not natural and thus are not inherently safe movements.

Universal motor recruitment patterns move from core to extremity, from the powerful center to the less powerful limbs. Fatigue accelerates violations of the core to extremity rule and is particularly evident with Fight Gone Bad.

Universal motor recruitment patterns are collectively essential *because* they are universal and are done everywhere in everything you do. A loss of capacity in these universal motor recruitment patterns makes you non-functional.

Universal motor recruitment patterns are absolutely the best rehab possible. Take baby steps to return to functionality. This is much, much faster than conventional rehab. Move the shoulder lightly though its range of motion and very gradually add the load. Conventional PT is better at maintaining a client base than restoring function.

Universal motor recruitment patterns are the very best cardio available. The metabolic transfer of conditioning from very high intensity exercise can cross all three metabolic pathways. (More on those pathways a little later on). Take the Tabata protocol for example of 20 seconds on and 10 seconds of rest repeated 8 times. That 10 seconds of rest is really not sufficient to allow you to recover so you begin each subsequent set with an ever increasing level of fatigue. This blurs the line between the three energy systems and trains them simultaneously. Change your workout pace, weight, intensity, range of motion, type of exercise and every other parameter not only workout to workout, but within the same workout. Vary the exercise, vary the load, vary the intensity very often.

Universal motor recruitment patterns are compound and yet irreducible. You can't beak them down into separate movements and get the same benefit. They do not sum to the total. We are at the molecular essence of the movements we use. They are a chorus, a symphony of muscular activity. Leave the solo performance to the bodybuilders. Training in a segmented fashion develops a segmented capacity. The movements are at the very core of effective training. "Universal motor recruitment patters are elemental – they are the primary colors of all movements". (Mark Twight).

Variety: We want to be able to do whatever, wherever. Embrace change. Where we fail is at the margins of our experience. If you are stuck in some 8 to 12 rep scheme, you probably stink at 15 to 20, or 1 to 6 for that matter. Change things up and go heavier slower, lighter faster, more sets, more weight whatever. Stagnation, comfort zones, and worn paths are the enemy. You want to constantly challenge yourself in different ways. Satisfaction is death. Learn a new sport, run a different route, change your routine and keep it fresh. Vary the load, vary the exercise, vary the intensity very often. On average nature punishes the specialist.

Intensity: Power is a function of Force and Weight over Time. Intensity is all about hard and fast. Power is an issue wherever velocity is important. Exercise success is based on intensity – **INTENSITY IS WHERE THE RESULTS ARE**. All of the best adaptations are a result of high intensity work. Functional movements can tolerate high loads and move them long distances. Concentration curls, french presses, lateral dumbbell raises? Hah, I blow my nose at you. Functional movements like the snatch and

clean and jerk in particular move a heavy load a long distance in a short time. Intensity then is a measure of how far, how fast and how heavy.

The movements are powerful in that they allow a lot of work to be done with a heavy load over a long distance. More work is done and at greater speed with functional movement than with isolation movements. Power = intensity in this discussion. Without power, without intensity there is a blunted neuro-endocrine response.

Power has a time component so you must have velocity in the equation. Power and thus intensity are measures of going hard and fast. That's where intensity comes from. Intensity brings the results and is a substantial gut check – this is not easy, and is where you will come face to face with Pukie.

CrossFit is empirically driven and clinically tested. It has been found to be efficacious in the stadium, on rocks and mountains, in the ring, on the street or battlefield and in the gymnasium. CrossFit works where it counts…in the real world. It is for this reason that CrossFit is a danger to business as usual, to the fitness status quo. The rest of the fitness community is slowly beginning to recognize the validity of CrossFit.

What we are doing is a craft…not a science. We express our validity with performance related results rather than with the development some sort of performance theory. Don't fall into the habit of paralysis by analysis. Don't examine, weigh, evaluate, study, validate, research, Google or otherwise try and figure out why CrossFit works, instead recognize that it does and put the Black Box to work for you. If you put something in and greater capacity comes out the other side, you'll want to remember what you put in.

There is a potent neuroendocrine response to each of the movements we do in CF. This hormonal response is systemic and effects the entire body because of the cascade of biochemical products that are released as the result of the compound and **functional movements** executed at **high intensity** in a **variety** of ways

VIRTUOSITY

Virtuosity means doing the common, uncommonly well. Virtuosity is developed by practicing the fundamentals. Sticking to the fundamentals leads to mastery of the practiced movement. The typical CrossFit training focus to "Get Some" should not be overstated to the point of exclusivity. Be sure to *practice* the various squats, Olympic lifts, gymnastic movements, kettlebell lifts and so on in pursuit of perfection. Not just training, but practice too. Virtuosity is the theme of this seminar.

January 2003 CFJ
Interview: Coach Greg Glassman

CFJ: What's wrong with fitness training today?

Coach Glassman: The popular media, commercial gyms, and general public hold great interest in endurance performance. Triathletes and winners of the Tour de France are held as paradigms of fitness. Well, their long distance ilk are specialists in the word of fitness and the forces of combat and nature do not favor the performance model they embrace. The sport of competitive cycling is full of amazing people doing amazing things, but they cannot do what we do. They are not prepared for the challenges that our athletes are.

The bodybuilding model of isolation movements combined with insignificant metabolic conditioning similarly needs to be replaced with a strength and conditioning model that contains more complex functional movements with a potent systemic stimulus. Sound familiar? Seniors citizens and U.S. Marine Combatant Divers will most benefit from a program built entirely from functional movement.

CFJ: What about aerobic conditioning?

Coach Glassman: I know you're messing with me – trying to get me going. Look, why is it that a 20 minute bout on the stationery bike at 165 bpm is held by the public to be good cardio vascular work, whereas a mixed mode workout keeping athletes between 165-195 bpm for twenty minutes inspires the question, "what about aerobic conditioning?"For the record, the aerobic conditioning developed by CrossFit is not only high-level, but more importantly, it is more useful than the aerobic conditioning that comes from regimens comprised entirely of monostructural elements like cycling, running, or rowing. Now that should start some fires!

Put one of our guys in a gravel shoveling competition with a pro cyclist and our guy smokes the cyclist. Neither guy trains by shoveling gravel, why does the CrossFit guy dominate? Because CrossFit's workouts better model high demand functional activities. Think about it – a circuit of wall ball, lunges and deadlift/highpull at max heart rate better matches more activities than does cycling at any heart rate.

CFJ: How many times should someone do the Workout of the Day (WOD)?

Coach Glassman: Yeah, we actually get this question every once in a while. When it comes up we know for a fact that either they've not tried the workouts or they've tried them at a leisurely pace. Done right, they have a horrific impact; they're designed that way. No one comes out standing much less looking for another one later.

What the WOD does allow for is learning and practice of sports. Juggling sport and the WOD requires careful modulation of the intensity of the WOD or overtraining is a certainty.

CFJ: What is your message for law enforcement and military special op's trainers?

Coach Glassman: Make sure that the mission's requirements don't exceed the training stimulus. If you're working aprogram where your men and women are running on M, W, F and

working upper body weight training on T-Th, likewe've seen so often, your product is not optimally prepared.

Arrest and control is not aerobic like the Tour de France; it's anaerobic like cage fighting.

CFJ: What is the best way to start CrossFit?

Coach Glassman: If not intimate with the elements (squat, deadlift, clean, pull-up, push-up, box jump, etc) of the CrossFit routines then gaining familiarity has to be the first step. If unfamiliar or less than very confident with the elements, then nearly any regimen with the singular focus of learning the sound mechanics of basic movements is a perfect prescription for the first month or two.

For those new to the CrossFit method it will be necessary to establish consistency with the Workout of the Day before increasing the intensity of the workouts. The workouts exceed the capacity of the fittest men on earth. Be careful.

CFJ: What about nutrition?

Coach Glassman: Meat and vegetables, nuts and seed, some fruit, little starch, no sugar. End of subject.

CFJ: What are your favorite exercises?

Coach Glassman: Cleans, push-ups (across 180 degrees – from handstand push-up to dip), Squats, Jumps, Running, Deadlifts, Rowing, Cycling, Pull-ups, Muscle-ups, Presses, Presses to handstand, wall ball, dumbbell and Kettlebell swings, lunges, snatch, rope-climb (and other non-technical climbing), sit-ups (and gymnastic variations on sit-up theme).

CFJ: Do you have a program for…?

Coach Glassman: This is another question that I see daily. We are asked for workouts for baseball, karate, swimming, dance, boxing, but they all get the same thing – CrossFit.

The athletes, firefighters, soldiers, and cops that we work with have benefited most from increased practice within their disciplines and better general fitness.

We design and deliver a broad based general fitness. The need for specificity in sport is nearly perfectly met within the training and practice of the sport. There's a strong and mistaken belief that every sport requires a separate and distinct strength and conditioning prescription. The notion is nonsense.

CFJ: Why CrossFit Journal?

Coach Glassman: Why is there nothing in the popular media that both the professional athlete and dedicated fitness enthusiast could find useful? That's the niche we're trying to fill. The idea behind CrossFit Journal is simply to support and expand the CrossFit community by offering information that, like our workouts, is potent and brief. The rest is a distraction.

CFJ: Why Gymnastics, weightlifting, and sprinting?

Coach Glassman: Gymnasts have no peer in trunk and hip flexion, upper body strength in multiple joint angles, agility, accuracy, balance, coordination, their domain is body control.The weightlifters are masters of power, speed, and hip and leg strength. Powerful hip extension is the most critical element of human performance and none have the capacity of the weightlifters.

Sprinters have enormous physical potential due to their metabolic competency across anaerobic and

aerobic pathways and the speed, power, and total conditioning that sprinting demands.

Blending workouts from each domain gives us a total greater than the sum of the parts – a gorgeous hybrid.

Squat Clinic

(Taken from CFJ December 2002)

Why Squat?

The squat is essential to your well-being. The squat can both greatly improve your athleticism and keep your hips, back, and knees sound and functioning in your senior years. Not only is the squat not detrimental to the knees it is remarkably rehabilitative of cranky, damaged, or delicate knees. In fact, if you do not squat, your knees are not healthy regardless of how free of pain or discomfort you are. This is equally true of the hips and back. The squat is no more an invention of a coach or trainer than is the hiccup or sneeze. It is a vital, natural, functional, component of your being. The squat, in the bottom position, is nature's intended sitting posture (chairs are not part of your biological make-up), and the rise from the bottom to the stand is the biomechanically sound method by which we stand-up. There is nothing contrived or artificial about this movement. Most of the world's inhabitants sit not on chairs but in a squat. Meals, ceremonies, conversation, gatherings, and defecation are all performed bereft of chairs or seats. Only in the industrialized world do we find the need for chairs, couches, benches, and stools. This comes at a loss of functionality that contributed immensely to decrepitude. Frequently, we encounter individuals whose doctor or chiropractor has told them not to squat. In nearly every instance this is pure ignorance on the part of the practitioner. When a doctor that doesn't like the squat is asked, "by what method should your patient get off of the toilet?" they are at a loss for words.

In a similarly misinformed manner we have heard trainers and health care providers suggest that the knee should not be bent past 90 degrees. It's entertaining to ask proponents of this view to sit on the ground with their legs out in front of them and then to stand without bending the legs more than 90 degrees. It can't be done without some grotesque bit of contrived movement. The truth is that getting up off of the floor involves a force on at least one knee that is substantially greater than the squat. Our presumption is that those who counsel against the squat are either just repeating nonsense they've heard in the media or at the gym, or in their clinical practice they've encountered people who've injured themselves squatting incorrectly. It is entirely possible to injure yourself squatting incorrectly, but it is also exceedingly easy to bring the squat to a level of safety matched by walking. In the accompanying article we explain how that is done.

On the athletic front, the squat is the quintessential hip extension exercise, and hip extension is the foundation of all good human movement. Powerful, controlled hip extension is necessary and nearly sufficient for elite athleticism. "Necessary" in that without powerful, controlled hip extension you are not functioning anywhere near your potential. "Sufficient" in the sense that everyone we've met with the capacity to explosively open the hip could also run, jump, throw, and punch with impressive force.

Secondarily, but no less important, the squat is among those exercises eliciting a potent neuroendocrine response. This benefit is ample reason for an exercise's inclusion in your regimen…but just doing it is not sufficient. It is imperative that the movement be

executed properly not just for the safety of your knees, hips and back but also so that you can reap all the benefits the squat has to offer.

How to Squat

1. Start with your feet about shoulder width apart and slightly toed out.
2. Keep your head up looking slightly above parallel.
3. Don't look down at all; ground is in peripheral vision only.
4. Accentuate the normal arch of the lumbar curve then pull out the excess arch with the abs.
5. Keep the midsection very tight.
6. Send your butt back and down.
7. Your knees track over the line of the foot.
8. Don't let the knees roll inside the foot.
9. Keep as much pressure on the heels as possible.
10. Stay off of the balls of the feet.
11. Reduce the forward travel of your knees as much as possible.
12. Lift your arms out and up as you descend.
13. Keep your torso elongated.
14. Send hands as far away from your butt as possible.
15. In profile, the ear does not move forward during the squat, it travels straight down.
16. Don't let the squat just sink, but pull yourself down with your hip flexors.
17. Don't let the lumbar curve surrender as you settle in to the bottom.
18. Stop when the fold of the hip is below the knee – break parallel with the thigh.
19. Squeeze glutes and hamstrings and rise without any forward lean.
20. Return on the exact same path as your descent.
21. Use every bit of musculature you can; there is no part of the body uninvolved.
22. On rising, without moving the feet, exert pressure to the outside of your feet as though you were trying to separate the ground beneath you.
23. At the top of the stroke stand as tall as you possibly can

The Air Squat

All our athletes begin their squatting with the "air squat", that is, without any weight other than body weight. As a matter of terminology when we refer to the "squat" we are talking about an unladen, bodyweight only squat. When we wish to refer to a weighted squat we will use the term back squat, overhead squat, or front squat referring to those distinct weighted squats. The safety and efficacy of training with the front, back, and overhead squats, before the weightless variant has been mastered retards athletic potential.

When has the squat been mastered? This is a good question. It is fair to say that the squat is mastered when both technique and performance are superior. This suggests that none of the twenty-three points above are deficient and fast multiple reps are possible.

Our favorite standard for fast multiple reps would be the Tabata Squat (20 seconds on/10 seconds off repeated 8 times) with the weakest of eight intervals being between 18-20 reps. Don't misunderstand - we're looking for 18-20 perfect squats in twenty seconds, rest for ten and repeat seven more times for a total of eight intervals. The most common faults to look for are surrendering of the lumbar curve at the bottom, not breaking the parallel plane with the thighs, slouching in the chest and shoulders, looking down, lifting the heels, and not fully extending the hip at the top. Don't even think about weighted squats until none of these faults belong to you.

Common Faults or Anatomy of a Bad Squat

1. Not Breaking the Parallel Plane
2. Rolling Knees Inside Feet
3. Dropping Head
4. Losing Lumbar Extension (rounding the back - this may be the worst)
5. Dropping the Shoulders
6. Heels Off the Ground
7. Not Finishing the Squat - not completing hip extension

A relatively small angle of hip extension (flat back) while indicative of a beginner's or weak squat and caused by weak hips extensors is not strictly considered a fault as long as the lumbar spine is in extension.

Causes of the Bad Squat

1. Weak glute/hamstring. The glutes and hams are responsible for powerful hip extension, which is the key to the athletic performance universe.
2. Poor engagement, weak control, and no awareness of glute and hamstring. The road to powerful, effective hip extension is a three to five year odyssey for most athletes.
3. Squating with quads. Leg extension dominance over hip extension is a leading obstacle to elite athletic performance.
4. Inflexibility. With super tight hamstrings you're screwed. This is a powerful contributor to slipping out of lumbar extension and into lumbar flexion – the worst fault of all.
5. Sloppy work, poor focus. This is not going to come out right by accident. It takes incredible effort. The more you work on the squat the more awareness you develop as to its complexity.

Therapies for Common Faults

Bar Holds: Grab a bar racked higher and closer than your normal reach at bottom of squat, then settle into a perfect bottom position with chest, head, hands, arms, shoulders,

and back higher than usual. Find balance, let go, repeat closer and higher, etc. Lifts squat (raises head, chest, shoulders, and torso) putting more load on heels and glute/hams. This immediately forces a solid bottom posture from which you have the opportunity to feel the forces required to balance in good posture. This is very effective squat therapy.

Box squatting: Squat to a ten inch box, rest at bottom without altering posture, then squeeze and rise without rocking forward. Keep perfect posture at bottom. This is a classic bit of technology perfected at the Westside Barbell Club. See their site and links. (See also Appendix II).

Bottom to bottoms: Stay at the bottom and come up to full extension and quickly return to bottom spending much more time at bottom than top. For instance sitting in the bottom for five minutes coming up to full extension only once every five seconds, i.e., sixty reps. Many will avoid the bottom like the plague. You want to get down there, stay down there, and learn to like it.

Overhead Squats: Hold broom stick at snatch grip width directly overhead, arms locked. Triangle formed by arms and stick must stay perfectly perpendicular as you squat. Good shoulder stretch and lifts squat. With weight, this exercise demands good balance and posture or loads become completely unmanageable. The overhead squat is a quick punisher of sloppy technique. If shoulders are too tight this movement will give an instant diagnosis. You can move into a doorway and find where the arms fall and cause the stick to bang into doorway. Lift the arms, head, chest, back, and hip enough to travel up and down without hitting the doorway. Over time, work to move feet closer and closer to doorway without hitting. The broomstick foundation is critical to learning the Snatch – the world's fastest lift.

String Touch: Hang something on a string, like a tennis ball or shrunken head, at max reach overhead, and touch it at the top portion of every squat rep. Alternate hands touching. This is a great Tabata drill and will knock the Tabata score down for those people who don't complete their squats by not fully extending the hip. If you have a 900-pound squat you've already learned everything we've covered. You don't need a 900 pound squat though, or even a heavy one to harvest immense benefit from the movement. We advocate weighted squats but only after foundational mastery. It is during this period of mastering the foundations of the squat that the primary athletic benefit will be sowed. Interval squat work, interestingly, without weight, is a means toward fitness and athleticism - CrossFit style - that is only enhanced by heavy work, not overshadowed by it. This is not well known. We can and have proven it. Much of the best of human movement that is efficient and effective radiates from the core to the extremities in a wave of muscular contractions. As often as not, the quality of the hip's extension is a super-critical factor in determining the quality of human performance. This is the nature of running, jumping, throwing, and punching - the all-stars of sport and performance. Optimal hip capacity - power, flexibility, speed, and stamina- aren't to be had without the squat.

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What's wrong with my squat and how do I fix it?

If your problem is:
Not going to parallel (Not going deep enough)
The cause is:
Weak hip extensors, laziness, quad dominance
And the solution is:
Bottom to bottoms, Bar Holds, Box Squatting

If your problem is:
Rolling knees inside feet.
The cause is:
Weak adductors, cheat to quads
And the solution is:
Push feet to outside of shoe, deliberately attempt to stretch floor apart beneath feet.)

If your problem is:
Dropping head
The cause is:
Lack of focus, weak upper back, lack of upper back control
And the solution is:
Bar Holds, Overhead squats,

If your problem is:
Losing lumbar extension
The cause is:
Lack of focus, tight hamstrings, cheat for balance due to weak glute/hams
And the solution is:
Bar Holds, Overhead squats

If your problem is:
Dropping shoulders
The cause is:
Lack of focus, weak upper back, lack of upper back control, tight shoulders
And the solution is:
Bar Holds, Overhead squats

If your problem is:
Heels off ground
The cause is:
Cheat for balance due to weak glute/hams Focus, Incomplete hip extension Cheating, sets wrong neurological pattern avoiding most important part of squat
And the solution is:

String Touch

DAY 1 Workout
Runny Cindy

Take the original Chelsea workout of 5 pull-ups, 10 pushups, 15 squats on the minute for 20 minutes. Become bored with the timing protocol of starting everyone each minute and just tell everyone to do as many as they can in 20 minutes. This workout is called Cindy. Not punishing enough? Let's add a run. Interestingly the run we did was 600 yards, not 400 or 800 yards but 600. Can you do that, can you do a 600? Sure we can. We can do anything we want.. Variety is one of the pillars of CrossFit. We change up everything else, change up your run distances too. Runny Cindy is: A 600 yard run + 5 x (5 pull-ups + 10 pushups + 15 squats) repeated a total of three times.

Runny Cindy sucks pond water. We were told we would all be finished in 20 minutes and we were challenged to try and finish in 20 minutes. I only got as far as almost finishing the 3rd run when the 20 minutes was up. Nobody finished the whole thing in the time allotted but Dr. Ahmik Jones and a few others were within a few sets of exercises of making it.

Day 1 Afternoon

Gymnastics

Station 1: Handstands/paralletes

Handstands first. We worked with a partner and I was the albatross around Larry Lindenman's neck. Larry effortlessly kicked up to a handstand and held it without difficulty…as compared to my anemic, vibrating house of cards that though ugly I could hold for several shoulder torching seconds.

We moved on to L-sits which are a favorite of mine in the same kind of way projectile vomiting is. We took turns with our partner for 3 x 30 seconds of this gut wrenching exercise and I vibrated there from the pain in my right triceps that felt like a .308 wound not to mention the agony in my abs from holding my legs up even with Larry's increasing levels of assistance. I think I was squirting blood out my eyes toward the end there.

Press to headstand. This was pretty much the only gymnastic thing I could actually do. Make a tripod with your hands and head and extend your legs so they're straight, toes pointed and on the mat. Tighten your core and pull your hips toward your spotter who will grab your hips and give you whatever degree of assistance you need to get your feet elevated to the vertical handstand position. Larry showed me a very cool modification by laying face down in a pushup position and press up to the headstand as before. I was OK with that one but Larry added a press to a handstand.

Press to a handstand was next and once again I had the look of medical distress from the moment I kicked up. I was told activate my shoulders and to extend my body into a straight line with a hollow core. My handstand needs Viagra.

Station 2. Rings

Suspended from the ceiling are 4-sets of pull-up bars and suspended from those bars are multiple sets of rings. At one of the stations we developed our muscle up by first working on our false grip. The false grip is a key element to the muscle up as it maximizes your leverage by shortening your limbs. Michael Street had us stand through the transition phase between the pull-up and the dip with a gentle push of the legs and insisted that we sit down very low in the dip. Low in this case means that your hands come up nearly in contact with your arm pit at the start of the dip. That's where you will be at the finish of the transition from the pull-up portion so always do your dips from as deep down on the rings as your physiology allows. Eddie Lugo was at another set of rings and was coaching people through muscle up attempts. There were several first time muscle ups at this station.

At another station people did holds on the rings for time and at another ring pushups of several types. The ring pushups found us dropping down to the bottom of the pushup and extending one arm out to the side or forward and then with a more advanced version moving both arms out at the same time.

At a third station we abandoned the rings altogether and just used the bar for a pullover. With this movement the concentration was on keeping the legs straight and elevating them vertically as high as possible by doing an upside down pull-up. The aim is to get as much of the body over the bar as possible, keeping the legs straight until there is enough weight above the bar for them to fall down over the backside of the bar and lever the body upward to balanced support position over the bar. No, don't just flop off the bar, you roll forward to an L-sit and lower your arms to full extension and then hold the L-sit for 5 seconds before dropping off the bar.

Station 4 was the kipping pull-up. Here is the Eva kipping pull-up progression:

1. While holding the bar and standing on a box arch forward and back making both sides of a parentheses. Keep rocking back and forth like this to get a feel for the arching movement. You are rocking onto your toes when you go forward and onto your heels when you rock back. Move your hips back and forth, not your feet.
2. The next step is to rock forward as before but after you rock backward you must jump up and do a pull-up. Repeat this action until it is fluid and there are no kinks that separate the rock from the jump. Remember that the pull-up comes as a continuation of the rocking motion. In the photo below Nicole would pull up and towards the bar in the third photo.
3. Once you have the first two parts down, add a push away from the bar at the top of the pull-up. If you descend with gravity straight down from the bar you will be out of synch for the next kip and you will have to begin the kip anew. By pushing away from the bar (and thus arcing down along the same path you took on the way up) you will be able to begin the same kip cycle immediately.

4. The final step is to remove the box and do the movement on your own. Do just a couple reps at a time so as not to get too fatigued and unable to do the pull-up with proper kipping form. You can start by just rocking back and forth without the pull-up just to get the feel for the rocking motion and then add the pull-up being sure to time the end of the rearward rock with the start of the upward pull.

While the *shortest* distance between two fixed points will always be a straight line, the *fastest* distance between those same two points may not be. Enter the age old mathematical concept of the brachistochrone, (braa keest a krone). Though well known in math circles and published by the likes of Bernoulli, Newton and Leibniz it is generally dealt with in theoretical fashion rather than through practical application. Eva's Olympic skiing coach dad George Twardokens bucked convention a bit conducted an on the slopes study of the brachistochrone as it applied to downhill skiing and showed that the cycloid curve of the brachistochrone arc was a faster line down the hill from point to point than a straight line.

Even though we're not talking about skiing here, the advantages of the curved path with the kipping pull-up over a straight line pull become obvious upon examination but perhaps not for exactly the same reasons as with the skiing example. Of significant importance is that the brachistochrone arc relies on gravity and contact with the earth, while only half of the pull-up movement acts in concert with gravity and save for the hold on the bar no contact with the earth is in effect.

Next time you do a tug-of-war see if you find anyone bending at the waist so that they can pull with their arms extended over their heads. You won't find this because it is biomechanically less efficient than pulling with the arms perpendicular to the body. The kipping arc allows the arms to pull in a position closer to that stronger perpendicular position giving a lever advantage to your pull.

Another by-product of the kipping arc is that it allows the very strong hips to participate in the production of an angular velocity tangential to the direction of the pull which distributes the load over larger and stronger muscles, power which is then redirected in a vertical plane when you pull with your arms at the end of the movement. This load is also maintained actively on the shoulders throughout the entire range of motion which prevents the shoulders, elbows and grip from having to endure the jolt of your bodyweight at the bottom of the pull-up.

For the fastest possible cycle time and to make the pull-up fluid and continuous, you must push away from the bar when you complete the pull-up. This will put you back into the flow of the kip and allow your descent and forward hip thrust to flow naturally into the next kipping movement.

Station 3: Tumbling

We began with **hollow rock** because this hollowing movement is very important in gymnastics. We did 30 reps of that and then moved on to **candlesticks**. We did three different candlesticks starting with our hands overhead. We bent our knees and touched our butts to the ground first and the backs of our hands behind our heads and our feet pointed to the ceiling. Then we pulled our feet back down, bent our knees so that we

tucked our feet under and rolled forward onto our feet. If you are familiar with a deck squat the get up part was just like that. The other two variations were hands down to the sides (DO NOT reach back with your hands) and pizza hands where you have your hands above your shoulders as if carrying a pizza. Roll high onto the backs of your shoulders and extend your straight legs skyward then tuck back down to a squat and stand.

For the **Forward** Roll take the initial weight on your hands with your fingers pointing slightly outward to ease the pressure on your wrists. Tuck you head and take the weight high up on your traps, not on your head or neck. Stay tight with tucked knees and roll up onto your feet and stand.

The **Backward Roll** begins by sitting down to your butt much like with the candlesticks. Round your back and roll backwards onto your pizza hands and use your hands to help push yourself upward and back onto your feet.

The **Cartwheel** was proof that gymnastics movements do not come naturally, at least not after you get older. You think your colon is spastic? Do a cartwheel. For those completely devoid of cartwheel genetics they put down a mat so we could put our hands on the mat and hop side to side onto each foot to get the feeling of hand-hand-foot-foot which is how the cartwheel works.

Finally the **Round Off** which is much like a cartwheel only with a finish that puts you with feet side by side facing back toward the direction you were coming from, arms over head in preparation for the next tumbling maneuver. Wisely we did not continue to any neck breaking back handsprings.

At the end of the three 45 minute rotations Roger led us in some stretching exercises as he answered questions. Wow, gymnastics is really tough. We need to be upside down more. Roger says that sensation of just about to explode head pain from handstands is something that goes away with sufficient time spent inverted. Skin the cat and handstands, add those to the do all the time list.

Coach Mike Rutherford

Dumbbells

www.bootcampfitnesskc.com

Advantages
- Administrative:
  - Client friendly
    - Universal athletic application
    - Less intimidating to new users
    - Easier/faster to learn the movements
  - Coach friendly
    - Less bloody noses from bar impact
  - Better Access
    - More people working out in a smaller space
  - Cost effective
    - Much cheaper than barbells and bumpers

Athletic
- Three dimensional
- Metabolic conditioning
- Asymmetrical loading
- Power Training
  - Ground Base
  - Whole Body
  - Explosive
  - Triple Extension

Transfer to the sport arena
- Agility
- Vertical Jump

The Power of 5
(Coach Rutt's favorite 5 dumbbell movements)

1. Overhead Lunge
   - Unilateral
   - Contralateral
     - Step and return
     - Walking lunges
2. Vertical Pressing
   - Press
   - Push Press
   - Push Jerk
3. Overhead Squat
   - Pressing snatch balance
4. Clean
   - Power
   - Squat
   - Split
5. Snatch
   - Power
   - Squat
   - Muscle snatch or high pull snatch w/o jumping or knee bend
   - Single leg split

3 rounds for time

Hang Power Clean/Push Press
Overhead Squat
Hang Snatch

For reps of:
20 (10/10) 16 (8/8) 10 (5/5

More DB Work from the Ruttman

1. Squats
    a. High Carry Double
    b. High Carry Single
    c. Low Carry Double
    d. Low Carry Single
2. Split Squat
    a. Rear leg on low bench, front leg squats until rear knee touches
    b. Can be done with one or two DB's or none at all
    c. Do not let front knee track outside or in front of toes
3. Sprint Lunge
    a. Imitates Gait Cycle
    b. Very light weight in each hand
    c. Slow, exaggerated high stepping lunch
    d. Hands move in exaggerated gait cycle hip to lip
4. Hammer Lunge
    a. No Gait Cycle
    b. Single DB overhead, in front or out to the side
5. Lunge with torso rotation
    a. DB held to center chest with torso rotation each step
    b. Hold DB with both hands, rotate as far as possible
6. Forward and Sideward Lunges
    a. DB in each hand
    b. When lunging touch floor on either side of the foot you lunge to
7. Standing Press
    a. DB can be pressed overhead with one or both hands
    b. Press can also be push press or push jerk
8. Split Jerk
    a. Same movement as with a barbell
    b. Rapid, violent upward pull with a jump under the DB
9. Upright Rowing
    a. Slight forward lean
    b. Can be done with single DB or two
    c. Can be alternated or simultaneous
10. Pushup Variants
    a. Standard pushup
    b. Pushup with single arm row
    c. Stability change with wide or narrow feet
    d. Roving or Alligator pushup
        i. Feet static with side to side movement

ii. Front/back or side to side crawling with straight legs
iii. Pushup with high upward reach of one bell (KB Gladiator)

11. DB Swing
    a. One bell both hands, one bell one hand, one bell each hand
    b. Forward thrusting movement with the hips
    c. Drop your butt on the down swing, don't bend forward with the back
    d. Swing to overhead position at the top
12. Step ups
    a. One DB or one in each hand
    b. Low carry, high carry or overhead
    c. Hammer positions can also be used
13 Bench or floor press
    a. One DB or one in each hand
    b. Can be done with a bench or from the floor
13. Turkish Get Up
    a. Lie flat on back with DB pressed upward with an active shoulder
    b. LOOK AT THE DUMBBELL AT ALL TIMES
    c. Rotate to opposite hip
    d. Sit up and draw bottom knee under you
    e. Support yourself with off hand
    f. Sit up to off side knee
    g. Go to squat position or split position to standing
    h. Reverse procedure to get back on the ground
14. Weighted Pullup
    a. Cross your ankles to hold DB for pull-ups
    b. Easier if someone places the weight for you
    c. Dropping weight is easy to continue reps
15. Farmer's Walk
    a. Requires very heavy DB's
    b. Go heavy and short, light and doesn't work
    c. With lighter DB grip by the weighted end rather than the handle
16. Bent Over Rows
    a. Bend over with a flat back
    b. Pull weights up to chest or waist
    c. Pull scapula together with each rep
17. Dumbbell Clean
    a. Same performance rules as barbell clean
    b. Weight must pass very close to the body in a vertical line
    c. Jump – Shrug – Stomp and get under the bell to receive it
    d. Try with both one and two dumbbells
18. Dumbbell Snatch
    a. Very similar to the clean with the same type of rules
    b. Pull the weight farther and drop lower to catch the DB overhead
    c. Must pass very close to the body without a forward arc
19. Thruster
    a. Same movement as with a barbell or medicine ball

   b. Can be done with one or two dumbbells

20. Weighted Burpees
   a. Same movement as without the weight
   b. Jump can be done with or without the DB's
21. Lunge with Overhead Press
   a. Begin with DB's in high hold
   b. Lunge forward and press the DB's overhead
   c. Can also be done singally
   d. Can add curl before stepping to the lunge and press
22. Clean and Box Jump
   a. Begin with clean then box jump
   b. Progress to clean with box jump at the same time
23. One Foot Balance to Split Jerk
   a. Weight in right hand, balancing on right foot
   b. Left foot is behind and you are bent forward at the waist
   c. Stand erect and jump to a snatch position with a split squat
   d. Be sure to pull the weight vertically, jump and stomp the feet

Day 2
Morning

WHAT IS FITNESS?

In order to argue (as we do) that ours is the world's best strength and conditioning program and that it creates the most fit athletes…we had better have a good working definition of fitness. But where do we find that definition? A Google search reveals this as an example: Good physical condition; being in shape or in condition. Wow. That certainly nails things down. The book that is the authority on strength and conditioning "The Essentials of Strength and Conditioning" gives no definition of fitness, but what's more it has no workouts to do in fact it provides no guidance at all for actually creating a strength and conditioning program. CrossFit provides 4 definitions:

Fitness Model 1
Identification and development of the 10 general physical skills:

1. Cardio-vascular and cardio respiratory endurance (gas exchange)
2. Stamina (muscular endurance)
3. Strength
4. Flexibility

Each of these above four skills are organic, produce changes in muscle tissue (that can be seen and measured) and are improved through training. We can think of these as improvements in hardware.

5. Power
6. Speed

These middle two are improved through both training and practice and need both for proper development.

7. Coordination
8. Accuracy
9. Agility
10. Balance

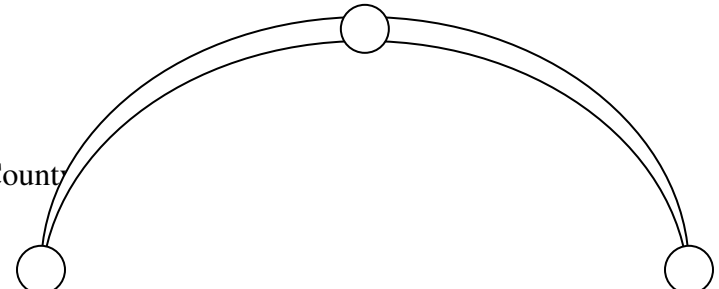
The last 4 are neurological, are improved through practice and can be considered software. The degree to which a training program addresses each of these physical adaptations to training is expressive of its efficacy.

Fitness Model 2 is statistical and is a measure of an athlete performing relatively well at any physical task thrown his way. Load a hopper with athletic tasks and the better athlete is able to do more of them better than the other guy. CrossFit is designed for this type of general physical preparation. Nature, on average, punishes the specialist. The more specialized you are the less cross-adapted you are likely to be in other measures of physical prowess. Let's pair up Lance Armstrong against Josh Everett. As Coach movingly put it, "Unless it's a long bike ride or bagging a rock star…Josh has Lance beat hands down."

Fitness Model 3 is the bioenergetic or metabolic pathways model. At one end we have the phospho-creatine or phosphogen pathway which is the max effort energy system that lasts to a max of about 10 seconds. In the middle is the glycolytic or lactate pathway and this peaks around a minute and then tapers off to a max of about 2 minutes. Finally we have the oxydative or aerobic pathway and this has a much lower intensity than the other two and does not have a drop off point. This energy system is sustainable to the degree that the individual athlete trains it. The phosphogen pathway is the max effort short duration world of the sprinter, Olympic weight lifter or other hyper intensity athlete while the aerobic pathways are where marathoners, cross country skiers and long distance cyclists ply their craft. We CrossFitters live in the glycolytic pathway and structure our workouts so that we work at very high levels of intensity but for aerobic lengths of time. This allows for simultaneous development of all three systems more efficiently and effectively than working them individually ever could.

Take the Tabata protocol of 20 seconds on and 10 seconds off and recognize that the 10 seconds off really is not sufficient to provide much of a recovery. The reason Tabata is so effective is that it blurs the line between the three energy systems and trains them all simultaneously. Take a look at most any CrossFit workout and you will notice that the intensity at the glycolytic level but the time you are there is well into aerobic time ranges.

Fitness Model 4 is the wellness model. On one end of the bell curve we have sickness and at the other, fitness. Sitting on top of the bell is wellness. If on the sickness side of the scale we have high blood pressure, being overweight, high body fat, and high cholesterol and on the other we have low BP and HR, body fat and so on then we have a way to measure numbers that are indicators of fitness. Thus by being fit we have a long way to descend before we wind up being sick. We have to go through wellness first. If you are fit, then, and you find yourself getting well, watch out…you are on your way to sickness. Fitness is a hedge against sickness, a buffer, a prophylactic that protects you from the various maladies that plague the society's unfit masses.



Wellness

Sickness **Morning W** **Fitness**

Annie Are Y

Rower set to calories
Dumbbell Thruster
Sumo Dead Lift High Pull with Kettlebell
Burpee
Ball Clean
Wall Ball

This horrific event has got to come directly from the Marquis de Sade handbook of physical education for people you hate. You know how some workouts don't look so bad on paper but when you do them they are somewhat akin to taking a potato peeler to your eyeballs? Well this one looks the potato peeler even on paper.

Picture this: The facility we are using is in a business park where there are huge buildings with roll-up doors. The ceilings are at least 25 feet high and the structure is about 48 x 90 give or take with a nicely polished concrete floor. Hanging from the ceiling on 7 blue straps each are 4 sets of very long pull-up bars. Underneath these bars are 5 sets of teams each with 6 people doing the above listed DOMS inducer. Each person started at one of the stations and hammered out the required 21 reps. Only when the entire rest of the team had completed all their reps could the team then rotate to the next apparatus. When all 6 members of the team finished all 6 events for 21 reps, they would cycle through a second time for 15 reps and then when that was done they would hit it for a third time at 9 reps. Minus the advantage of previous exposure to this type of exercise, an outsider would certainly look at this with a marked sense of wonder or perhaps a desire to contact the nearest mental health facility. On top of the difficulty of just moving for that long, there are blue-shirted form Nazis present at every single station, looking at every single rep of every single person making sure each and every movement meets the CrossFit standard. If you do in wrong, you must do it again and keep doing it until you do it right. People were dropping like flies from this one and the fallout rate made Coach think the reps should have been 15-12-9 or even a single run of 21 reps of each

Mike Burgener
Olympic Weightlifting
www.mikesgym.org

This is amazing person is Aimee Anaya. She is 29 years old and weighs 63 kg (138.6 lbs). Aimee won a silver medal at the 2000 Nationals after 3 years of lifting and just 2 months ago came out of retirement with her sights set on international competition. She is a single mom with a 4 year old and she trains 5 days a week. Per Coach B. the bar is loaded with 110 or maybe 115 kg (232 or 253 pounds).

In his typical genteel way Coach Burgener introduced himself to the gathered hoard of Pukie Pursuers by yelling at us. There is something uniquely acceptable in the way Coach Burgener calls you a weak little Nancy that makes you want to work harder. Picture the hard core drill sergeant from Full Metal Jacket and in your mind recreate his powerful and commanding voice saying:
"You are my high school PE class and you are mine for the next 2 hours. During this period of instruction I will frequently check with you to see if you are paying attention and when I do the proper response is YES COACH!!! Do you understand?"

Loud and thunderous chorus of "YES COACH!!!"

"OUTstanding. I expect nothing less than perfection. I will accept nothing less than perfection and I see everything. I. See. Everything. Do you understand?"

"YES COACH!!!"

"Good. If you mess this up and you don't sound off properly you will get down and do burpees. In fact, everytime I say burpee you will sound off with "Yeah Burpee." Do you understand?"

"YES COACH!!!"

"Burpee."

"Yeah Burpee!"

"That's weak. Let's try that again. Burpee."

"YEAH BURPEE!!!"

"OUTstanding. I need a volunteer. Give me a female former Marine JAG lawyer. Are there any of those in here? Carla, c'mon up here."

Dark haired woman, presumably named Carla and presumably a former Marine JAG lawyer goes up to the front and joins Coach Burgener.

"Now, I'm going to have Carla here demonstrate how to do a burpee."

Subdued "Yeah Burpee."

Not so subdued "What was that? Are you people paying attention?"

"YES COACH!!!"

"Burpee."

"YEAH BURPEE!!!"

"That's better. Now, to properly execute the 6-count burpee…"

"YEAH BURPEE!!!"

"…Carla will on the count of one squat down and put her hands on the ground. One."

"On the count of two she will explosively kick her feet back into a pushup position. Two. On the count of three she will drop to the bottom position of a pushup. Three. On the count of four she will push back up to the top position of the pushup. Four. On the count of five she will bring her feet back toward her hands in a heels up squatting position. Five. And finally to complete the burpee Carla will…

Slightly muted "Yeah Burpee!"

"I almost caught you. Don't let me catch you again or you'll be down doing burpees."

"YEAH BURPEE!!!"

"That's better. On the count of six Carla will jump into the air, throw her hands up and sound off with a thunderous HOOOOAHHHH! Six."

Carla jumps into the air and in a church whisper squeaks out "oooooyaaaa?"

"OHMIGOD!! What was that? Sound off properly Carla. HOOOOOAHHHH. Now let's do that burpee…

"YEAH BURPEE!!!"

"…again."

After a couple reps Coach B asked "Do you now understand how to do a burpee?"

Slight pause. Was that a yes coach or a yeah burpee response? Incredibly you could actually hear the question mark in the thunderous response but the pause for thought was only momentary,

"YES COACH?"

"This is exactly the method of instruction I use for my high school PE class. You are about to pick up your PVC pipe for training and you can imagine the grab-ass and playing around that goes on with 30 kids all armed with PVC pipes. Feel free to limit the amount of grab ass when you get outside or I'll have Josh Everett do burpees."

"YEAH BURPEE!!!"

"You have exactly 90 seconds to get your PVC pipe and move out into the parking lot out front to begin training. Where's my SEAL's? Make it happen."

Assholes and elbows. And 6' wooden dowels.

1. Stance
    a. Jump
    b. Land

2. Grip
    a. 8" to 12"
    b. Hook grip

3. Burgener warm-up
    a. 1-2-3 down and up
    b. 4-5-6 elbows high and outside.
    c. 7-8-9 muscle snatch (no knee bend)
    d. 10-11-12 land

4. Skill Transfer Exercises
    a. OHS
    b. Pressing Snatch Balance
    c. Heaving Snatch Balance
    d. Snatch Balance
    e. Snatch from High Hang

5. Three Pulls
    a. Ground to hips (high hang)
    b. High hang to full extension
    c. Pull under with elbows going high and outside

6. Foot position corrections (No preparatory jump)
    a. Snatch land
    b. Clean land
    c. Jerk land

JUMP AND LAND

Jump and Land. The Olympic weightlifting story begins and ends with jumping and landing. It's all about jumping and landing in order to create momentum and elevation on the barbell.

EXPLODE

Explosiveness is a key element to Olympic lifting. You need to explosiveness to lift well and Olympic lifting will create explosiveness. It is a violent and aggressive act to lift heavy weights and it is important to address the bar with that in mind. An aggressive and violent attitude can save a lift just as easily as an unfocused and soft approach will send the barbell crashing back to earth.

FULL EXTENSION

The bar must remain very close to the body and within the area of the base. This requires that you not lean forward or backward but only upward so that you can extend your body upward, get as tall as possible and create a path for the bar that moves it in a straight line from the floor to either overhead for the snatch or to the shoulders for the clean.

AREA OF THE BASE

Coach B. made the point that he can look at the feet of a lifter during the lift and generally predict whether or not the lift would be successful. That's how important your base is…it will allow your lift to be successful or it will cause your lift to fail. We began our day with our base, learning that we will be using two stances to jump and land cleverly named the jumping stance and the landing stance.

JUMPING STANCE

The jumping stance is your starting point and the stance that will allow you to provide the maximum leverage to your jump. You need to have your feet directly under your hips so that your upward energy connects with your hips in a perpendicular line with the platform. If your feet are too wide the angle makes for a watered down connection and you will lose power. Go stand in front of a box, a tall box, for a box jump. Step back from the box so you have to take one step up to the box to set up for your launch. Make two or three jumps onto the box. Step up fully intending to make the jump and stop without jumping. Look down at your feet…that's your jump stance. You will find that your feet are side by side with your toes out slightly wider apart than your heels. Feel where that stance is as you will pull and jump from this stance.

LANDING STANCE

The landing stance is wider than your jumping stance but only slightly so. Your feet will move outward about two inches on each side in order to provide room for your hips when you drop down into the bottom position when you receive the weight. You may have a tendency to step out into a wider athletic stance but that is too wide and will provide you with significantly less leverage than you will need to stand up with the weight. Jump into the air and land, the stance you wind up in will be your landing stance and will be just outside the width of your jumping stance.

JUMPING STANCE TO LANDING STANCE

We began our day moving from the jumping stance to the landing stance first by stepping and then by jumping. The jump is only high enough to allow you to move your feet outward…don't get air. The jumping movement is upward and is accomplished with a push through the heels. You go onto your toes when you want to maximize the height of your jump but you push through the heels if you want to maximize the height of an externally lifted object. For this jump, push through your heels.

When you land - stomp your feet. You should hear the slapping, stomping sound of your feet hitting the ground and the movement is very fast. Lift your toes as you jump so that you land on the flats of your feet. We jumped and landed again and again so it sounded like one giant stomp rather than a typewriter. Land with bent knees…you must not come down on straight legs or you invite injury to your knees, hips and back. Upon landing on bent knees be sure your knees track over your toes, your back is arched (not rounded) and your butt is sticking out backwards as if your were about to sit back onto a chair. Remember to not go too wide, just barely outside the width of your jump stance, toes slightly out.

GRIP YOUR PIPE

The grip width is established by finding a grip that puts the bar 8" to 12" above your head. What is above your head? Above your head is not simply higher than your head and certainly not in front of it or behind it. The bar should bisect your body front to rear and reside at a point directly above your ears. Do not go too wide with your grip or you threaten damage to your wrists when you catch the weight overhead. If you trend toward a wider grip your shoulders are too tight and you need to work on your flexibility.

The snatch grip is with the above established width, and the grip itself utilizes the hook grip. The hook grip is one where you wrap your fingers over your thumb to lock the bar into your grip. This grip is maintained only through pull and is released when the lifter flips his wrists upward to get under the bar. The arms are straight and are like ropes in that the weight simply hangs from the arms. Remember if the arms bend, power ends. You do not lift the weight with your arms. The momentum and elevation is given to the bar by your legs through the jump – not by your arms.

BARBELL PATH/AREA OF THE BASE

What tends to happen with the PVC pipe because of the lack of weight is that the lifter will move the bar in an arc forward and upward with straight arms which would not, could not happen with any substantial weight on the bar. The barbell must remain close to the body and this happens by bending the elbows up and to the outside not in an upward pull of the bar but rather a downward pull of the body. This straight line path for the barbell keeps it in the area of the base.

When you bend forward at the waist your body is pulled forward and you need to stick your butt back to even the score. When you dangle a heavy barbell from your arms you complicate matters and the only way to compensate is to keep the center of gravity of the barbell as close your own center of gravity as you possibly can. The area of the base

is described by a box that contains your feet. If you allow the barbell to drift forward of that box it will pull you forward and you will have to step that way to recover or lose the weight forward. The opposite will happen if the weight moves outside the box to the rear. So, keep the barbell inside the area of the base by keeping it as close as possible to your body during the pull and once it is overhead keep it above your ears.

BOTTOM POSITON

Your arms must be locked and your head in a neutral position eyes forward…not up, forward. When overhead you will have released your hook grip and will have your palms facing upward. Engage your shoulders and press them upward. Pull the bar apart sideways and stay tight. This is not a relaxed, comfortable position but rather a condition of very significant tension. Your butt is between your ankles, you back slightly arched.

THREE PULLS

In between the jump stance and the landing position as described above are three distinct pulls that are essentially the position, power and finishing pulls of the lift.

1st Pull. The first pull moves the bar off the ground to the crease of your hips moving past the knees NOT around them but past them by moving the knees back out of the way in preparation for the…

2nd Pull. The second pull is the most powerful movement in sport. It is the place where your body has the most powerful leverage position and where you explode upward. The bar must move upward so throwing any energy in any direction other than straight up is a waste. Once past the straightened knees in the first pull you bend them back under the bar in what is called the double knee bend or the scoop as you viciously, aggressively, and violently extend your body upward. Coach B. said that you want to imagine yourself getting as tall as possible here as you shrug your shoulders to your ears. Full extension of your body is what you want so that you impart as much upward movement to the bar as you possibly can before you move to the…

3rd Pull. The bar is now weightlessly floating in space but is only for a brief moment in time. During this interlude between ascension of the bar and its pause in space you pull yourself downward against the weight not attempting to lift it with your arms but rather to rocket your body underneath the bar so you can catch it in the above described bottom position.

PRESSING SNATCH BALANCE

The Pressing Snatch Balance begins with the bar on the shoulders behind the neck in a standing position with the feet in the landing position, hands in a snatch grip. Keeping the bar stationary, press yourself downward away from the bar, very slowly, going all the way down to the full squat position with the bar held overhead. Stand with the bar and then lower it to your shoulders and repeat.

HEAVING SNATCH BALANCE

The Heaving Snatch Balance is much the same as the PSB only it is done at a faster pace. Once again move yourself down under the bar, don't press the bar upward. Your feet remain in the landing position and you begin with a small down and up movement quickly dropping yourself under the bar to the overhead support position.

SNATCH BALANCE

For the Snatch Balance movement begin with your feet in the jumping position, go down and up and then explode upward with your arms as you stomp your feet outward to the landing position. The bar is still behind your neck and held in the snatch grip and you still want to minimize your air time. Only lift your feet high enough to be able to move them outward into the landing position.

1. Get tall. You want to go to full extension.
2. Slow the initial liftoff from the floor then accelerate viciously for the 2nd pull.
3. Junkyard dog attitude.
4. Good technique but a soft attitude and you have a failed lift.
5. Bad technique but a ferocious, mean as hell attitude, 3 green lights.
6. Tight, hard, strong at the bottom position. Stick it out and fight that weight.
7. When it's time to go, go hard. Explode viciously upward and JUMP!

The movement key is the Down and Up. This will make or break the lift. The attitude key is an aggressive, never-say-die, can-do mindset. Do not let the weight deny you the lift. You attack the bar like a junkyard dog.

CLEAN AND JERK

Once you understand the snatch lift, the clean and jerk is learned in very short order. When you do the snatch you want to accelerate the bar upward with the down and up movement and then pull yourself under the weight rather than try to push it upward. When you do the clean you want to accelerate the bar upward with the down and up movement and then pull yourself under the weight rather than try to push it upward. When you do the jerk you want to accelerate the bar upward with the down and up movement and then push yourself under the weight rather than try to push it upward. A bit of a pattern there.

GRIP

Your grip on the bar is about a thumbs length from where the knurling ends toward the middle of the bar. This corresponds to about a thumb's length wider than your hips. You grip the bar with the same hook grip as you do with the snatch. After you stand with the bar you release your thumb as with the snatch but the bar will be received on the front part of your shoulders with your hands just outside your shoulders and the bar sitting on your fingertips. You are not holding the bar with your hands upon receipt of the bar because you want to rotate your elbows upward to keep them from crashing into your

thighs at the bottom of the clean when you are in the full squat position. You can't rotate your elbows upward to a parallel position with the floor if you are gripping the bar. Let the bar slip from your grip and maintain contact with the bar with just your fingers. Once you stand up with the bar you bump it up and re-grip it so that your elbows are back in position below your hands.

FRONT SQUAT

Clean the barbell to your shoulders or take it from a rack. Keep your elbows high and use the landing position for your feet. Take a deep breath, pressurize your core and stay tight, then squat butt to ankles and stand back up. Be sure to stay as erect as possible and not dip forward so that you are lifting with your back. This will hurt your back and cause you to lose the weight forward. Push through the heels and maintain a consistent back angle that matches the angle of your shins. As you stand be very careful to not start up with your hips. Your hips must not move faster than your shoulders or you will create a damaging lever that will endanger your lower back. If you find that the outer edges of your heels lift at the bottom of the squat - rather than trying to force your heels down, press outward with your knees and feel around for the most stable platform and most solid groove for your knees.

Next jump the bar through its range of motion. It is important during the clean to make sure you meet the bar where it is otherwise it will come crashing down on your shoulders. The squat clean is a failed power clean. If your pull is so powerful it goes higher than your normal squat depth, you will want to meet the bar higher so you don't get driven into the ground.. If you receive the bar above parallel it is a power clean.

Just as with the snatch the first pull is a positioning pull and is done slowly to get the bar to where you can exert the 2nd pull that truly accelerates the bar. The 2nd pull is the powerful, explosive upward extension of the body that gives the bar its momentum and elevation. The 3rd pull finds your elbows high and outside as you outrun gravity to get yourself under the bar.

JERK

Remember that the snatch is a jump and land receiving the bar at arms length overhead with a wide grip, the clean is a jump and land receiving the bar at the shoulders with a shoulder width grip and the jerk is a jump and land receiving the bar at arms length overhead with the same shoulder width grip. The down and up creates the jump and stomping your feet apart after an explosive upward extension and catching the barbell overhead creates the land.

In order to do the jerk you have to figure out if you are a right or a left leg forward jerker. One way to do that is to lean out against someone's outstretched arms as if in mid-flight during a ski jump. Without warning the holder will let you go and you will stick out a leg to stop yourself. Whichever leg you stick out to stop your fall will be the leg you stick forward when you jerk. Another way is to have someone walk up behind you and give you a push without warning. This is not only a good dominant leg check but Coach B. says it's a great deal of fun…for the pusher. After you figure out which leg

you are going to stick forward you need to establish the length and width of your stance…we do this with the:

LUNGE

A great way to start is to do walking lunges. Take a great big step with the belly button pointed to 12 o'clock and if you step with the left leg step to 11 o'clock and if you step with the right step with the right step to 1 o'clock. Now walk around like that for awhile and get used to that position. The knee of the front leg must be over your ankle so that the lower leg is horizontal with the ground. Your rear leg is slightly bent at the knee and your weight is on the ball of your foot. You are pressing forward with rear leg and backward with your front leg wedging your hips in between giving the weight you are holding overhead a strong platform upon which to sit. When in this position keep your core tight and your back erect.

The lunges make for a great developer of the jerk position but of course are a terrific workout on their own. Step ups on a box are another great developer of the strength needed for the jerk position.

RECOVERY

When you have finished the jerk and are going to recover to a standing position always step backward with the front foot and then forward with the back foot. If you find yourself stepping forward with the back foot you have put too much weight on your front foot. Once you have recovered to a standing position, try taking a step forward, one to the right, one back and one forward. Great core developer.

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Introduction

Kettlebells are an extreme fitness tool. When properly implemented, kettlebells will enhance the athletic qualities of the practitioner by quickly building strength, endurance, flexibility, core stability, and cardio pulmonary efficiency.

Learning Objectives

The attendee will learn kettlebell exercises that will:

- Increase Core Strength
- Increase Grip Strength
- Increase Basil Metabolic Rate (BMR)

Kettlebell Safety

- Consult your physician prior to taking up a new exercise program.
- Train where there is no concern about property damage or injury to anyone.
- Don't try to recover a questionable rep. Drop/guide the KB safely to the floor.
- When your torso is folded forward, keep your weight on your heels.
- Protect your back with intra-abdominal pressure and glute tension.

- Gradually build up the training load. Adhere to the "KILAH" principle (Keep It Light And Happy)!
- Instruction cannot cover all contingencies. There is not substitute for common sense and good judgment.Remember the H2H Motto: "If you gonna be stupid, you gotta be tough".

Around the Body Pass™

The "Around the Body Pass", also known as the "Slingshot™", is a powerful midsection and grip strength exercise unique to kettlebells. It develops strength, endurance, the skill of "matching the breath with the force", and quick alternation of being loose and tight – all essential in kettlebell lifting, martial arts, and sports.

Technique:

1. Fold at the hips, keeping your back straight (not necessarily vertical) and dead lift the KB using two hands.
2. Firmly plant your feet shoulder width apart; keep your knees slightly flexed.
3. Let go of one hand and begin the circular momentum.
4. Keep the abdominals and lats contracted, shoulders down, and chest open as you pass the kettlebell from hand-to-hand around the body in a clockwise/counter clockwise fashion.
5. Continue passing the KB from hand to hand – changing hands when the KB is in front, and again when it is in back of your body.
6. Go fast and stay loose until the moment your hand grabs the kettlebell.
7. Suddenly pressurize your abdomen and tighten your grip with each pass. Instantly, go loose again.
8. Perform and equal # of reps in both directions.
9. Go for time or reps.
10. Terminate before form deteriorates.

Tips:

1. Look straight ahead; do not look at your hands or the kettlebell.
2. Control the kettlebell; do not let it pull you off balance or out of alignment.
3. Use a medium to heavy kettlebell.
4. Elongate the arms; bending at the elbows too much will burn your biceps.
5. Keep your chest open.
6. Shift your body-weight from side to side in order to maintain balance and speed.

Variations:

1. Grasp the handle "corner-to-corner", keeping the handle horizontal.
2. Grasp the handle "fingertip-to-fingertip"; keeping the handle vertical.

Benefits:

1. Strengthens all the muscles that stabilize your core.
2. Great Oblique developer.
3. Strengthens the muscles of the arm and hands.

Around the Body Pass/Figure 8 Combo™

The easiest and safest way to change directions when performing the "Around Body Pass" is to pass the kettlebell between your legs from front to back. The "Figure 8" drill can be done alone or combined with the "Around the Body Pass" drill and other H2H drills.

Technique:

1. Begin with the Around the Body Pass.
2. Simultaneously inhaling through your nose and folding at the hips. Be sure to the butt goes backwards, shins stay vertical, and weight shifts to the heels.
3. Keep your head up, chest open, and back straight.
4. Pass the KB from front to back. This movement is similar to that of a center, on the offensive line, "hiking" a football to the quarterback.
5. Pass the KB "fingertip-to-fingertip" style (trying to keep the handle vertical rather than horizontal). This will help maintain proper back and shoulder alignment.
6. Straighten up and resume the "Around Body Pass" in the other direction.
7. Repeat the sequence (through the legs & around the body) following a figure 8 pattern.
8. Go for time or reps.
9. Terminate the drill before form deteriorates.

Tips:

If you feel your abs fatigue, then:

1. Re-pressurize your abs.
2. Activate your obliques by contracting them harder.
3. If you sense your shoulders rounding forward or your lower back fatiguing, then it's time to stop and rest.

Benefits:

1. Strengthens the entire core, legs, lats, and internal rotators of the shoulder.
2. Works stabilizer muscles.
3. Improves coordination.

Hot Potato™

The Hot Potato is a dynamic drill for strengthening the muscles of the core and upper body. This deceptively demanding exercise enhances the body's ability to absorb impact and taxes your cardiovascular system. This fun H2H drill can be easily combined with other H2H drills for interesting combinations.

Technique:

1. Starting in the "rack" position, hold the ball of the KB in your hand with the handle pointing down.
2. Keep the knees slightly flexed, the glutes and abs tight.
3. Keep your triceps close to your ribcage by contracting your lats. Pretend you are squeezing a tennis ball in your armpit.
4. Keep your wrists tight and extend your fingers, as if you were palming a basketball.
5. Using hip drive, generate power from your legs to quickly and explosively "pop" the KB up and over to the receiving hand. Allow the KB to follow a short arch. Do not let the KB stray beyond the "rack" position.
6. Actively exhale with every catch.

Tips:

1. Beginners & indoor users may hold on to the handle with the free hand.
2. Be sure to keep your elbows close to your body and let some air out as you catch the KB to absorb some of the impact.
3. Go fast!! Don't let the bell "rest" in the palm.
4. Start out with a light kettlebell; gradually progress with both number of reps and with weight.

Combines well with:

1. Around the Body Pass™/Figure 8™ Combo

Benefits:

1. Strengthens all the muscles that stabilize your core.

2. Strengthens the muscles in the hand and forearm.
3. Develops oblique strength and lats.
4. Increases the body's ability to absorb shock
5. Improves eye-hand coordination.

Upper-Cut/Figure 8 Combo™

This exercise builds exceptional rotational core strength and teaches how to generate power from the legs and hips. The benefits and carryover to sports and demands of daily life are huge. Master this drill! This combination is the foundation for many other advanced drills and combinations.

Technique:

1. Start with the Figure 8 drill in the previous exercise - passing the kettlebell between your legs from front to back.
2. Generate power by driving off the "working" leg, pressurizing your core, and power breathing.
3. Load your weight onto the same leg that the kettlebell is coming around and push through your heel as if you were "pushing the floor away".
4. Contract your abs hard as the KB elevates diagonally across your body. Feel the obliques work.
5. Let the ball of the KB land in the palm of the receiving hand. Do not let go of the handle.
6. Keep your chest open and extend the hips at the top of the movement.
7. Pass the KB between your legs (front to back) and repeat with other hand, in the other direction.
8. Repeat in the Figure 8 pattern.
9. Go for reps or time.
10. Terminate before form deteriorates.

Combines well with:

1. Hot Potato™

Benefits:

2. Strengthens the entire core - particularly the obliques.
3. Develops exceptional rotational strength and power.
4. The transfer to other sports and demands of daily life are huge.

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Day 3

In order to satisfy the uninformed who consider the deadlift, clean and the clean and jerk as too dangerous, difficult or otherwise too much bother to fuss with, Coach presented the following alternative:

La Keysha Sayles (the pure embodiment of running speed) up front with Eva, Annie and Nicole as Coach is describing lifting without weightlifting. Coach points out that, "Functional movement is the shit you do everyday." In front of the girls are a kettlebell, a 25 pound plate balancing on its edge, a Dynamax medicine ball and a 2-foot irregularly shaped log about 10 inches in diameter. For those wary of any sort of weightlifting movements in their training because they are too dangerous, complicated and difficult to learn, Coach posed the question, "Do your people ever have to lift things off the ground?" The answer would be that of course they do so the girls first deadlifted their relative implements but that is a lifting term so he described the movement as "Hey, pick that up." Using proper form the lifting movement elevates the object with the hips, the arms acting only to connect the object to the body. This movement supports the weight from above and is an incredibly functional and oft used movement. It is also significantly important to your training and needs to be included in your workouts.

The next step is to add a movement that changes the support of the object from above to support from below. This movement is code named "clean" but don't frighten anyone with that. The movement is very dynamic and much more is going on with the body than with the implement. In this movement Coach insisted that the orientation of the implement remain the same from the ground, through the support from above as the lifter stands, through the transition where the lifter goes to a full squat to receive the weight and at the catch position at the bottom of the squat. The implement does not rotate at all and only moves as high as where it will be received at the full squat.

Coach then had the girls demonstrate the press, the push press and the push jerk likening the movements to actions necessary to get progressively heavier objects overhead. The press is the easiest of the three movements and is done by simply using the arm muscles to move the object from shoulder height to full arm extension overhead. This involves little coordination with the rest of the body and is limited by the strength of the lifter.

The push press begins with a slight flexion of the knees to allow for a push with the legs timed so that the arms do the pressing movement in time with the completion of the upward extension of the legs. One of the best reasons to do this movement is to first expose and through continued practice repair muted hip function. More detail on that later.

The most powerful of the overhead movements is the jerk. It can be done as a push jerk, a split jerk or even a squat jerk. This gem of a movement was demonstrated by the girls with their odd objects as they had done with the press and push press. Coach Burgener's jump and land reminder was in evidence as all three girls flexed their knees slightly to assist the arms in getting their bell, plate, ball or log moving upward and then

at the peak height of the object they jumped downward underneath the object to a depth that would allow full arm extension, paused and then stood up. This is a great progression to teach the clean and the three overhead movements and it makes clear the functionality of the movements at the same time.

PRESS - PUSH PRESS - PUSH JERK

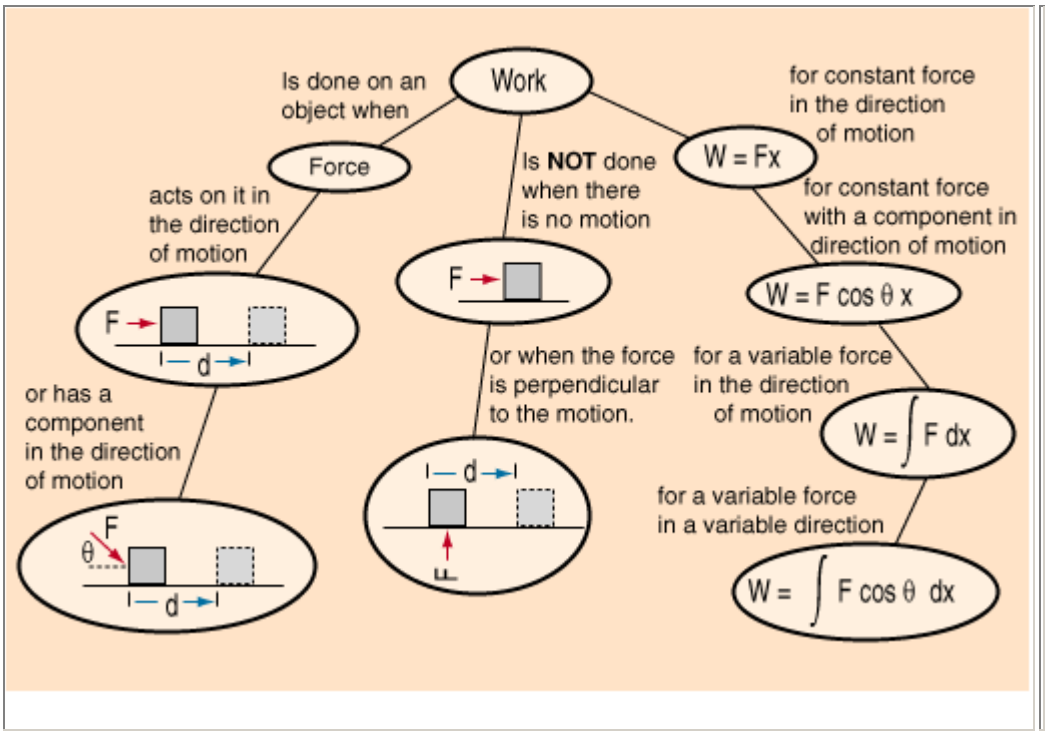
The magic, the glory of CrossFit is contained within the intensity of its workouts. CrossFit is all about results, the results come from intensity and intensity is all about the development and execution of functional movements with ever increasing amounts of *power*. Thus CrossFit is about power. The more power an individual movement can create the greater its intensity and thus the more functional and developmental it is. That's why you get a lot more out of the clean and jerk and deadlifts than you ever will from curls and lateral raises.

Force:

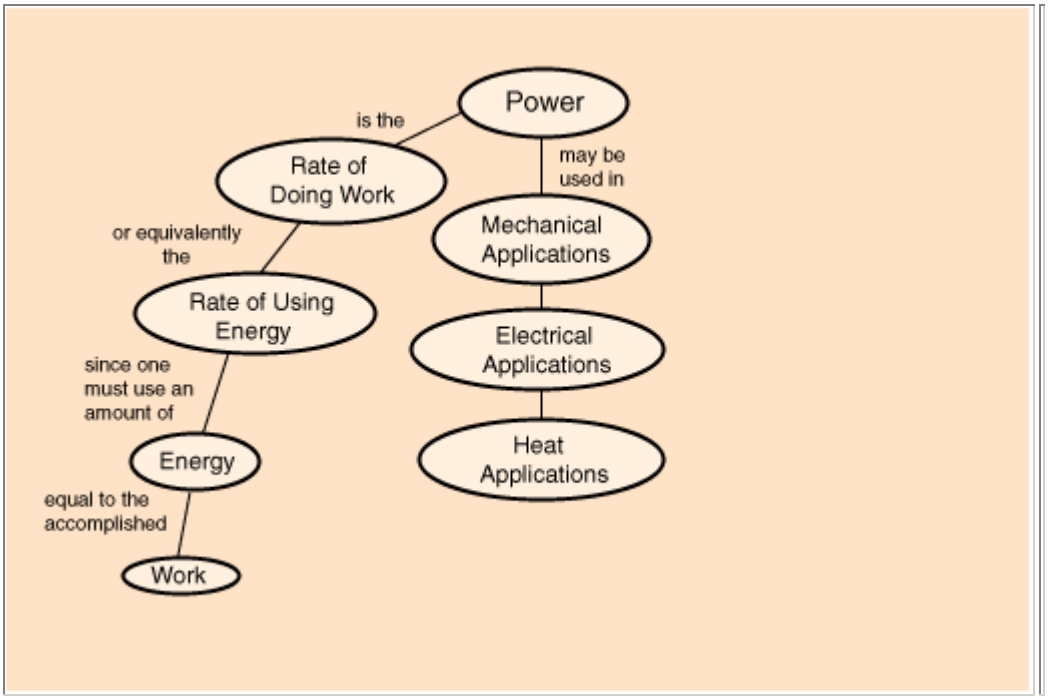
Whenever two things interact, a pair of forces is always involved. Forces make it possible for you to experience the Universe. **Force can be defined as a push or a pull.** Because an assortment of stimuli are pushing and pulling on the receptors in your sense organs, you experience the world around you.

Work: If you have ever pushed a car (using your own hands and feet) in an attempt to start the car, you should remember that at first, when you were pushing hard, you weren't winded. However, as you moved faster and faster you really started to breathe hard. You do work when you apply a force and move in the direction of the force while you are applying the force. **Work is done when a force is applied through a distance** and the force is in the same direction as the distance moved. **Work is the way we transfer energy.**

Power: You can walk up a flight of stairs or you can run up a flight of stairs. Either way you apply the same force through the same distance so you do the same amount of work. However when you run you develop more power. **Power is work per time.** Another way of saying the same thing is to say: Power is the rate of doing work. ("Rate" in this application means: "per time". Speed is the rate of covering distance, and work per time could also be called the rate of doing work. That is, power is the rate of doing work.) Let's say a clunky old car and a powerful sports car happen to weigh the same and they both climb the same hill. Since they weigh the same, they must exert the same force, and since they both go the same distance, they each do the same amount of work. However, the sports car gets to the top much more quickly because it is so much more powerful. More work in less time is an indication of greater power.



Work = Force x Distance



Power = Work / Time

If you want to create more power you need to do more work and/or do it in less time which brings us at last to the Press the Push Press and the Jerk. You can lift more weight and move it faster as you move from the static to the more dynamic movements, and from left to right on the power meter below. Measure the functionality of a movement by how much weight you can move and how fast you can move it.

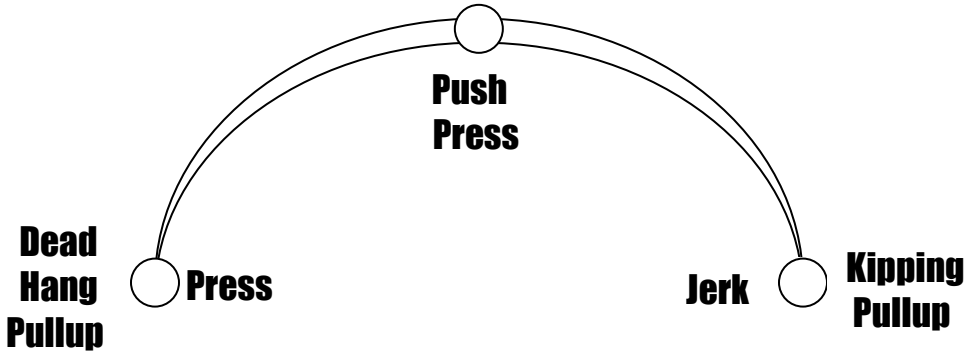
We start with the shoulder press. A very basic strength move and looked at relative to power production formulas its inferiority is quite evident. The press moves less weight, slower and for fewer reps than the push press or jerk

It is easy to see that the push press and to an even greater degree the jerk are superior movements to the press in every measurable sense, but what do we mean when we say superior? Coach asked for some attributes to describe what the jerk has over the press and the list included that the jerk is more functional, moves more weight, is core to extremity, creates more power, moves the weight faster and for more reps, involves the hips in fact the whole body, is a learned skill and as such involves coordination and timing, has an increased metabolic response, requires significantly more energy and to greater and lesser degrees addresses all 10 of the general physical skills we are chasing.

A Push Press begins with the barbell in the clean position and a slight dip in the knees. Listen closely and you can hear Coach B. say, "Down and up." This is not a half squat or any sort of squat at all but rather just a slight dip of the knees with no pause at the bottom. Push from the heels as you aggressively launch the barbell off your shoulders at the top of the upward movement of the legs. You are combining the shoulder press movement with a thrust from the legs which will require some coordination and timing but will produce much more power.

The Jerk movement can be done as a push jerk where you finish with your feet side by side and a fairly erect posture or a squat jerk where you bend your knees to the degree necessary to get under the bar. More common is the split jerk where you launch your legs in to a lunge position to get under the barbell.

All the arguments made in favor of the jerk over the press can be made just as enthusiastically for the kipping pull-up over the dead hang. It is more powerful, more athletic, involves more of your body, is faster, allows for more reps…the list is long and compelling.



January 2003 CFJ

A Costly Biomechanical Fault: Muted Hip Function (MHF)

The Problem

The most powerful forces that can be generated by the human body are initiated, controlled and dominated by the hip. Unfortunately, in the majority of trainees, some degree of hip dysfunction creates postures and mechanics that reduce power and stability and are generally unsound. The faulty mechanics arise from inadequate training and insufficient practice of critical hip movements and is called MHF.

Who's Got It?

MHF is evident to some degree in all but the most accomplished athletes or those who've trained to avoid it. We tell our best athletes that it will typically take 3 to 5 years to fully develop the hip's explosive capacity with no sign of MHF postures or tendencies.

Its Mechanics

MHF is, ultimately, the postures resulting from the legs compensating for the hip's failure – specifically, and foremost, using leg extension to compensate for weak or non-existent hip extension. MHF is squatting where hip extension is retarded while leg extension is not. We see it best in the dip and drive of a bad push press where the knees jut forward while the pelvis rolls back pushing the belly forward. In fact the push press is the best way to conjure up this fault even in people who otherwise may have a beautiful squat and seem immune to this curse. A load that can be push-pressed max twenty reps will typically induce this fault for the final four or five reps. More athletes will do it than not – including many good ones.

Elements of MHF

The elements of MHF include but are not limited to structurally disadvantaged spinal posture, low/no glute recruitment, low/no hamstring recruitment, pelvis abandons the spine and chases the legs, center of gravity shifts dramatically backward, center of balance shifts toward toes, knee experiences unsound sheer force, leg extension only productive effort, hip extension not possible with low hip angle, pelvis rotates wrong way, and most importantly stability, balance, and power diminish with lowered center of mass.

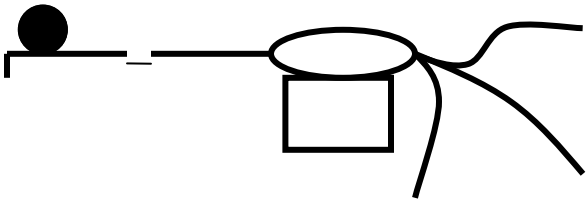
The Damage

In severe cases everything the athlete attempts is rocked by instability and low power. In mild cases power loss and instability occur only while under great physical stress. In combat and elite performance even mild MHF can lose the day. For physical performance what could be worse than low power and instability?

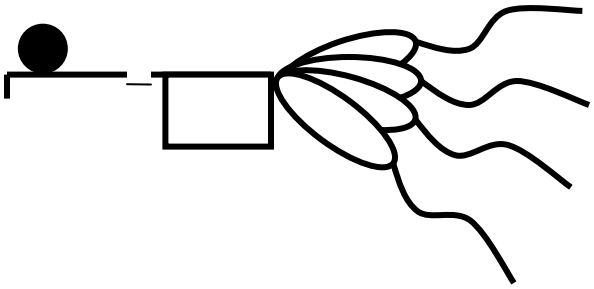
The Solution

Deliberate and focused training and practice of demanding hip extension movements is the only way to eliminate the effects of MHF. Again, it will typically take three years or more to eliminate all tendencies toward MHF. No exercise offers as much opportunity to correct MHF tendencies than perfect form, high rep push-press. MHF is evident within the first .01 of a second of a bad push press.

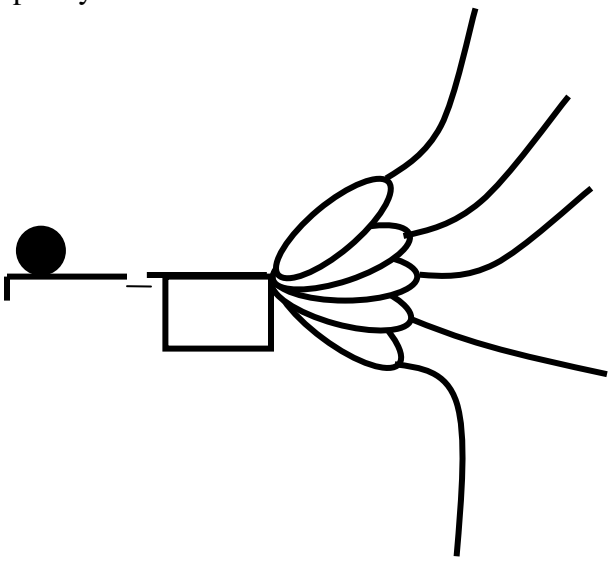
GHD Back Extensions



Hips disabled. Move the foot pads back so that the hips are on the pads. In this position the hips do not participate in the movement so it becomes a back extension without use of the hips. DO NOT let people reach down and grab the support post for the GHD and pull assuming it will stretch the back…what it will actually do is create substantial risk of injury to the spine. Lumbar curve out at the bottom, in at the top. This is back only.



Hips enabled. Move the foot pads forward so your hips are free to move. In this position the hips do participate in the movement and in two different ways. You can do the movement hip only by keeping the back position fixed and specifically identify the movement at the hip only. Or…



You can put them together. In this variation combine the hip extension with a vertebrae at a time extension of the back and at the top of the extension pinch the shoulder blades together. This is hip and back.

NUTRITION

www.zoneperfect.com

Dr. Ahmik Jones is a dive medical officer for the Navy SEALs. He told us that he didn't try the Zone at first because it seemed like so much trouble. Eventually he gave it a shot and he hated it…for awhile. He hung on for two weeks and was miserable because of the lack of carbs. After two weeks things got much easier and the cravings went away. More importantly he went from 24 pullups to 60 and lost 20 pounds. Dr. Jones reminds us that the health/fitness/diet industry came to an early conclusion that the culprit of societal obesity is fat consumption and that getting rid of fat in the diet would be the cure. *All* studies showed the opposite to be true but this notion carries on anyway. The government has put the low-fat diet forward for the last 30 years but recently a 70,000 person study of post menopausal women showed that a low fat diet had no beneficial health effects.

Steve Serrano is a cop in Santa Ana, California and came to the Zone with a cholesterol count of well over 300. Steve started with the Atkins diet which helped a bit but after going to the Zone he lost 18 pounds and dropped his cholesterol to 125 and it's still going down.

Go to CrossFit Journal #21, May 2004. It gives you meal plans and explains, "Our recommendation to eat meat and vegetables, nuts and seeds, some fruit, little starch, and no sugar is adequate to the task of preventing the scourges of diet-induced disease, but more accurate and precise prescription is necessary to optimize physical performance."

Protein 30%, fat 30% and carbs 40%. With the zone you need to balance these proportions with every meal and that balancing act is done with what are called blocks. On page 3 of the May 2004 journal is a page of meal plans which shows under the protein section that 1 oz. of chicken breast is a block, most of the fish is 1 ½ oz. per block. Your meal plan is based on how many blocks you get. I am a fairly lean triathlete and at 5' 11" and 170 lbs. and my number is 17 distributed as 5 and 1. I get 5 blocks of protein, 5 blocks of carbs and 5 blocks of fat at each meal and two snacks of 1 block of each. Balance is important. Note that each meal and even the snacks has a balance of each of the macronutrients.

More accurate and precise. The Zone diet is a method by which we can deliver to our bodies the accurate blend of macronutrients, based on our gender, weight, lean muscle mass and activity level, to deliver optimum health and performance benefits. The Zone diet uses the blocks described in the last paragraph to precisely measure your protein, fat and carbohydrate intake so you get a balanced amount of each with every meal and snack you consume. Each protein block contains 7 grams of protein, the fat blocks have 1.5 grams of fat and the carbohydrate blocks are 9 grams of carbs. Is this a bit of a pain, a somewhat annoying imposition on the free for all that describes how you may have been eating? Yeah, probably so, but the advantage you can expect from this performance enhancing nutrition program is commensurate to the degree to which you subscribe to and properly follow the Zone.

I cannot begin to do the Zone justice here, so it's fortunate there is a book all about the Zone Diet you must go buy now and read. Suffice it to say that the empirical data are in. It works. Input into the black box has delivered favorable output again and again in terms of weight loss, body fat loss, performance and health risk reduction. If this is not enough information to convince you to get into the Zone you need to go to HQ and visit with Nicole, or write to her. Either way you need to get into the Zone.

Cancer cells like sugar. They do not survive on protein and fats but they love sugar. Coach says we know that it is hyperisulinemia that is the main culprit in our ill health…not obesity. The original research that pointed to obesity as the core problem but stopped there without coming to realize that hyperisulinemia caused the obesity, high blood pressure, elevated triglicerides, suppressed high density lipds and all the rest. Obesity is just one of the symptoms, not the cause.

The Zone is a performance diet, but also a hedge against the ravages of disease and ill health. Get some blood work done and check to see that your triglicerides are below 200 and your high density lipids are above 35. If you divide the former by the latter and get a number in excess of 5.5 you need to get to work to lower that number. If it is below 3, you are doing well and have minimal risk of metabolic derangement.

Coach let us know that Loren is getting fairly close to bringing another Glassman into the world named Colleen. Little Colleen already has a workout named after her and it is a killer.

Colleen & Jerk

Dumbbell Squat Clean + 3 Push Jerks
7 minutes for max reps

Day 3
Afternoon

After lunch Coach called Cindy Axleson-Oji to the front to honor her husband's ultimate sacrifice. In June of 2005 Matt Axleson was one of four on the ground in Afghanistan that were surrounded by hundreds of Al-Quida. The helicopter that went down in the rescue attempt added 16 to the total.

Cindy is Jeff Oji's sister. Jeff is from Robb Wolf's CrossFit NorCal and Cindy is going to become a trainer there.

After searching for him after an ambush in Afghanistan, the Navy announced that it had found the body of a third SEAL commando, Petty Officer 2nd Class Matthew Axelson, 29, of Cupertino. Axelson's body was recovered in the Kuranwal Valley in the Kunar province, not far from the site where a helicopter, which had been sent to rescue the Monta Vista High graduate and three other commandos, crashed.

Axelson was part of a four-man reconnaissance team that was searching for Taliban and Al-Qaida forces in the mountains in northeastern Afghanistan, the Navy said. Only one member of the team survived after he was rescued by an Afghan shepherd. The Navy has not released his name.

Axelson grew up in Cupertino with his older brother, Jeff, and his parents, Cordell and Donna, and attended Monta Vista before going on to California State University-Chico.

Trained as a sniper, Axelson joined the SEALs, the Navy's special operations Sea-Air-Land units, specializing in unconventional warfare. In December 2003, he married Cindy Oji of Yuba City, whom he had met at college.``Besides the love he had for his wife, Cindy, who has been his heart and soul, the love of golf, the taste of a good beer, the warm California sun," being a member of a special-operation team ``was what he liked best," read a statement that was distributed at a memorial service Monday in Honolulu, where Axelson had been based.

His platoon mates referred to him as "Cool-Hand Luke" because of his calm demeanor. Matt kept true to the SEAL motto, "a quiet professional". All the guys looked up to Matt and sought his insight on most everything. A sage of many sorts, Matt had creative solutions to everything. Matt was the last guy recovered on July 10th. Up to that point, his platoon expressed that they were fully expecting a call from him, saying, "hey guys, bring me some more ammunition, I've found a cave and I'm having fun out here".

Among the military honors Axelson has received are the Silver Star, the Purple Heart, the Navy and Marine Corps Commendation Medal and the Good Conduct Medal.

John Hackleman
CrossPit
www.thepit.cmasdirect.com

John Hackleman, in case this important little tidbit of MMA fighting lore has escaped you, is the trainer of Chuck "The Iceman" Liddell, recent crusher – for the second time in a row – of the formerly unstoppable Randy "The Natural" Couture. John knows of what he speaks and fighting information from him is from as on high as such information can come. This is the go to guy for effective fighting technique.

John began his presentation with a discussion of how the Pit eloped with CrossFit to become CrossPit. The perfect merger of the world's best producer of fighters with the world's best producer of athletic fitness. John was very thankful to the CrossFit community for bringing to him a method of elite fitness that has elevated his fighters to the very pinnacle of the fighting world.

John began his program with an assertion of the ultimate functionality of fighting telling us that it is a basic human trait that is part of our wiring. The sympathetic nervous system responsible for our fight or flight response gives us a hormonal jolt of a variety of electro-chemical stimulants to include testosterone which jack your system into overdrive making you more aggressive and hostile in order to allow you to better fight to protect your life or to get away from a dangerous threat. What could possibly be more functional than protecting your life? Fighting is so basic, so intrinsic to our nature that you see it happen all the time in sports that have nothing to do with fighting. Rare is the football, basketball or baseball game that does not have some level of fighting in it. Need I even mention hockey? Go to a fight. You can bet that no matter how bad things get you will never have to worry about the fight degenerating into a basketball game. .

Stance – about 45 degrees with the feet so that the off side is slightly forward both feet turned to about 2 o'clock. Lead shoulder turned in and raised slightly to cover your chin. Drop your head slightly behind that wall of your left shoulder because you must protect your chin. Elbows in tight against the side to protect the liver. Your liver is located on right side of your abdomen and if struck it WILL put you down. Do not lift your right arm to protect your head. Keep your chin down and shoulder up and your right elbow tight against your side.

The right hand parrys the opponent's right hand by redirecting the movement to the left and stays up your face. You can drop your lead hand (though it is not advisable) but you must always keep your right hand up by your face.

Changing levels to protect against a take down or sprawl which is very much like a squat thrust. To drill this the fighters can on one whistle punch 4 times and the change levels and on 2 whistles punch 4 times and squat thrust.

The Hook

The hook is The Pit's signature punch. John likes to open with it and it is a favorite amongst the Pit crew. The hook comes at you from just outside your forward vision and since you don't usually see it coming it is a great knockout punch. To resolve the problem of telegraphing the punch, John had us use a more open hand carriage rather than the tighter boxer's method. This more open hold allows for delivery of the hook without any loading which gives the punch away and allows for faster interception of incoming strikes. Works for Chuck.

John had us practice the hook to a slap pad. Be sure to make a tight fist and keep your arm fairly loose. The power comes from the hip which precedes the punch. Be sure to transfer the weight from the front foot to the back foot so that you lean slightly away from the punch as you finish and rotate on the ball of the left foot. Yes, you will lose sight of your opponent briefly but by being aware of this you can have follow ups prepared. If you have not rotated too far and your opponent closes you can turn back with a hammer fist. If you have turned farther than would allow the hammerfist, continue to turn in the direction of the hook and elbow or hammerfist with the right hand (assuming a left hook). Keep a bend in your elbow to keep from hyper-extending your elbow on your opponent's head if he closes.

Kicking

Rear leg – only when the opponent is moving back. Not when he is standing still and definitely not when he is moving in. You will get caught with a right cross or overhand right or leg will get caught. Remember that there are less available targets on the right side of a right handed fighter.

Left leg is better because there are more targets on that side. (Again assuming your opponent is right handed and is using a left lead). The kick is angled slightly upward or horizontally when directed to the body or to the inside of the lead leg just as the opponent steps in. Be sure to use hand techniques to set up kicks. Hip snap and rotation, twist the bottom foot to open the hip.

John spoke at length about when a particular technique will work and when it will not as the majority of the initial presentation. How to do the technique is fairly meaningless without an understanding of when it should be thrown.

Four Punch Blitz

Used to get opponent away if you are being pressed, or to press him into the ropes or cage. It is a set of 4 punches in rapid succession to the same spot. This can be used to set up many other techniques offensively or defensively: After the blitz you can change height, sprawl, rotate away, or strike again depending on how the opponent reacts. If he

raises his arms to cover look for a shovel hook to the body or shoot for the legs. If he backs up look for a right kick in keeping with the earlier stated Pit rule about using the rear leg kick only when the opponent is in retreat.

Jesse Woody
Parkour

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This following information is taken from the Power Point presentation Jesse gave at the seminar, and also from the American Parkour website.

What Parkour is:

Parkour is the art of moving through your environment using only your body and the surroundings to propel yourself. It can include running, jumping, climbing, even crawling, if that is the most suitable movement for the situation. Parkour could be grasped by imagining a race through an obstacle course, the goal is to overcome obstacles quickly and efficiently, without using extraneous movement. Apply this line of thought to an urban environment, or even a run through the woods, and you're on the right path. Because individual movements could vary so greatly by the situation, it is better to consider Parkour as defined by the intention instead of the movements themselves. If the intention is to get somewhere using the most effective movements with the least loss of momentum, then it could probably be considered Parkour.

In a nutshell, Parkour is the art of movement in which one overcomes the obstacles in his/her surroundings in the most quick, efficient and flowing way. It encompasses running, jumping, vaulting and climbing to overcome those obstacles. Parkour can be performed without special equipment, in any environment, both natural and man-made. It requires one to develop and utilize strength, balance, agility and fluidity, and apply them with prudence, awareness, control, and cool-headedness.

The word "Parkour" is a modification of the French phrase "Parcours du Combattant," roughly translated as "military obstacle course." At first glance Parkour looks like an extreme sport, and it certainly has many of the same qualities of an extreme sport. However, it is considered by many practitioners (known as "Traceurs") as more of an art and discipline. It has creative and aesthetic elements that allow for individual expression, and also promotes inner strength and personal growth.

Parkour introduces us to complete freedom from restraining obstacles, and it is this freedom amidst the routine and regimentation of much of modern society that makes Parkour so appealing. It is a method that's available to us at any time to deal with the obstructions facing us, both mental and physical. No obstacle, no barrier, no restraint can stop the Traceur as they continue moving forward in spite of, and in harmony with these.

While Parkour does allow for a great deal of originality, there is a certain methodology commonly used when practicing it. The Traceur chooses his/her own path through the environment adapting to and using anything in this path to create unique and

flowing movement. When many techniques or moves used to overcome obstacles are linked together in an efficient and continuous way, it is known as a "run." If you see someone that looks like they're running from the police, but there is no one in pursuit, it's probably a Traceur.

This idea of the chase captures the movement of Parkour quite well. In fact, it is the form of movement that our ancient ancestors may have used to hunt for food, or escape from predators on the plains of Africa. There is certainly an instinctual quality to it. In adapting instantaneously to whatever comes forth without thinking about it, we naturally flow over and around all obstacles. In practicing Parkour, we are reviving and honing that ancient freedom of movement.

The attitude behind parkour also incorporates the mentality of a child at play. That boundless imagination and energy combined with a complete disregard for social precedents and expectations epitomizes the Traceur. Others look at a rail or wall and see a restraint; we look at it and see a launch pad. And hey, let's not forget that we do this because it's fun! The world is our jungle gym, let's go play.

What Parkour is Not:

Parkour is not acrobatics, tricking, stunts, recklessness, or jumping off high objects for no reason. It is not any movement or activity that doesn't fit in the above description "What Parkour Is". It is also not "What you make of it" ... it is predefined and has a purpose, if something doesn't suit that purpose, it is not Parkour.

Origins

The idea of Parkour has been around as long as man has had a need to hunt and avoid being hunted. Parkour is about efficient movement and we humans have an astounding range of motion and variety of options for how to move through a given set of obstacles.

In his *Methode Naturelle* George Hebert advises, "Etre fort pour être utile" which means "Be strong to be useful.“ Herbert was inspired by the natural fitness of the indigenous people in more primitive societies who had to rely on their own bodies for locomotion, hunting, working and most everything because of a lack of tools and machines. "A (Natural Method) session is composed of exercises belonging to the ten fundamental groups; walking, running, jumping, quadrupedal movement, climbing, equilibrism (balancing), throwing, lifting, defending and swimming.” A training session consists of exercises in an outdoor environment - "a course of greater or lesser distance (a few hundred meters to several kilometers) during which, one walks, one runs, one jumps, one progresses on all fours, one climbs, one walks in unstable balance, one raises and one carries, one throws, one fights and one swims".

This Methode Naturelle progressed from the French Military to the suburbs of Paris and become a hit with the civilian population as well. This type of training and movement was a huge influence on the life of Raymond Belle, who then passed the ideas on to his son, David. David Belle is seen to be the originator of Parkour as it is today.

"As a practitioner of gymnastics, athletics and martial arts I already had certain basic abilities and skills that I found to be limited by the structures required by the various sports I was doing. So, I decided to create a sport in my own style, that is to say, without material constraints; a pair of jogging trousers, a T-shirt, a good pair of running shoes, and myself." (David Belle)

Parkour Philosophy

Many people take the principles they learn through parkour and apply them to their lives, the art of navigating obstacles efficiently. By challenging themselves physically, it becomes easier to deal with everyday life situations. When an "obstacle" or difficult situation comes up in daily life, a Traceur (parkour practitioner) can see this as any other obstacle which they've learned to overcome quickly, efficiently, and without disruption to their intended path.

How to get there

A steady progression, building up to even the smallest drops with dedicated practice. It is not Uncle Pukie or Cousin Rhabdo that you will meet here but rather Mr. Sprained ankle or little Miss Broken Arm if you try to do advanced movements before you have the basics down pat.

The Basic Movements

Movements that have proven their usefulness over time and seem to be valuable in many different situations provide a foundation for training. They are functional, full-body components from which to build more and more advanced skills.

The Roll

Basic martial-arts shoulder roll.
Spreads impact over the horizontal plane and preserves momentum.
Obvious benefits for injury prevention, required technique for avoiding injury.

Monkey Vault

Full-body explosive power
Enhances distance after overcoming and obstacle.
Prepares a person for landing in a variety of situations, especially directly into other techniques (precision, catleap)

Speed Vault

Variation of the simple one-handed vault
Performed at full-speed, leads to little break in momentum
Lends itself to performance at full-sprint, directly into a continued running stride.

Lazy Vault

Perfect for less momentum and odd angles
Great coordination and agility drill
Easy to land silently

Underbar

Requires both upper-body strength and total commitment
Trains accuracy and coordination like no other movement.

Gate Vault

Useful for overcoming taller fences that aren't suggestive of lower-body aided techniques.
Requires powerful core stability and hip extension.

Cat Leap

Useful in overcoming gaps that can't be cleared by your entire body
Requires immense absorptive upper-body strength for landing, then muscle-up-type power for topping out efficiently

Precision Jump

Runs the gamut from power to accuracy.
Trains total focus and commitment above all else.
Requires active balance skills by forcing the athlete to control momentum on a small point.

Wall Run

Used to overcome walls that are greater than regular vault-height
Requires speed, coordination and full-body power.

Tap Vault

Uses the wall-run mechanics to overcome medium-sized walls in one quick move
Training both directions increases coordination

Reverse Vault

Useful for retaining momentum between closely spaced obstacles.
Requires coordination and spatial-awareness.

Turn Vault

Useful for breaking up excess momentum over a larger drop.
Tests coordination and focus
Essential technique for adjusting to an unknown landing area mid-vault.

Tic-Tac

Uses coordinated vertical and horizontal push to overcome awkward obstacles
Requires agility, accuracy and rotational core-strength.

Putting it All Together

After mastering single moves, the goal is to combine movements into unbroken, fluid combinations.
This simultaneously improves all 10 general physical skills.

A Few Extra Ideas…

Applying Parkour as an interval-training tool.
Basic gymnastics equipment set-ups

My hopes for the future of Parkour and Crossfit

Parkour Intervals
Pick a course between 25 and 50m
After warming up, alternate 1:00 moving as quickly as possible over, under and through course with :30 rest. Repeat x 10
Can also be repeated x 5 as part of a full-workout.

The Future: Parkour and Crossfit

Application of Parkour as a training tool and an outlet for elite-fitness skills
Crossfit training for more Traceurs
Melding of training techniques between Parkour and the other great Crossfit tools.

Appendix I

Larry Lindenman
Kali

Larry warmed things up with some directed stick flow by having us draw the letters of the alphabet in the air. This is a Dali kind of alphabet as opposed to Rockwell so accuracy was not as important as interpretation. You can do upper and lower case letters, spell your name even do math equations. It is important to flow one to the other, to move your feet and to keep your checking hand "live". Larry moved from hands to feet by having us work on some footwork drills. We did male and female triangle drills, step and slide, pendulum step, and slide step to complete the warm up.

We got with partners next and from Largo Mano or long range (can't reach opponent's stick hand with your stick) we did a 3 strike drill which consisted of an inside angle 1 strike that followed through (lob tic) to a low backhand strike that pulled back with no follow through (wi tic) to a high backhand strike that followed through so we could start over again.

The next step was to break in with a roof block off of your opponent's initial strike in order to close the range to Simbrada or medium range which incorporates the checking hand which would have led to a box drill. We got so far as the roof block but the pace of the class did not allow us to continue to the box drill.

Larry made clear a distinction between energy in the sense of some mysterious internal power and proper biomechanics. He put his arm on some hulk's shoulder, tightened his muscles and had the big boy try to bend his arm. It bent. Larry then channeled the ancient Filipino straight arm god Armbarusha and by golly that arm didn't bend. Magic. Actually, I made that up. Larry's specific point was to debunk the entire internal power thing and rather than tighten his biceps muscle which serves to contract the arm he tightened just the triceps muscle which serves to extend the arm and by not having the muscles compete with each other you have much more strength available. The purpose of the demonstration though was to show how to increase your speed by relaxing rather than tensing your muscles.

With this concept in mind we moved to knife work starting with a numbering system 1 – 5. Draw an X in front of you so that the right side of the X cuts downward from right shoulder to left hip and that is angle 1. Angle 2 moves downward from left shoulder to right hip. Angles 3 and 4 cut across the middle at belly height on a flat plane from right to left and then back left to right Angle 5 is a straight thrust up the middle. With the angles in hand we held the knife in a hammer grip with the blade facing up and went though the numbers with a stab and slash motion. This is a very important movement as it is the instant response when the stab movement is blocked. Rather than retract the arm the knife is rotated inward for a slash followed immediately by a palm up stab to angle 2 at the opponent's right shoulder with the same immediate rotation of the

knife for a backhand slash. These movements are repeated for angles 3 and 4. For angle 5 the movement is the straight thrust in and out. Since you can stab and slash, Larry showed us we can also slash and stab with the slash on one side and the stab on the other.

Don't stick your close arm out to block the blade. Of course if it comes down to stick your same side arm out or get stabbed in the eye…go ahead and give up the arm. But the problem, made evident by the stab/slash drill, is that as soon as contact is made, your opponent can change his stab to a slash, cut your arm and then as you pull back from that he will gut you like a fish.

The solution is to immediately switch arms making sure you are hammering at the knife arm with your palms up so that when you get cut it is to the outside of your forearms since they will tolerate the cut much better than the insides. You are hitting hard in an attempt to redirect the arm and hopefully dislodge the knife. After a couple strikes with the forearms strike last with the far side arm and press your opponents arm toward him and downward to keep the slash away from your guts and take control of the knife arm. The drill passes back and forth in order to develop confidence and competence in the movement, in application it is one pass and then weapon arm control.

We did some foot trapping from Penjact Silat, some light knife and separately stick sparring and became very convinced that the next time I'm in a knife fight I'm going to use a scoped rifle from 100 yards away. You must remember that you WILL get cut in a knife fight so don't be surprised or feel defeated WHEN that happens. Instead accept it as inevitable, limit the damage and end the fight immediately. Your first line of defense is distance, avoid the fight if you can, uninjured knife fighting only happens in the movies.

KALI - Knife fighting course

1) Knife grips
   - A) Reverse Grip (Pacal)
   - B) fencing grip (Langet)

2) Stance
   - A) At rest
   - B) Alert
   - C) Fight stance
   - D) False lead

3) Foot work
   - A) Step slide advance
   - B) Step slide retreat
   - C) Push shuffle Advance
   - D) Push shuffle retreat
   - E) Double Advance
   - F) Double retreat
   - G) Double to left
   - H) Double to right
   - I) Humpak Paewas

J) Lunge
K) Lunge with false lead
L) Circle left
M) Circle right
N) Triangle advance
O) Triangle retreat
P) Horizontal step
Q) Rapid advance
R) Rapid retreat
S) Cross leg squat (Selow)

4) Cutting
A) Slash
B) Stab
C) Snap cut
D) Redondo
E) Tear
F) Rake
G) butt
H) Hack (Witik)
I) Double pump

5) Hand movements
A) Jiggle
B) U pattern
C) Circling left
D) Circling right
E) Wave left and right
F) Wave up and down
G) Still hand
H) Bent wrist
I) Odd angle (Allinganan)
J) Fold back

6) Defensive Tactics
A) Replace front leg (pull leg back then replace it)
B) Rapid Retreat
C) Humpak Paewas (STRIKE-PARRY)
D) Slash back
E) Stop hit
F) Defensive cut or slash
G) Use your knife to block

7) Using the empty hand
A) Stop hit
B) Hand pat

C) Forearm ride
D) Block

8) Judging distance
A) Knife to hand (Largo)
B) Knife to Knife to Shoulder (Media)
C) Knife to body (Courto)
C-1) Body
C-2) Head
D-1) Lunge to body
D-2) Lunge to head
D-3) Lunge to shoulder
D-4) Lunge to leg
E-1) Attack body with false lead lunge
E-2) Attack head with false lead lunge
E-3) Attack Shoulder with false lead lunge

9) Identifying your opponent's weaknesses
A) Look for still hand
B) look for still body
C) Repeating patterns
D) Exposed hand
E) Exposed head
F) Exposed empty hand
G) Exposed leg
H) Poor stance
I) Poor footwork
K) Wide stance
L) Dictating movements
M) Attention on your knife
N) Attention too high
O) Attention too low
P) Lack (break) of attention

10) Creating an opening
A) False attack
B) Baiting
C) Changing attack (Enganyo)
D) Using footwork
E) Throwing objects
F) Spitting

11) Strategy
A) Constant moving
B) Placing your opponent though footwork
C) Feinting

D) Making opponent miss then you counter
E) Staying at long range
F) Stop hits
G) Baiting
H) Hitting with the empty hand
I) Switching knife hands
J) Switching fighting postures
K) Combination attacks

11) Drills
A) Practice slashing and stabbing the hand with all angles of attack
B) Practice all hand evasions
C) Parrying the knife and the knife hand
D) Attacking the leg
E) Defend against cuts to the leg
F) Defend against cuts to the leg while counter attacking

12) Sparring
A) Hand sparring
A-1) Thrusts to hand only
A-2) Slashes to hand only
B) Attacks to head
B-1) Thrusts to head only
B-2) Slashes to head only
C) Instructor attacks, student defends
D) Instructor attacks student defends then counter attacks
E) Light sparring

Footwork Drills:

1. STEP AND SLIDE SHUFFLE ADVANCE
2. STEP AND SLIDE SHUFFLE RETREAT
3. SLIDE SHUFFLE ADVANCE
4. SLIDE SHUFFLE RETREAT
5. PUSH SHUFFLE ADVANCE
6. PUSH SHUFFLE RETREAT
7. STEP THRU
8. STEP BACK
9. CIRCLE RIGHT
10. CIRCLE LEFT
11. STEP AND CIRCLE RIGHT
12. STEP AND CIRCLE LEFT
13. CURVING RIGHT
14. CURVING LEFT
15. REPLACEMENT STEP
16. HEEL & TOE SWAY

17. PENDULUM SHUFFLE
18. PENDULUM SHUFFLE (ONE FOOT)
19. LEAD STEP THREE WAYS (JAG STEP)
20. TRIANGLE PATTERN (MALE)
21. TRIANGLE PATTERN (FEMALE)
22. ROCKER SHUFFLE
23. LEFT STEP
24. RIGHT STEP

KALI - HUBAD

1) 1 for 1
2) 1-4-1
3) Palasut
4) Segung
5) Humbak
6) Double 2
7) Triple 2
8) #5 vertical Gunting
9) #5 Horizontal Gunting
10) #5 Split Gunting
11) # 5 Hammer Biceps
12) Dakup dungab
13) Backhand cycle with switch's
14) # 5 Lead Siko hits hand with sungab
15) #5 Rear Siko hits hand with sungab switch side
16) #5 Vertical lead Siko with sungab
17) #5 Rear Vertical Siko with sungab
18) Scoop and switch
19) Parry inside and switch
20) Inside hubad
21) Knee fist
22) Siko Hubad Stop, hit biceps, pull down, Siko
23) Siko Hubad Stop and hit together, pull down, Siko
24) Siko Hubad Stop, hit, pull down, Grab triceps, Siko
25) Pa'awas Siko, Return Siko
26) Humbak Siko, Return Siko
27) Double Siko, Triceps and face
28) From Siko cycle add knee and scoop
29) From double Siko switch sides
30) Seek the path
31) Attached Hubad
32) #1 Hubad with arm breaks inside and outside

KALI - EMPTY HAND NUMBERING SYSTEM

1. JAB
2. CROSS

3. LEFT BODY HOOK
4. RIGHT BODY HOOK
5. LEFT UPPERCUT
6. RIGHT UPPERCUT
7. LEFT TIGHT HOOK
8. RIGHT TIGHT HOOK
9. LOW JAB
10. LOW CROSS
11. WIDE LEFT HOOK
12. WIDE RIGHT HOOK
13. LEFT OVERHAND
14. RIGHT UPPERCUT
15. RIGHT OVERHAND
16. LEFT UPPERCUT
17. LEFT BACKHAND BOTTOM FIST (#1 ANGLE)
18. RIGHT FOREHAND BOTTOM FIST (#1 ANGLE)
19. RIGHT BACKHAND BOTTOM FIST (#2 ANGLE)
20. RIGHT FOREHAND BOTTOM FIST (#2 ANGLE)
21. LEFT BACKHAND BOTTOM FIST (OVERHEAD)
22. RIGHT BACKHAND BOTTOM FIST (OVERHEAD)
23. RIGHT BACKHAND BOTTOM FIST (OVERHEAD)
24. LEFT FOREARM BOTTOM FIST (OVERHEAD)
25. HIGH LEFT BACKHAND
26. LOW LEFT BACK HAND
27. HIGH LEFT BACKHAND (SPIN)
28. HIGH RIGHT BACKHAND
29. LOW RIGHT BACKHAND
30. HIGH RIGHT BACKHAND

Appendix II

BOX SQUATTING BENEFITS

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I am often asked, "Why do box squats?" We do them to produce world-record squats. The late, great Matt Dimel made 1010 in 1985 at SHW. Chuck Vogelpohl pushed the limit of the squat by doing 1025 at 220 pounds, the lightest man to do a grand. I am sure that the original Westside Barbell in Culver City, California, was asked the same questions in the 1960s and early 1970s, when Bill West and George Frenn were breaking squats records beyond comprehension. Frenn made 854 in gym trunks at 242 and held a world record in the weight throw. Later men such as Larry Kidney and his training partners Marve Phillips broke many world record squats by box squatting. Paul Childress has made 1123 at 308, and I am sure Paul has to defend why he box squats. My friend Eskil, from Sweden, found a training manual from the 1950s at a Polish weight lifting facility demonstrating the box squat. Today, my friend Sakari, from Finland, teaches box squatting to their strongest lifters. Lifters from Ireland, Germany, England, Canada, and Sweden are also box squatting. At Westside, in Columbus, Ohio, we have five men who squat more than 1000 pounds and a woman, Amy Weisburger, who at 148 has squatted 565. Because I am asked why do box squats, I will explain simply and scientifically why we do them and why you should too.

First, there is only one way to box squat. "Pure Power" had an article on ways to box squat, but there is only one proven way: the Westside way. Here's how. First, push the glutes rearward as far as possible. With a tight back arch to descend to the box. Push your neck into your traps. Push your knees apart to maximally activate the hips. When sitting on the box, the shins should be straight up and down or even past perpendicular. This places all the work on the hamstrings, glutes, hips, and low back. These are the precise muscle groups that do a very large percent of the squat. After sitting completely on the box, some glute and hip muscles are relaxed somewhat. Then forcefully flex the abs, hips, and glutes and jump off the box. To ascend correctly, push the traps into the bar first. This will flex the back muscles, then the hips and glutes, and finally the legs. If you push with the legs first, you will be in a good morning position because the glutes will raise first, causing you to bend over. Remember that where the head goes, the body will follow. Note: Always push the feet out to the sides, not directly down. Chuck Taylors are the best shoes for squatting. This was tested at Ball State University in lab conditions. Box squats have tremendous advantages over regular squats. These are as follows. You do not get as sore from a box squat workout, and you can recover much faster. If the box that you are squatting on is below parallel and you do a thousand squats, they important because when many lifters warm up, they cannot break parallel with light weight, or as

the weight nears a max, many will cut depth. However, with a box to sit on, you will always break parallel, or any depth desired. will all be below parallel, regardless of the weight.

Box squats can increase your flexibility. When monitoring flexibility, you should be able to break parallel with your competition stance. If this is not possible, sit on a box about 2 inches above parallel. After mastering that height, reduce the box height by half an inch. The easiest way is to remove a 1/2 inch rubber mat. Then sit on the box at that new height until comfortable. Reduce the height half an inch again. Continue this until you are not only at parallel but below. Start with a shoulder-width stance. Then widen your stance by an inch or two each time until a very wide stance is achieved. John Stafford has sat on a 6 inch box; he is 6 feet tall, 285 pounds. I am always concerned when a coach asks how low we squat, referring to Olympic squats. A very close squat stance makes no sense. Look at a pyramid; the wider the base, the greater the pyramid. I guess if my only claim to fame was bouncing my ass off my heels with 315, I would ask that question myself. Box squatting with a slow count is a form of PNF (propriceptive neuromuscular facilitation), commonly used in clinical settings. This type of stretch involves a maximum precontraction of the muscle groups to undergo elongation. As the box is lowered to an extreme for your range of motion, a box squat can become a safe ballistic stretch method. This will not only increase your range of motion in the muscle groups but also increase joint mobility. Box squats also resemble CRAC (contract relax agonist contract), a form of stretching. This information can be found in `!Strength and Power in Sport`! (1991). If you lower to the box slowly and widen your stance slowly, more muscle flexibility and joint mobility can be achieved. A lighter weight can achieve a bigger squat with box squatting. By training at 50-60% of your 1-rep max in a 3-week wave, a large squat can be developed. Three lifters trained with 405-480 for 8-10 doubles with 120 pounds of chain as a reactive method. They all made their first 800+ squat.

Jumping ability is developed with box squats. John Stafford, at 290 body weight, can jump onto a 35 inch box with a pair of 35 pound dumbbells. John Harper, a sophomore at Kent State University, is a discus thrower (with 189 feet) who can jump onto a 50 inch box. Maybe more extraordinary is that he is able to sit on his knees and jump onto his feet with 255 pounds on his back, due largely to box squatting.

Box squatting increases pulling power. It closely simulates the motion of pulling off the floor, first by relaxing on the box after lowering onto it, then exploding upward. This is very close to the movement known as the modified dive. If one suffers a knee injury, box squatting can be done while rehabing the injury. When sitting on a box fully and correctly, the shins are past perpendicular. This reduces the pressure on the patella tendons by placing the majority of the weight on the hamstrings and glutes and on the heels, not the toes. It should be noted that the box itself reduces a portion of the bar weight or body weight that you are trying to move. After a complete patella tendon rupture, box squats helped me to go from an 821 squat in 1991 to a 920 at 235 body weight in 2002 after the injury. John Bott had similar success. Also, I mustn't forget Jim Hoskinson, who had a horrendous injury to both knees. He had a 744 squat before the injury and had recently done 1091 in the same weight class, 308. A box squat combines two very important methods. One is the static- dynamic method. It combines two muscle activities. Static work occurs while on the box, although the lifter is constantly moving backward or forward. Then by flexing off the box, the dynamic sequence occurs. The

second method that is used when box squatting is the relaxed-overcome-by-dynamic work. This occurs by sitting on the box with the hips rolling in a relaxed fashion, then switching to an explosive, or dynamic, concentric phase. Both of the above-mentioned methods build explosive strength as well as absolute strength.

Why are box squats superior to conventional squats? I hope to explain it further through physics. Lowering to the box in the eccentric phase is a form of potential energy. When sitting on the box in about 0.5 second, you are involved in a collision. By using a box to land on, we can produce kinetic energy. The amount of kinetic energy an object has depends on two things: its mass (weight) and its speed. A heavier weight means more kinetic energy. But more importantly, in a regular squat, the eccentric phase lasts about 1 second, about twice as long as in a box squat. By being able to relax some muscles and with the use of Jump- Stretch bands, the box squat is close to twice as fast. If you tripled the speed, it would represent 9 times more kinetic energy during the collision. What about the development of power? Power is defined as work done divided by the time used to do the work. When you do a regular squat, you must do three things. The first is the eccentric phase, where muscles lengthen. When the eccentric phase stops, a static phase begins, where the muscles are not lengthening or shortening, but muscle energy is decreasing. Then to raise concentrically, you must start a load while the muscles are held statically, even to a brief extent. Could this phenomenon be the reason that you can lower 50% more than you can raise? After all, power can be produced only so long. In a regular squat, you must produce power during all three phases, but a box squat breaks up the eccentric and concentric phases because some of the muscles are relaxing while others are held statically by movement in the hip joints. Here is where force can be redirected very strongly. Because a heavy squat uses a large amount of energy, it makes sense to break the work into separate parts. While box squatting is not plyometrics, it builds tremendous reversal strength. Wilson's studies (1990) have shown that the stretch reflex lasts up to 2 seconds. We have proven that by sitting on a box correctly the reflex lasts up to 8 seconds. What an advantage for a football lineman on a long count. Explosive strength is developed mainly by explosive efforts, such as jumps, shot put, and jerking dumbbells or a barbell. However, it is easiest and safest to develop explosive strength by increasing maximal strength (*Science of Sports Training*, Thomas Kurz).

Appendix III

The Time Course of Training Adaptations

By Stephen Seiler

Introduction

Here are the "Big Three" elements of endurance performance:

1. **Maximal Oxygen Consumption**
2. **Lactate Threshold (also called Onset of Blood Lactate Accumulation)**
3. **Efficiency**

Maximal Oxygen Consumption is an oxygen delivery issue. A high maximal capacity for blood delivery means higher oxygen delivery and the potential for more muscle to be active simultaneously during exercise. VO_2 is primarily limited by the maximum pumping capacity of the heart, and the specific arterial development to the active muscles.

The Lactate Threshold is an oxygen utilization issue. The greater the intensity of work we can achieve prior to the point when we begin to accumulate the inhibiting acidity of lactic acid, the faster sustained pace we can tolerate. The limiting adaptations are the capillary density, fatty acid breakdown enzyme level and mitochondrial density in the specific skeletal muscles used in your sport. Combining elements 1 and 2 gives us the sustainable power output of your "performance engine".

Efficiency links sustainable power to performance velocity. The better the efficiency, the greater the achieved velocity at a given level of energy output. Since, ultimately, we have a limited "engine" size, improvements in efficiency are critical to additional improvements in performance time.

In this article I want to discuss the time-course of change in these variables. "How long does it take for my max $VO_2$to peak out?" "What about lactate threshold?" Understanding the answers to these questions will be important as we try to build appropriate training programs.

The First Wave of Change- Increased Maximal Oxygen Consumption

In a **previously untrained person**, VO_2 max is increased significantly after only one week of training! The reason for this early improvement appears to be an increase in blood volume, which results in improved maximal stroke volume. As training continues, VO_2max continues to increase, for several months, albeit at a slower rate of improvement. We have already discussed the fact that the heart appears to be remodeled by endurance training, developing a greater ventricular volume diameter, and other more subtle adaptations that make it a more effective pump. After about 3-4 months of regular exercise, the improvement in maximal oxygen consumption begins to level off dramatically. At this point, it is common to see about a 15-20% improvement in this variable. For example, a hypothetical male (who I will call Bjorn) with an initial VO_2max of 3.5 liters/min (at a bodyweight of 75kg, that's 47ml/min/kg) may increase to 4.0 liters/min, a 14% increase in **absolute** VO_2. If in the process of training, Bjorn also loses 4kg (close to 10 pounds), then his **relative** VO_2 max will have increased even more (from 3500/75 or 47, to 4000/71 or 56 ml/min/kg). This is a nearly 20% improvement. Unfortunately, after another 6 months of training, it will have increased little more, if any. If the level of training intensity remained the same after the first 4 months, then no further changes would be expected. If on the other hand, Bjorn continues to intensify his training over the next 6 months, a small additional increase might occur. This increase might be as much as 5 additional percent, bringing our example athlete up from an initial value of 3.5 liters/ min at 75 kg, to 4.2 liters/min at 70kg (he also lost another 1 kg of fat). That's 47 ml/min/kg up to 60 ml/min/kg due to a combination of both increased absolute VO_2max (20%) and decreased bodyweight (6.7%), for a total improvement in relative maximal oxygen consumption of 27%. This is actually an unusually large improvement in this variable, but definitely plausible.

If our example subject started at a higher level of VO_2, the relative improvement would almost certainly be less dramatic. The important point to recognize from this is that VO_2 max increases fairly rapidly in response to chronic exercise, then plateaus. If our example athlete continues training another 5 years, his VO_2 max won't improve any more. It might actually decrease slightly due to age related declines in maximal heart rate. Depressed? Don't be. There is much more to endurance performance then the Vo_2 max.

The Second Wave of Change-The Lactate Threshold

At the same time Bjorn's VO_2max was increasing due to *central and peripheral cardiovascular adaptations*, changes were beginning to occur in his skeletal muscles (let's assume Bjorn is a runner, so the adaptations of interest are happening in the legs).

Initially, an incremental exercise test on a treadmill revealed that Bjorn began to show an substantial increase in lactic acid concentration in his blood while running at 60% of his maximal oxygen consumption. Remember, his max was 3.5 liters/min. 60% of this is 2.1 l/min. So functionally speaking, **2.1 l/min** was his threshold workload for sustained exercise. If he runs at a speed that elicits a higher VO2 than 2.1, he fatigues quite quickly. However, over time, the overload of training induced quantitative changes to begin occurring in his leg muscles. Mitochondrial synthesis increased. More enzymes necessary

for fatty acid metabolism within the muscle cell were produced. And, the number of capillaries surrounding his muscle fibers began to increase. Additional capillaries are being constructed. The functional consequence of these *local muscular adaptations* is a very positive one. Bjorn's running muscles use more fat and less glycogen at any given running pace. And, the glycogen metabolized to pyruvate is less likely to be converted to lactic acid and more likely to inter the mitochondria for complete oxidative metabolism. Consequently, Bjorn's lactate threshold begins to increase. After 6 months of training, in addition to a higher VO_2max, his lactate threshold has increased from 60% to 70% of max, a 17% improvement in an absolute sense, but functionally much more. Why? Because the 70% is relative to an increased max! So, Bjorn has gone from an initial sustainable oxygen consumption of **2.1** liters/min (60% of 3.5) to a new sustainable intensity of **2.8** liters/min, a 33% improvement!

Now, the important thing to know is this. While VO_2max plateaus quite rapidly, lactate threshold does not. If Bjorn continues to train, and increase his intensity appropriately, his lactate threshold will continue to improve slowly for a longer period. Of course, improvements in lactate threshold also plateau, otherwise elite athletes that have been training for 15 years would have LT's of 100% of VO_2 max! But, **the time course of adaptation is slower**, so the plateau occurs after a longer period of intense training, probably several years

It is also important to remember that the lactate threshold is even more specific to the mode of exercise than the VO_2 max. This was exemplified by a study performed by Coyle et al. and published in 1991. In this study, 14 competitive cyclists with nearly identical VO_2 max values differed substantially in their lactate threshold determined during cycling (ranging between 61 and 86% of VO_2 max). When the cyclists were divided into a "low" and "high" LT groups (66% vs 81% of maximal oxygen consumption), it was found that the two groups differed considerable in the years of **cycling training** (2.7 compared to 5.1 years on average). However, they did not differ in years of **endurance training** (7-8 years of running, rowing etc.) When the low cycling LT and high cycling LT groups were asked to perform a lactate threshold test while running on a treadmill, the two groups were no longer different. Measured while running, the lactate threshold in both groups averaged over 80% of VO_2 max. Similarly, if you are a runner and decide to add swimming and cycling to your training and compete in triathlons, you will immediately recognize that your running fitness does not immediately transfer to the bike, and of course not to the water!

The Third Wave of Change-Efficiency

The final element of our BIG THREE endurance adaptations is efficiency. I think we all know what it means to be an "efficient" person, or own a "fuel efficient car". But, what does the term mean when applied to endurance performance? It means the same thing, getting more done at lower "cost". Efficiency is defined as MECHANICAL WORK/METABOLIC WORK. For example, one (quite good) cyclist can sustain 300 watts power output for 1 hour on a cycling ergometer at a sustained VO_2 of 4.3 liters/min.

Another rider performing at the same oxygen consumption, squeezes out 315 watts, a difference in **efficiency** of 5%. Even though both riders have the same "metabolic engine" they have different power output capabilities. You don't do 40k time trials on a lab ergometer, though. So, thanks to my friend the cycling guru, Jim Martin, we can predict their actual performance time in a 40k time trial. If these two cyclists have identical aerodynamics and use aero bars, the times will be 56:10 vs. 55:15. This is only a one minute difference, but probably worth at least 2 or 3 places at the Masters Nationals Time Trial!

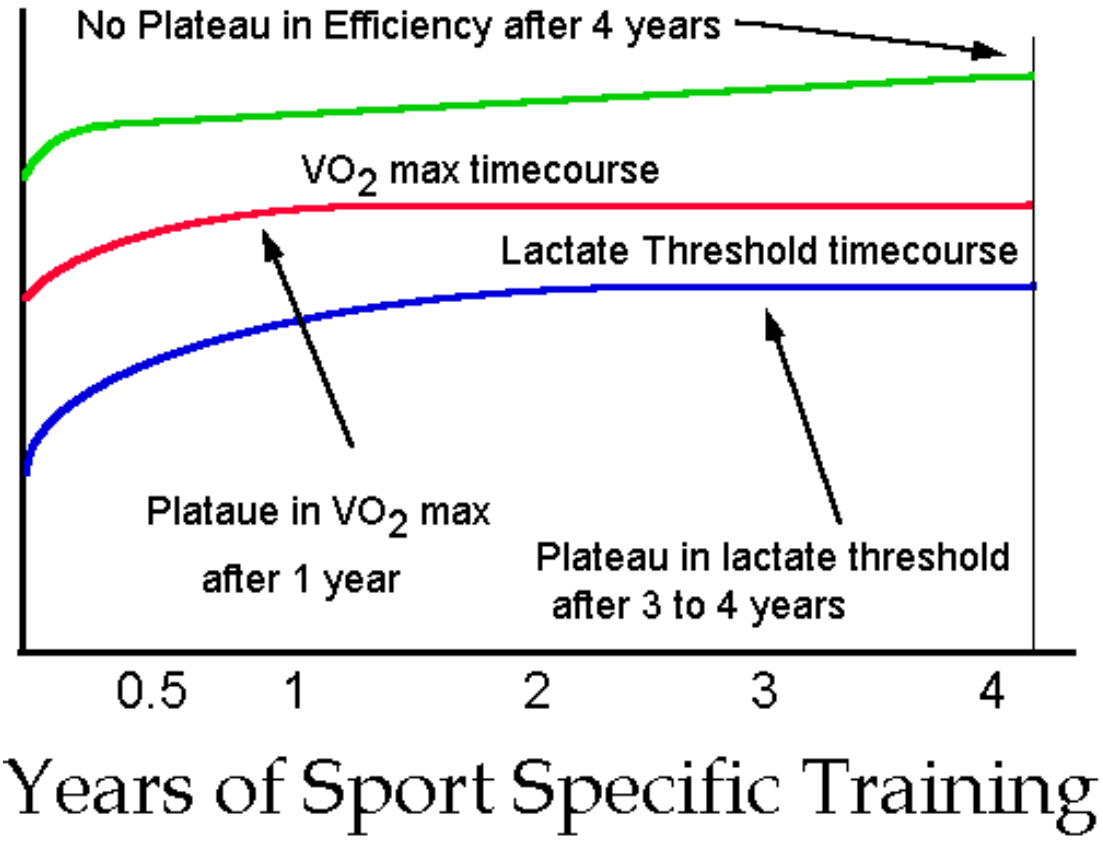
So efficiency makes a difference, often much bigger than the above example. And it also varies among different athletes. That's interesting, but not terribly useful for YOUR training. Your big question is probably "Can **My** Efficiency Improve With Training?". The answer is YES. In highly technical sports like swimming, efficiency differences between beginners and experienced swimmers can be absolutely tremendous! Swimmers already know this full well. In rowing, efficiency also improves dramatically at first, due to gross technical improvements. However, efficiency can also continue to improve after years of training. Dr. Fritz Hagerman followed one group of national class (U.S.) rowers for 8 years, measuring ergometer performance, VO_2, lactate threshold, etc. Peak values for maximal oxygen consumption and lactate threshold stabilized after only 2 or 3 years in these hard training athletes. However, performance times on the water and on the rowing machine continued to improve over additional years of training. The reason? Slow improvements in rowing efficiency. One source that is independent of on-water technique may be optimization of workload distribution among the large muscle mass employed in rowing. Ultimately, the rowers who went on to become national team members and have success at the highest levels were more efficient than their peers.

What about the "less technical" sports like cycling and running?

For you cyclists, I call cycling less technical only in reference to the act of pushing the pedals, not all of the equipment and aerodynamics! Again their is evidence for significant improvements in efficiency even after years of training. In studies carried out on "Good" vs. "Elite" cyclists carried out by Dr. Ed Coyle and colleagues at the University of Texas, it appears that elite riders sustain higher power outputs despite similar physiological values in part by learning to distribute the pedalling force over a larger muscle mass. In running, fomer U.S record holder in the mile, Steve Scott, was shown to have improved his running efficiency even "late" in his career.

The Bottom Line

Based on a tremendous amount of both laboratory and "field" data, I would propose to you that the order in which the BIG THREE endurance performance variables reach their peak is 1)VO_2max, then 2) lactate threshold, then 3) performance efficiency. Putting it all together, and neglecting for now the negative impact of aging on maximal oxygen consumption, we might get something like the figure below:



The figure above is obviously very generalized. In reality, all three variables fluctuate within a year (off season Vs. competition period) as a function of training intensity and volume. Peak values after a given period of training will approximate this kind of pattern, though.

Obviously, if you are just beginning in an endurance sport, then all three elements will probably improve dramatically, almost no matter what you do! But, if you have been training in sport for a year or more, you must construct your training program with more and more care to continue making progress in those adaptations that have "room to improve" while maintaining the levels of those that have plateaued or are beginning to. Since for the masters athlete, the option of "just adding another workout" is usually not a viable one, this will often mean finding the right distribution of a limited amount of training time among a variety of workout types.

Appendix IV

The Snatch
The World's Fastest Lift

Level 1

1) Setup
   a. Preparation
      1. Taping, wrapping, chalking
      2. Mental preparation
   b. Preparatory Posture
      1. Feet directly under the hips, toes angled slightly outward
      2. Small toe attachment just forward of bar, shins very near bar
      3. Knees track over toes
      4. Movement initiates from the Hara…your center
      5. Fill lungs, raise sternum forward and up to set pneumatic brace
      6. Contract back to lock chest in upward position
      7. Connect Hara to upper body – lock them together
   c. Deadlift
      1. Set grip width to where bar fits comfortably into fold of hips
      2. Use hook grip to lock bar to hand
      3. Flex wrists, rotate elbows outward
      4. Contract lats and triceps together (tri-lat tuck)
      5. Drop hips, tucking body forward and down, shoulders over bar
      6. Head and eyes up, heels down
      7. Push platform away when lifting
   d. Deadhang
      1. Bar hanging from straight arms
      2. Review posture – pulling stance, knees, wrists, elbows, tri-lat tuck, CG, pneumatic brace, breath control, back, shoulders, head and trunk alignment, line of sight.
2) Explosion Point to Maximum Extension Point
   a. Front outside area of the CG midway between navel and pubic bone
   b. DL to DH position, lower bar to explosion point by bending the knees and leaning forward slightly
   c. Relax tri-lat tuck so the bar hangs downward from the shoulders
   d. Push knees forward until bar again touches explosion point, re-engage tri-lat tuck.
   e. Extend knees, stretch up and back and shrug shoulders as high as possible
   f. Do movement slowly, then more quickly, then explosively.
   g. Keep feet flat, weight on heels, head back, jump back and up
   h. Keep bar against body

i. Progress to faster pull, feet stationary, bar rising for three reps, on fourth jump from pulling to squatting stance with feet popping back to pulling stance. Reset feet and repeat.

3) Maximum Extension Point to Pull Under
   a. DL to DH position and pull back to max extension
   b. Maintaining tri-lat tuck to keep bar near body, lift elbows as high as possible while you squat downward as if going under bar
   c. Elbows up timed with squatting down
   d. With light bar add jumping feet outward as you pull under
   e. Explode downward as you pull upward on the bar
   f. Be sure to jump, stomp into squat stance and then jump back to pull stance
4) Explosion Point to Pull Under
   a. DL to DH position to explosion point to pull under
   b. Begin slowly and add speed
   c. Once movement is comfortable do it explosively with the jump, stomp, jump movement actually going into the air.

Level 2

1) Overhead Squat
   a. Stretch the shoulders and work the squat to a very deep position
   b. Put light bar on shoulders maintaining snatch grip and pulling stance
   c. Dip and drive bar upward move to 1/3 squat position
   d. Gradually go to lower and lower squat position
      1. Variations
         a. OHS repetitions
         b. Push press from the front to OHS position
         c. Squat without dip and drive
         d. Press from behind neck in full squat position
         e. Push press from behind neck
         f. Balance board holds
         g. Duck walk with bar overhead

2) Maximum Extension Point to Overhead Squat
   a. DL light bar to DH
   b. Combine maximum extension point and pull under with OHS
   c. Move slowly at first, gradually increasing speed and depth of squat

3) Explosion Point to Overhead Squat
   a. Begin slowly moving directly through max ext point to OHS
   b. Start at Explosion Point and snatch to lower and lower bottom position
   c. Work on explosive pull and strong jump and stomp

4) Liftoff – from the ground to just above the knees
   a. Hips come up, shoulders remain low, knees go back

b. Bar is pulled backwards toward the shins then knees
c. Bar goes to just above knees for the start of the scoop

Level 3

1) Scoop to Explosion Point
   a. The scoop happens as the knees go under the bar as a result of the hips shoving them under the bar after the bar clears the knees.
   b. The scoop has three phases:
      1. Hip Thrust
      2. Trunk Whip
      3. Hip and Whip (a combination of both)
   c. Hip Thrust
      1. Position bar just above the knees at the end of liftoff point
      2. Practice pushing knees forward so that the bar is caught at explosion point.
      3. Move slowly at first increasing speed gradually. Keep heels on the platform.
      4. Continue until you can bounce the bar away with the impact.
      5. Begin with light bar and move to heavier bar being cautious with the impact.
      6. Bring Explosion Point to bar, not bar to explosion point
   d. Trunk Whip
      1. Now stand up with the bar allowing the bar to come gently into contact with the explosion point
      2. Unlike the Hip Thrust where the Explosion Point is brought to the bar, with the Trunk Whip the bar is brought to the Explosion Point.
      3. Extend the trunk with very little action of the hips
      4. Instead of big bang, it is a gentle brush with the bar
   e. Hip and Whip
      1. Position bar as before just above the knees
      2. Combine the fast forward thrust of the hips with the upward whip of the trunk.
      3. The two movements soften the impact of the bar.
      4. The movement should be practiced until the bar can be moved from the knees to the Explosion Point faster than the eye can follow.
      5. Begin with light bar then move to a regular bar
      6. Examine brush vs. big bang to select preference
      7. This scooping motion is the key to moving heavy weights.
2) Scoop to Maximum Explosion Point
   a. This movement practiced in four sections:
      1. Hip Thrust
      2. Trunk Whip
      3. Hip and Whip
      4. Hip and Whip with Explosion

b. Connect the dots. After practicing each of the movements separately, combine them into a single smooth motion, culminating in an explosive jump and landing in the squat stance. Get air, no pullunder yet.

3) Scoop to Pullunder
   a. Begin with light bar and practice scoop to extension point to pull under movements, connecting them without interruption
   b. Slowly and gradually increase speed until the movement is done explosively with a jump, stomp and some air time as you recover your feet back to the pull stance
   c. Practice scoop to explosion point, scoop to maximum extension point and scoop to pullunder individually and together as well.
4) Scoop to Overhead Squat
   a. Moving slowly at first practice scoop to overhead squat position working on a progressively deeper squat.
   b. Begin with a 1/3 squat, to 2/3 and then finally a full squat.
   c. Increase explosiveness of movement as you increase squat depth.
   d. Work through scoop to explosion point, scoop to maximum extension point, scoop to pullunder and scoop to OHS.
   e. You are now linking the movement into a more complete lift.

Level 4

1) Liftoff to Explosion Point
   a. Again work hip thrust, trunk whip and hip and whip
   b. Begin with light bar working each element individually and then together
   c. Alternate with scoop to keep speed up
2) Liftoff to Maximum Extension Position
   a. Practice hip thrust, trunk whip, hip and whip and hip and whip with explosion.
   b. Move slowly and carefully at first moving through each element individually then combined and then finally explosively with a jump.
   c. In the workout set include movements with and without the jump
3) Liftoff to Pullunder
   a. Training progression is slow, fast and then explosive
   b. Gradually increase the speed until you are jumping explosively with a good strong jump and stomp
4) Liftoff to Overhead Squat
   a. Start with power snatch position working deeper and deeper
   b. Depth is 1/3, 2/3 and then full squat
   c. Alternate liftoff variations during sets

Appendix V

Rhabdomyolysis
By Eugene R. Allen

A rugby player carries out intense sets of squat jumps on a hot day, collapses and is rushed to the hospital where he spends two days in intensive care. Doctor's notice that his heart is beating abnormally and that he has unusually high levels of potassium in his blood. A soccer player runs a series of 100-meter sprints at near maximum intensity. After his 8th sprint he collapses to the ground and when he gets to the hospital he is found to have high levels of potassium and myoglobin. He spends several days in the hospital and is unable to train for several weeks. A highly fit marathoner holds a 6:30 pace for 26 miles but collapses only a few feet short of the finish line. Blood tests reveal a potassium concentration 3 or 4 times the normal level and he dies.

What does mean to you? Rhabdomyolysis is what brought these athletes down and it was intense athletic activity that brought a visit from Uncle Rhabdo. Hellllooo…intense athletic activity, does that sound familiar? One of the three CrossFit pillars is intensity so doing that which makes CrossFit work also invites the Uncle Rhabdo to the scene. The purpose of this article is to make you aware of the insidious dark side of intensity so that you can reap the benefits of intense training and avoid the pain, injury and/or death that awaits the uniformed.

So what do we do that opens the door to rhabdo? "Eccentric contractions seem to greatly increase membrane tension, compared to routine muscle shortenings." An eccentric contraction is one in which muscles attempt to shorten while they are being stretched. This type of contraction seems to significantly increase membrane tension and it is this tension to the membranes that appears to break them down. The membranes are the wrappers around the muscles that securely enclose the cells' contents. When the membranes break down, stuff that is normally enclosed inside the muscle wrapper seeps out into the circulation where they gum up the works. Potassium is normally in high concentrations inside the muscles so that is why it is such a good indicator of rhabdo when it is found in high concentrations in the blood. Simultaneously sodium and calcium move from outside the muscles inward and start building up inside the cells causing very painful swelling which can lead to compartment syndrome which requires urgent surgery to slice open the membranes to relieve the pressure.

But wait, there's more. When everything is working properly the extra potassium would probably be filtered out of the blood by the kidneys. But with the onset of rhabdo the amount of potassium is overwhelming and that extra volume is complicated by yet another player called myoglobin. Myoglobin is another resident inside the muscle cells and it acts as a warehouse for oxygen. When the myoglobin leaks out with the potassium and makes its way to the kidneys it breaks down into a toxic chemical called ferrihaemate

which damages kidney cells. This damage prevents the kidneys from working properly and can be permanent. The extra potassium can peak at such high levels in the blood that heart function is altered; arrhythmia is a common consequence, and eventually the heart may fail completely if the potassium levels are not controlled.

It is likely that you don't know anyone who has had rhabdo but the truth is that many athletes suffer from a mild case of it from time to time. From Dr. Marc Rogers Ph.D. an exercise physiologist at the University of Maryland: "If you've ever had stiff and tender muscles after exercising, you've probably had a slight case of rhabdomyolysis." Novice exercisers can develop the problem, but so can the most highly trained, accomplished athletes. Moderate cases of rhabdo can be found after triathlons. In a test of 25 triathletes who had just completed a half Ironman distance triathlon which consists of a 1.2 mile swim, a 56 mile bike and a 13.1 mile run, it was found that most of the 25 participants in the study had unusually high levels of myoglobin in their blood. This suggests that some amount of muscle membrane leakage had occurred.

My interest in this topic peaked as a result of a very close friend of mine spending a week in the hospital after I put him through his very first CrossFit workout. Brian was no couch potato who suddenly jumped into exercise…but he did have a long lay off from intense exercise for nearly 2 years before that fateful afternoon with me. He was a state champion wrestler from Iowa, an Army Ranger and a pretty serious weightlifter and a member of our department's SWAT team. Although he was not working out hard he did not degenerate to full-blown spudhood but was running and "staying in shape" as he said, but he did nothing that could be described as intense…until he came to my house.

Our workout was nothing crazy hard, but the thing that did him in was the swings. His second set of 50 swings (an eccentric contraction to be sure) was difficult for him and proved to be his undoing. Brian was unable to kneel in my driveway to change from shoes to boots and had to sit. He could barely do that and had to use all the force of his will to get on his Harley and ride home. No pain to speak of during this time, just complete muscle weakness. Brian thought his muscles were tightening up (in fact they were dying) so he put on a heat pad to loosen things up. Instead of loosening the muscles the heat released even more fluid and within two minutes the pain started. Excruciating pain. Pain is frequently quantified in the medical community as 1 on the low end to 10 at the high end. Brian said the pain was way past 10. Once at the hospital our SWAT Team doc who works at the St. Joseph's ER where Brian went worked his morphine dose to 16 mg every two hours and Brian said that only dulled the pain so he didn't scream.

The primary diagnostic indicator of rhabdomyolysis is elevated serum creatine phosphokinase or CPK. The normal value runs below 200 and rhabdo brings the CPK level to at least five times this level. When Brian was admitted to the hospital it was at 22,000. Within two days it peaked at 98,000. He was pumped full of fluids to help flush the kidneys and he puffed up like the Michelin man. His head looked like a big fat white pumpkin from all the fluid and the medical staff was very concerned about mineral imbalances which could give him heart issues. Any movement brought suppressed screams of pain through gritted teeth. He was out of the hospital after 6 days but was off of work for 2 months. The muscles in his lower back had been destroyed and no longer functioned. He was unable to sit or stand without leaning backwards or he would fall over. He brought an empty cereal bowl to the sink one morning and when he reached

slightly forward with his arms to put the bowl in the sink he started to fall and would have gone straight to the ground had he not had the edge of the sink to stop his fall.

Brian is back to normal and works out in true CrossFit fashion tempting a Pukie visit every time we train. Our resumption of training was a gradual build rather than a jump into the deep end. We ramped up the intensity of the training week by week and made sure he never did anything with great intensity unless he had done it moderately at least one time before. Now he can hammer whatever workout I throw at him.

There is a silver lining here. A small dose of rhabdo might actually have a positive effect on your development as an athlete. Some scientists have speculated that the build-up of calcium inside muscle cells during rhabdo can stimulate increased protein synthesis inside the cells, which might produce some of the beneficial adaptations we associate with training such as more aerobic enzymes, more contractile proteins and more mitochondria. But the line between these positive adaptations and the onset of full-blown rhabdo is a fairly thin one. Tread softly, here there be dragons.

There are things you can do to minimize the risk of rhabdomyolysis. The studies in this area a somewhat thin (imagine the protocol…take some people who never exercise, break them down into groups and have some of them exercise until they die) but they suggest that as fitness improves and an athlete's training program becomes more challenging and of longer duration, the likelihood of rhabdo declines. While high volume, highly fit athletes are not immune to rhabdo, fitness is an excellent prophylactic.

The CrossFit warning label then is to introduce people to CrossFit and its severe intensity gradually. Other rhabdo invitations are heavy alcohol consumption, cocaine usage and the use of a cholesterol-lowering drug called Mevacor (Lovastatin is the generic name). Intense exercise after a recent infection raises the risk as well because certain viral infections can inflame muscle membranes and make their deterioration more likely during exertion. Exercise when it is very hot especially if it is also humid will exacerbate the onset of rhabdomyolysis so you must acclimate yourself to increases in temperature before you train. The lack of fluid in your system increases the risk of heat stress and dehydration which places stress on the muscles and the kidneys. The Camelbak tag line "Hydrate or Die" is more meaningful in light of some understanding of rhabdo.

Interestingly only two species of animals – humans and horses – are known to develop rhabdomyolysis…and further male humans seem to be the most susceptible. Exactly why this is is not completely understood but some experts have speculated that decreased total muscle mass and more efficient heat regulation in females may be protective against full-blown rhabdo. Key female sex hormones such as estrogen may also have a soothing and stabilizing effect on muscle membranes making it hard to mortally wound them during strenuous exercise.

Unfortunately rhabdomyolysis is pretty sneaky and does not make an announcement prior to showing up on your doorstep. But if your urine looks just like Coca-Cola you have myoglobin in your kidneys and you need to get to the hospital immediately. Brian's initial complaint was not of pain but rather of complete muscle weakness in his back so be mindful of that. Also, no heat pads after workouts…use ice. Train hard, but pay attention to what you are doing. Mindful exercise, thoughtful intensity.