

CrossFit Certification Seminar
April 15 – 17, 2005
Day 1

The Epistemology of CrossFit:

CF is empirically driven, clinically tested and community developed – Input and Output. Try things and see what works. This is a grass roots, word of mouth organization with no need or desire to convert the masses who want to do crunches with a Pilates ball.

Black box theory.

You put the deadlift into the black box and improvement comes out the other side. What do you do? You keep doing deadlifts of course. What happens inside the black box? That's the job of exercise physiologists, who figure out why things work years after the doers have already been applying what works. Why do deads improve your bench? Does it really matter? Our primary concern is not HOW things work but rather THAT they work. If it turns out that a particular exercise, or combination of exercises makes us better in some measurable sense we take note of that and run with it...and then change it to make it better. Vary the exercise, vary the load, vary the intensity, very often.

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.

Theory wars. Neurosynaptic facilitation vs. Neuroendocrine response. There is no real consensus as to why this methodology works. Science has given us nothing that has substantially effected they way people train, with the possible exception of anabolic steroids. That knowledge which ferrets out superior performance is gained through doing, not thinking about doing. Our method is to try it...not to analyze it.

John Walsh is a biostatistician, he is himself and is surrounded by BBP (Big Brained People). John and his ilk didn't like the Zone diet because he and his science friends didn't like the way it was presented because the success stories were *merely* anecdotal...testimonials from those for whom it worked. John decided to try the diet to *prove* that it didn't work. The opposite happened. From the website a testimonial from John Walsh:

“I've been following the Zone for 3 weeks now. As some of you may remember I was very skeptical of the Zone based on the little I knew about it and some comments I received about the Zone from several nutritionists and a cardiologist that I work with. After a bout with pneumonia that put me on my ass I decided to read some of Sear's book and give the Zone try just to prove to myself that the Zone was bunk. Well after three weeks I couldn't have been more wrong. I went from a size 38 pant to a size 34. My abs are beginning to show after 15 years on the lam. I don't feel nearly as

exhausted after a WOD and am able to do some sport specific stuff in addition to the WOD. I feel great, am not as groggy in the morning and don't feel the need for a mid-day nap on my days off. I am not an advanced Zoner. I pretty much just eyeball stuff and use dinner plates for meals and dessert plates for snacks for now. Once a week I indulge in pizza but I don't crave sweets like I did before. I have upped my fruit and vegetable servings from 4-5 a day to 10-12 a day. It was tough to kick bread but I haven't had as much as a slice in 8 days.

Thanks for all you Zoners that kept working on me in my previous screeds against the Zone.”

So, that will be about it for nutrition this time. For more detail on nutrition issues see the notes from the last seminar or seek details from the website.

CrossFit efficacy is clinically tested in the real world...in gyms, stadiums, rock and mountain, the battlefield and the streets – it is tried and tested in the most challenging environments imaginable. (I think we should add dinner table to the list).

Functionality, Intensity and variance – key CF principles.

Squats are bad for you right? You hear all the time that people get hurt doing them. Doctors and others frequently tell people that squats are bad, and tell their patients that they should not do squats because they are a dangerous movement that will hurt you. So, ask that doctor “How do you propose I get my ass up off the toilet?” They make the presumption that squats are bad because a few patients have told them that they hurt themselves doing squats. Their solution, don't do squats. They will also say that you should not have a knee angle more acute than 90 degrees. How can you get off the floor with constraints like that?

Squat demo by Lani. The body should be divided 50% in front/50% to the rear relative to the frontal plane (as measured by a vertical line – a stick – held to the side of the person when they are standing erect). Pelvis and spine remain integrated and unmoving during the squat. Hip flexion/extension with no torso movement to speak of. The xyphoid process and pubic bone, collar bone and hips do not collapse together during the movement. The primary movers are the glutes and hamstrings, the posterior chain. PUSH THROUGH THE HEELS. You don't want to let the heels come up, keep them on the ground. Wiggle your toes. Don't look down, head and eyes up and forward. Keep the lumbar curve intact throughout the squatting movement. The trunk and hips must remain intact as a functional whole during athletic movement.

Outside for B2B Tabata squats. The “rest” at the bottom ruins, for me at least, any hopes of anything resembling an explosive upward drive. Rather than explosive it is more like misfire, wet powder, dribble...something weak, very un-Annie like.

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

The degree to which other people just don't seem to get it is in evidence when you find out that there are commercial gyms with ceilings so low you can't do overhead lifts or that simply don't allow them. Someone from the class pointed out that he went to a gym where they expressly forbid their weights to touch the floor.

By contrast CrossFit uses universal motor recruitment patterns – which gets the body, or something moved by the body, efficiently, effectively and quickly from one place to another. These movements are universal in that they are found everywhere, in everything you do from homemaking to military combat. Jumping, pushing, pulling, throwing, running, climbing...movements that mimic what you do in life as opposed to lateral raises, flyes or leg curls...which are non-functional and artificial. Proper, powerful athletic movements require a core to extremity connection. Symphony, not solo.

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 through 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. From the manufacturer of a stairmaster type device, *"Shifts in the load/velocity matrix in a single workout cause startling adaptations in fitness."* 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.

Universal motor recruitment patterns are compound and yet irreducible. You can't break 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.

Elemental – The primary colors of all movements. (Mark Twight).

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

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.

Variance – what do we want to vary? Everything. We are weakest at the margins of our experience. Get rid of set notions of time of day, load, reps, sets, and so on. Mix things up as much as possible. Nature on average punishes the specialist. DL – HSPU and Row Bench Press or other such combinations stay together but changing which combinations we do and how we do them is critical to development.

Outside for OHS using a wooden dowel. Not sure how I did it but I managed to find the weighted dowel that made the squat very difficult and on top of that it was unbalanced and kept pulling me forward. Gotta pull that stick apart and really push it up hard. Keep that lumbar curve intact and get the stick behind your ears.

Squat Clinic: 10” plyo box behind the squatter with a bar on a rack in front of the squatter. Keep hands over the bar and while keeping the lumbar curve, squat butt to box. If you plop onto the box it is likely your hips and back are too tight. If so, go to a full squat and at the bottom hold some fixed object making a point to maintain the lumbar curve, pushing the belly forward to stretch the involved muscles that are preventing the proper position. The cantilevered position with the substantial forward lean is an immature squat position. The development of the proper squat and thus the hip strength that leads there takes 3 to 5 years...in a good athlete.

Lani did the overhead squat with her feet together and hands together on the bar. This is not generally possible in the human form. Lani is an alien.

Outside for the deadlift. Arms straight, knees move away from the bar so that the arms hang from the shoulders perpendicular to the ground. Do not move the bar around the knees. We did quite a few reps moving from mid shin to mid thigh with the primary focus on moving the knees out of the way by pushing them back while continuing to move the shoulders upward at the same time.

Shoulder press. From the rack position to overhead. Where's overhead? Over your big fat melon, not in front of or behind and not simply higher than. Not much of a power component with this lift, almost exclusively strength.

Push press. Dip – drive – press. Much more dynamic, with a plyometric reversal of direction from the dip to the drive upward. More power, more load, more of your body involved, more speed, core to extremity, more stabilization – a greater conditioning tool and metabolic load.

Push jerk – Dip – drive – press and dip and stand. The hip drives the load initially as it does with the press, but then it bails you out a second time when you get back under the weight. Everything said about push press goes double for the jerk. Very, very functional following all the principles of proper movement rules.

Outside for practice of SP, PP and PJ. The difficulty is in keeping the bar directly overhead for those with limited shoulder flexibility. We saw a demo of SP, PP and PJ as a triplet. SP drops off after about 8, the lifter gets a few more reps with the PP and after that goes he still had a couple PJ. Eva Twardokens had a very similar result being able to do PP and PJ for several reps after the SP fails.

CrossFit is a strength and conditioning program. What's strength and conditioning? Well, simply put, it's fitness. Our first model of fitness identifies 10 general physical skills: 1. Cardio-vascular and cardio respiratory endurance (gas exchange), 2. Stamina (muscular endurance), 3. Strength, 4. Flexibility (these first four are organic and are developed through training. We can call these hardware). 5. Power, 6. Speed (these two are developed both with training as the 4 above and with practice as the next 4) 7. Coordination, 8. Accuracy, 9. Agility and 10. Balance (these last four being neuro-muscular and developed through practice. We can call these software). CrossFit, the Olympic lifts and gymnastics will take care of all 10.

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. The CrossFit athlete is better able to deal with a variety of athletic demands than the athlete training with other fitness modalities.

Model 3 is the balance of metabolic pathways. We have the phospho-creatine or phosphogen pathway which is the max effort energy system that lasts to a max of about 10 seconds. Next is the glycolytic or lactate pathway and this peaks around a minute and then tapers off to a max of about 2 minutes and 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 CrossFit system develops all three pathways by spending some time in each of them, frequently.

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 somewhat simultaneously. Gotta love that. In fact the folks who make one of those stepper devices did a study which revealed: *“Shifts in the load/velocity matrix in a single workout cause startling adaptations in fitness.”* They included the study with the exercise device but did not publish it for some reason. Change how hard you work not only workout to workout, but within the same workout. Change is good.

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 about to become sick.

CF is the Sport of Fitness. This makes the workout competitive and causes everyone to work harder since *“Men will die for points”*. As Jeff Cooper of Gunsite put so perfectly, *“The fear of sporting failure is worse than the fear of death.”* We get relative and absolute measures of performance with each workout which gives great metrics. In fact it gives more data than you really know what to do with. We record this on a scoreboard conspicuously exposed for all to see. This high intensity training builds togetherness such that *“Agony plus laughter builds camaraderie”*, Captain Michael Perry.

“We don’t have the agility of gymnasts, the power of a weightlifter, or the endurance of a marathoner but we have more agility, power, and endurance than any gymnast, weightlifter or marathoner. We do your stuff almost as good as you, you can’t do our stuff at all and we do stuff neither of us can do way better than you can.” Coach.

Outside for Fran – 75 pound thruster/pullups for 21-15-9.

Scott*	4:29	Andrew	6:40	Peder	6:27
Tony	5:42	Jason	6:40	Kevin	7:30
Mark	5:51	Doug	7:03	Jeremiah	8:01
Saul*	9:55	Steve S.	7:04		
Tom	10:09				
Rob	4:13	Russ	7:29	Michael	4:02
Nicole	4:20	Norma	7:30	Brendan	4:25
Eva	5:03	John D.	9:35	Dave W.	5:49
Adam	5:13	Jason	12:01	Connor*	6:49
Ned	9:00	Tom	12:38	David S*	7:01
Lowell	10:15			Mike R.	7:49

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 Day 2

Big Phat Helen: Helen x 5 rather than 3, with 800 on the first run. Quite the stimulating way to begin a glorious day in Santa Cruz.

TJ	17:46	44	Scott T.	21:48	34
Michael Perry	17:48	42	Peder Davis	22:10	37
Dave Leyes	17:53	25	Chem Girl	22:40	24
Eugene R. Allen	17:56	49	Connor Martin	23:14	13
Blake Glassman	18:04	15	Christina Dowd	23:16	37
Patrick Johnson	18:07	35	Fraser	23:30	31
Paul Peterson	18:07	34	Doug C.	23:30	37
Greg Everett	18:25	25	Norma	23:11	36
Jeremiah	18:30	27	Annett	23:11	47
Nicole	18:42	29	Lowell Bruhn	24:28	30
Ned Mason	18:58	28	Lincoln Brigham	24:23	46
Mike Ritland	19:04		Jason Davidson	24:43	32
Andrew	19:07	35	Steve Seapker	25:30	34
Kevin M.	19:08	31	John Dowd	25:33	31
Russ	19:30	18	Adam	25:58	34
Tony Duchi	19:38	40	Tom Brose	28:12	35
Mark Madonna	19:59	26	Noah	29:48	35
Dave Shanehan	20:00	14	Steve Kenyon	30:41	48
Ryan	20:14	24	Dave Ojeda	31:29	39
Michael Smith	20:16	47	John Bauman	34:31	39
Jason Howard	21:05	31	Saul Jimenez	34:49	43

Inside for a discussion about the hip and it's power and the development of the power of the hips and abs with the overhead squat, the L-sit, the Glute Ham Situp, the Ab-Mat and the Hollow Rock. But wait, the situp on the GHD is all hip flexor, there's no ab work there. Go tell Coach that and he will quickly disabuse you of that notion. The Hollow Rock trick is to use the low abs to take the "clunk" out of the flatness of the lower back. Make it round like a rocking chair. Also include knees to elbows and windshield wiper.

Rings. Gotta get em. The best of the gymnast's strength is developed on the rings. There are more things you can do with the rings than are available to you on a barbell. The progressions are gnarly...very, very difficult. We had a number of ring stations and spread people around to try the muscle up, dips ring rows pushups and L-sits. The amazing 13 year old Conner Martin did 5 consecutive muscle ups and Rob Wolf did a muscle up, press to handstand and the lowered to an inverted planche. Then he did a muscle up while holding an L-sit. Incredible. Also, he looked good in his glasses.

Fight Gone Bad x 3. Wall Ball with a 20 pound Dynamax ball to a 10' target squatting to another Dynamax ball. Sumo Deadlift High Pull with a 75 pound barbell. Box Jump to a 20" box. Push Press with a 75 pound barbell. Rowing on a Concept 2 rower, damper set at 4, and calories for score.

Josh Everett	29	406	Jerimiah	27	259
Patrick Johnson	35	347	Jason Howard	31	258
Paul Peterson	34	335	Fraser Auld	36	255
Mark Madonna	26	322	Steve Seapker	34	253
Kevin Montford		318	Mike Ritland		248
Dave Werner	44	317	Jason Davidson	32	242
Toni Duchi	40	314	Lowell Bruhn	30	235
Douglas Chapman		304	Mike Malloy		227
Russ Greene	18	288	Tom M		222
Ned Mason	28	286	John Dowd	31	217
Eugene R. Allen	49	283	Steve Kenyon	48	189
Andrew Morgan	35	281	Cathy Bramanti	39	187
Chem Girl	24	274	Saul Jimenez	43	179
Dan Silver		265			

Man was that a bear. I have always done this with 5 rounds and for some reason this 3 round version was harder for me. I tend to pace myself so that I can have a fairly even distribution of effort for the duration of the event. Since there were 2 less rounds I had less time over which to distribute my effort so I had to go harder. Additionally, there were all kinds of people in attendance in front of whom I could not look like a mall walking, Pilates ball using, lateral raising sissy boy. What a difference 8 pounds makes. I have been using a 12 pound medicine ball, the 20 pounder caused me much distress.

Look at that score for Josh. He is really an incredible athlete. Josh worked out a bit at the start of the day doing clean and jerk singles with increasing loads up to 315 pounds. You really have to see him move that kind of weight from the floor to his split clean position faster than most people could go through the motion with no weight at all. His speed in the movement is truly amazing. The energy in the room was absolutely electric and made for maximum effort from everyone.

The evening was spent back at HQ for Zone ignoring pizza, Zone look-the-other-way libations and Zone not-in-a-million-years chocolate cake. Coach got the live Las Vegas UFC fight between Randy Couture and Chuck Liddell. In case you didn't see it and want to watch it without knowing that the Iceman knocked The Natural out in the first round I won't tell you what happened. Incredible card, great fights and watching it amongst a room full of CrossFighters...no, CrossFitters, sorry, is really exciting. John Hackleman is supposed to fly up here from Vegas to give us seminar on striking. Let's hope his victory celebration party doesn't get too out of hand.

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Day 3

Murmur-muted conversation-peas and carrots-the gathered hoard coalesces into small clots of 3 to 5 or more in sometimes animated conversation not always related to CrossFit. Coach Burgener and Sage are here, having just completed a seminar tour of four high schools in the Clovis school district introducing them to Olympic lifts and even CrossFit. The coaches liked what they saw. Smart coaches.

There is a stationary bike, a 20" box, a pair of dumbbells, a 40 lb slam ball, a rope and the net that are set out for use. Coach is introducing a chipper. Unlike a circuit it is a one time through affair, in one side out the other...just like a chipper. A Grinder is a single event done by itself, one time through – run a 10k, DL 5, 3, 1, 1, 1, 1, 1 etc., row a 5,000, and it's flavor is one of strength. Chippers focus on a metabolic challenge because there is not enough time spent on any one exercise and no repeat of any exercise. A Blender is a circuit such as FGB, DL-HSPU any of the exercise groupings that are repeated.

One mile level 20 on the bicycle, 30 box jumps, 30 ball slams, cargo net climb over the top and down the other side, under the net and back over the top again, 30 thrusters with two 30 pound dumbbells, and 5 trips up the rope. Two teams and it's a race.



OMFG. It's going on right now and I'm getting hypoxic from all the air these guys are sucking out of the room. Incredible metabolic demand here, and it is unrelenting. Bicycle to box jumps...ouch. The net with two guys on board climbing in opposite directions is a sight to behold. Dave Leyes and Michael Perry are getting smoked. I'm pretty sure it would have killed me. This is most assuredly not for the timid. The die for points factor is in evidence as these guys are really spilling their metabolic blood for a fast time. Putting the rope climb at the end is a sure sign of sadistic leanings.

As bad as the bike to box jump sadism is, box jump to 40 pound ball slams has a Marquis d' Sade flavor. To make the rep count you have to make the ball come up off the ground enough to catch it in the air. From the slam ball they moved to the net and the bigger guys really hated that. To thrusters next for 30 reps with 30 pounds and that had to be broken down into smaller sets. Then last of all, the rope climb. The smaller guys seemed to move through that OK but some of the big guys were really exploring the outer limits of their physical expression. Team 1 came in first but nobody really cared. Too tired.

Team 1		Team 2	
Andrew Morgan	35	Ryan Rodriguez	24
Steve Seapker	34	Lowell Bruhn	30
Adam Davila	34	Paul Peterson	34
Jason Howard	31	Jason Davidson	32
Tony Duchi	40	Ned Mason	28
John Dowd	31	Mark Madonna	26

The wooden dowel. It continues to amaze me how often I manage to get the 45 pound dowel. Coach Burgener and his 14 year old daughter Sage took us through the Snatch movement first breaking it down to the jump stance and landing stance, a pull from the hang to shoulder shrug (1, 2, 3) elbows high and outside added to the shrug (4, 5, 6) the muscle snatch to the overhead position without a second knee bend (7, 8, 9) and then a muscle snatch to overhead landing with bent knees (10, 11, 12). These numbers are simply how many reps you do during the Burgener warm up.

Next was the overhead squat. Put the bar overhead with a snatch grip and slowly squat down to the bottom position. Explore the path you must take to find a balanced position keeping the bar over your head and behind your ears, and your hips down between your ankles. Keep your back erect, head and eyes forward and chest out.

Next, rack the bar behind your neck in a back squat position with your hands in a snatch grip. *Slowly* press the bar overhead as you simultaneously squat to the full squat position...simply press your body under the bar. This is called pressing snatch balance. Then we moved to the heaving snatch balance which is the same thing simply done at speed. Remember to drive the bar up and your body down with no stomping of the feet. Next is the snatch balance which is the dip and jumping your body down under the bar with the stomping of the feet from the jump stance to the landing stance. Power snatch was next which is a snatch from the dead hang to an above parallel squat position. Then finally a full snatch with a squat to below parallel.

Sage advice: (Get it?) Always keep the back in the same position from the ground to mid thigh, do not round it. **DO NOT MOVE THE BAR AROUND YOUR KNEES.** What you must do is straighten the knees out of the way while maintaining the angle of your back that you started with. Don't stop the upward movement of your shoulders as you push your knees back or you will find yourself leaning out over the bar and you will hurt your back. Instead, keep the shoulders moving upward so when you move your knees back it does not effect your back angle. Once at the hang position you are at the end of your initial pull and where we started our training. Now you JUMP. How do you jump? Bend your knees a bit and then launch yourself upward. Just jump for crying out loud, everybody knows how to jump. It is this jumping movement that creates the scoop or double knee bend other people try to teach. Forget that crap. Just jump. BUT, you must not pause in your upward movement and you must not lower the bar as you bend your knees to jump. You must continue to impart **MOMENTUM** and **ELEVATION** to the bar as you jump the bar upward during the second pull and then just before the bar loses it's upward momentum and becomes momentarily weightless you shrug the shoulders upward, lift the elbows up and out for your third pull where you PULL yourself under the bar. Your pulling grip for the snatch and clean will be a hook grip with your thumb tucked under and gripped by your fingers.

He made it. John Hackleman is in the house. He had a few insights about the fight and the trash talking that was going on back and forth. Fascinating to get the inside poop on the manly sport of UFC. John is a pretty big guy, with some Kempo tattoos and a bit of a goatee he likes to pull on as he talks. He spoke about the CrossFit connection to his fighter training and then got down to business.

John started by telling us he would be giving us a didactic on striking. A didactic. You just don't hear that word often enough. An early and interesting point John made was to inform us that speed and power take precedence over technique. He points out that if you showed a photo of the right cross Chuck Lidell threw that put Randy Couture on the canvas (just the punch without Chuck or Randy shown in the photo) 99 out of 100 experts would tell you that the punch was no good. The one expert that would take the opposite opinion was Couture, he was obviously very impressed with that punch. A good punch or kick or whatever is one that has the power to put your opponent down. If John has a fighter who hits with power he doesn't bother with corrections to the subtle nuance of technique detail. Still, you can't punch like a male aerobics instructor in leg warmers and expect to accomplish much, so you have to have a baseline of correct movement.

First, make sure that what you hit with is a rock, not a baggie full of Cracklin Oat Bran. Look at your palm and bend your fingers down so that the pads of your fingers touch your callouses. Roll them a second time so that your fingertips dig into your palm a bit and your fingernails are perpendicular to your palm. Now wrap your thumb over your index and middle fingers leaving a little of your thumb as possible hanging out to the side of your rock so you don't catch it on things. Avoid striking solely on the middle finger knuckle or the pinky knuckle. There are 28 bones in your hand and they are somewhat fragile. Wrap your hands when you hit the bag. Keep your wrist flat and strike with the first two knuckles when punching with the forward part of the fist.

Now for your platform. Stand in front of a mirror with your feet side by side just over shoulder width apart, hands down to the sides. After you're all done admiring that CrossFit built physique, take a stride forward with your left foot (if you are right handed) and then rotate your feet slightly so that they face about 45 degrees to the right. You should be standing in the opposite corners of a box the size of the width and depth of your stance. Look down at your feet. With just a slight bit of adjustment your feet should be shoulder width apart as before just facing 45 degrees to the right. Your left shoulder should be forward with your body angled right shoulder back at that same 45 degree angle.

Bend your arms up at the elbows, leaving your elbows pointing down and pressed up against your ribs protecting your body. Lift them up only if you enjoy having the wind knocked out of you with strikes to the ribs or liver. Your right hand should come up to your jaw and positioned much like you were talking on the phone with the fingers of your glove touching your jaw. Drop this hand and risk left hook induced unconsciousness. Don't lift your arms up to your face, instead turtle your head down a bit and drop your jaw to your chest as you lift your shoulders up to protect your jaw, the button. Protect your chin by keeping it under the waterline described by the tops of your shoulders. Keep this position even when you punch. Your left hand is about a gloved hand width away from your forehead, turned slightly inward with your elbow pointing downward. Take a look at yourself in the mirror and make sure you don't allow your jaw to appear above your gloves. Keep your chin down and shoulders up. Do the following punches in the mirror and check your form against the descriptions given.

The Jab. This is your most fundamental, most often thrown punch. It has the least power but the most speed and is used to set up just about everything else you throw. The jab is used offensively and defensively to keep your opponent off balance and unable to properly set up his offense, it allows you to measure distance, it will test the opponent's reaction to feints to allow you to properly form your attack strategy, and is just the ticket to thwart an opponent's initial attack so that he becomes less and less able to establish a rhythm since you stick him every time he sets up for an attack.

The jab is, at its most basic level, simply an extension of the arm and a rotation of the fist so that your palm faces downward at impact. But then again flying a helicopter is simply proper manipulation of the cyclic, collective and anti-torque pedals. As simple as it seems to be, a good jab takes quite a bit of time to develop and can nearly always be improved. Picture a tube in front of your face that extends toward your target. As you extend your jab, keeping your elbow under the punch rather than letting it drift upward to the side. Stick your hand into the tube for the punch, strike the target, and then retract your hand back out the tube to your fighting position. The tendency is to let your hand drop after the strike; expect a face full of boxing glove if you do. Straight out, straight back through the tube, palm down on impact, shoulder up, jaw down. For a bit more power snap your hip with the punch and rotate your left shoulder further forward. For more power still step forward a bit as you jab. Remember though, this is a set up punch. Change heights of the punch, double up the punch, use it moving forward or backward – seek variety, create confusion in your opponent.

The rear hand is the power hand, the right cross...unless you're a lefty. This punch is slower than your jab but much more powerful. When you fire it, be sure your left hand is back at your face holding the phone and that you have your chin down, shoulder up and a rotation on your hand so it is palm down at impact. Just as with all powerful movements the punch moves from core to extremity. Fire the right hip when you throw the punch and be sure to pivot on the right foot to allow your hip to turn over which allows for a full shoulder extension adding power to the punch. You can, but generally don't, throw the right as a lead punch. Instead send it behind the jab...directly behind the jab. It is as though your hands were connected with a rope through a pulley which is attached to whatever you are punching. As your jab comes back, your cross replaces it keeping your opponent from seeing that it's on the way.

The hook is next and it comes in a variety of flavors. John's instruction differs from traditional boxing in that he teaches a sort of whipping punch without concern for a 90 degree elbow angle or the shortness normally associated with a boxing hook. The Hackleman hook as a much larger arc and a snapping twist of the hips for power. This larger arc and slightly more open angle at the elbow allows for a more rapid fire delivery of punches and thus more shots on target. Realize that we are not talking here about a traditional boxing hook, but rather the NHB variant. This method allows for lots of power without anywhere near as much dependence on perfection of technique. Whip the hand and rotate your hips around through the punch. You can hook horizontally to the head or body, arc it slightly upwards for a shovel hook that angles toward an uppercut and this is particularly valuable as a strike to the liver. The liver is situated below and behind the bottom most rib in the right side. Get a good shot on the liver and you can count on whoever receives the blow taking a knee. You can also arc it downward for an opponent that has crumbled forward after a shot to the body.

John admonished us to not punch with our knuckles to a person we have mounted or who is otherwise on the ground. You are much more likely to injure your hand if you punch with the front of your fist. You are better off using a palm heel strike, a hammer fist strike or your elbow, because if your opponent's head is on the ground the impact will be much like punching a wall.

When doing elbows be mindful of not winding up in an attempt to create power. Elbows are a short, leverage technique rather than a long, speed technique. Their utility comes in the "Where'd that come from?" nature of a well thrown elbow. Whether standing and in a clinch or on the ground you can put the elbows to good use. They can be used in destructions Kali fashion where you strike the limb your opponent throws at you, or in interceptions where you catch an opponents incoming blow with your elbow. Let's say you find yourself in the ring or otherwise in some sort of rather unfriendly exchange with someone who would revel in your demise. The most compact method of application is to push against your opponent's face to turn it away from you. He will try to turn his face back and when he does release your hand and either drop your elbow down into his face if in the mount, or rotate your hips and extend forward as you release your hand if in a standing clinch. The shorter the movement is, the less likely it is to be detected until it makes impact.

Front kick. Hackleman suggests using this kick when the opponent's body is leaning slightly forward as when lunging forward punching. This allows the kick to rise up into the opponent's body.

Round kick. The meat and potatoes kick for Thai boxers and other stand up fighters that use leg kicks. Hackleman recommends against the rear leg round kick because it is slower and more easily caught. In NHB fighting or with any opponent versed in takedowns, using the rear leg can be dangerous. Hackleman prefers the use of the front leg targeting the inside of the leg of an opponent using a left leg lead and vice versa for an opponent with a right lead. You strike with the shin and you do not chamber or load this type of kick. Swing the shin like a bat with a slightly bent knee generating power from your hip. Your weight is on the ball of the supporting foot and you allow the heel to rotate toward the target to open up the hip and allow it to pivot to give maximum range of motion to the movement. Just as impact is made extend the leg so that the power of the impact pushes you back for the recovery. Do not re-bend the knee to recover the leg. Push the leg to recover, don't pull the leg to recover. When kicking with the left leg the left hand should extend out from your face to intercept and interrupt any incoming punches.

Knees are best used when tied up in a clinch with an opponent in what is called the "plumb" in Thai boxing. When you tie up you want your arms on the inside of your opponents arms with your forearms around his neck, your hands overlapping one another on the back of your opponent's head with the fingers facing up. You should be squeezing your elbows together to pinch the neck and allow for a very solid grip. Pull your opponent's head down so that he is looking at the ground in order to round and weaken his back. The knee is drawn upward and then forward into the opponent's body as you pull the head further downward. Strike with the forward part of the knee, the part of your knee that touches the ground when you kneel. Point your toe and extend your hip forward as you strike. To maximize the effect pull your opponent 90 degrees to one side or the other to take him off balance. You don't move directly sideways but rather in a small arc with the opponent on the outside of the arc. If you rotate to the right, drop the right leg back, pull your opponent's head down and to the right and use the right knee to strike. Be sure to extend the right hip forward as you deliver the knee.

With that primer in place John broke down those that had gloves and wanted to play into two lines and we did various punches and kicks to the bag followed by squat jumps or pushups. Later we were broken down into 4 groups. We had two hanging bags, a free standing bag and some floor space. We went 1 minute at each station (it was a minute when John remembered to start the time) doing as many pushups as possible at station 1, doing two round kicks with each leg and then two squat thrusts at station 2, doing 4 alternating hooks (left, right, left, right) and then 2 clapping pushups at station 3 and then finally a blitz of jab, cross, jab, cross followed by 2 squat thrusts at station 4.

John advises that when you drill you finish on the bag so you get used to striking while you are tired.