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Perfecting the Press!

How to Maximize Your Performance in the Kettlebell Military Press

By Kenneth Jay
Master RKC

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Dedication

To my sons.

You give me the strength to carry on.

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Foreword
by Brett Jones
Master RKC, CSCS, CK-FMS

I have to admit that as a child, my favorite comic book character was Thor, the Viking God of Thunder. In fact, I was a bit of mythology buff, and Thor captured my attention. He epitomized strength, and strength was already a fascination of mine. Thor showed the way, as no one could handle his hammer. That was the ultimate demonstration of his strength, and it became a driving force in my own quest for strength—to do what others could not.

Fast forward a few (OK, more than a few) years. I am teaching at an RKC course in Minneapolis, Minnesota, and I have the chance to meet a real-live Viking: Kenneth Jay. Kenneth looks the part of a Norse figure of mythology. And *strong* is an understatement when you are describing a 6-foot-plus individual with long arms who casually does pull-ups and military presses with the Beast (a 106 lb kettlebell). But combined with that strength is an intelligence to match. Kenneth is a researcher and scientist. In my mind, he is the embodiment of the warrior/poet whose virtues societies extolled in years past.

I am pleased to say that the Viking is now my friend and colleague, and in the book you are now reading, *Perfecting the Press*, he has laid out what I feel will generate a next-step evolution in strength training. Even if you have no interest in increasing your military press (*why*, I don't understand, but to each his own), the concepts in this book are powerful and the fatigue index of looking at density and fatigue (and their relationship) is unique and innovative.

Not only does Kenneth break down the essentials to a perfect press, but he also provides 10 innovative drills for shattering plateaus. Whether it is simply stacking two kettlebells in one hand for manipulating the center of gravity or showing how to take advantage of hard-wired reflexes, Kenneth's pursuit of strength allows us to stand on his shoulders (pun intended). Breaking down the importance of the latissimus dorsi to pressing is another area where *Perfecting the Press* succeeds very well.

Combining science and practical application, Kenneth reveals in *Perfecting the Press* principles and techniques capable of assisting you on a journey of strength. This is an intelligent journey based in science and field tested in the Iron Pit.

Now read, learn, and apply. Strength is waiting for you!

Foreword

by Dr. Eric Cobb
Z-Health Performance Solutions, LLC

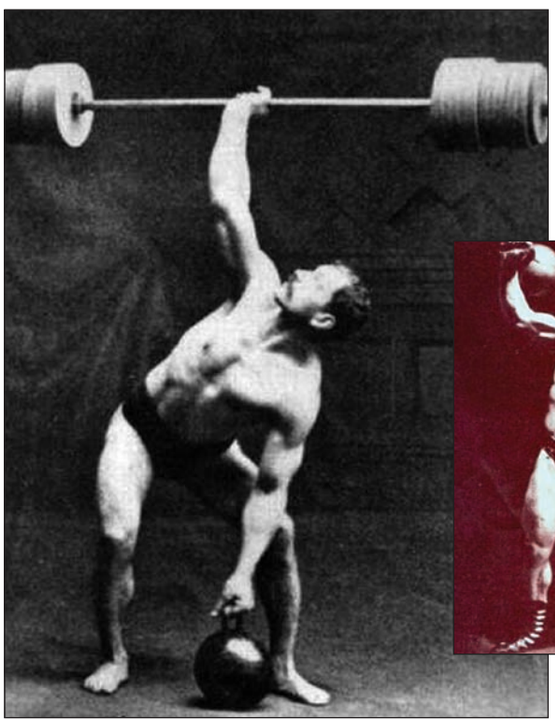
In *Perfecting the Press*, Kenneth Jay has successfully combined the hard science of elite performance with an immensely practical training protocol that will make your performance soar. *Perfecting the Press* will take you on a journey into the physiology of strength mastery that leaves you anxious to read and absorb every page, because every concept can and will make you stronger. From world-class technique development to neuroscience to hyperprecise workout programming skills, *Perfecting the Press* has it all.

Kenneth has written a book that very few people could. Every page demonstrates his understanding of the science of strength as both a researcher and a world-class athlete who has actually applied these methods to his own strength development.

Read this book. Study it. Apply the information, and prepare to blow away every pressing record you have ever set!

Preface

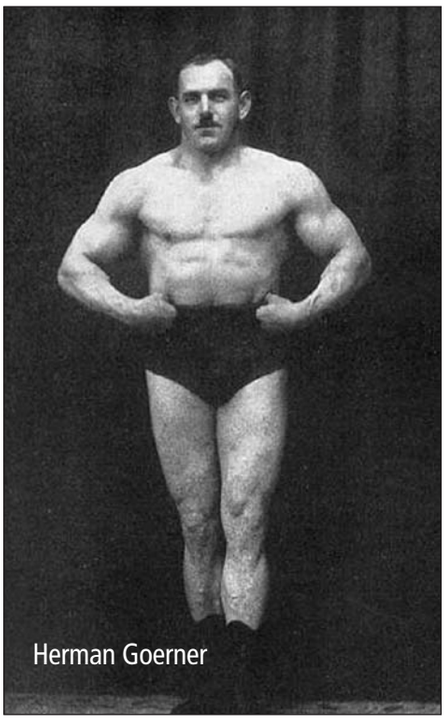
Long before the invention of plate-loaded barbells and dumbbells, history spoke of men of seemingly superhuman strength. On display at the Archaeological Museum of Olympia in Greece is a 316 lb sandstone, dating back to early 600 BCE, with the inscription "Bybon son of Phola, has lifted me over his head with one hand." Likewise, the exploits of Milo of Crotona, from the early 500s BCE, still echo from across the millennia. Legend has it, however, that Milo actually used a system of progressive loading. Purportedly, in the years he did not compete in the Olympics, he trained daily by carrying a newborn calf on his back. By the time the Olympics were to take place, he was carrying a 4-year-old ox on his back. Whether one believes this legend or not, the fact is that Milo won the wrestling contest at five Olympic games in a row, which would have made him well past his prime in his final competition.



Arthur Saxon, left; Sig Klein, right.

For the past five decades or so, "How much do you bench?" has probably been the most often asked question when guys got together and talked about the topic of strength training or bodybuilding. In recent years, many guys have rediscovered old-school, functional-type lifting. With this renewed interest, pressing overhead has slowly regained the status as a measure of a man's strength that it so rightly held in the pre–muscle pumping days of Saxon, Klein, Goerner, and the like.

The demand for overall body tension and skill, combined with the pure satisfaction that comes from my newfound ability to strictly press overhead two-thirds of my own bodyweight in one arm,

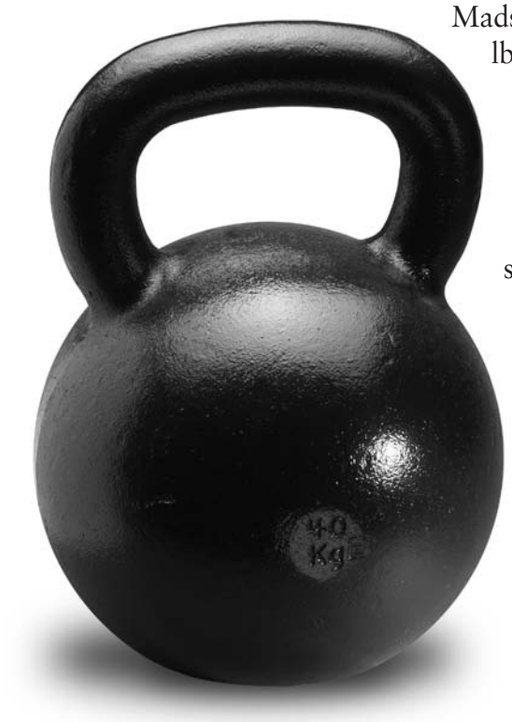

Herman Goerner

makes the single-hand military press my press of choice—no contest. Much has already been said about the benefits of the military press, so I will not tire you with more of the same. Rather, I will share with you a series of discoveries that made me blast through my plateaus in this exercise faster than I had thought possible.

If you spend any dedicated time with heavy iron, you know that eventually you will plateau. It is what you do at that point, however, that will determine whether you will move on or effectively bog down your progress to the point where you will need a tow truck to pull you free of the muck.

In the immortal words of Bruce Lee, "Everybody plateaus at some point, but you must not stay there. . . . You must go beyond." The fact that you are reading this tells me that you have already caught on to the idea that when your training is failing, doing more of the same will not likely yield different results.

In this book, I present 10 advanced techniques to improve your kettlebell military press—10 techniques that will take your pressing strength to a whole new level. I have used these techniques and vouch for every one of them as an exceptional way of breaking your pressing plateaus. Using these techniques has made it possible for me to strictly military press two 32 kg kettlebells in one hand overhead. These techniques have also been trench tested with great success by some of the finest athletes in Denmark. For instance, world-top-ranked Greco-Roman wrestler Mark O. Madsen, RKC, pressed the Beast at a bodyweight of 74 kg (162 lbs) within nine months of having extensive shoulder surgery.



I have also included two chapters on parameters for strength training. Much has been said about intensity and its relation to volume, but to my knowledge, no one in the strength training literature has tried to describe where fatigue and density fit into the picture and, more importantly, how to control fatigue. The gloves are off! I have tried to meet this challenge by offering my own theory on the subject while taking into account what is known about fatigue. I am not claiming that my theory is right, and you might disagree with it. Nevertheless, it is a theory on a much overlooked part of the development of strength athletes and bodybuilders.

How to Read This Book

Every chapter of this book can be read independently. You can skip chapters and come back to them later, or you can read the book cover to cover, from chapter 1 through chapter 18. The material in this book is based on my observations about my own training and the training of others. It is based on movement biomechanics and neurophysiology considered in a very concrete context. Finally, the book is meant to be a straightforward approach to increasing your kettlebell military press by refining your existing pressing skills.

Acknowledgments

I would like to thank **Pavel Tsatsouline** for his inspiration, encouragement, knowledge, and contribution to my understanding of strength and power. I consider him my mentor, as well as my friend. Had I not met Pavel and the RKC School of Strength back in 2004, I would not have achieved the things I have in my professional career and my own training, nor would I have been able to write this book. From the bottom of my heart, thank-you! I am forever grateful.

To **Brett Jones**, Master RKC, thank-you for writing a foreword and for providing feedback on the material in this book. I am honored to know you, and I tremendously appreciate your taking the time to read the book and write a foreword.

Thank-you to **Zachariah Salazar**, Z-Health master trainer and RKC, for your help on using the eye reflexes in the press and for your much appreciated comments on the material in this book.

A big thank-you to my brother, **Dr. Mark Cheng**, RKC Team Leader, of Kettlebells LosAngeles.com and KettlebellRehab.com, for writing the chapter on the Turkish get-up facilitation.

Finally, a special thanks to **Dr. Eric Cobb**, of Z-Health Performance Solutions, for writing a second foreword and providing feedback on my density–fatigue theory, FI index, and the rest of the material in this book. I am honored that you like it! More importantly, though, thank-you for being a great friend and mentor.

To my readers, I hope you enjoy the book.

Press like a Viking! So spoke the Warrior Sage.

Kenneth Jay
Master RKC

Chapter 1

Knowledge of the Kettlebell Military Press

This chapter will cover the basics of the kettlebell military press and refresh your memory of how to do it for maximum force generation. As this book is intended for people already familiar with the basics of the press, I will not go into great detail but instead just remind you of some key axioms and their meanings.

Eleven Axioms You Should Know

AXIOM 1: Your press is only going to be as good as your clean.

You need to set up your press in the strongest biomechanical position. You cannot press with perfection if your starting position is bad. Even before you start to clean the kettlebell, your body position must be as good as possible.

Ready to clean, front view.

Clean rack, front view.

Clean rack, side view.

AXIOM 2: You cannot shoot a cannon from a canoe.

If your foundation is rocky and unstable, you will lose a lot of force trying to stabilize your body into equilibrium. Tension will leak, and if that goes, you will not put up top weights but rather crumble under the heavy chunk of unforgiving iron.

AXIOM 3: Brace your midsection as though you are about to take a punch in the gut.

Think of your spine and surrounding muscles as a mast with guy wires all around it. If the slack is not taken out of all guy wires equally, the mast will be vulnerable to both vertical and horizontal loading. This is something to avoid when handling a heavy chunk of iron.

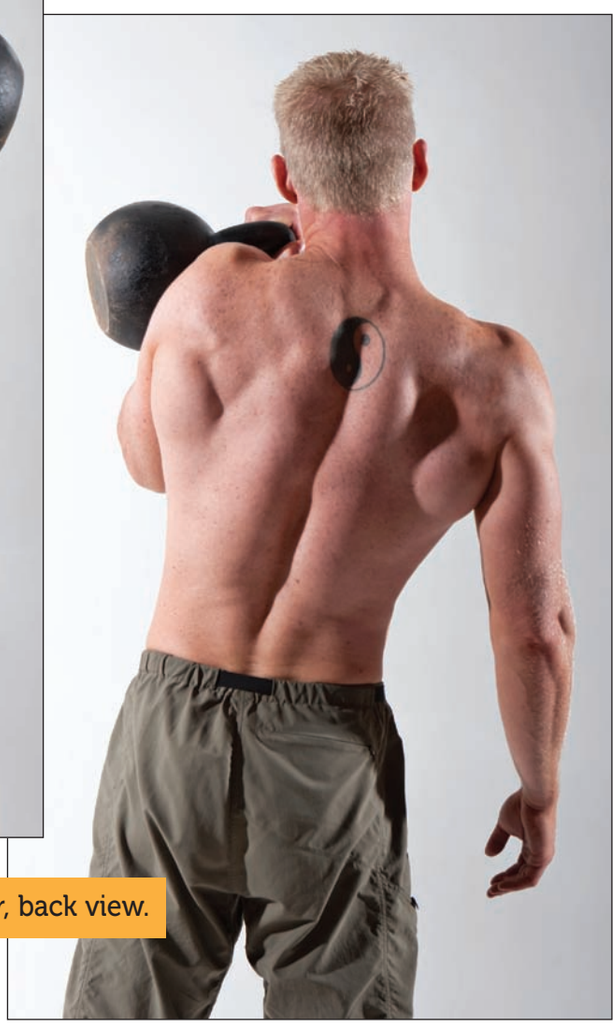
WRONG, Clean rack side view—excessive back lean.

AXIOM 4: Connect through your armpit; tense the lat (latissimus dorsi).

Make sure your arm is not pulled out of the shoulder socket. You will leak strength and probably hurt your shoulder. Your shoulder should stay down toward your hips and not be elevated or shrugged up toward your ear. Make sure your trapezius muscle is not hyperactive, or concentrically contracted.

Tensing the lat helps you perform the military press in three different ways: (1) it provides increased stability of the shoulder; (2) it increases torque around the shoulder; and (3) it creates a physical platform to press from. Finally, the insertion point of the lat on the humerus acts as a virtual shoulder joint, thus improving leverage when pressing from the lat.

WRONG, Shrugging the shoulder, front view.

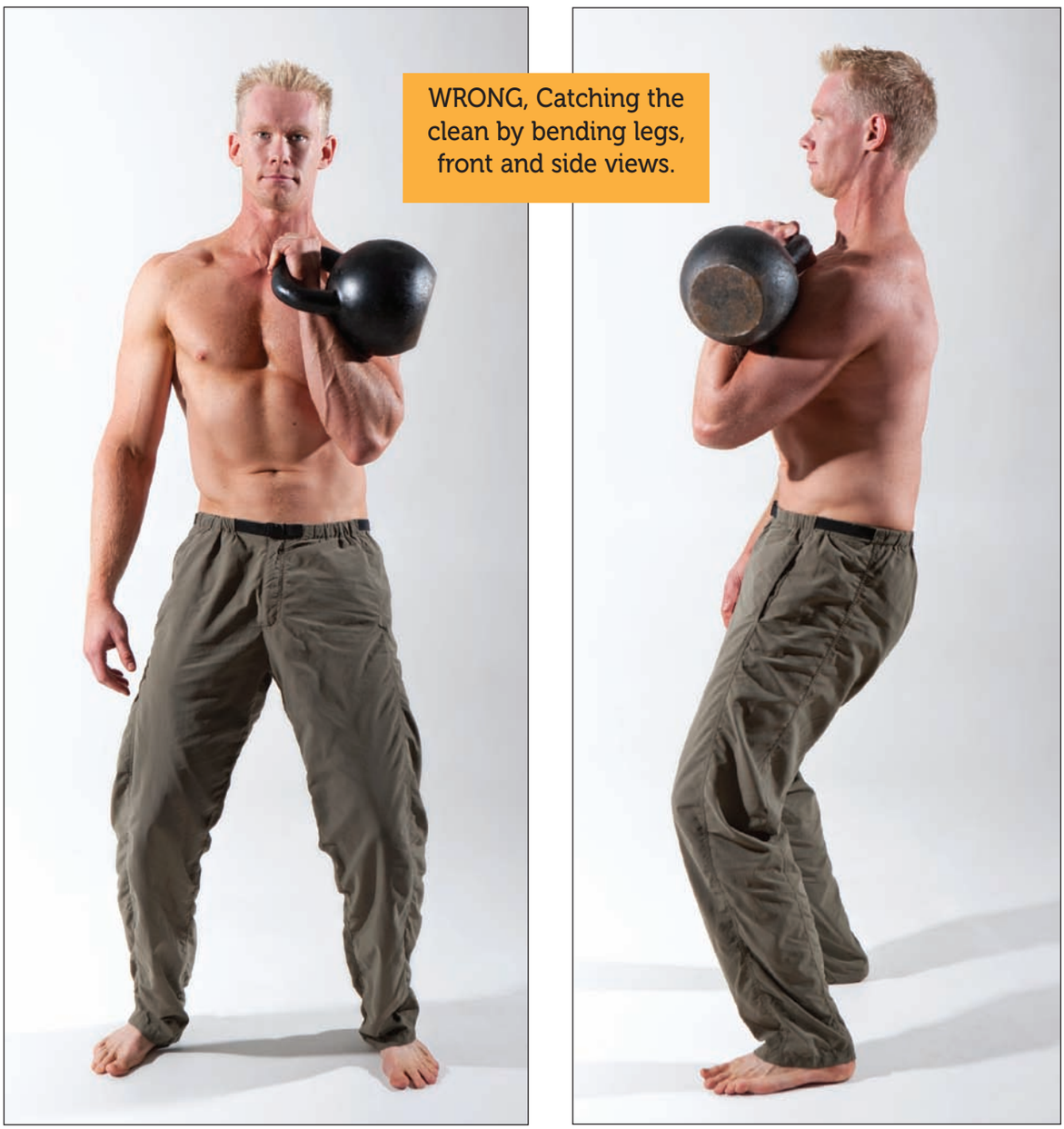


WRONG, Shrugging the shoulder, back view.

AXIOM 5: Load your clean for a heavier press.

When the clean is racked, everything should be tight—from the ground through the toes, up the legs, the quads, the hamstrings, the glutes, the abs, the lats, the chest, the shoulders, and the arms. You should even be squeezing the heck out of the kettlebell handle. Your shoulder should be slightly retracted (pulled back), as opposed to protracted (pulled forward).

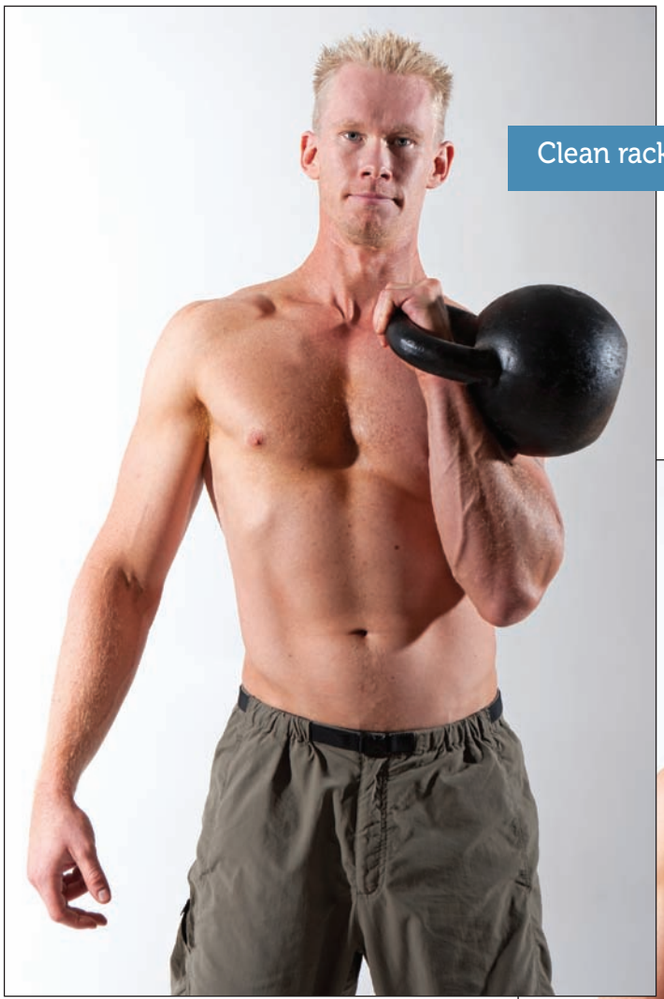
Also remember to avoid dipping your knees and shuffling your feet when you rack the kettlebell. If you do these things, your force will dissipate and you will have less to press with.



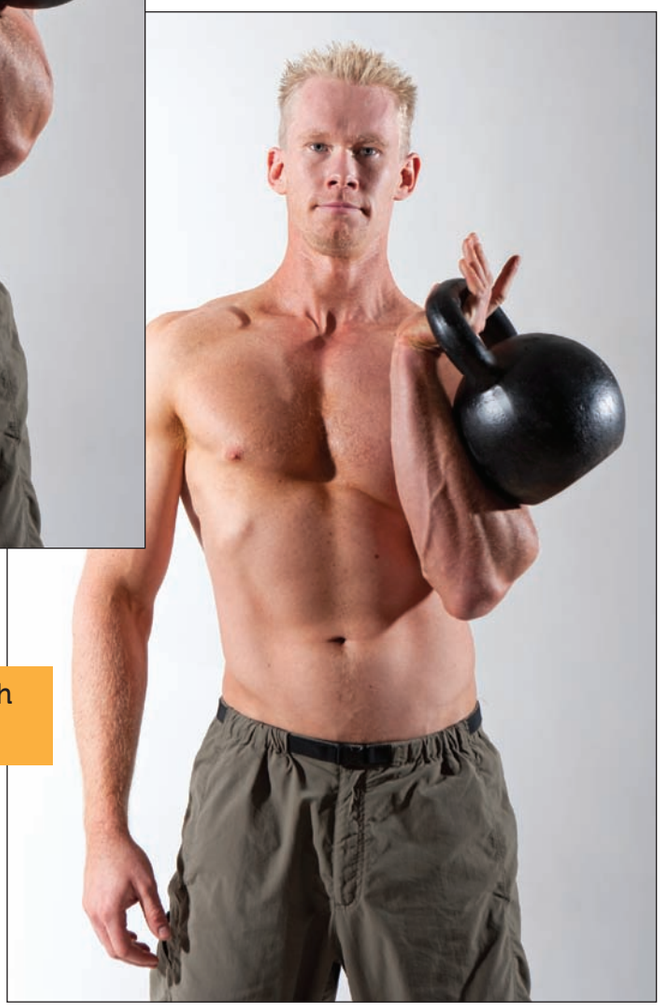
WRONG, Catching the clean by bending legs, front and side views.

AXIOM 6: There are no wrists in punching, and there are no wrists in kettlebell lifting.

Keep your wrist straight. Flex your forearm muscles to keep it in place.



Clean rack with straight wrist.



WRONG, Clean rack with hyperextended wrist.

AXIOM 7: Increase the stability of your pressing platform by displacing your hip slightly toward the pressing side.

By doing this, you will optimize the biomechanical position for the unilateral military press. The more weight you can get behind (under) the kettlebell, the more force you will utilize in the press. The center of gravity (CoG) of the kettlebell + lower arm must project straight down through the hip and leg and through the middle of the foot. If you are not aligned like this, especially with a heavy kettlebell, you will battle Newtonian physics and lose. You will simply tip over, because you will not be able to anchor both your body and the kettlebell.

Of course, this only applies when doing a one-arm kettlebell military press. Having kettlebells in both hands requires you to place both your hips directly underneath them both. To prevent excessive back leaning, make sure to really tense your glutes and abs.

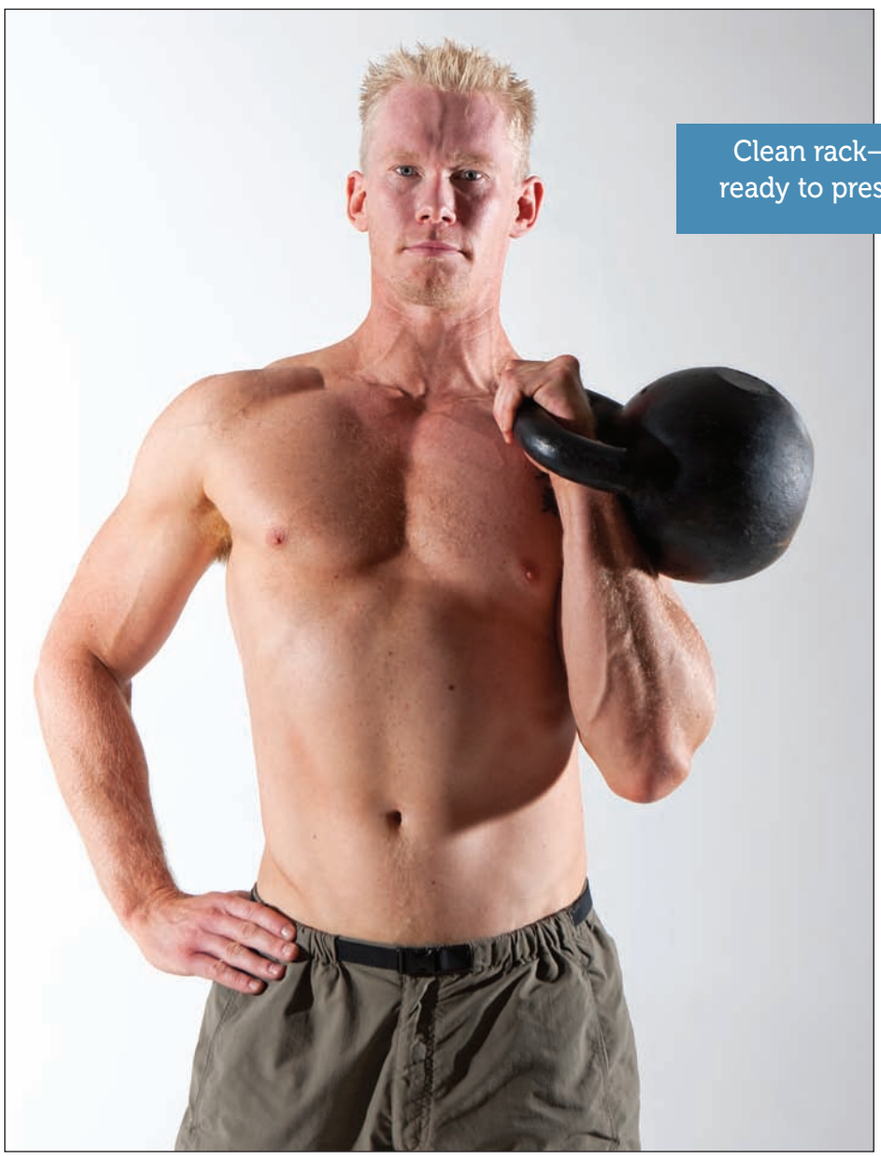
Weight shift in the hips, front and rear views.

AXIOM 8: Keep your forearm vertical.

The kettlebell should go out to the side from the start position while you keep the CoG of the kettlebell + forearm above your elbow. If the plumb line from the CoG of the system (kettlebell + forearm) does not go directly through your elbow, there are only two possible outcomes:

1. If your lower arm is pointed toward you (the angle in the elbow is too small), there will be no leverage and your arm will be forced down.

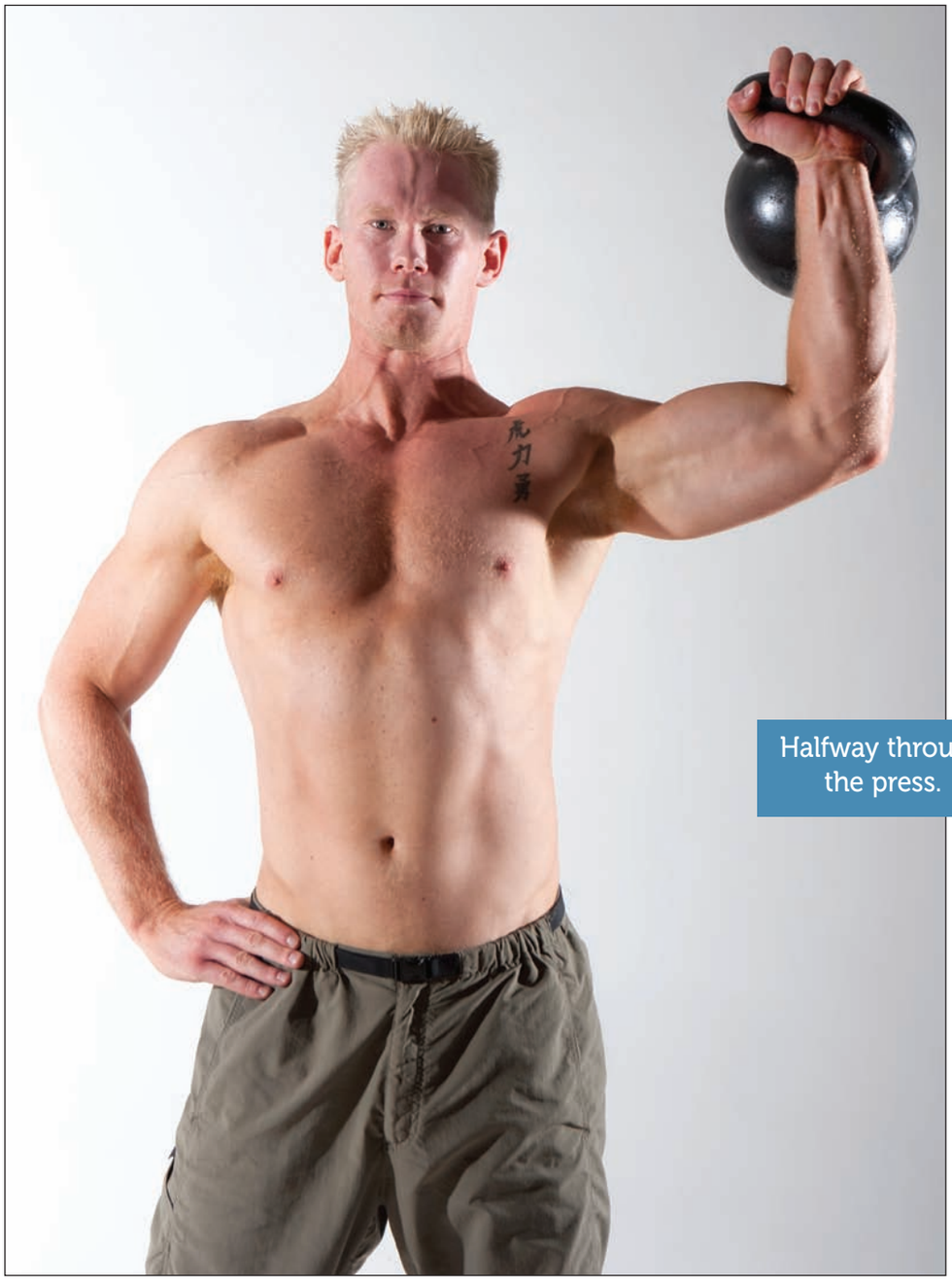
2. If your lower arm is pointed away from you (the angle in the elbow is too large), you will be in the so-called arm wrestlers' broken arm position. In this position, there is no way you will have enough leverage to make the press. The kettlebell will fall away from you, and you might get injured.



Clean rack—ready to press.

AXIOM 9: Press with the forearm against the body of the kettlebell.

Exactly that! Think about applying force to the kettlebell through the spot on the forearm where the kettlebell rests.



Halfway through the press.

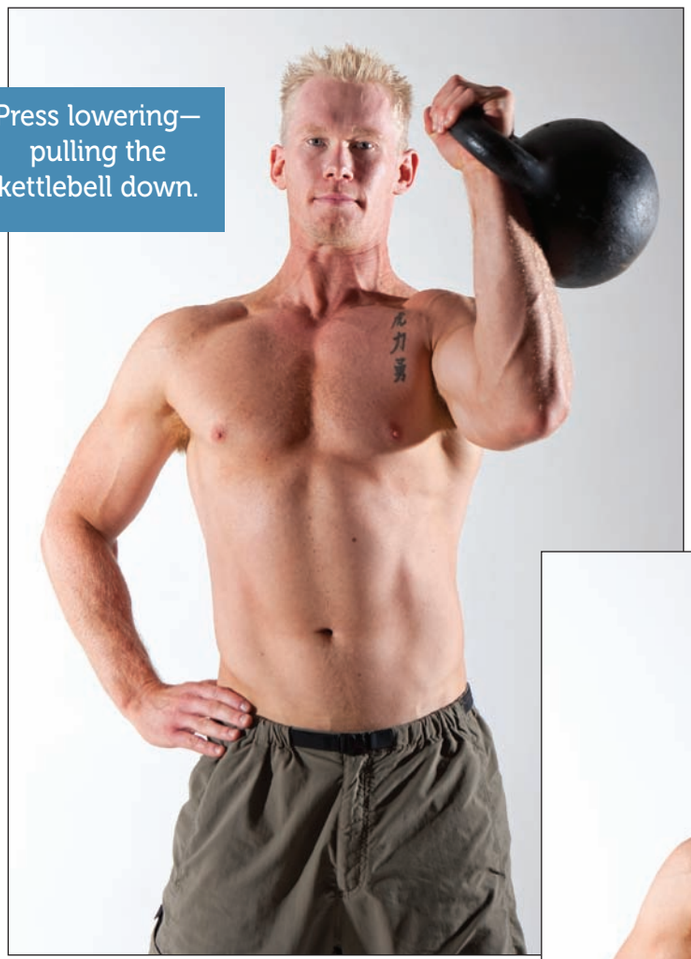
AXIOM 10: lockout the press in the Viking Victory pose.

The arm is straight, the elbow is locked, and the shoulder is stabilized by the lat, the delts and pecs, and several other smaller muscles. The arm is in line with the ear, and the kettlebell is behind the head. Everything is still tight. The plumb line of the system should run straight down the arm, into the shoulder, down through the hips and into the legs, and finally going through the foot of the pressing side slightly in front of the middle.

Press lockout.

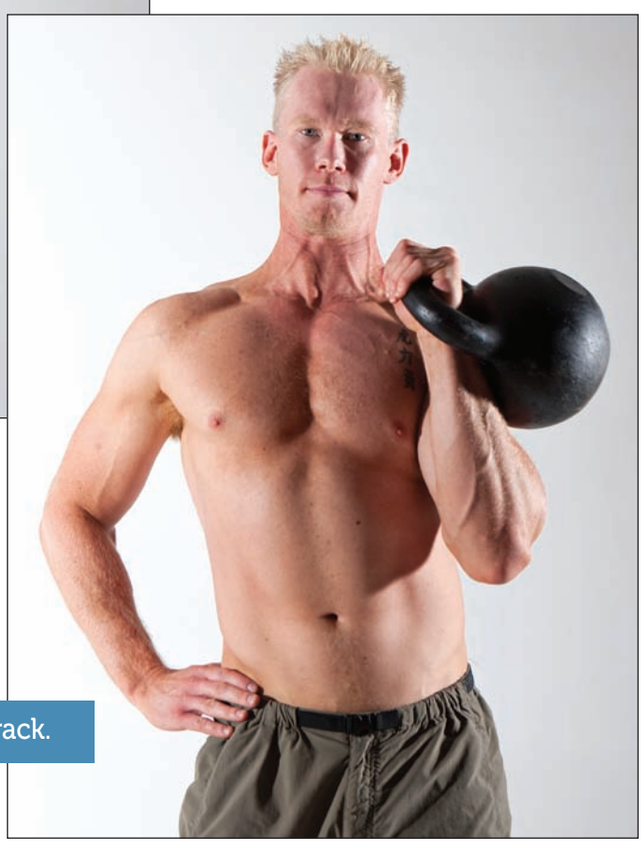
AXIOM 11: When lowering the kettlebell, pretend you are doing a one-arm chin and actively pull the kettlebell down.

Visualize actually pulling yourself up toward the kettlebell when lowering it. The lat is all important. Focus on your elbow, and pull it down and toward your centerline. You will end up in the rack position, and if you have done it correctly, you will be loaded for the next repetition.



Press lowering—pulling the kettlebell down.

There is nothing new in this section. It is all about the basic mechanics of pressing, which are covered in greater detail at the RKC certification and in Pavel's (2006) book *Enter the Kettlebell*. At a minimum, you should review *Enter the Kettlebell* before tackling the advanced techniques and drills described in this book.



Back into the rack.

Some Advanced Stuff

The human body is amazingly complex. Even today, 10 years into the twenty-first century, scientists have uncovered only a fraction of the body's physiology. Said another way, if you think of the entire body as a football field, scientists have mapped out an area equal to the size of a postage stamp.

This is probably also the reason that when I ran some fascinating Z-Health demonstrations by several neurology professors, they were pretty much at a loss for words. They had no idea what was going on. It just goes to show you that there is much more to pay attention to than what is investigated in controlled environments and published studies. I consider myself part of the scientific environment, but I will never let that take precedence over the discovery of empirical evidence or stop me from looking in new directions to improve physically and mentally.

For a long time now, I have heard about Z-Health from my fellow Iron Warriors in the RKC community, and that is why in February 2009, I went through the Z-Health R-Phase to see what it was all about. I was impressed—very impressed. I plan on getting as much from this performance enhancement system as I possibly can, so as I write this, I am ready to get deeper into it with I-, S-, and T-Phases.

So where am I going with this? Great question. I will try to give it my best answer.

It was Zachariah Salazar, Z-Health master trainer and RKC, who gave me a taste of how to use eye position to enhance strength. Basically, during a break at the R-Phase certification, Zachariah had me do some pull-ups while focusing on optimizing my eye position. It made a world of difference (and I was not half bad at pull-ups to begin with) and really got me thinking.

In a perfect world, here is how to optimize the kettlebell one-arm military press with eye position reflexes:

1. All basic military press knowledge still applies.

2. Your neck is long and in neutral.

4. As the press commences, look down. This facilitates the flexor muscles, which is what you need when starting the press (shoulder flexion).

5. At the horizontal humerus level or the sticking point, shoot your eyes up. This facilitates the extensor muscles, which is what you need when the shoulder flexors are starting to check out. The triceps should kick in for a strong finish, which is facilitated by looking up.

6. You have two options at this point:
   a. As the kettlebell is approaching lockout, rotate the neck toward the pressing arm (still keeping an elongated spine) and finish the press.
   b. Instead of rotating the neck, simply look toward the pressing side. Following the kettlebell with the eyes is another way of really applying these principles.

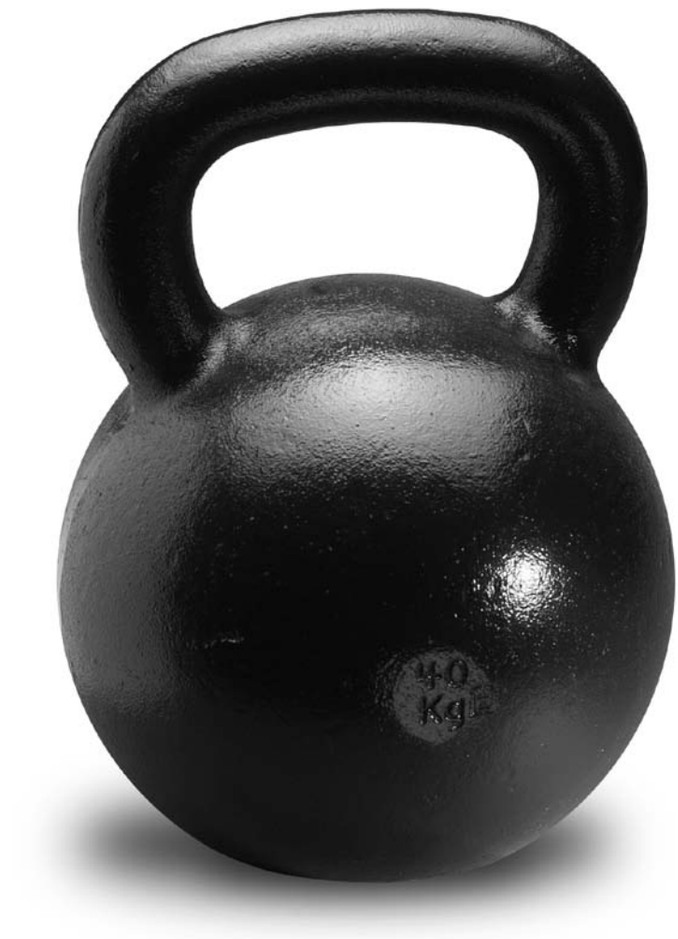
7. The second the kettlebell is locked out, shoot your eyes down again to facilitate the shoulder stabilizers. The kettlebell will settle in the press-behind-the-neck-position. Pavel made me aware of this final and important point, and it just puts the icing on the cake of a successful heavy-as-heck kettlebell military press.

In a Perfect World

"In a perfect world" refers to a situation in which all conditions are optimal. This means that if you apply the techniques described in this book to a broken body, your results will reflect that. If your eye reflexes are not functioning properly, then trying to incorporate them into physical activities will not work. The same goes for lack of mobility and other factors that interfere with performance.

As Gray Cook of the Functional Movement Screen has said, "You don't build on dysfunction!" I totally agree with him. Before building a skyscraper, you must establish a rock-solid foundation.

That is how everybody should approach training, in my opinion.



Chapter 2

Using the Latissimus Dorsi (the Lat) Correctly in Your Presses

If you have spent any significant amount of time learning to press something heavy overhead, then you have undoubtedly heard that you need to use the latissimus dorsi—that big muscle that gives you a wide look when viewed from the back—when you press. Powerlifters use their lats when they bench, and so did old-time weightlifters, when the standing press was still on the Olympic agenda.

Having taught at numerous Russian Kettlebell Certification (RKC) courses and having worked with a lot of people on their kettlebell skills, I have observed a recurring problem: Some people have a hard time understanding exactly what to do when they are told to contract the lat and use it as a platform to press from. Some people even report that they feel like contracting the lat makes the press harder and counters the work of the prime mover pressing muscles. Especially in working with RKC instructors-to-be, I have found that some have a hard time understanding how the lat helps in the press when its main job is to do the opposite of what the pressing muscles do, if you read an anatomy book.

In the following section, I will try to shed some light on this subject, and hopefully, it will become clear exactly what the lat does in the pressing motion.

Three Reasons the Lat Makes Your Presses Stronger When Used Correctly

Understanding exactly what the lat does during a press is, in my opinion, crucial to achieving press perfection. The military press looks deceptively simple to the untrained eye, but many things are going on when a significant amount of weight is being lifted overhead. "It's all easy ´til it's heavy," according to Master RKC Mark Reifkind, and this truly applies to the kettlebell military press.

In my own quest for above-average pressing strength, I have been through many stages. At first, my younger and more cocky self did not consider the many aspects of a heavy press. Basically, I figured "What is the big deal? Just press it up there." Needless to say, with that disrespectful attitude for the lift, my personal performance suffered. I did not really lift any impressive weights.

Then the RKC and Pavel entered my life, and I started to develop a deeper understanding of what it takes to really excel. The quest had begun. With diligent practice and Pavel's guidance, I began to understand more and more about the need for perfect practice, and the more I learned about the details, the more questions emerged—sometimes followed by confusion.

Staying on the path has paid off, though. Although I am still learning about press optimization, the questions I have are no longer followed by confusion. It has become easier and easier to express with words what was once so foreign. Whenever I think about the journey toward a greater press, I am reminded of a quote by Bruce Lee about martial arts:

> *"Before I studied the art, a punch to me was just like a punch, a kick just like a kick. After I learned the art, a punch was no longer a punch, a kick no longer a kick. Now that I've understood the art, a punch is just like a punch, a kick just like a kick. The height of cultivation is really nothing special. It is merely simplicity; the ability to express the utmost with the minimum."*

So am I saying that I have nothing more to learn about the military press? Certainly not! I am just saying that having initial confusion when trying to dig deep and perfect something is unavoidable and should be looked on as a positive thing. Out of chaos, order will emerge. Things will fall into place and make sense.

At this point, you might be thinking "Where is he going with this?" My own comprehension of what goes on during the press was solidified by understanding the following three reasons that the lat makes your presses stronger. In the next few sections, I have tried to put together this information for you to take along on your quest.

Truly understanding these three principles has done wonders for me, and I hope it will do the same for you. Hopefully, doing so will help you out of confusion about the lat's role in the press and take you one step further toward grasping that idea that "a press is just a press."

REASON 1: It creates a physical platform to press from.

To figure out what this means, we have to go back to high school physics. More specifically, we need to review Newton's third law of motion, which states that for every action, there is an equal and opposite reaction of the same magnitude along the same line. Newtonian physics tells us that when we are pressing, the force will be going down into the lat and up into the kettlebell. If the lat is not solid, it will absorb a lot of the force, which will diminish the amount of force going back into the kettlebell.

Consider an example: Suppose you are standing on a soft surface, such as sand, which has only a little potential for storing energy. If you try to jump as high as possible, some of the force will be absorbed by the deformation of the surface and converted into heat. That, in turn, will decrease the height of your jump.

Next, imagine that you are jumping on a hard surface, such as a basketball court, which is able to react and direct the force back into your jump. You will jump much higher.

In the one-arm military press, the agonist muscles—the deltoids and the triceps brachii— are the prime movers. The antagonist muscles are the latissimus dorsi and the biceps brachii. (Other muscles are also involved to a lesser extent.)

Now transfer this knowledge to the mechanics of pressing. If your lat is not contracted, hard, and spring-like, it will deform without storing and redirecting energy when you initiate the press. Some of the force you generate will be lost as heat, thus making your press weaker.

REASON 2: It provides shoulder stability by coactivation.

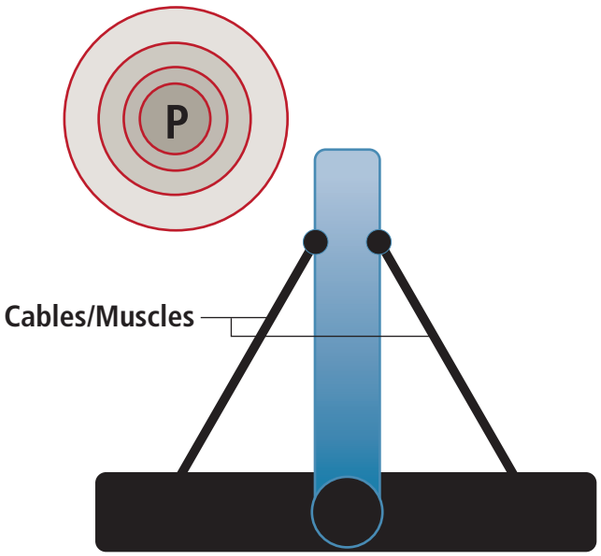
In one sense, it may seem like wasting energy to coactivate the agonist and antagonist muscles. This line of thinking is based on the notion that action depends on the net muscle torque. The frequent use of coactivation of athletes, however, suggests that this approach has several advantages. Baratta et al. (1988) and Kornecki et al. (1992) have concluded that "coactivation has the mechanical effect of making a joint stiffer and more difficult to perturb."

Coactivation is a good strategy for various tasks for these four reasons:

1. For movements that involve a change in direction, it is more economical to modulate the level of activity in the agonist–antagonist complex than to alternately turn them on and off. Hasan (1986) and Engelhorn (1983) have observed that under certain conditions, coactivation will actually decrease the cost of the movement in terms of the effort involved.

What does this mean? Imagine that all the muscles required to press a weight overhead are mechanical engines. The "drive" (meaning the press) will go much more smoothly and consume less gas if all the engines are turned on at once and then individually regulated to provide motion. The alternative method—shutting each engine on and off—will make the drive jerky and very inefficient. The same thing is true with the press.

2. Coactivation increases the stability of the joint by increasing its stiffness. This makes the task of lifting a heavy load or lifting under increasing systemic fatigue much safer.



Think of the explanation Dr. Stuart McGill (2004) provides about spine stability in *Ultimate Back Fitness and Performance*: "Increasing the stiffness of the cables (muscles) increases the stability and increases the ability to support larger applied loads (P) without falling" (see the figure below). The same concept applies to the press. If the muscles contract and generate equal amounts of force, the stability of the moving joint will be enhanced and you will be able to press greater loads.

3. One of the capabilities of two-joint muscles is that they can transfer force/power from one joint to another. Coactivation at the shoulder joint can result in an increase in torque at the elbow joint. This is, of course, a wise strategy to use when the task requires maximal force or conditions are compromised by fatigue (Dimitrijevic et al., 1992).

This phenomenon can be termed the *summation of force*. As force/torque is generated around one joint, it increases as it travels through the next joint. In the press, this means that the force generated around the elbow is amplified by the coactivation of the shoulder muscles. The forces are added together.

Think about a powerful punch and how the force generated from the ground travels up through the foot and leg, into the hip, up through the torso, and into the arm for final delivery through the target. In each joint, the force is amplified. It gains momentum.

4. Kilbreath and Gandevia (1994), with the support of Rose et al. (1999), Sanes et al. (1995), and Schieber (1995), have concluded that "because of the divergence of inputs from cortical neurons to the spinal neurons, as well as the anatomical organization of the motor units and muscles in the forearm and hand, fine movements of the fingers require complex patterns of coactivation."

The press actually requires fine motor control to successfully keep the kettlebell in the optimal pressing groove, with no deviation throughout the movement. Because of this, turning on every muscle surrounding the moving joints is a wise strategy. Doing so will make it much easier to regulate force in any direction.

REASON 3: It creates space in the shoulder joint, keeping it mobile and thereby allowing the humerus to move without restriction.

This is the part that makes the use of the lat very interesting. If any joint in the body is jammed, it creates a disturbance on a whole-body level. Also, the effect of the jammed joint becomes much greater if you are trying to produce force and movement through that joint.

As explained in Z-Health R-Phase, the *arthrokinetic* reflex plays a huge part in mobility restoration. Basically, a jammed joint creates weak muscles, and the weakening of the muscles happens instantaneously. So following the Z-Health ideology, we do not want to jam the shoulder joint—or any other joint, for that matter—when we press.

Now, here is the tricky part: Depending on how you contract the lat, you will either open the shoulder joint or jam it. For those people who are having a hard time using the lat when they press (or who are even feeling that the lat is holding them back), the explanation is that they are contracting the lat incorrectly, thus creating the arthrokinetic reflex.

What is the right way to contract the lat? Well, I am glad you asked, because when you know what to look for, it is actually quite simple to see if the lat is contracting and creating space or jamming the joint.

Look at the two photographs below. In photo 1 (left), the lat is contracted, but the distance between the middle deltoid and the neck is slightly decreased. This is jamming the shoulder joint and creating the arthrokinetic reflex. Also note the concentrically contracted trapezius muscle bulging out. Photo 2 (right) displays proper use of the lat. The distance between the middle deltoid and neck is increased, when compared to the bodies in the two other pictures. Also notice that the trapezius muscle is still engaged but not allowed to concentrically contract. The shoulder has simply been lengthened to create space in the joint.

(1) The lat is contracted, but the shoulder joint is jammed, creating the arthrokinetic reflex.

(2) Proper use of the lat.

Pavel has a great image of making this happen correctly that he calls the "virtual shoulder joint." You can make space in the joint simply by imagining and creating the feeling that the shoulder rotates at the lat's insertion point on the humerus, instead of in the shoulder socket. The arthrokinetic reflex will not kick in, and you will put up much more weight! When you know that this is what you should look for and do, it becomes noticeably easier to press effortlessly.

If you are a coach helping others with their press technique, cue them verbally with this direction: "Lengthen your shoulder. Increase the distance between your deltoid and your neck. Make your shoulder long." Pavel told me that in Lyengar yoga, they talk about "elongating the collarbones," and that is exactly what I am trying to describe. This is another great cue you can use to help your clients get it! You can also use tactile stimulation by placing two fingers halfway between your client's deltoid and neck and then running your fingers in opposite directions, applying a little bit of pressure. This is the same tactile cue used in the RKC for lengthening the spine.

Practicing creating space in shoulder joint will take care of the feeling that the lat is restricting your press. At first, it might not be so easy, but keep practicing until you can do it. Only then will your pressing ability really start to skyrocket and be worthy of a Viking!

Chapter 3

Reinforcing Your Press Position: Integrating the 11 Axioms

A drill that I have found effective for reinforcing basic pressing principles is an advanced version of the plank position. I actually started using this drill to teach the swimmers I coach how to position themselves for the push-up. The drill works great, since it gives you immediate feedback on whether you are doing it correctly.

Basically, you assume the plank position, but instead of having your feet on the ground, you put them up against a wall. If you do not keep the plank position and start to sag in your lower back, you will slide down. Also, you will be forced to press from the lat and down through the middle of your feet to keep them on the wall. I recommend that you gradually work up to being able to keep this position for about a minute—staying rock solid.

Plank for reinforcement of the clean.

From there, you can take the drill a step further. Instead of staying on your forearms, go up on your palms into the push-up position, still keeping your feet on the wall. While continuing to press from the lat, start to walk out, keeping your arms locked until you are completely straight, with your arms in front of you. Pressing your palm through the floor will also help to fire the lat.

This is an advanced drill, so perform it with caution. But practicing will help you reinforce the required lat activation and stabilization patterns required to press heavy—and that is what it all comes down, right? And by the way: Don't be surprised if you feel it in your dear abbies the next day!

Chapter 4

Plateau Breaker 1: Center of Gravity Elevation

I stumbled on the concept behind this drill purely by chance, because my burning desire to press the 48 kg Beast happened to coincide with my not actually having one. This was back in the spring of 2006, and in August of that year, I did the Beast challenge. In fact, I had the ability to press the Beast not just once or twice but 11 times per arm!

How to Do It

1. Grab two kettlebells, and put them on the ground, close together.

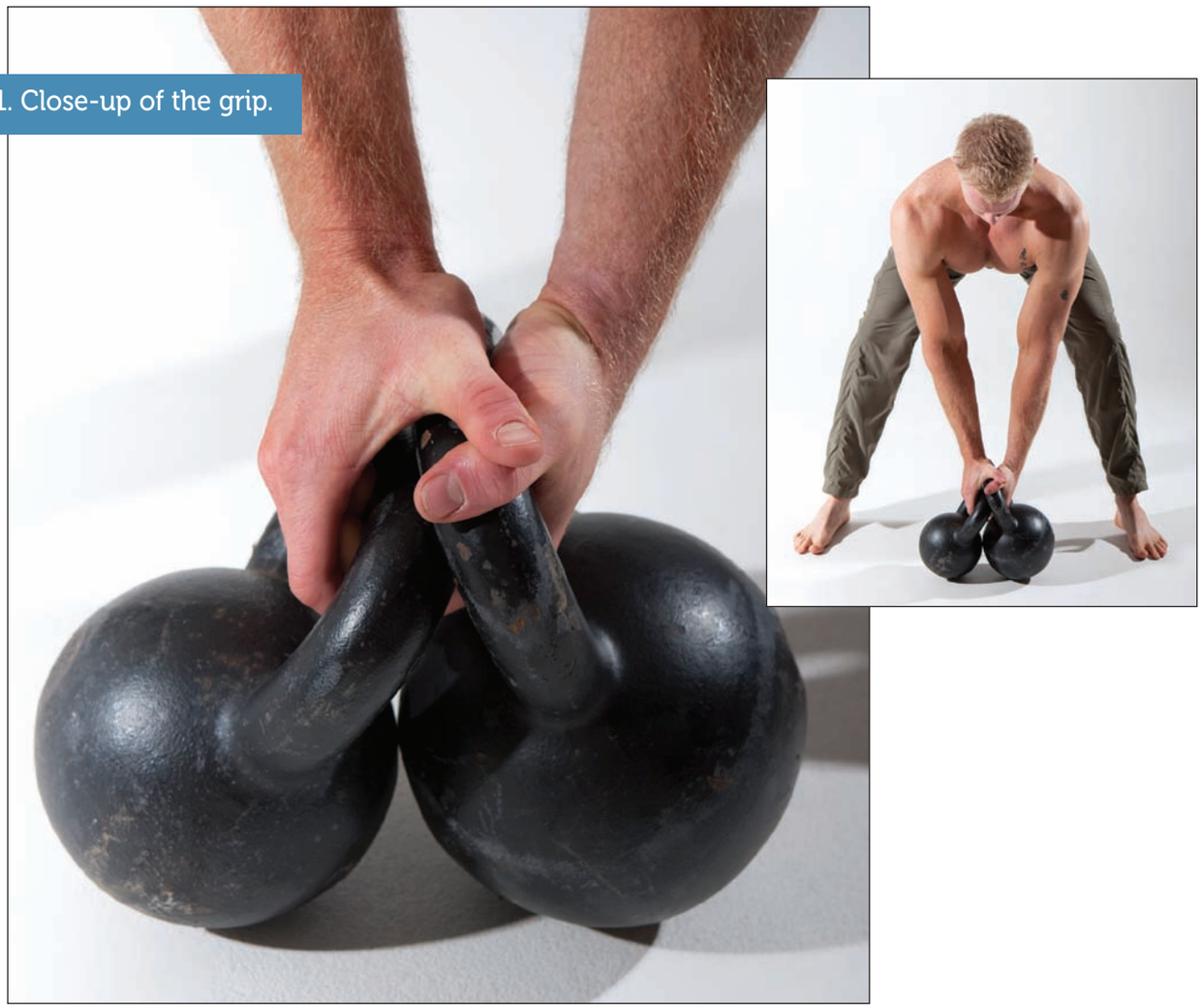
2. Tilt the handles toward each other, and grab them by wrapping your fingers around both handles, as shown in the photo.

3. Clean the bells and press.

The important thing here is to adjust the kettlebells in the rack position, so they balance one on top of the other, and then press them like that. (Do not allow the top bell to slide over on your arm.) You will actually elevate the combined center of gravity and move it further from the shoulder joint, making the leverage worse.

Pressing this way creates a totally different feeling than pressing the same weight in one solid bell. The reason is that with the two kettlebells on top of each other, the bells' combined center of gravity shifts up and changes the biomechanics of the press.

Many of you have already tried out this stacked-bell press as a stunt. However, incorporating it into your program as a consistent way of training is what will make the difference.



1. Close-up of the grip.

Another amazing thing about the single-hand double-bell military press is that it is self-correcting. There is no way you can get away with not keeping your forearm vertical. If your forearm goes slightly to either side, the bell on top will slide down and put a stop to your pressing attempt. Also, you will be punished for kicking with the hip and/or lifting the heel to help get the weight underway (an action that is unconscious for most people).

Why It Works

In addition to what has already been said, practicing stacked-kettlebell presses allows you to work with a combined weight that you can handle for several reps while putting extra emphasis on your sticking point, which most people encounter when the upper arm is slightly above parallel to the deck. Because the two kettlebells are stacked, their combined center of gravity shifts up, making the range of motion around the sticking point harder but still doable. This will allow you to practice the hard part of your one-repetition maximum (1RM) press without actually using a 1RM weight.

Warning

Comrades and comrades' ladies with small hands should be careful stacking kettlebells. There is the potential risk of overstretching the ligaments of the hands, and safety must be the primary concern.

Do this drill only for a *very low* volume, and gradually build up.

Chapter 5

Plateau Breaker 2: Center of Gravity Depression

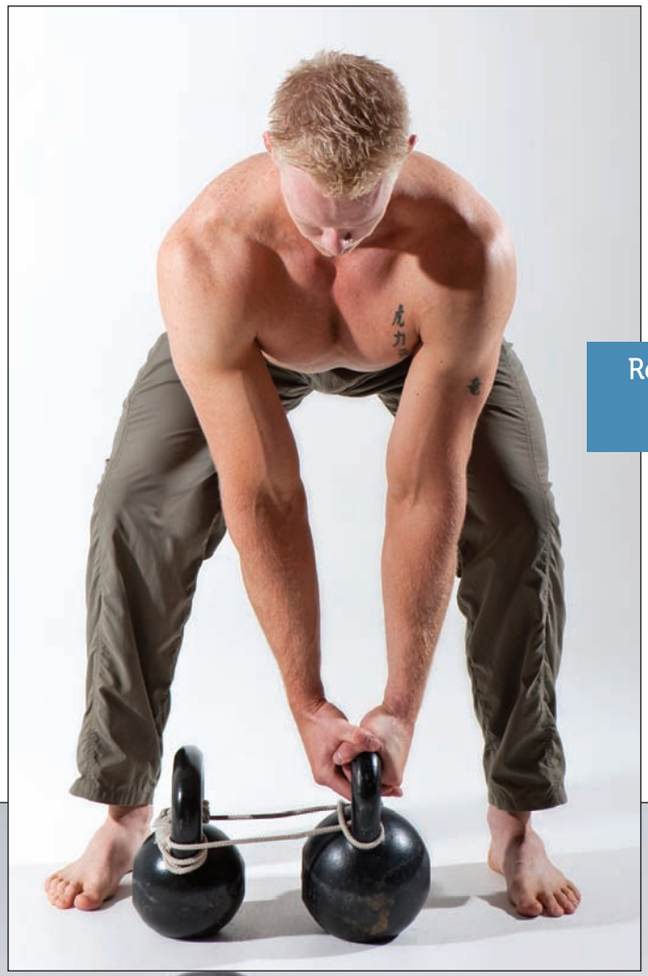
Center of gravity depression is the exact opposite of center of gravity elevation, as described in the previous chapter. Instead of stacking the kettlebells, this drill calls for tying the kettlebells together, so that one hangs directly underneath the other. This is an awesome drill to help the start of the military press.

How to Do It

1. To prepare for this drill, grab two kettlebells of equal size or as close to equal size as possible. The combined weight of the two kettlebells should be around 80 to 85 percent of 1RM. So if you can press the 40 kg kettlebell for a single, then grab either two 16 kgs or one 16 kg and one 20 kg kettlebell.

2. Get a rope about 4 feet long. Tie it to the bigger kettlebell, if the kettlebells are not the same size.

3. Tie the other end of the rope to the second (smaller) kettlebell. Tie the kettlebells closely enough together so that when you lift the bigger one off the ground, the smaller one hangs no more than 3 inches directly underneath it. You may need to adjust the rope several times to get the length right.



Ready to cheat clean with pistol grip.

4. You are now ready to get the kettlebells into pressing position. Grab the bigger kettlebell, and cheat clean it to the rack position. Watch out for the other kettlebell, as it might swing around a bit. The rope and hanging kettlebell should be behind your forearm, not in front of it!

Deadlift.

Clean rack position.

5. Press the kettlebells according to standard pressing mechanics. Upon lockout, stay there about 2 to 3 seconds before pulling the kettlebells back down again. Make sure you stay tight and do not let the kettlebells pull you off balance.

Press lockout, front and side views.

Staying in the locked-out Viking Victory pose, with the kettlebells attached to each other like this, is a great stabilization challenge. It will really help those stabilizing muscles to fire, because the kettlebell hanging from the rope will likely move around a bit. Again, be sure you keep your balance.

As you play around with this drill, you will figure out that you can change the length of the rope to fine-tune the exact part of the initiation of the press you want to target. You can also replace the hanging kettlebell with a bigger one to move the combined center of gravity down.

To make this exercise even more advanced, use a band to tie together the kettlebells, instead of a rope. This will add extra stabilization to the press and make the bottom kettlebell much more alive. Using a band, rather than a rope, is actually very similar to the Westside Barbell Club practice of using bands to attach kettlebells to the bench press. The bar becomes much more alive, and the combined center of gravity is lowered.

Lowering the kettlebells.

Why It Works

Doing this drill will help you emphasize the start of the military press by overloading the beginning of the movement without having to use maximal weight. This means you will be able to get in more volume (read *practice*) without burning out your nervous system. If you or your client is having problems at the initiation of the military press and all the standard military press mechanics are being obeyed, then you might want to give this a shot.

By lowering the combined center of gravity of the kettlebells, you will put more stress on the muscles responsible for the first 20 or 30 degrees of humerus abduction. The muscle primarily responsible for this is the supraspinatus. Combining the kettlebells in the described manner allows you to emphasize this part of the movement and thereby also work the responsible muscle to a greater extent without the threat response of a maximal weight. This means that your nervous system will not shut down but will instead adapt to the new stimulus.

Play around with it, and you will feel what I am saying. It works great!

Chapter 6

Plateau Breaker 3: Upper-Body Plyometrics

Everyone plateaus at some point in training. It is a quite normal response to the end of a training period. In fact, it is the body's way of telling you that you have to change something in your routine. You have an infinite number of choices for breaking plateaus, but this chapter will provide you with something from the ever-dependable Russian toolbox of strength and power.

How to Do It

Shock training—or *plyometrics*, as it is often referred to—was developed by Professor Yuri Verkoshansky and is one of the most useful tools the Russian came up with for power development. Correctly used, shock training will take your speed strength to a whole new level.

As with everything else that requires movement, a solid mobility base is required for this type of training. To withstand the tremendous forces generated during plyometric training and to create the physical adaptations you are looking for, you must have the ability to distribute force throughout your body. You can accomplish this only by have a solid mobility foundation. The more joints that can get in on the movement, the safer and more powerful it will be.

Basically, shock or hit training involves a fast stretch-shortening cycle of the target muscles. It is used mostly for leg explosiveness, but it can also be used to develop supercharged upper-body power. The most commonly used method is the *depth jump*.

Doing depth jumps requires the use of a box or platform 30 to 40 inches high for leg training or two boxes 6 to 10 inches high for upper-body work (see figures next pages):

What Is Speed Strength?

Explosive strength can be divided into two components: strength speed and speed strength. Looking at the force–velocity relationship reveals that explosive strength can be expressed by the area underneath the curve and calculated by integrating the equation that describes the curve.

The area below the curve can be increased in three ways:

1. by increasing the force, which can be considered emphasizing strength speed—this would relate to a weightlifter

2. by increasing the velocity, which can be considered emphasizing speed strength—this would relate to a Javelin thrower or shot putter

3. by doing a combination of the two

For further explanation of strength speed and speed strength, see *Supertraining,* by Mel C. Siff (2003).

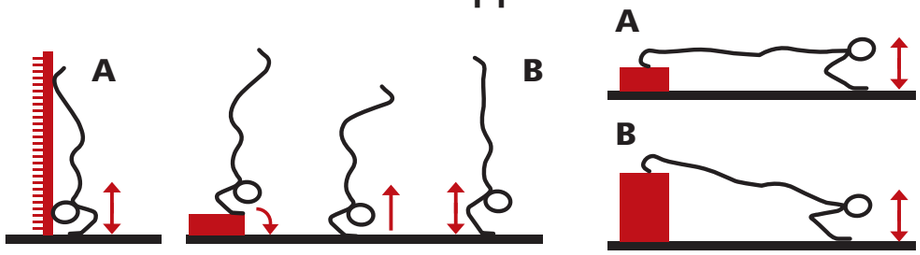
1. Stand on the box with either your feet or your hands, and then step off. When you hit the ground, your extensor muscles will automatically contract to resist the downward force.

2. The instant your downward motion stops (but not before), explosively reverse the movement, changing the contraction from eccentric to concentric. The faster you switch from loading to takeoff, the greater the height, the explosiveness, and the benefit.

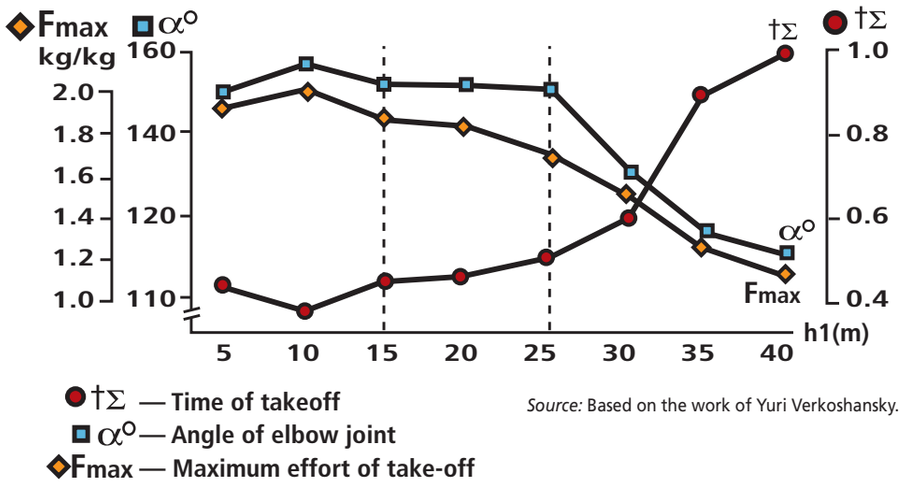
For you scientific guys and gals out there, the maximal acceptable ground contact time is 0.15 seconds (150 milliseconds). So spoke Professor Verkoshansky—and you better listen!

If you are doing upper-body work, see the chart on the next page, which provides information on the relationship among the height of the box, the elbow joint, and the maximum force generated. As shown, the highest effort of take off from the ground is from a height of 6 to 10 inches. The elbow angle to shoot for is around 150 degrees, as measured in situ (with the elbow joint in locked-out position), when you hit the ground and reverse the movement.

Shock-method for muscles of upper limbs and shoulder girdle



Changing the characteristics of upper limb's takeoff in relation to the increment of falling height



Source: Based on the work of Yuri Verkoshansky.

Why It Works

Plyometric training increases the muscles' ability to generate force faster, which is termed the *rate of force development* (*RFD*). This is achieved by improving the neurological signaling pathways from the brain to the muscles.

Warning

Consider these precautions before undertaking shock training:

1. A proper absolute strength (1RM) base must be well established. When talking about depth jumps for the legs, the usual recommendation is to be able to do a double-bodyweight squat. Although there is no consensus among scientists about this recommendation, there is no doubt that you need to have a solid base of strength.

2. When you hit the ground, the impact can be severe and the level of required mobility will be high. Try to hit the ground with your fingertips first, and then roll through each joint in your fingers, hands, wrists, elbows, and shoulders. Doing so will ensure maximum force transfer and production, as well as safety.

Next time you find yourself stuck at a plateau, give this method a try. Your progress will start to move again.

Chapter 7

Plateau Breaker 4: Overcoming Isometrics

Performing *overcoming isometrics* involves holding the kettlebell isometrically about halfway through the press for 5 to 6 seconds, during which tension will greatly increase in the working muscles. When that time has passed, the kettlebell is then explosively pressed to lockout.

When you get really good at this technique, you can use it not just halfway through the press but anywhere throughout the range of motion in any exercise where you find yourself fighting a sticking point. This kind of overcoming isometrics, where you go through two or three tough parts of a lift, also increases the skill required to put up bigger numbers. Stopping and isometrically tensing the working muscles at different stages during the lift stimulates the *kinetic memory* of the central nervous system.

How to Do It

This technique is about nervous system movement memorization. It entails breaking up the movement into the three most critical stages of the lift: start, sticking point, and finish.

Do the following:

1. If possible, with the help and guidance of a partner, place the pressing arm in the three different positions perfectly: start, sticking point, and finish.

2. Next, isometrically contract against the resistance of the partner or kettlebell for about 15 to 20 percent of *maximum voluntary contraction (MVC)*, and keep that tension for at least 30 seconds.

Maintaining the tension at 15 to 20 percent of MVC means that you should generate only about one-fifth of the tension you would be able to if you went all out. No white-knuckle fist here, comrade!

Following this short procedure, do a work set. This technique could easily be applied every third or fourth rest period. It is used widely and successfully in skill practice of various athletes in Eastern and Western Europe.

Why It Works

Research has shown that isometric training builds greater strength in the specific body position and joint angle than dynamic exercise working the same position and angle with motion. Taking the time to build overcoming strength in your sticking points will change your neurological hard-wiring when you then go for a dynamic personal record. Your body will not feel threatened when you pass through the sticking points that no longer exist!

There you have it! A simple and effective way to increase your pressing strength. Practice this drill at least two to four times per month, if not more.

Chapter 8

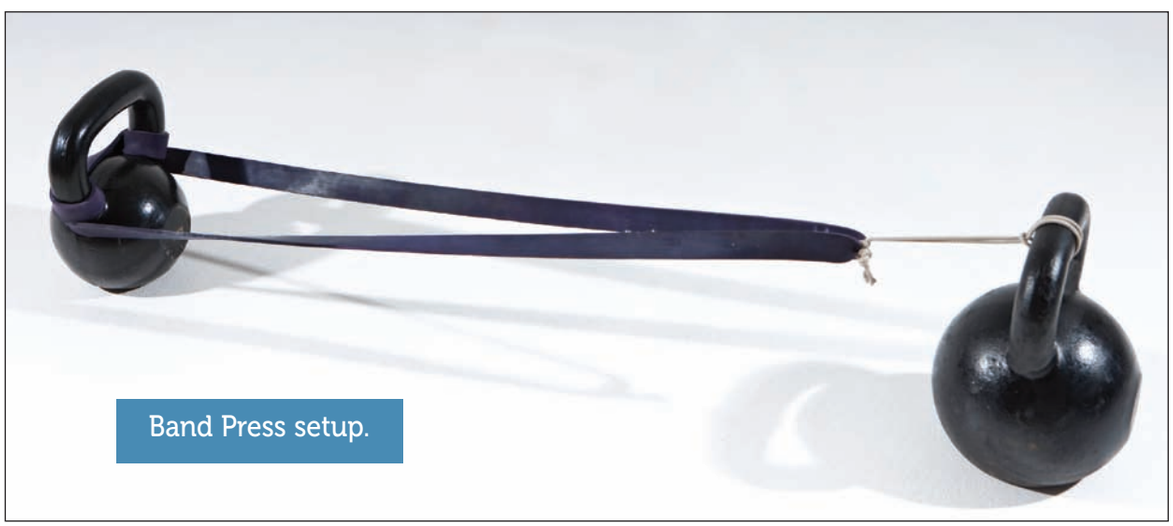
Plateau Breaker 5: Band and Chain Press

Thanks to the Westside Barbell Club and Louie Simmons for experimenting with bands and chains to improve powerlifts. We will take advantage of what the Westsiders have done for years by using these techniques to improve the kettlebell military press.

How to Do It

Band Press

1. Attach one end of a band to the floor and the other end to the kettlebell. You may need to play around with the length of the band to get the desired resistance.



Band Press setup.

2. Get the kettlebell into pressing position. You may need to cheat clean it; otherwise, the band might get in the way.

3. Press the kettlebell as fast as possible, accelerating through the entire motion. Then pull it back down, as if you are doing a one-arm chin.

Ready to press.

Halfway through the press.

Press lockout.

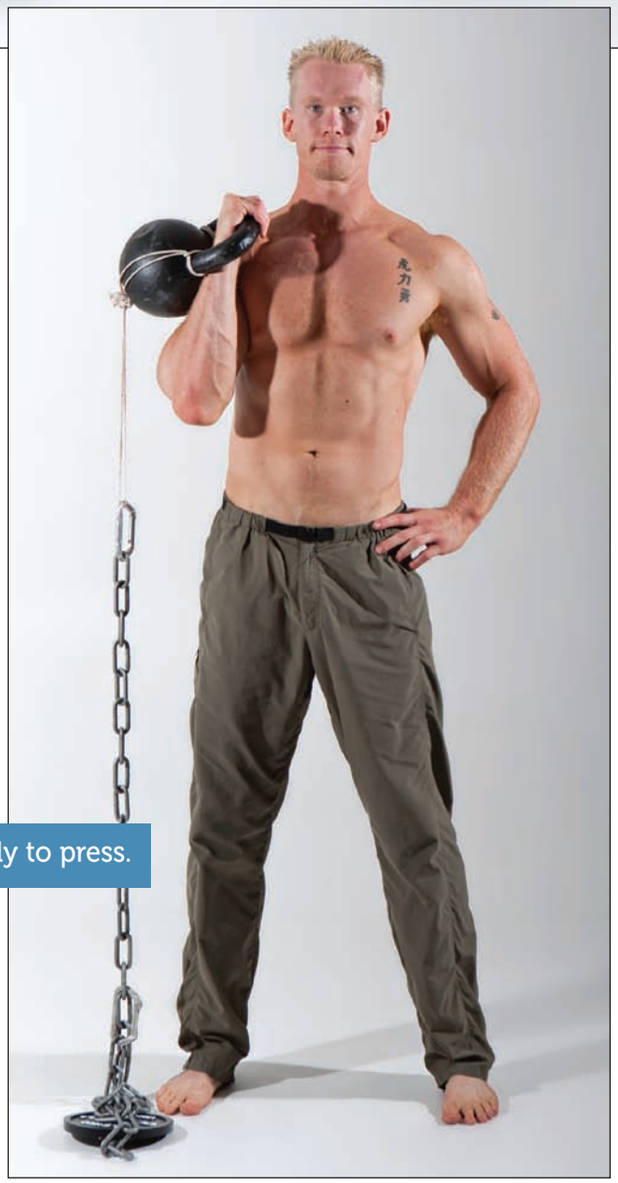
4. Immediately reverse the movement, and press the kettlebell back up again.

Use a light kettlebell for this one—about 50 percent of your 1RM. Doing multiple sets of two to three reps seems to work.

Chain press set-up.

Chain Press

Follow the same procedure as for the band press, just described. Play around with the number of chains attached to the kettlebell.



Ready to press.

Press lockout.

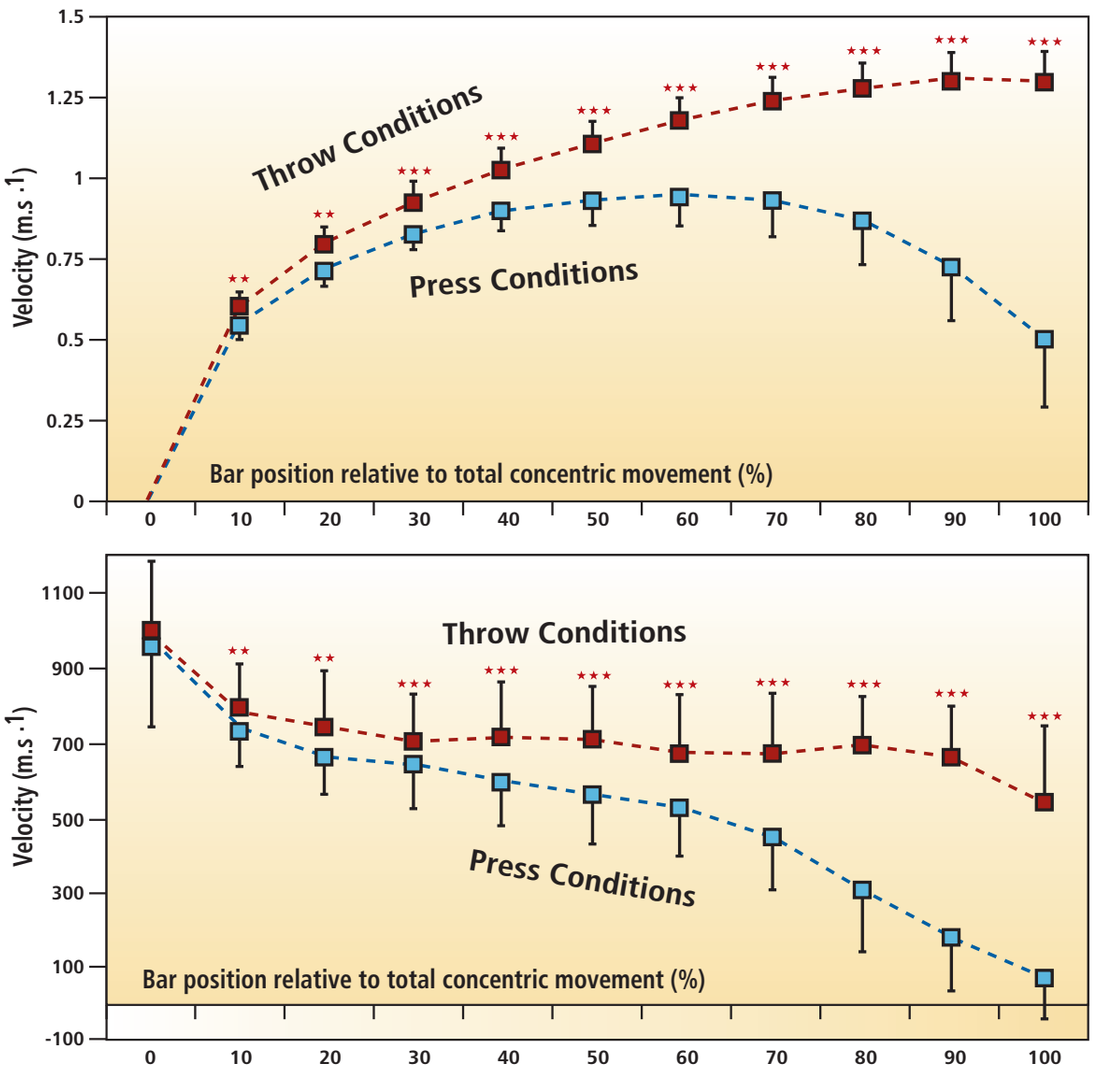
Halfway through the press.

Why It Works

Newton et al. (1996) found that when subjects were doing speed repetitions in the bench press exercise, hanging onto the bar resulted in a deceleration of movement and reduction of power. This outcome was the opposite of what was intended for the idea of doing speed reps.

Actually, this outcome should have been expected, because when the subject is forced to hang onto the bar, the bar has to decelerate as the joint-end range of motion is reached. Apparently, there is a neurological protective mechanism that kicks in to protect the joint from being pulled apart.

Newton et al. (1996) rigged up a system around the bench press that allowed subjects to release the bar at the joint-end range of motion so the protective mechanism would not inhibit the acceleration of the barbell. The researchers were also able to quantify the velocity of the barbell and compute the forces generated during the bench press versus the bench throw. The results are depicted in the graphs below.



Source: Kreider et al., 1998.

When looking at the top graph, it becomes quite evident that the velocity of the barbell continues to increase in the bench throw in the full range of motion. However, in the bench press, the velocity plateaus at about 60 percent of the bar's relative position to total concentric movement and then quickly drops to less than 0.5 meters per second at 100 percent of the bar's relative position to total concentric movement.

The bottom graph depicts the forces generated under the two conditions, and the result is evident. The force generated during the press conditions drops rapidly as the joints reaches the end range of motion. During the throw conditions, however, the force remains high and drops only slightly at the end range of motion.

So how is this related to using bands and chains? Basically, adding resistance to the lift circumvents the inhibitory neurological protective mechanism without having to throw the kettlebell. Bands and chains simply allow us to keep accelerating throughout the movement without having to put on the brakes at the end of motion.

The Westsiders are not the only ones to have experimented with bands in their quest for strength. Russian weightlifters also pressed with bands during the 1960s. In *Power to the People Monthly*, volume 1, issue 11, Pavel writes:

> *Band Press—Stand on the rubber band attached to both sides of the bar and press. Rodionov noted an excellent training effect for the triceps and added that "the athlete learns to apply continuous effort during the press."*

Warning

Adding bands to the kettlebell military press might interfere with the correct pressing groove. To reinforce the correct groove, finish your band press session with some light regular military presses before calling it a day. Be careful of accumulating fatigue during this drill, as it will make you more prone to neglecting basic pressing mechanics.

Chapter 9

Plateau Breaker 6: Wobble Board Press

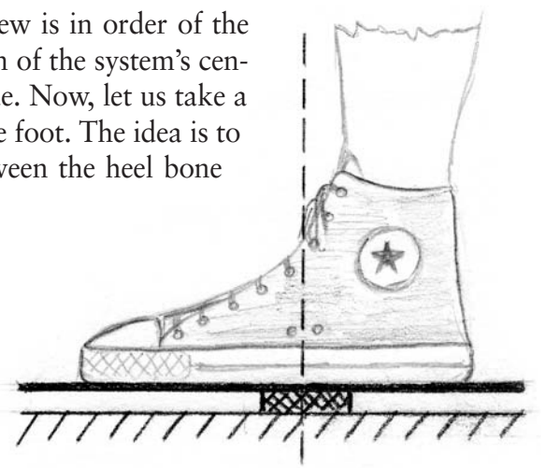
This specialized drill will locate any pressing leakages that are making you unstable. It involves perfecting body alignment and pressing mechanics.

This drill was inspired by the article in Pavel's *Power to the People Monthly,* volume 1, issue 12, describing the Russian deadlift technique. In the article, Pavel quotes Sergey Smolov:

> *At any given moment the projection of the common center of mass must be made through the point of stable equilibrium; otherwise, the reflexes cause additional muscle tensions aimed at regaining stable position.*

This describes perfectly what you must perfect when you want to press an exceptional weight in one arm overhead.

To use this knowledge and apply it in the drill, a review is in order of the body's alignment when pressing. Note how the projection of the system's center of gravity is directly above the foot of the pressing side. Now, let us take a closer look at exactly where the CoG projects through the foot. The idea is to keep the pressure through the foot exactly halfway between the heel bone and the first knuckle of the big toe.



Source: Pavel Tsatsouline, *Power to the People Monthly,* volume 1, issue 12. Used with permission.

The figure on the previous page, which is from Pavel's article, shows the correct alignment and projection (dotted line). Pavel writes:

> *The projection is in the middle of the foot, if you chopped off the big toe while leaving its first metatarsal alone. That puts the projection roughly between the third and fourth, if you count from the top, shoelace holes on your Chucks, slightly in front of the middle of an "uncut" foot.*

How to Do It

To do this drill, you need a standard physiotherapists wobble board (finally, this contraption can be put to some good use), a solid box of equal height to the wobble board, and a kettlebell weighing approximately 50 to 60 percent of your 1RM strict kettlebell military press.

Perform the drill as follows:

1. To begin, place the wobble board and box next to each other.

Wobble board press set-up.

2. Put one foot on the box and the other on the wobble board, with the point of projection running directly through the center of the board. The wobble board goes under the foot of the pressing side. If you have placed your left foot on the box and your right foot on the wobble board, you will press with your right arm and vice versa.

3. Clean the kettlebell.

4. Kick out your hip slightly, and press the kettlebell.

Halfway through the press.

Ready to press.

Press lockout.

If the wobble board moves in any direction, you are leaking force. By not keeping your CoG in alignment, you are creating an unstable platform to press from, which will, in turn, have a negative effect on your pressing ability. Any leakage will be evident even before you have begun pressing.

WRONG, wobble board moves.

Practice this drill frequently but for low reps until you are in a completely stable equilibrium during the entire press.

Performing this drill is an excellent way of warming up before your heavy pressing work sets. As you improve your skills, narrow the wobble board's base of support. There is enough challenge in this drill to last you a lifetime. When you can replace the bottom of the wobble board with a nail, set a full glass of water on it, and press a kettlebell without spilling a drop, you will have arrived and there will be nothing more I can teach you about pressing.

Let me stress just one more thing: This drill has absolutely *nothing* to do with training your *balance*. Rather, it is a way of identifying your leakages and should not be confused with stupid circus stunts.

Why It Works

This drill works because it provides immediate proprioceptive feedback to your structural alignment. It simply lets you know that you are displacing force in a direction that is not optimal for breaking your military press personal record.

Warning

Use this drill with caution and only for very, very limited reps. You do not want to teach your nervous system that the ground wobbles! Do a couple of reps, and note if you have any leakages in your force direction when you press. Then step off the board and practice with your feet firmly planted on the ground. Finally, *do not* practice in a fatigued state.

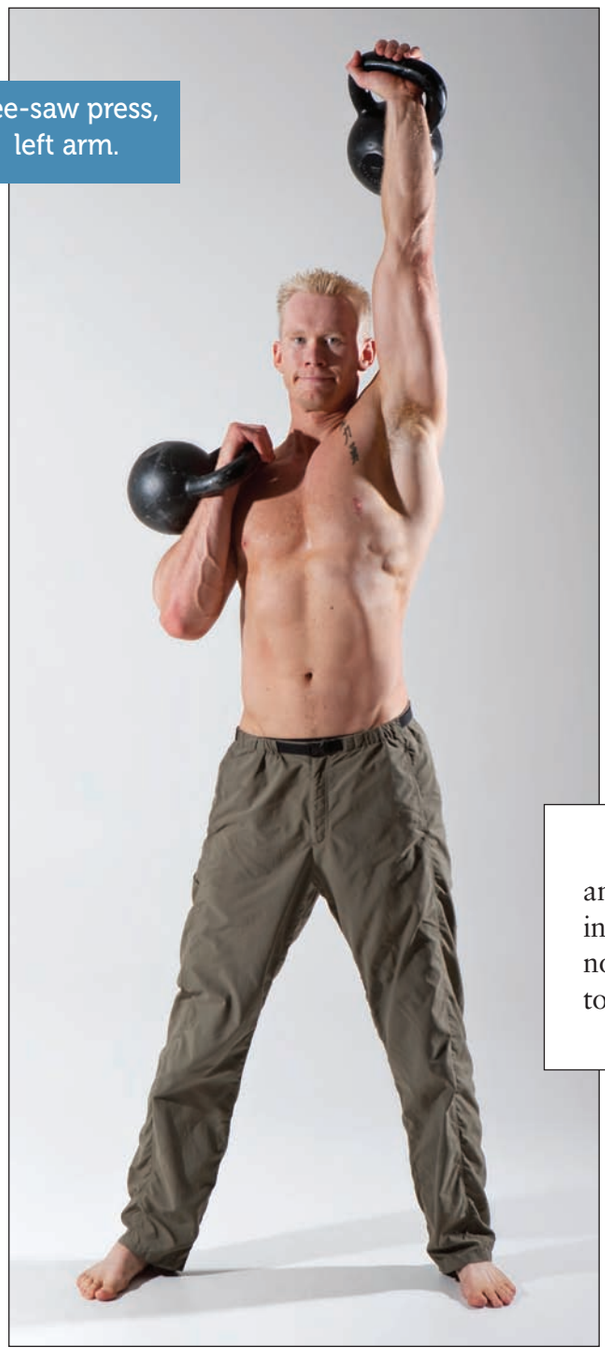
Chapter 10

Plateau Breaker 7: Contralateral Reflex Press—Power Rack

On the final day at the RKC, all the instructors-to-be go through the so-called graduation workout. At present, that workout consists of alternating 20 seconds of swings with 20 seconds of walking see-saw presses and taking 10 seconds between each set to reset and shake out the tension. Everybody is required to cover the entire length of a football field.

Grueling as this workout is, I also consider it a valuable practice session of the much overlooked see-saw press. The see-saw press is, in my book, one of the most beneficial pressing exercises that can be incorporated in any program. The reason for this is the specific biomechanics associated with this kind of pressing.

When doing see-saw presses, you have to coordinate the body's contralateral push–pull mechanism into one movement. Much like throwing a cross in boxing or a straight punch in karate, the force behind the punching arm is amplified by the opposite arm being pulled back forcefully and perfectly timed. When the punching arm moves forward, the opposite arm moves back—a contralateral push–pull mechanism that is kind of like a teeter-totter.



See-saw press, left arm.

See-saw press, middle.

This contralateral push–pull mechanism amplifies the force–output and increases your striking power. Why not take advantage of this and use it to increase your pressing ability?

See-saw press, right arm.

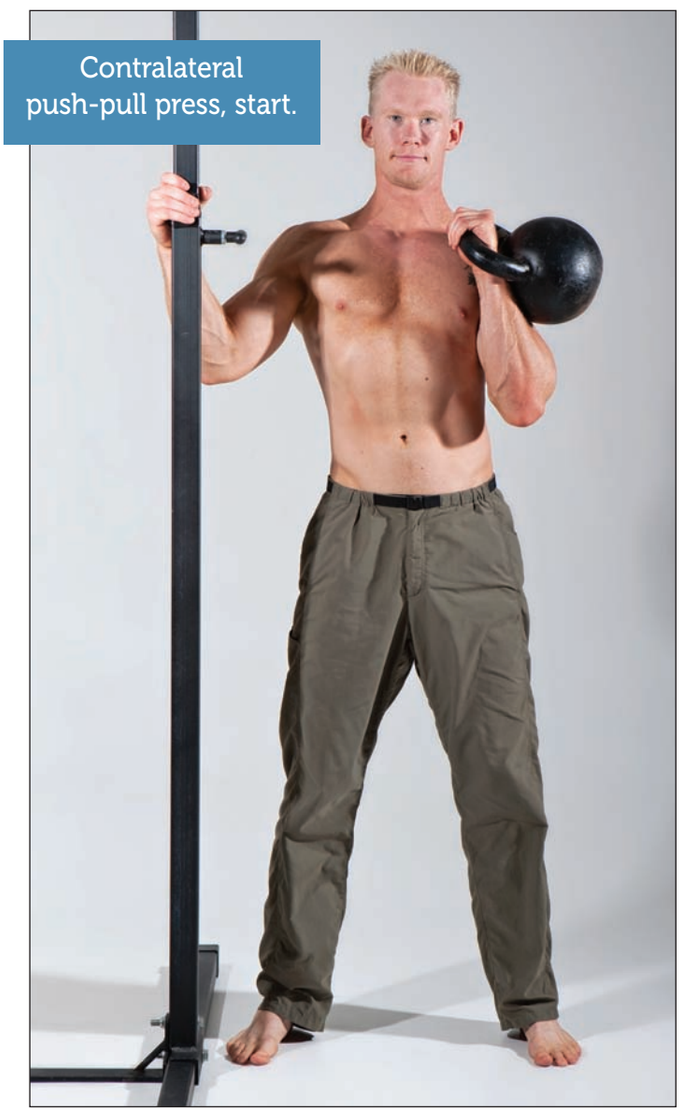
How to Do It

You need a sturdy object to do this drill—a power rack or something similar that allows you to grab it at different heights. Then do the following:

1. Clean a heavy kettlebell (90 to 100 percent of 1RM). Then assume the starting position for the kettlebell military press next to the power rack.

2. With your free hand, grab the power rack slightly above shoulder height.

3. Start the press, and at the same time, pull down hard on the power rack. Obviously, the hand on the power rack is not going to move, but the pull should still be a very explosive isometric contraction from the lat. Think of driving your elbow down into the floor when pulling on the power rack.



Contralateral push-pull press, start.

4. Pull the kettlebell down the Party way, but at the same time, apply pressure upward on the power rack. Think of the see-saw press action.

5. Repeat the procedure.

The contralateral reflex press is one of my all-time favorites, as it allows you to handle your standard 1RM (or close to it) kettlebell military press for multiple repetitions. Personally, I can get three reps in this drill with my 1RM standard military press. That sure feels awesome!

One way to incorporate this drill into your strength practice is to use it on your heavy press day every other set. Make sure to get plenty of rest between sets (no less than 3 minutes).

Why It Works

The contralateral push–pull mechanism works because of the back force transmission system of gait mechanics, which is a set of advanced muscle–fascia–tendon–joint slings that propagate force from the ground and up into the body. Basically, as one side of the body extends, the opposite side flexes.

The muscle–fascia–tendon–joint slings are revealed by looking at the human gait mechanism. Upon contact with the ground, force travels through the talocalcaneal joint, up through the peroneals, into the head of the fibula, through the biceps femoris, and through the ischial tuberosity and ligaments. Then it finally crosses over into the opposite side in the sacroiliac joint for further propagation through the body. In effect, this causes the coordinated flexion/extension cycle of the body as it moves. When one hip flexes, the opposite hip extends. When one shoulder flexes in the natural arm swing of locomotion, the opposite shoulder extends. This coordination is what you take advantage of during the contralateral reflex press. That makes this a very natural exercise, because your body instinctively knows what to do.

If you would like to know more about the back force transmission system, muscle slings, and the gait cycle, please look into Z-Health at www.ZHealth.net. You will not regret it!

Chapter 11

Plateau Breaker 8: Contralateral Reflex Press—Band Pulldown

This drill is a continuation of the contralateral reflex press using a power rack, which you read about in the previous chapter.

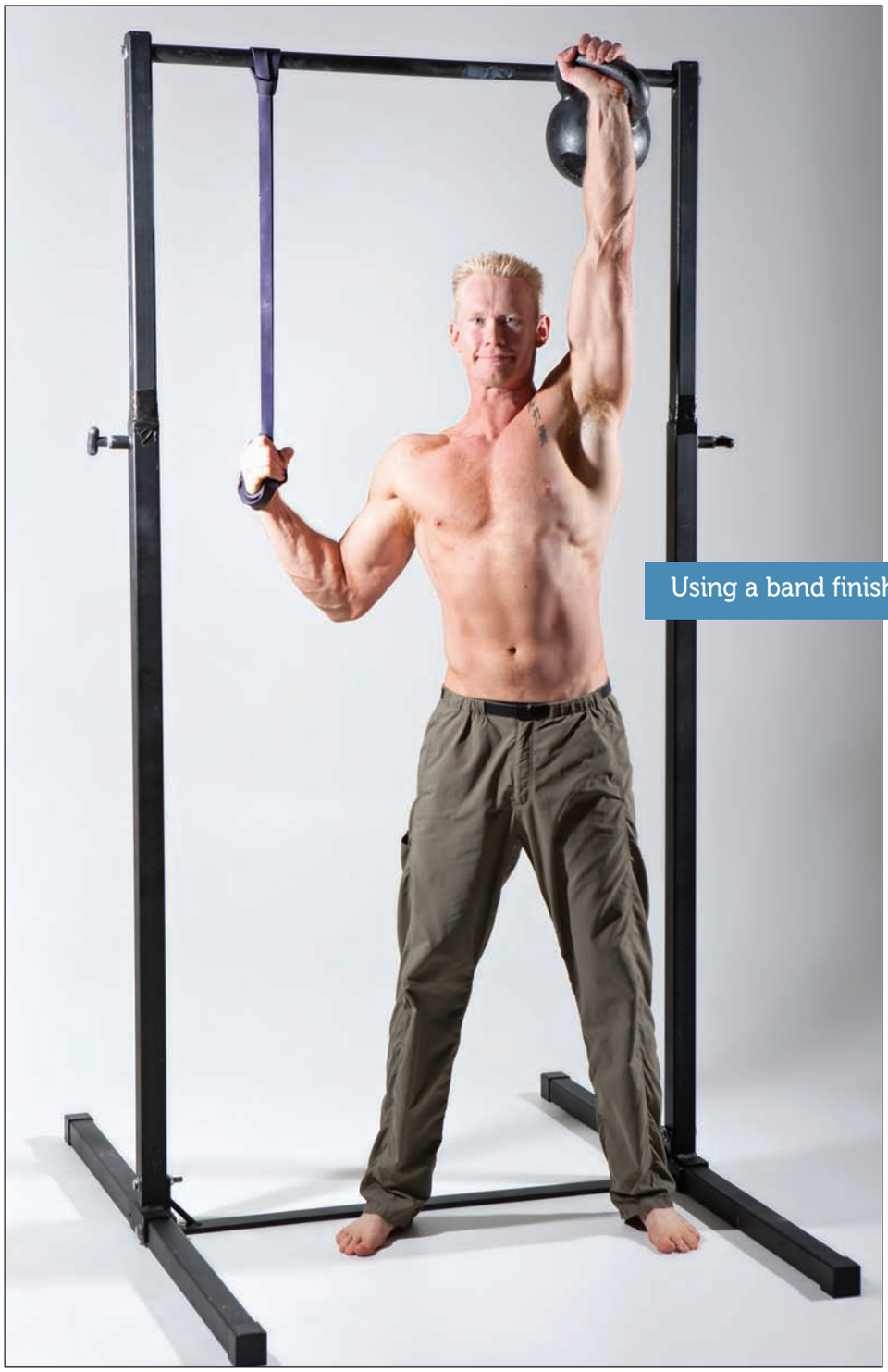
How to Do It

The set-up is the same, but instead of pulling down on the power rack, you pull down on a band attached to the top of the rack. You will need a thick band for this to work, and you will need to grab it slightly higher than you would the power rack. Again, the pull comes from the lat, so it helps to think that you are driving your elbow into the floor.

Whenever I practice this drill, I add a little something to it. Remember that this drill is based on the see-saw vertical push–pull mechanism, as described in the previous chapter. To make sure there are no leakages around the shoulder joint when pulling down, I usually tie a 3- or 4-foot string to the bottom of the band. Then I tie my keys to the other end of the string. If the keys rattle or start to move around a lot, it means that the pull on the band has not been straight down, as it is supposed to be. Pulling into the ground is what it takes to get the most push force into the pressing arm.

For this drill, I usually use a moderate-sized weight to really practice the pull straight to the ground. Using the moderate weight removes the threat response from the 1RM weight, which ensures cognitive freedom to focus on the pulling mechanism.

Using a band start.



Using a band finish.

Why It Works

This drill is effective for the same reason as described in the previous chapter. That is, it works because of the back force transmission system of gait mechanics. As one side of the body extends, the opposite side flexes. For instance, when one hip flexes, the opposite hip extends.

This coordination is what you take advantage of during the contralateral reflex press. That makes this a very natural exercise, because your body instinctively knows what to do.

Chapter 12

Plateau Breaker 9: Dead Start Sticking Point Press

This drill is a simple yet effective way of working the weakest part of your press. To do it, you need to figure out your sticking point.

This can be done most accurately by filming your execution of a heavy one-arm military press and then reviewing it. You will be looking for the point in the press where the kettlebell slows down noticeably and you shift your weight slightly away from the bell.

For most people, the sticking point occurs when the humerus (upper arm) is slightly above parallel to the deck. In some cases, however, the sticking point might be lower than that. It all depends on your muscular structure, such as muscle origin, insertion, pennation angle (how the muscle fibers are angled within the muscle), and so on. There is really nothing you can do to change these things!

How to Do It

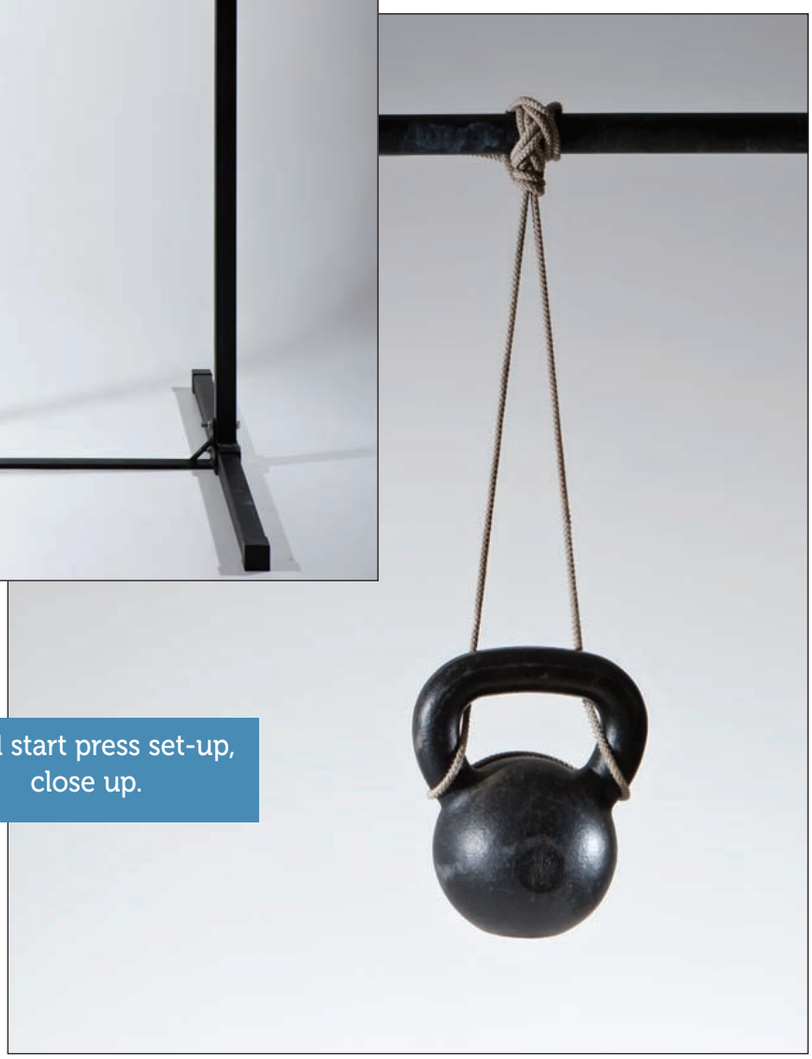
After you have figured out where your sticking point is, here is what you should do:

1. Stand inside a pull-up rack. The bar should be set higher than you can reach.

2. Attach a rope to the kettlebell handle, and loop the other end around the pull-up bar.

3. Secure the rope so the kettlebell is hanging from the pull-up bar at exactly the height of your sticking point.

Dead start press set-up.



Dead start press set-up, close up.

4. Assume the correct pressing position, and grab the kettlebell.

Ready to press.

5. Press the kettlebell from a dead start at the sticking point to a full lockout in the Viking Victory pose.

6. Pull the kettlebell down until it hangs from the rope.

7. Release the kettlebell, reset everything, and repeat.

For this exercise, use a moderately heavy weight (15 to 5RM), and perform singles in a cluster format until you are about one repetition from failure (high fatigue). Using the cluster format just means that you will take about 10 seconds between reps to reset. In terms of weight, err on the side of too light, instead of too heavy. Remember that even if the weight is only moderately heavy, it will feel heavier than that, because you will initiate each press from the most disadvantageous position.

Work both sides, and repeat as many cluster sets as your individual work capacity can handle.

Why It Works

This drill works because you teach your nervous system to generate force without momentum in your least advantageous pressing position. It all comes back to the SAID principle: specific adaptations to imposed demands.

You get good at exactly what you practice. So if force generation is lacking in a certain part of the motion, you have to practice it specifically.

Lockout.

Chapter 13

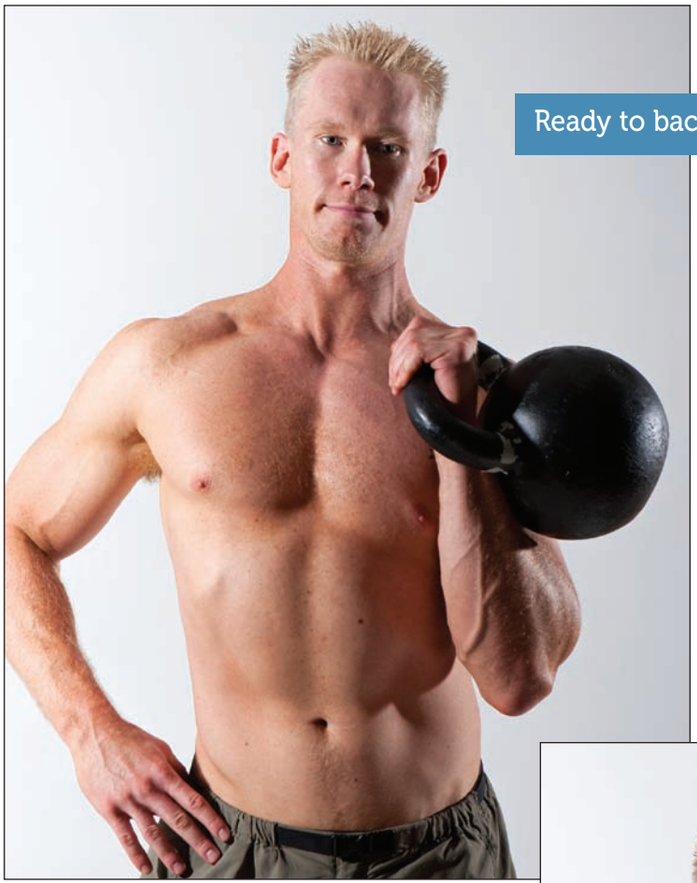
Plateau Breaker 10: Microshock-Yielding Isometrics

This drill is like the dead start sticking point press in that it is also simple yet effective. It requires you to work with a limit-sized kettlebell. So if you can handle the 36 kg kettlebell for a single, that is the size you should use for this drill.

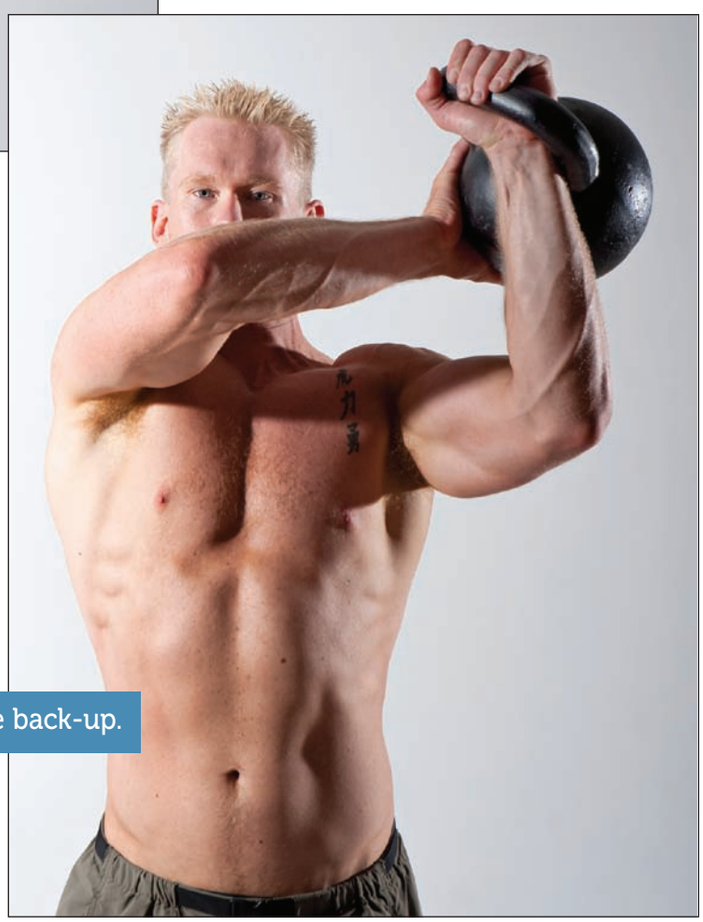
In *Hard-Style*, volume 3, issue 2, Pavel describes the back-up press technique, which is the setting for this drill. If you do not have a copy of this issue on hand, here is the essence of it:

> *Clean the kettlebell and start pressing it in the familiar outward arc. As soon as the kettlebell clears your chin, push its body—not the handle, not your arm, but the ball itself—with your free hand. Don't push straight up, but up and to the side. You will feel the pec on the backup side if you do it right.*
>
> *A note on the amount of help to give with your free hand. Don't make the press easy, but don't turn it into a shaky, forced rep either. Enable yourself to grind through with confidence, but not with ease. The bell must keep moving, albeit slowly. Keep your glutes tight for the sake of your back, because this press forces you to lean back somewhat.*

In its own right, the back-up press is an amazing exercise for blasting through your pressing plateau. You should definitely incorporate it in your quest for Viking strength. I will, however, provide you with an extra tool from the Russian toolbox of strength development.



Ready to back-up press.



Halfway through the back-up.

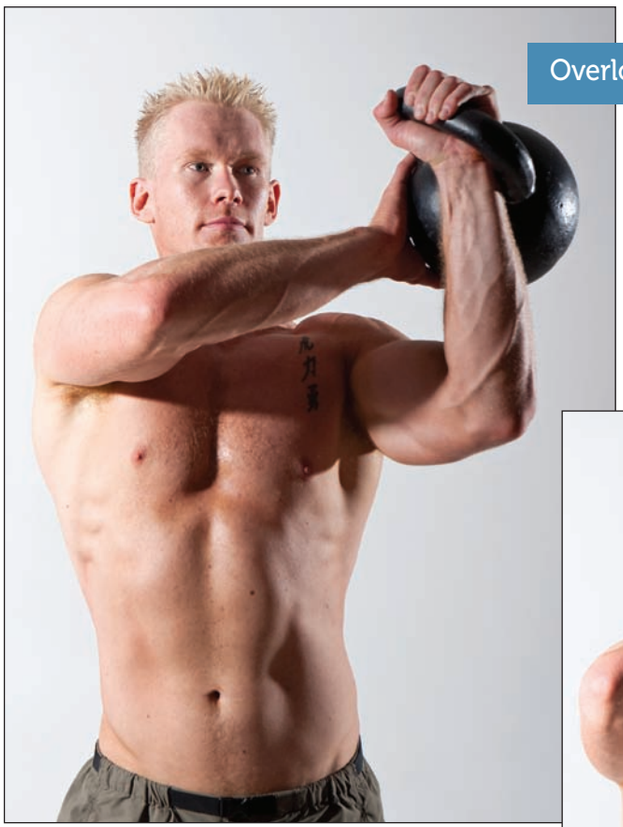
Three-quarters of the way.

Lockout.

How to Do It

While doing the back-up press, do the following when you reach your sticking point: Quickly remove your back-up hand from the kettlebell for 100 to 200 milliseconds (0.1 to 0.2 seconds). It is very important that the kettlebell not lose any elevation when you do this. Simply let go with your supporting hand, and then immediately bring it back again.

You can do this several times during one repetition of the press. But I cannot stress enough that it is time to quit as soon as fatigue starts to show and you cannot keep the kettlebell from dropping even 1/16 of an inch when you remove the supporting hand. When you reach this point, finish the rep by backing it up all the way to the top.



Overload iso, start.

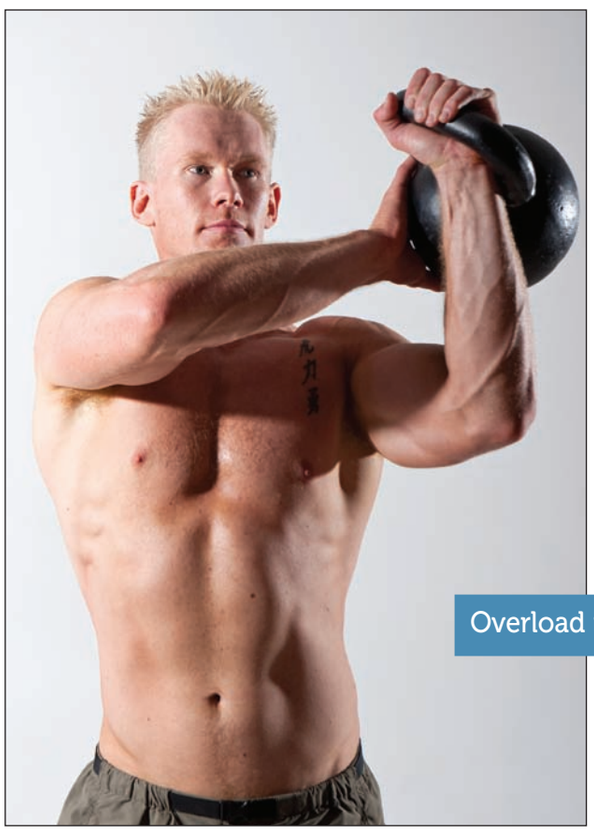
Overload iso, no hand.

As you experiment with this drill, you will find that you can give your back-up press a yielding microshock several times in different positions on its way to lockout.

Please note that although the microshock-yielding isometric press is similar to overcoming isometrics, there is a clear distinction between the two. The microshock-yielding isometric press requires you to work with a limit weight (close to your 1RM), forcing your muscles to maximally contract in *response* to the weight. Overcoming isometrics requires you to use a light to medium weight and to isometrically tense against the kettlebell at different stages during the lift. The feedback you get from the kettlebell during this kind of practice is not enough to elicit a maximal contraction. That is why you must consciously add extra tension. Making the distinction between the two drills is very important.

Another way of saying this is that the microshock-overload isometric drill is feedback tension gated, while the overcoming isometric drill is feed-forward tension gated. The two therefore deliver two different training stimuli.

The intent of the exercise is all important! Is the intent not to let the weight come down (the yielding isometric press), or is it to overcome the weight (the overcoming isometric press)?



Overload iso, finish.

Why It Works

Everything relates back to the nervous system. The nerve signals (action potentials) going from the brain to the working muscles carry great specificity from "central command." The underlying intention of the lift has to be well defined. By practicing these two different forms of isometrics, you are not teaching your body to automatically prefer one over the other.

Warning

Remember that this is a high-fatigue exercise. You should practice it in moderation for very low reps and with plenty of rest between sets.

Chapter 14

Understanding the Parameters

Before explaining the programs, a discussion is warranted about the parameters that underlie them: intensity, volume, density, and the fatigue index. Understanding the meanings of these terms is key to understanding the programming.

Intensity

When talking about lifting, the reference is usually to how heavy you are lifting compared to the maximum you can lift for one repetition, or one-repetition maximum (1RM). *Intensity* is therefore reported as a percentage. Here is the formula:

Intensity = (Weight of lift / 1RM) × 100

Example

Suppose you are able to barbell military press 100 kg (hats off to you) and you lift 85 kg. You would calculate the intensity of your lifting as follows:

85 / 100 = 0.85 × 100 = 85%

This is the generally accepted way of denoting intensity.

A few exceptions exist. For example, when talking about cardiovascular training, intensity is calculated as a percentage of your maximum oxygen uptake (VO2max) and can exceed 100 percent.

Volume

The term *volume* is used to denote how much weight you have lifted during a training session, whether a microcycle, mesocycle, or macrocycle. Volume is usually calculated by multiplying the weight by the total number of repetitions performed during a session:

Volume = Weight (kg) × Reps

Types of Sessions

The term *microcycle* refers to a few sessions of practice (usually a week in duration). A *mesocycle* is several microcycles in conjunction (usually between 2 and 12 weeks), and a *macrocycle* is several mesocycles in conjunction.

Example

Suppose you press the 24 kg for five reps and the 28 kg for three reps x 2, and then you finish off with 15 singles with the 32 kg kettlebell. Your volume can be calculated like this:

24 kg × 5 = 120 kg

28 kg × 3 × 2 = 168 kg

32 kg × 15 singles = 480 kg

Total volume = 768 kg*

* If you were doing the one-arm kettlebell military press and lifted equally with both arms, the total weight would multiplied by 2, making the total volume 1,536 kg.

This is how you generally calculate volume. If you do different lifts, you should do these calculations for each of them and then add all the totals together.

Another less common way of calculating volume is to count the number of sets done in a training session. This method gives a correct indication of volume only if the weight and repetitions stay the same in every set. A good example of this way of denoting volume is shown in my book *Viking Warrior Conditioning*, available at www.dragondoor.com.

Density

Density can be defined as volume over time. To calculate density, you divide the total volume by the total time spent lifting it:

Density = Volume (kg) / Time (min.)

Based on this formula, it is evident that the way to increase density is to lower the duration of the rest breaks. Changing the time it takes to lift the weight for every repetition is not going to lower the total duration of the session to any significant extent.

Example

Suppose your total volume for a training session is 5,000 kg, and your total time spent is 48 minutes. You would calculate density as follows:

5,000 kg / 48 min. = 104 kg/min.

If the total time spent lifting the same volume in the same lift or exercise is reduced, then the density will increase. Using the same total volume, if the total time spent is reduced to 34 minutes, then the density will go up, as calculated here:

5,000 kg / 34 min. = 147 kg/min.

It should be stressed that it only makes sense to compare density across the same lifts or combination of lifts. Comparing density in a pressing session versus a squat session would be like comparing apples and oranges. If you need to ask why, you should give it some thought! The answer will reveal itself.

Fatigue Index (FI)

Unlike intensity, volume, and density, the *fatigue index* (*FI*) is not a universally accepted parameter. Nevertheless, I have used it extensively to track fatigue management and recovery.

The FI is based purely on my own thoughts about how to monitor and control fatigue in a simple manner. Although you might find it less useful than I do, you should consider its application. It has made a ton of difference in the monitoring of the elite athletes that I coach.

Here is the fatigue index chart:

Effective Instantaneous Training State	Index Interval
Failure	**> 1.00**
Very high fatigue	**0.91–1.00**
High fatigue	0.71–0.90
Moderate fatigue	0.51–0.70
Low fatigue	0.31–0.50
Very low fatigue	< 0.31

Calculating the Fatigue Index

Before calculating the FI, you need to know your limit number of repetitions with a given weight for each of the grind lifts you perform and include in your training log. Personally, I never focus on more than three grind lifts in any cycle, and I often focus on just one or two. This does not mean that I do not do other lifts; rather, it means that I do not prioritize them for improvement but only implement them on a maintenance or restoration level.

The value of the FI is most evident when it is used on days of high-volume, low- to medium-intensity lifting. Why? The fatigue index deals with *peripheral fatigue*, or local factors within the muscle, as opposed to *central fatigue*, or central command factors in your sensory motor cortex and brainstem.

Here is the formula for calculating the fatigue index:

FI = (SR / MR) × (TS / RS)

where

SR = Number of reps done in a set

MR = Maximum number of reps

TS = Total number of sets with the same reps

RS = Total number of reps in the session

Example

Because this book deals with the one-arm kettlebell military press, that lift will be used in this example.

Suppose Person A is going to press for high volume. He picks a kettlebell around 60 percent of his 1RM, which is, in this case, the 28 kg kettlebell. (He can press the Beast for 1 rep.) He shoots for a total of 100 reps per arm for his high-volume day, and he makes sure, of course, that he finishes within the hour. On a previous day, he went all out pressing the 28 kg to establish a baseline and got 14 reps.

Person A has the following press-per-session breakdown (with each arm):

Sets 1–5: 5 reps each = 25 reps
Sets 6–8: 3 reps each = 9 reps
Sets 9–10: 2 reps each = 4 reps
Sets 11–15: 7 reps each = 35 reps
Sets 16–18: 4 reps each = 12 reps
Sets 19–23: 3 reps each = 15 reps

Person A does a total of 100 presses per side within 50 minutes.

The fatigue index for the session can be calculated as follows for each set:

Sets 1–5

FI_{1-5} = (5 reps / 14 repsmax) × (25 reps / 100 total reps) = 0.089

Sets 6–8

FI_{6-8} = (3 reps / 14 repsmax) × (9 reps / 100 total reps) = 0.019

Sets 9–10

FI_{9-10} = (2 reps / 14 repsmax) × (4 reps / 100 total reps) = 0.006

Sets 11–15

FI_{11-15} = (7 reps / 14 repsmax) × (35 reps / 100 total reps) = 0.175

Sets 16–18

FI_{16-18} = (4 reps / 14 repsmax) × (12 reps / 100 total reps) = 0.009

Sets 19–23

FI_{19-23} = (3 reps / 14 repsmax) × (15 reps / 100 total reps) = 0.032

To calculate the FI for the entire session, the FIs of all the sets (1–23) are added together:

$$FI_{all} = 0.089 + 0.019 + 0.006 + 0.175 + 0.009 + 0.032 = 0.33$$

Thus, the fatigue index for this session is 0.33, which is categorized as "Low fatigue." Of course, if Person A had done 20 sets of 5 reps, the calculations would be much easier:

Sets 1–20

$$FI_{1–20} = (5 \text{ reps} / 14 \text{ repsmax}) \times (100 \text{ reps} / 100 \text{ total reps}) = 0.36$$

What Is Recorded in the Training Log?

Person A can now record the following in his training log:

Lift/Exercise:	**One-arm kettlebell military press**
Session Type:	**High volume**
Intensity:	**60% 1RM**
Volume:	**28kg × 100 reps/arm × 2 = 5,600 kg**
Density:	**5,600kg / 50 min. = 112 kg/min.**
Fatigue Index (FI):	**0.33 (Low fatigue)**

Why Use the Fatigue Index?

You should use the FI simply because it provides information you can use to structure your practice. I firmly believe that parameter rotation and cycling are the best ways for an already trained athlete to make significant progress. Untrained lifters who are just getting started will most likely make good progress regardless of whether they take into account the parameters of strength. However, at some point, as the trainee graduates from the beginner to the intermediate to the advanced level, monitoring strength parameters becomes crucial in avoiding stagnation.

In addition, using the FI is a way of controlling the stress you put on your body during training. With the FI, you can ensure the level of stress does not reach a critical value while you also optimize parameter manipulation.

This is why the FI chart at the beginning of this section uses bold type for the "Failure" and "Very high fatigue" entries, indicating that going to these levels might very well be counterproductive. In the next chapter, I will go deeper into the mechanisms of fatigue and shed some light on why that might be.

Chapter 15

Using the Fatigue Index under Diverse Conditions

The "perfect world" mentioned earlier is a nice idea, but perfection seldom occurs in reality. Some realities of lifting must be considered to increase the accuracy of the use of the fatigue index (FI).

When going through Z-Health R-Phase, I asked Dr. Cobb to give his opinion of the FI. In sum, he said that when he works with members of the Special Forces and elite tactical units, he rates the state of the body and mind using three descriptors:

1. Optimal

2. Normal

3. Compromised

Dr. Cobb does this to account for the fact that one person can experience the same assignment and physical stress completely differently, depending on numerous factors. Those factors include but are not limited to amount of sleep, diet, hydration level, detraining, recovery, and state of mind. These factors and others will influence performance positively and/or negatively.

Because of this, I have introduced the *systemic stress factor* and applied it in conjunction with the FI. Here is the fatigue index chart, presented earlier, with the systemic stress factor included:

Effective Instantaneous Training State	Fatigue Index x Systemic Stress Factor		
	Optimal (× 1.0)	*Normal* (× 0.9)	*Compromised* (× 0.8)
Failure	**> 1.0**	**> ?**	**> ?**
Very high fatigue	**0.91–1.00**	**0.82–0.90**	**0.73–0.80**
High fatigue	0.71–0.90	0.64–0.81	0.57–0.72
Moderate fatigue	0.51–0.70	0.46–0.63	0.41–0.56
Low fatigue	0.31–0.50	0.28–0.45	0.25–0.40
Very low fatigue	< 0.31	< 0.28	< 0.25

Example 1

Suppose Person A, from the example in the previous chapter, can press the 28 kg kettlebell for 14 reps going all out. The day he tested his all-out rep max, he considered the conditions to be *optimal*. He tapered for the test, rested, got plenty of fluids, monitored his diet precisely, and basically felt great satisfaction with his career, personal life, and so on. In short, the conditions of his life at this moment in time were optimal.

As Person A starts to work with the FI, he realizes that he does not always feel as great as he did the day of his all-out press test. He actually feels that when he is going for moderate and high fatigue, in particular, it is somehow harder than it should be. Some days, he feels like he is approaching very high levels of fatigue and even failure, on some occasions.

On a training day when the plan calls for moderate fatigue, Person A does the following:

28 kg one-arm military press: 10 sets of 8 reps per arm

FI = 0.57

Optimal: **FI is at the lower end of the "Moderate" level**

Normal: **FI is still "Moderate" but relatively close to "High"**

Compromised: **FI is now considered "High"**

The question now arises how to determine the conditions under which you are evaluating your weekly strength practice sessions. There are probably numerous ways of doing this, but I use the following questionnaire:

State of Body and Mind Questionnaire

Using a scale of 1 to 5, with 1 being *lousy* and 5 being *great*, answer each of the following questions.

1. How did I feel when I woke up this morning?	1	2	3	4	5
2. How well did I sleep last night?	1	2	3	4	5
3. How was my diet during the previous week?	1	2	3	4	5
4. How was my intake of water during the previous week?	1	2	3	4	5
5. How do I feel about my job/career at this moment?	1	2	3	4	5
6. How is my personal/spiritual life at this moment?	1	2	3	4	5
7. How do I feel overall (aches, pains, tightness, DOMS, etc.)?	1	2	3	4	5

Total Score _____

Average Score _____

After completing the questionnaire, calculate your average score. If your average score is 1 or 2, consider yourself in a "Compromised" state. If your average score is 3 or 4, you are in a "Normal" state, and if you scored all 5s, then conditions in your life are "Optimal." Make sure that when you average your score, you round the number down. So a score of 2.92 is a 2, and a score of 3.14 is a 3.

You should feel free to add to the list of questions, but make sure the number of items does not get out of hand. The more questions, the less likely you will answer them on a weekly basis.

Finally, if your average score is 1, you should consider doing something else than practicing your strength. Go for a walk, a swim, or a bicycle ride, or just do some kettlebell swings outside in the fresh air.

A Question Arises

Is it possible *during* a training session to go from "Optimal" to "Normal" or even "Compromised" conditions?

My answer is a resounding "Yes," especially if you are working at a high FI, or coming relatively close to failure on each set and going for high volume. This factor has to be controlled, and the way to do that is to decrease the reps you do in each set when you have accumulated a significant amount of fatigue. You should make sure that the FI reaches the highest values for the sets at the beginning of the session and has the lowest values for the sets at the end of the session.

Example 2

Again, let us use Person A from the previous examples. He is still pressing the 28 kg, and on this training day, his program calls for 125 total presses per side with high fatigue. To keep things relatively simple, Person A's repsmax is still 14, so he decides to start pressing for sets of 12 reps and then decrease the number of reps per set as the session progresses. He considers his conditions to be "Optimal."

The breakdown of Person A's session is as follows:

Sets 1–5:	**12 reps**	**FI = 0.86**
Sets 6–8:	**10 reps**	**FI = 0.71**
Sets 9–10:	**8 reps**	**FI = 0.57**
Sets 11–12:	**7 reps**	**FI = 0.50**
Set 13:	**5 reps**	**FI = 0.36**

The average FI for entire session is 0.73, which is classified as "High" on the FI chart.

As you can see, the FI decreases as the session progresses, but the average FI is still considered "High." Knowing this, you can plan your sessions accordingly and avoid the chance of a system shutdown. Doing so will allow you to finish strong. At the same time, you will be tracking and controlling as many variables as possible, which will allow you to adjust your next session accordingly.

Chapter 16

Relationships between Parameters: Fitting in the Fatigue Index

Intensity and Volume

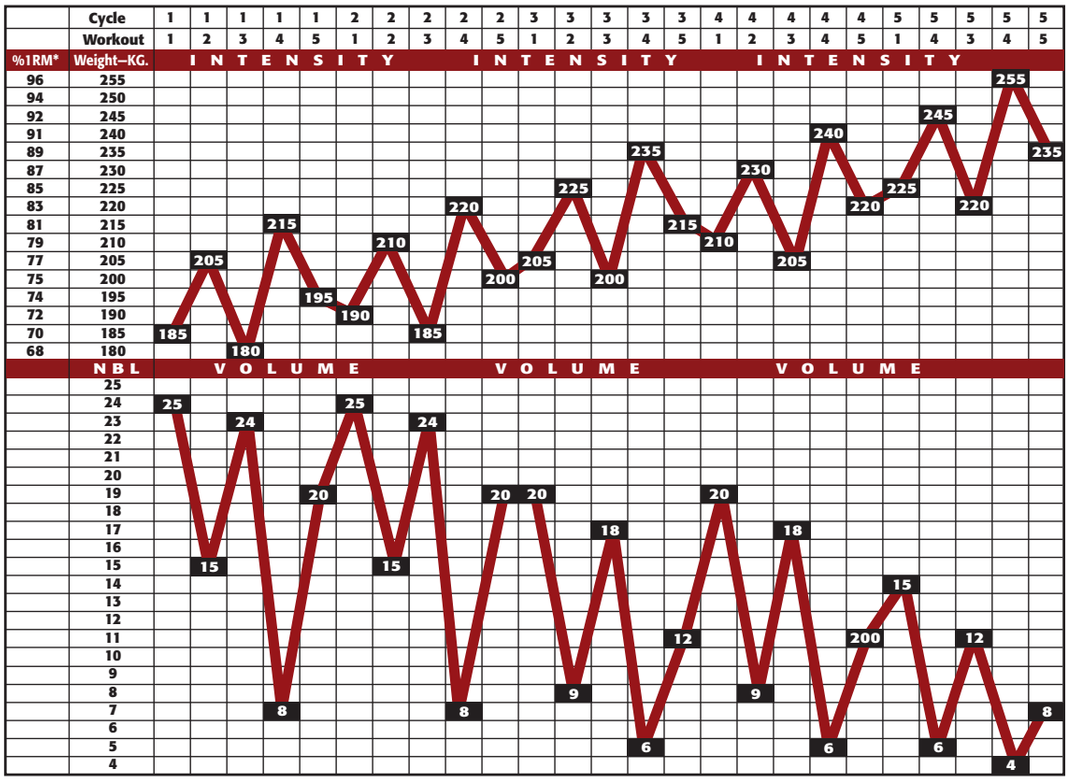
Most strength professionals know that intensity and volume are inversely related. When the intensity goes up, the volume usually goes down, at least on a long-term basis. Granted, there are situations when the intensity increases and the volume stays high, but these are usually limited and well-planned periods in training. Pushing into overreaching can be beneficial if done correctly, but going high intensity–high volume for long durations is detrimental to an athlete. That is why the general accepted relationship between intensity and volume is an inverse one. When the intensity increases, the volume decreases.

The chart on the next page, which is from Pavel's *Power to the People Monthly*, volume 1, issue 2, depicts a sample squat cycle matrix and illustrates the inverse relationship between intensity and volume. Pavel writes:

> *You will realize that it (the cycling of volume and intensity red.) is not fancy or trendy. Just another intelligent application of the classic 1960s periodization model: the volume goes down and the intensity goes up over a period of months while jumping up and down on a daily and weekly basis. Add hard work and be strong.*

A Sample Cycle Matrix

Based on a 265kg Max SQ and Highest Recommended Jumps



* The percentages of 1RM apply to the particular example. They may be different, depending on the weight jumps you take and your max.

Source: Pavel Tsatsouline, *Power to the People Monthly*, volume 1, issue 2. Used with permission.

Personally, I believe that a similar inverse relationship exists between density and fatigue. If density increases, fatigue has to decrease.

Think about it: If your goal is to do as many repetitions of a given lift in a set time frame, which approach will be most beneficial?

1. going all out the first set to complete failure and then resting and repeating or

2. staying away from high fatigue–high failure by doing, for instance, less than half of the repetitions you are capable of doing in any given set and thereby keeping fatigue low

I know which of these two options I consider the best strategy: number 2. You may or not agree with me, and either way is cool! This is just my theory, and I cannot back it up with any scientific experiments (yet).

Whatever your opinion, you can easily test the theory for yourself. Shoot me an e-mail with your findings at KennethJay@ThreatModulation.com. I would love to hear about them!

Cycling and Rotation

The cycling of intensity and volume has long been an accepted practice of strength enthusiasts. Usually, a cycle begins with lighter loads and higher volume, and then as the cycle progresses, the loads become increasingly heavier and the volume drops. Finally, the cycle peaks with a new 1RM personal best.

The rotation of intensity is no different. Those of you who have read Pavel's *Enter the Kettlebell* (2006) and its sequel, *Return of the Kettlebell* (2009), know that the rotation of heavy, medium, and light days is a fundamental part of the programs. If you are not aware of this, then shame on you for not being familiar with the most comprehensive works ever done on kettlebell training. The Viking God of Thunder is not pleased with you!

Because the cycling and rotation of intensity and volume yield such magnificent results, then I will dare to suggest that the same might go for the cycling and rotation of density and fatigue. I believe that as you rotate heavy, medium, and light days of training, you should also cycle and rotate density and fatigue in the following manner:

Main Combinations of Parameters

High fatigue–Low density

Moderate fatigue–Moderate density

Low fatigue–High density

Other Combinations

Low fatigue–Low density	Usually applied during tapering periods
Moderate fatigue–Low density	Can be used if you are not feeling ready for a high fatigue–low density session or as a intermediary step during tapering periods
High fatigue–High density	Not appropriate in 99 percent of situations and will most likely cause burnout during a high-volume session

As mentioned before, using the fatigue index (FI) makes little sense on your heavy days. The volume on these days is usually low, and the fatigue generated by this kind of lifting is not localized in the muscles but more so in the governing system of your body—the neurological "command center" upstairs. Central command fatigue plays by very different rules than local muscular fatigue and is hard, if not impossible, to quantify with a number. That is why if you follow my approach, you will be concerned about rotating and cycling density and fatigue only on your low- and medium-intensity days.

Choosing a Parameter Focus

If you choose to focus on everything at once, you will get good at nothing. That is why you have to choose which parameter to focus on.

It all depends on the goal at hand. If you decide that 1RM strength is your primary focus, then your program design should reflect that. This does not mean that you cannot occasionally have another focus, like upping the volume. Instead, it means that if your long-term goal is to increase your 1RM, then that should be the focus of most of your macrocycle planning.

If, for some reason, you do not know exactly where to begin and you want it all (don't we all?), then here is a parameter progression to get you started:

1. Start by increasing the volume you can handle.
2. Keeping the volume constant, focus on being able to tolerate higher levels of fatigue.
3. Still keeping the volume constant, shift focus to increasing the density.
4. Finally, increase the intensity and decrease the volume, fatigue, and density.

Then rinse and repeat!

This four-step progression actually represents a cycling of the parameters, and following it can take your physical abilities beyond the gates of Valhalla. This is the same concept Pavel (2009) describes in *Return of the Kettlebell*:

> *Laurence Morehouse, Ph.D., the founding director of the Human Performance Laboratory at the UCLA who helped to design the conditioning programs of US astronauts, has summarized this sleek process: "Ideal training involves changing just one of many variables, until that variable reaches a constant. Then you change another, and then another until you reach your goal."*

Example

Here is an example of this cycling of parameters in a four-week mesocycle:

Week 1

Tuesday	Low/medium intensity	High volume	Low fatigue(high density)
	60%1RM	200 reps	FI: 0.30–0.59
Saturday	High intensity	Low volume	Low fatigue
	85–98%1RM	5–15 reps	FI 0.30–0.59(low density)

Week 2

Tuesday	Low/medium intensity	High volume	Moderate fatigue(mod. density)
	60%1RM	200 reps	FI: 0.60–0.79
Saturday	High intensity	Low volume	Low fatigue
	85–98%1RM	5–15 reps	FI 0.30–0.59(low density)

Week 3

Tuesday	Low/medium intensity	High volume	High fatigue(low density)
	60%1RM	200 reps	FI: 0.80–0.89
Saturday	High intensity	Low volume	Low fatigue
	85–98%1RM	5–15 reps	FI 0.30–0.59(low density)

Week 4

Tuesday	Low/medium intensity	High volume	Low fatigue(low density)
	60%1RM	200 reps	FI: 0.30–0.59
Saturday/ Sunday	High intensity	Low volume	Low fatigue(low density)
	New 100%1RM		

As you might have noticed, the FI never reaches a very high level (not more than 0.89 on session average). Going higher than this for an entire session is coming too close to the "Failure" level, in my opinion. Again, this is why "Failure" and "Very high fatigue" are indicated in bold type in the FI chart in chapter 14 (see "Fatigue Index" section).

In the above mesocycle example, notice that on Tuesdays, the intensity and volume do not change. The only parameter that rotates is fatigue, which is the main parameter of focus in this example.

Hypertrophy

Cycling fatigue and density in a high-volume approach to increased strength can result in substantial hypertrophy of the involved muscles. I have noticed this during periods of one-arm press specialization. To some, this might cause a problem, but to me, it is an added benefit of using the cycling approach.

While failure is not necessary for hypertrophy to occur, high density and some level of fatigue do seem necessary. Without considering any scientific knowledge, it seems obvious why: The more work the muscle has to do in a given time period, the greater the stress and damage to the muscle tissue. The muscle responds by synthesizing more muscle protein in order to be able to handle the stress better next time.

Remember that density is volume divided by time. So if you want to *increase* density, then *decrease* the amount of rest. Taking short rest periods (less than 1 minute) produces greater growth hormone and testosterone responses than taking long rest periods (three minutes). It has been hypothesized that during long-term strength training, acute hormonal responses, induced by the resistance exercises, are important contributors to muscle hypertrophy.

Pavel (2009) wrote about this subject in *Return of the Kettlebell*:

> *The endocrine response from incomplete recovery has a hand in building muscle as well. Kazushige et al. (2005) have put their subjects on a typical bodybuilding protocol with one of the groups given extra rest "in order to reduce exercise-induced metabolic stress." The less rest group got a strong growth hormone response and the more rest group did not. In the end of the 12 weeks the less rest group "showed a marked increase . . . in muscle cross-sectional area," while the more rest group did not. The less rest group also registered greater gains in strength and strength endurance (because they built bigger muscles; this is not a neural training protocol). These results suggest that exercise-induced metabolic stress is associated with . . . chronic muscular adaptations following resistance training.*

Chapter 17

More on Fatigue

In further discussing fatigue, I need to be very clear about the difference between *training with fatigue* and *training to failure*. I am not a proponent of training to failure. In 99.9 percent of all situations, training to failure is not necessary. In fact, it is counterproductive and can be detrimental to enhanced physical performance. The same is not true about training with fatigue, which refers to the acute impairment of performance during physical activity. Said slightly differently, fatigue is an acute response to any type of work.

Furthermore, fatigue can be graded (as with the fatigue index, or FI), because it originates at several sites throughout the body, from the limbic system to the cross-bridge cycle. The impairment of one site does not necessarily mean that the body shuts down; rather, several sites needs to be affected before the lights go out. Fatigue can be termed *failure* only when it accumulates to the extent that it causes you to stop what you are doing.

There are two main types of fatigue: (1) central fatigue and (2) peripheral fatigue. *Central fatigue* is not really well understood in neuroexercise physiology. Scientists have a hard time explaining exactly where fatigue originates in the central command and central nervous system. They have a slightly better grasp of *peripheral fatigue* and explain it in several possible ways.

Scientific Explanations of Fatigue

Many variables factor into exercise, such as subject motivation, pattern of muscle activation and motor command, intensity, duration, speed of contraction, and so on. Any of these variables can impair the body's physiological processes, including the following: (1) activation of the primary motor cortex and central command); (2) the central nervous system drive to the motor neurons; (3) the muscles and motor units that are activated; (4) neuromuscular propagation; (5) excitation–contraction coupling; (6) the availability of metabolic substrates; (7) the intracellular milieu; (8) the contractile apparatus; and (9) muscle bloodflow.

I will not cover all nine possible sites for the onset of fatigue. However, I will review a couple of them *superficially* to demonstrate the complexity of the human body and the development of fatigue.

Neuromuscular Propagation

Several processes are involved in converting an axonal action potential into a sarcolemma action potential. This conversion is referred as *neuromuscular propagation*.

Sustained activity can result in a decline in force production. When the axonial action potential fails to excite the presynaptic terminal, no neurotransmitter is secreted into the synaptic cleft. Also, a depletion of the neurotransmitter acetylcholine or a mere reduction of the quantal release of this substance can reduce muscle force. Even if none of these things occurs, force may still possibly be reduced because the postsynaptic receptors may be momentarily desensitized. This means that no transmitter substance will interact at the other side of the synaptic cleft.

Excitation–Contraction Coupling

Studies on isolated muscle fibers have linked reduced sarcoplasmic Ca++ concentrations to fatigue. Specifically, repetitive tetanic contractions of isolated muscles cause a gradual decline of force that is closely associated with a decline in sarcoplasmic Ca++ concentrations. After *x* number of contractions (and depending on intensity), the sarcoplasmic Ca++ concentration is insufficient and the contraction force is diminished.

The explanation for this lies in the decreased Ca++ release for binding to troponin. When Ca++ does not bind to troponin, it blocks the binding sites for actin/myosin to interact. Hence, the cross-bridge cycle cannot happen.

Intracellular Milieu

Lactic acid also plays a role in fatigue. When lactate dissociates from the acidic component, the intracellular hydrogen ion (H+) concentration goes up, making the environment within the muscle more acidic. The acidity slows the uptake of Ca++ by the sarcoplasmic reticulum by interfering with the operation of the Ca++/ATPase pump. This disturbs both intracellular and sarcoplasmic reticulum Ca++ concentrations.

An extracellular accumulation of potassium (K+) can also interfere with the production of muscle force. An accumulation of potassium can inhibit the action potential going to the muscle, thereby inhibiting the firing of motor units and making the muscle contraction weaker or nonexistent.

Not all scientists agree on the details of the physiological nature and localization of fatigue. However, they generally agree that fatigue is a defensive reaction of an organism prior to exhaustion/failure.

The consequences of training with fatigue mentioned earlier, along with several others, contribute to an increased level of overall stress, which the body interprets as a threat of impending failure. The body issues a protective response to adapt as needed to withstand the threat next time. Basically, this means that the next time the body is subjected to the same level of stress, it will handle it better. This is a demonstration of the principle known as *SAID*, as mentioned earlier: specific adaptations to imposed demands.

Nonscientific Explanation of Fatigue

All this scientific mumbo-jumbo is fine and dandy if you are into it. But if it is making your head hurt (and believe me, I have been there), then remember this simplified explanation of fatigue:

1. Fatigue originates in the nervous system and/or locally in the muscles.

2. The utmost consequence of fatigue is failure, which happens when several mechanisms shut down at once. This is not a good thing.

3. Like anything else, if you want to be good at handling fatigue, you have to practice it to perfection (the SAID principle).

Training with Fatigue

If you do any type of cyclical activity—meaning that it is not a one-movement event, like shot putting, javelin throwing, or powerlifting, but requires the generation of continuous and repeated effort—then you will, at some point, accumulate fatigue. How you handle it depends greatly on your training. I believe that the degree of fatigue in training should be rotated.

Basically, if you want to be ready to handle a situation, then you had better practice under similar circumstances to get familiar with it. If your body knows the feeling of fatigue and has been trained to recover from it, then your chance for success in your chosen endeavor will increase dramatically. By training to manage fatigue, you will, in turn, increase your work capacity.

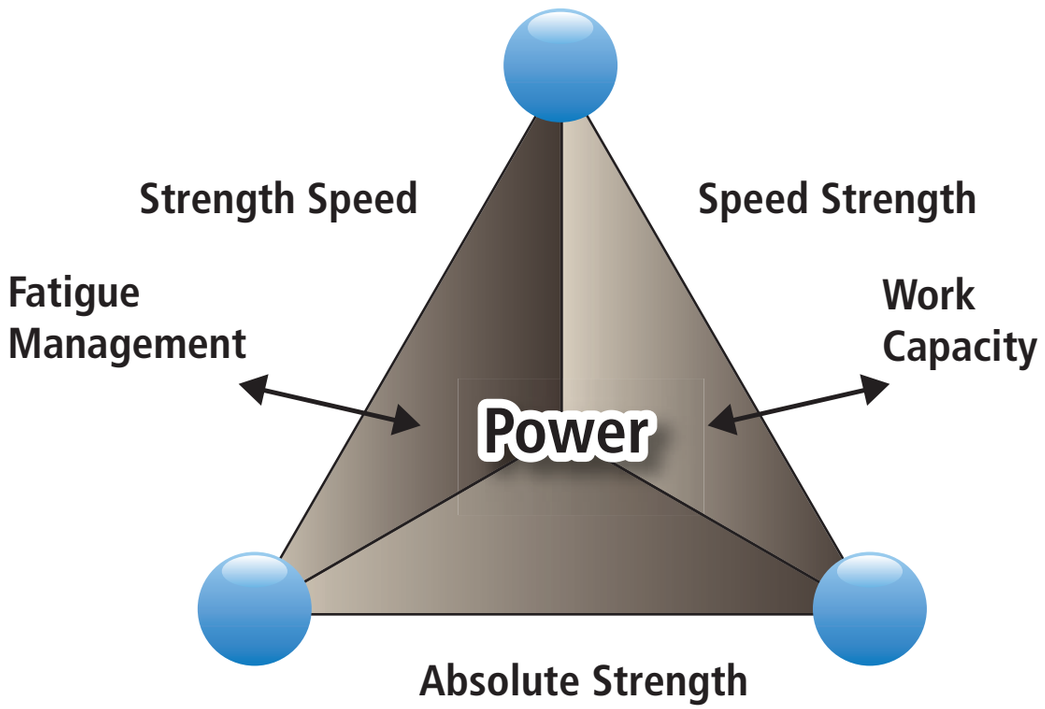
To quote Dr. Eric Cobb, founder of Z-Health Performance Solutions, "The body *always* adapts to *exactly* what it does." This is also, in essence, why we do not want to train to failure. Shutting down neurologically and/or mechanically is simply not something we want to teach our bodies.

The following summary of fatigue has been excerpted from my book *Viking Warrior Conditioning* (2009).

Tripod of Power

The tripod of power, shown below, illustrates the three factors that influence power development: the absolute strength base (1RM), along with strength speed and speed strength. Strength speed and speed strength are both components of explosive strength. The higher the levels of these three factors, the more power that can be generated at any instant.

Outside factors—such as fatigue, fatigue management, and work capacity—will influence and be influenced by the development of these three components. This means that your sustained power output will be greatly determined by both your work capacity and your ability to manage fatigue. If your fatigue management is not up to par, your work capacity will suffer. This will, in turn, negatively affect your power output by messing with your absolute strength, your speed strength, your strength speed, or all of the above.



Source: Reprinted with permission of the author.

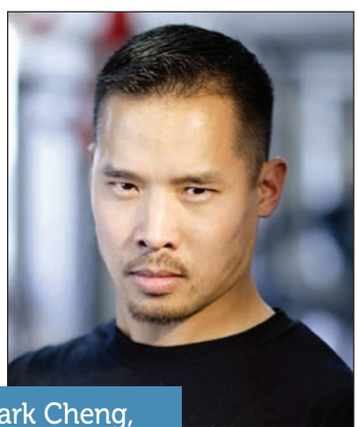
Chapter 18

Press Facilitation

As I said earlier, before building a skyscraper, you should establish a rock-solid foundation. I absolutely believe this! I have seen too many people try to lift without having first developed the prerequisites for doing so. What usually happens is that they get away with it for a while, but then they start to have problems. They stop progressing or even get injured. Thankfully, more and more people are becoming aware of the importance of really having a healthy foundation to build on, and that is how it should be.

Turkish Get-Up Facilitation Training

There is an exercise that can help you build your foundation. It has always been a staple of the RKC, but recently, thanks to Gray Cook of the Functional Movement Screen and Brett Jones, Master RKC, it has gained tremendously in popularity. Of course, I am referring to the Turkish get-up (TGU).



Dr. Mark Cheng, RKC Team Leader.

I have asked Dr. Mark Cheng, RKC Team Leader and co-author of an outstanding manual about the Turkish get-up, *Kettlebells from the Ground Up—The Khalos Sthenos* (2009), to help me with this chapter on how to use the TGU to get healthy and increase your press numbers.

Flashback

Not too long before I attempted to press a 32 kg (70 lb) kettlebell, I was doing Turkish get-ups with it. Pavel Tsatsouline, RKC Chief Instructor, encouraged me to work the heavier TGU, saying, "If you can do a get-up with that weight and show total control like that, you'll be able to press it."

The strict military press has always been my nemesis. Due to a string of shoulder injuries and a variety of compensations that had accrued over the years, my body shied away from pressing vertically for a long time. The first time I tried to press a 12 kg (26 lb) kettlebell with my left arm provided a perfect example of why I steered clear of the military press. I managed to move the bell about a foot up from the rack position before my arm started shaking like I was having a seizure.

How It Works

> *A properly functioning body should have both mo-bility and sta-bility in the right places at the right times. —Gray Cook, PT, OCS, CSCS, RKC, founder of Functional Movement Screen*

The TGU is the perfect exercise for developing both of these crucial attributes throughout the body and especially in the upper body. Starting from the most primitive of movements with the initial pull and roll and ending with standing overhead extension, the TGU works the shoulder girdle in almost all planes of motion. As stated in *Kettlebells from the Ground Up*, the Turkish get-up is one of the only exercises that honors all of the primitive patterns of movement and also functions as an excellent screen for movement dysfunction. The progression of movements using reasonable loads forces the shoulder girdle and the associated structures throughout the body to develop both mobile and stabilizing strength through a variety of angles.

Pure motion occurs (and optimal strength is exhibited) when the body does not have to fight its own restrictions. If the shoulder girdle is inhibited, you will be fighting your body's own internal tension—essentially, trying to press with the brakes on. The same thing will be true if the thoracic spine is inhibited in extension. An ideally functioning body should use the prime movers to create movement and the stabilizers to hold positions.

By forcing both arms to work in conjunction to maintain perfect vertical alignment with a load, the TGU helps your body find the most efficient and solid manner for developing a shoulder girdle with real mobility and an active lat with linked stability. One of the most frequently used cues in the RKC system is "Press from the lat." The TGU helps you learn how to keep the lat turned on and firing while transitioning from position to position.

How to Do It

The TGU progression that I developed and teach features minor details that I originally emphasized for tactical reasons relating to martial arts. Pavel found the progression unique enough and beneficial enough to warrant making it the RKC gold standard. Gray Cook also found this progression effective as an all-in-one exercise, saying, "If I had to be limited to doing only one exercise, it'd be this version of the Turkish get-up."

For the sake of demonstration, each step of the TGU progression will be shown on the right-hand side. (I trust that you are smart enough to figure out the left-hand side.) The real difficulty is in keeping both lats engaged fully and maintaining proper vertical alignment throughout the entire progression, not just at the postures.

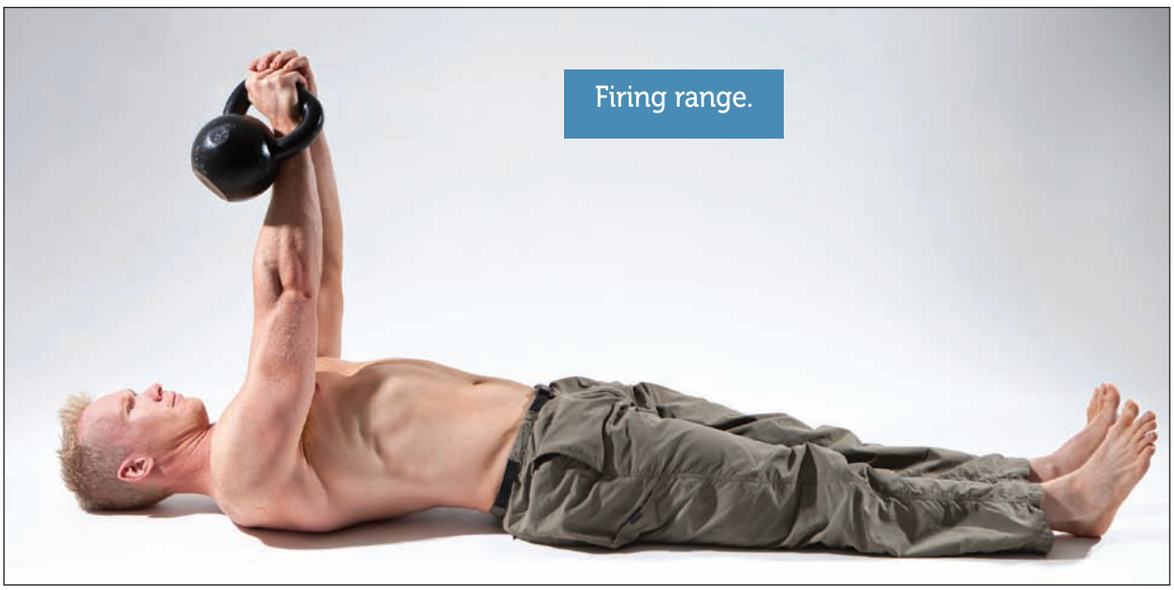
Step 1: Pull and Roll

Start by lying on your side and feeding your right hand deeply through the handle of the kettlebell. Then clasp your left hand over your right fist, pulling the handle tightly to your navel as you roll to your back.

This is your first chance to start firing the lats, which are the cornerstone of stability for the shoulders. From this point, you need to shove your elbows down tightly toward your heels. The tighter your lats, the more solid your shoulder, and the stronger your press will be.

Step 2: Firing Range

Keeping both hands tightly clasped on the handle of the bell, push the handle up toward the ceiling. lockout both elbows completely.



At this point, the wrist of the hand holding the kettlebell should be aligned as if in punching position. Your elbows should be locked, your wrists in punching position, and your shoulders pulled down tightly toward your hips.

Step 3: Hand and Foot Positions

Keep your left arm locked out and bring it down to the floor, palm down, 45 degrees away from your body. At the same time, bend your right knee and place your right foot up close to your right hip.

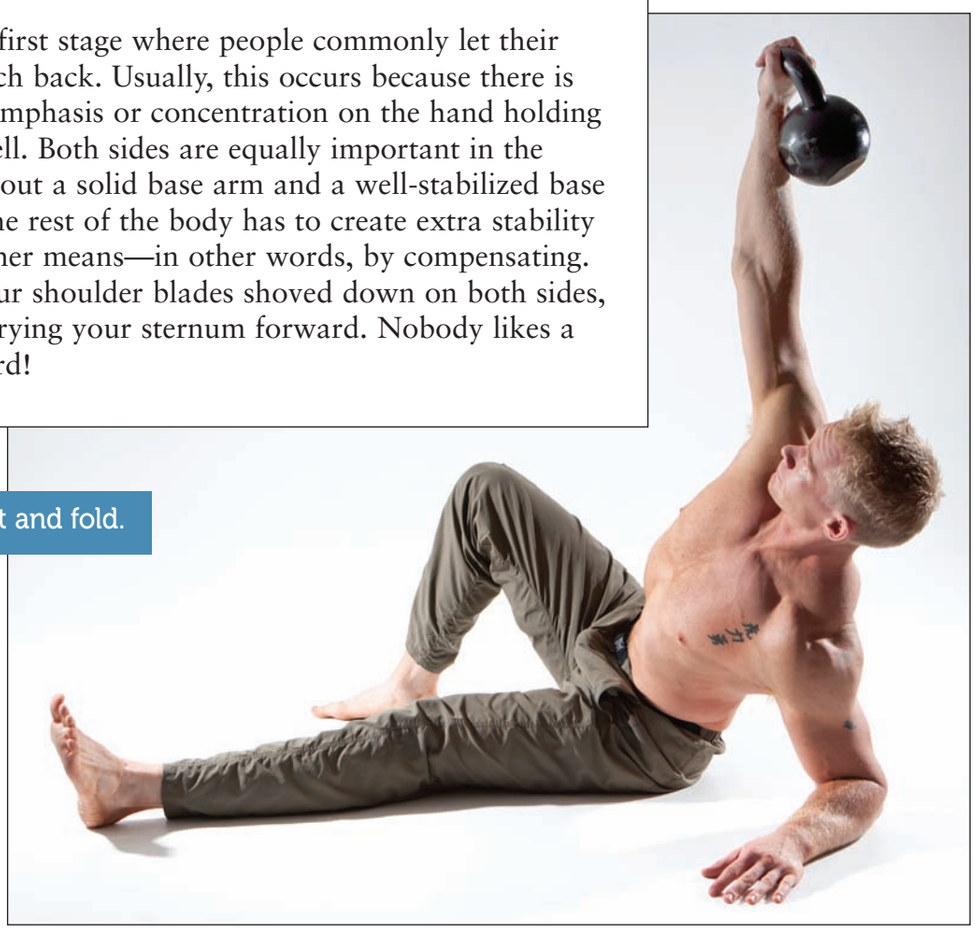
This stage is another important transition. New users commonly disengage the lat on the left shoulder to try to get more leverage to drive the body forward and upward. If the left hand keeps reaching away from the body with force, the lat will remain tight.

Step 4: Post and Fold

The right arm remains vertically aligned while the left arm bends, posting on the elbow. The movement of the right arm is like shoving the fist directly upward into the ceiling while performing a diagonal crunch of sorts. Thus, it has earned the moniker "Get-up sit-up."

Drive your left elbow and forearm down into the ground, and push your sternum as far as possible away from your left elbow base by means of engaging the lat. (Are you starting to see a pattern here with the lat?)

This is the first stage where people commonly let their torsos slouch back. Usually, this occurs because there is too much emphasis or concentration on the hand holding the kettlebell. Both sides are equally important in the TGU. Without a solid base arm and a well-stabilized base shoulder, the rest of the body has to create extra stability through other means—in other words, by compensating. So keep your shoulder blades shoved down on both sides, and keep prying your sternum forward. Nobody likes a lounge lizard!



Post and fold.

Step 5: Up on the Hand

The left arm straightens out, continuing to push the sternum away from the base hand as far as possible. Again, this keeps the lat tightly engaged to stabilize the shoulder, reinforces T-spine mobility, and keeps the neck muscles elongated and relaxed. Obviously, the right arm must stay in vertical alignment, keeping the shoulder sunken into the body to allow the neck on that side to remain relatively tension free.

As with the last step, it is vitally important not to let your base shoulder slide up toward your neck or to lose tension in the lats (which hold your shoulder blades in a more stable position). If you lose the tension in that base shoulder, you will end up looking like a lounge lizard trying to lift weights. Not pretty!

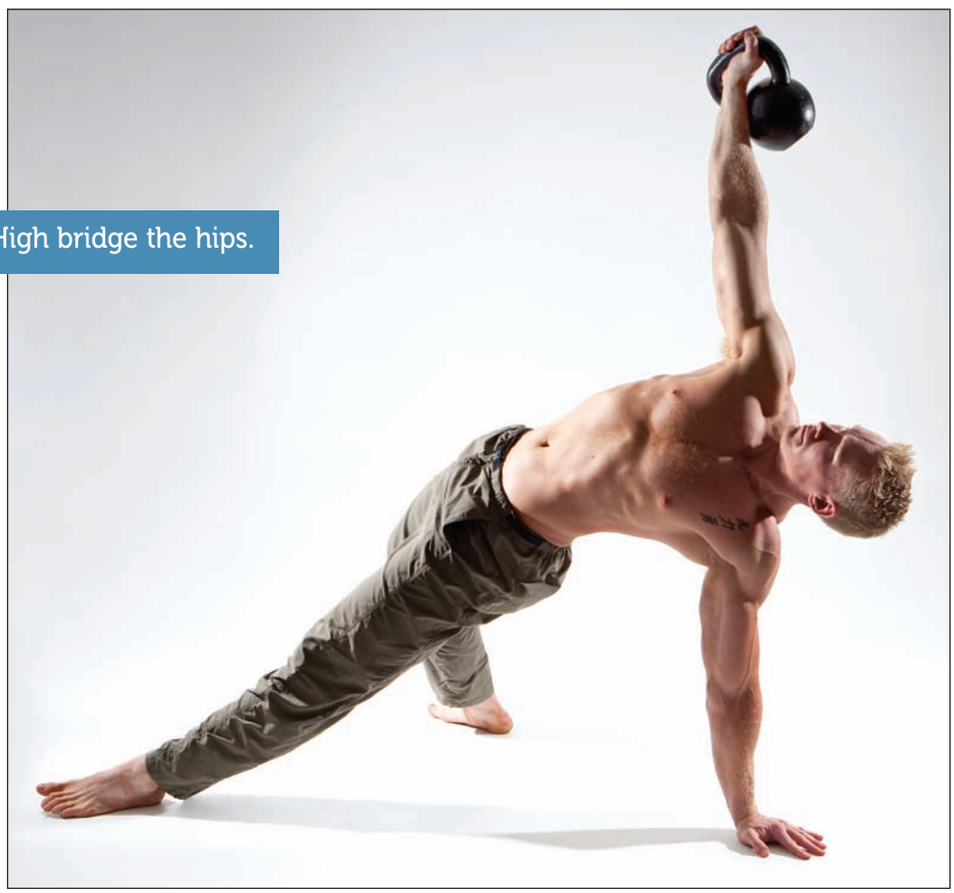
Up on the hand.

Step 6: High Bridge the Hips

Ever since I came up with this variation for martial arts training purposes, people have had a lot to say about it. For your purposes, think of it this way: If your posterior chain is weak and your hip flexors are too tight, how balanced and stable do you think your body will be while doing the kettlebell military press?

Also, while you bridge up with nice, high hips, you will be forcing both shoulders to stabilize by means of the lats while simultaneously firing the heck out of your entire core, both internal and external. What could be a more appropriate attribute for stronger pressing?

To perform this, drive your hips up toward the ceiling, pushing off your right foot and your left hand. At the same time, apply all the previous admonitions: wrist position, elbow locking, vertical alignment, and shoulder linkage.



High bridge the hips.

Step 7: Knee to Hand

From the high bridge, bend your left knee and gently bring it to the ground right next to your left hand. This requires flexibility in the front of the shoulder girdle, as well as hip mobility and flexibility. However, this is a flexible strength, not just a floppy, loose kind of flexibility. With a ball or iron essentially right over your face, you had better not try this move without proper linkage.

Knee to hand.

Step 8: Genuflect (Half-Kneeling Position)

This is the half-kneeling position emphasized so often for Functional Movement Screen corrective exercises. Simply drive the left knee down into the ground, pushing the torso upward and making sure to achieve a perfect vertical line from the base knee, to the hip, to the shoulder, to the ear, to the elbow, to the wrist. When all of them are aligned, the body will be using optimal structural support to stabilize the load overhead.

Genuflect , (half-kneeling position).

Step 9: Stand

From the half-kneeling position, push from your left toes, driving your body's weight forward over your right heel. As explained before, drive your right heel into the ground and keep all of the points of alignment. As you drive your right heel down, push your sternum forward, clench your glutes to extend your hips, and bring yourself to a full standing position.

The ending here is *exactly* the same as the overhead locked position for the military press.

Stand.

TGU Training Methods for Improving the Press

METHOD 1: Primitive Patterns and the Hard-Style Lock

The most primitive movement pattern in human development is based on rolling. The initial side roll of the TGU, along with the roll from the side to the back with load, is your first flashback to the fundamental skill you developed as an infant.

The *pull and roll* is your first opportunity to practice linkage, even while on the ground. Some people perform this first step with all of their tension and effort focused in their arms and chest. Instead, you should to try to achieve the *hard-style lock* from the get-go. The hard-style lock is a five-part system of muscular contractions designed to improve your body's stability and power through irradiation.

Begin by pushing your heels away from your body as hard as you can. Then increase that push by locking out your knees as tightly as possible. Next, clench your glutes tightly to extend your hips. Stabilize your midsection by tensing your abs. Finally, engage your lats by driving your elbows and shoulder blades down toward your heels.

METHOD 2: Floor Press with Lat Activation and Wrist Positioning

Practice the two-handed press from the supine position to help emphasize the three most important points of linkage in the upper limbs. Starting with the kettlebell pulled toward your navel and your lats tightened, slowly press the kettlebell handle up toward the ceiling until your elbows lockout completely.

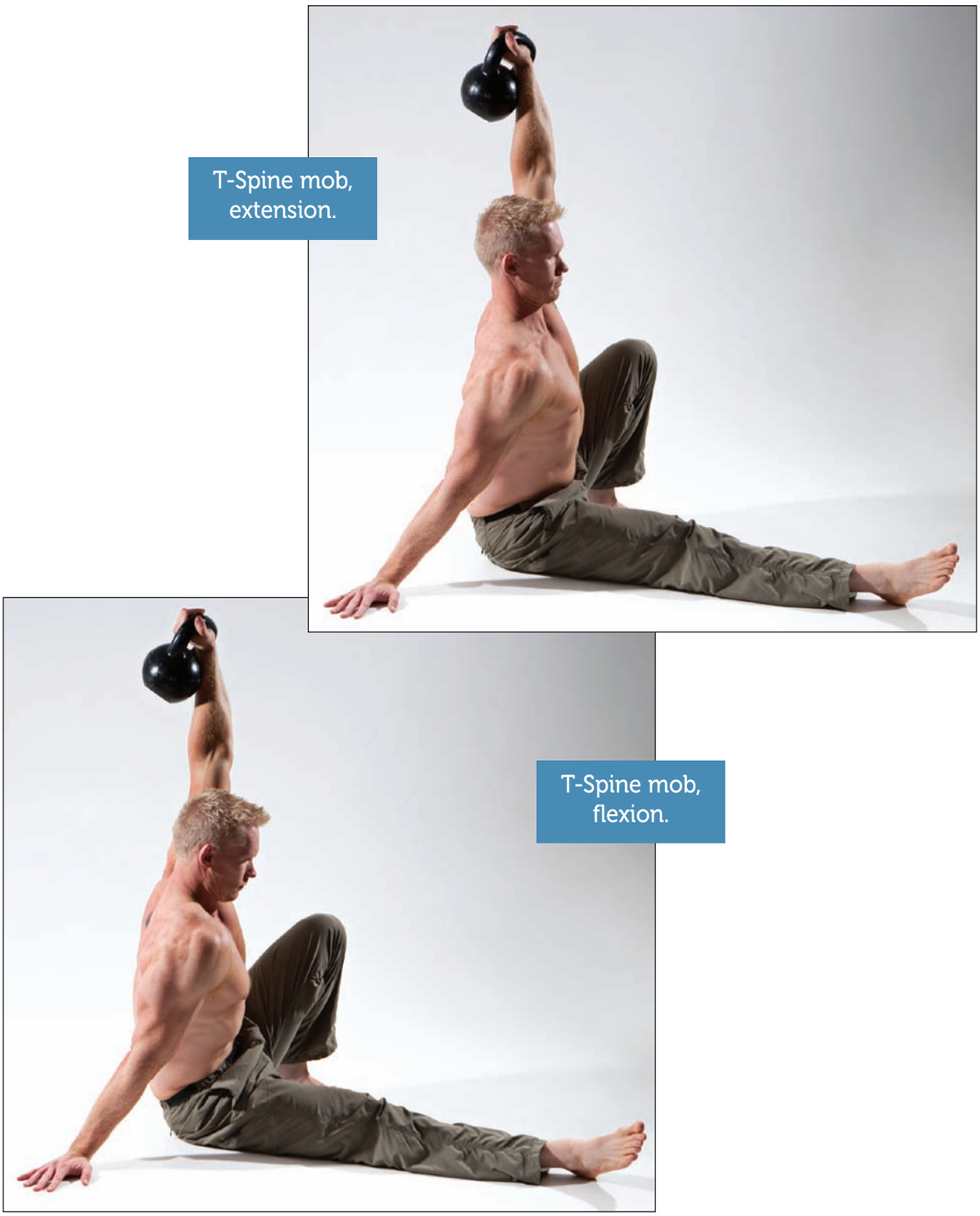
Most individuals try to overpress the load, pushing the upper arm anteriorly and disengaging the lats. This is a mistake and ends up reinforcing excessive tension in the pecs and neck muscles. Instead, try to simultaneously push from the knuckles and pull from the armpits.

The wrist is vitally important here. Check your wrist alignment. If you would not dare punch something full force with the wrist alignment you are attempting to press with, then do not hold the kettlebell with that wrist positioning, either. If your wrist is bent backward, with your palm facing the ceiling, then you are going to strain the flexor muscles and develop tendonitis.

METHOD 3: Get-Up Sit-Up T-spine Pries

If you do not appreciate the importance of mobility in your T-spine, then just see how limited your overhead reach is without it. Shoulder flexion will take you only you so far with vertical overhead motion. You must add T-spine flexibility. The T-spine should be mobile enough to facilitate a perfect overhead reach or press motion.

The post and fold or get-up sit-up exercise is your first exercise in T-spine mobility during the TGU. To do it, simply pry your chest back and forth once you ascend onto your left elbow. Driving your base elbow into the ground, push your sternum as far away from it as possible. This will teach you not only to engage your left lat but also to move from your T-spine and take strain off of your neck.



T-Spine mob, extension.

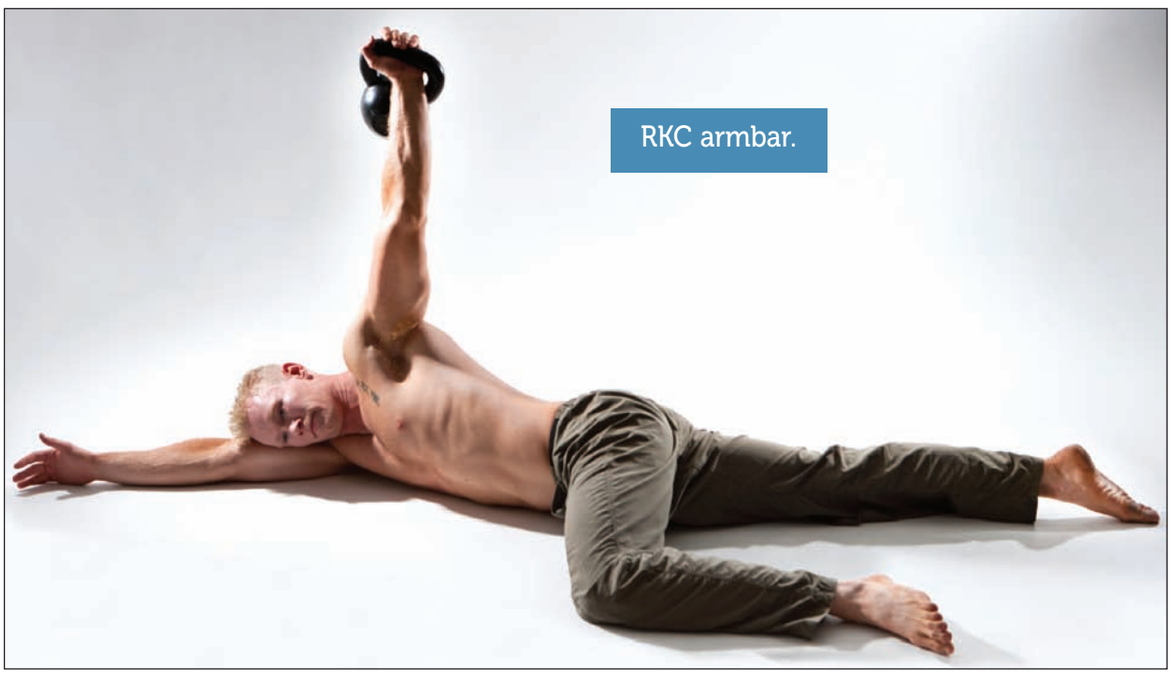
T-Spine mob, flexion.

METHOD 4: RKC Armbar

The RKC armbar is one of the best exercises for developing flexible strength in the front of the shoulder girdle. A pec that is too tight makes for an unstable or ugly press—something that should be remedied as promptly as possible.

Begin the same way as you begin the TGU. Then in Step 3, where you put your hand and foot into position, reach overhead with your left arm into the Superman position. From there, push with your right foot to drive your body to roll slowly over its left side.

As soon as you feel that you have pushed as far as you can with the right leg in back and can still maintain your balance, bring your right foot over in front of your body. Use it as a brake to allow your chest and hips to rotate as far as possible down toward the ground. Just like with the TGU, the kettlebell-bearing arm must remain in vertical alignment the entire time.



RKC armbar.

To descend out of this position, simply reverse the steps.

METHOD 5: Half-Kneeling Press

Doing the half-kneeling press with a lighter kettlebell and proper form develops core recruitment and hip extension under load. As I mentioned before, when people are faced with a task that is somewhat daunting, they revert back to compensation techniques or stress-based body mechanics.

Half-kneeling is a position commonly used in Functional Movement Screen corrective exercise training, and working proper press mechanics from this position helps you discover your stress tendencies. If you are using a submaximal weight and start to sit back onto your rear foot or start to initiate your press with your shoulder, then go back to grooving this technique with a lighter weight that you can do with perfect form: tightened glutes, causing an extended base hip on a solid base, and a long, relaxed neck arising from unwavering lat engagement.

If you normally do the TGU with a 24 kg kettlebell, work on this with a 16 kg kettlebell and do five reps per side. Then shake it off, do some swings, and come back to doing your TGU in its entirety with your normal weight. You will be surprised how much more solid and strong your entire body feels with the process.

METHOD 6: Overhead Lunges

As the lifter ascends from or descends to the kneeling position—or makes any other transition, for that matter—the basics of linked motion start to give way to uncertainty about being able to control the overhead load. The most common mistakes are leaning back and lifting the shoulder toward the ear.

By being careful to avoid these two errors while practicing the overhead lunge, the lifter develops the ability to stabilize a load overhead in proper vertical alignment without having to see it. Having this proprioceptive ability is critical to doing all military presses and even more so to doing transitions within TGUs. Additionally, having this ability allows the lat to learn stability regardless of the changing dimensions and orientations of the base.

METHOD 7: Overhead T-spine Pries

From the standing overhead position with a full lockout in the elbow, gently lean your chest and shoulder forward, allowing the kettlebell to move slightly behind the vertical plane of the body. Moving back and forth slowly creates a stretch in the pec and the T-spine and teaches the overhead shoulder how to drop backward and downward. Do five reps per side, and then revisit the TGU and the press.

Epilogue

Unconscious Competence versus Cognitive Understanding

Let me ask you a question: Is it necessary to have a degree in science to be a successful strength and conditioning coach? In my opinion, the answer is a resounding "No"! I will elaborate on why, because right now, you might be thinking "What the heck is he talking about? Doesn't *he* have a science degree?"

Yes, I do, and I love the science behind strength and conditioning to the point of nauseating my family. But what most scientists do is to get so hung up on understanding all the details—chemical and neurological structures, cross-bridge cycles, type IIa, IIb/IIx muscle fibers, and so on—that they get lost in them. In seeking out every detail, these scientists often become paralyzed by the vast amount of information that has been uncovered by research about the human body. As a result, these scientists do not know how to do the most simple things.

I think the expression that describes this situation perfectly is used by my mentor, Pavel, who says "Paralysis by analysis." Many times, I have seen people dig away into the tiniest details, only to find confusion. I like to say that these kinds of scientists work toward knowing more and more about less and less, until they know absolutely everything about nothing. These kinds of people do not make great coaches.

So what am I saying? Am I knocking what constitutes a big part of my own life? No. I like to consider myself another type of scientist—one who appreciates the cut-and-dried nature of physical development but also (and maybe even more important) one who knows that strength and conditioning is just as much an art as a science. The person who can integrate both approaches will not only be light years ahead of all the others but also most successful—provided he or she

also has the ability to act. This something Anthony Robbins calls "personal power," but that is another story.

Pulling myself back to the title of the epilogue—"Unconscious Competence versus Cognitive Understanding"—let what tell you exactly what I mean. To be successful, you need to be willing to commit yourself to both when doing so is necessary.

Having *cognitive understanding* refers to the scientist. It is useful to have a deep understanding of the hows and whys of strength and conditioning. By continually learning new information and fitting it into what you already know, you can try to figure out why something may not be working the way you anticipated it would. However, this knowledge and learning cannot be allowed to cause confusion and paralysis.

Being committed to *unconscious competence* means being willing to use every strategy you know to get the job done, regardless of whether you have the cognitive understanding of why every strategy works. Let me give you an example: Very few of us are capable of explaining electricity in great detail, but all of us are willing to flip the switch to turn on the light. We do not think "Hmmm, I don't understand this electricity thing, so I don't think I can turn on the light." Despite our lack of cognitive understanding, we flip the switch and have the light. This is unconscious competence at work.

How does this relate to being a strength and conditioning specialist? In short, you do not need to know all the details of how the human body works to receive the results of training. For instance, I do not know all the details of what happens neurologically when you use your eye position reflexes to facilitate your pressing strength—such as which areas in your brain light up in a fMRI and which new neurological connections sprout. But I am most certainly willing to use eye position reflexes if it will make me better. Even more important, I am absolutely willing to use it with my clients if it will make them better.

Please remember: Strength and conditioning is just as much an art as a science and should be treated as such!

Bonus Chapter

My Favorite Specialization Program

On numerous occasions, I have been asked about programming for the kettlebell military press. So in this chapter, I will outline my favorite program for taking your pressing strength to the next level and also provide examples of how to implement the 10 drills for breaking plateaus (as described in chapters 4 through 13).

This is the template I follow, and it has brought me to the point where I can press two 32 kg kettlebells in one hand. This is not a magical program. Rather, it is based on the following key principles:

1. Perfect practice makes perfect—the three Ps. Perfection in execution is a habit, but unfortunately, so is imperfection. Don't get sloppy. Be a perfectionist!

2. "To press a lot, you must press a lot" (Pavel Tsatsouline).

3. "The body *always* adapts to *exactly* what it does" (Dr. Eric Cobb).

4. An inverse relationship exists between density and fatigue. If density increases, fatigue must decrease.

5. "Everybody plateaus at some point, but you must not stay there. . . . You must go beyond" (Bruce Lee). Intelligent use of the 10 plateau breakers will move you beyond.

Programming for the Kettlebell Military Press

General Outline

The program is based on two press sessions per week. One session is dedicated to low-volume, high-intensity, low-density, low-fatigue pressing. This is called the *heavy session*, or HS. On HS days, the total volume for presses is 10 to 20 reps per side done in singles, doubles, or triples. So basically, sets of 1, 2, or 3 repetitions are called for. The intensity should be in the upper region, ranging from 85 to 100 percent of your one-repetition maximum (1RM). As mentioned previously, the fatigue from heavy, low-volume lifting is not really suitable for classification or indexing, so the fatigue index (FI) does not apply to the HS.

The other session is the *volume day*, or VS. On VS days, the total number of repetitions to shoot for is in the range of 120 to 150 per arm! Obviously, the intensity has to be lower on VS days than HS days, or about 65 to 75 percent of 1RM.

Periodization and Structure of Parameters

The program is divided up into four mesocycles, each lasting four weeks. (For experienced athletes, each mesocycle can be prolonged to six or eight weeks.) Each mesocycle will focus on a specific parameter, in the following order:

1. **Volume**
2. **Fatigue**
3. **Density**
4. **Intensity**

This order applies only to the high-volume day, or VS. For the HS, the sole parameter is that the pressing has to be heavy and low volume, with plenty of rest between repetitions.

Volume Sessions

Here is a description of each VS mesocycle, including what to focus on.

Mesocycle 1 (Weeks 1–4)

Volume is the main focus. Working toward 120 to 150 reps per side should be your main goal. Try not to spend more than about 60 to 75 minutes because of the negative impact the hormonal response of the body will have. Keep the fatigue "Low" to "Moderate" on the FI.

Mesocycle 2 (Weeks 5–8)

Working with fatigue is the main focus of the second mesocycle. Because you are keeping the volume constant (120 to 150 reps per arm), your level of accumulated fatigue should be higher. Go for "Moderate" to "High" session fatigue on the FI by doing more repetitions per set.

Mesocycle 3 (Weeks 9–12)

Increasing density is the goal of the third mesocycle. You are still keeping the volume constant, so the level of accumulated fatigue should be lower than in Mesocycle 2. Shoot for "Low" to "Medium" fatigue on the FI by doing fewer repetitions in each set and decreasing the rest periods.

Mesocycle 4 (Weeks 14–16)

The fourth mesocycle focuses on upping the intensity. For most people, it will be beneficial to lower the overall volume by about 50 to 60 percent. So instead of doing 120 repetitions per side in a session, stop at 60 to 70. Some hard-core Vikings might be able to keep the high volume, but it is not for everybody. If you have a lot of experience, then go ahead. Just watch out for signs of burnout, and remember to back off after the fourth week (Week 16).

Needless to say, you have to increase the weight of the bell you are working with. Jump to the next size available to you. Lower the density, and keep the fatigue equally low. This can be considered as a four-week volume-tapering period.

Heavy Sessions

In each mesocycle, you have four heavy sessions, or one per week. As you approach the final week of each mesocycle, you should get ready to attempt a new 1RM.

This means that in the fourth week of each cycle, you should strive to put up a little more weight. It does not have to be a jump in kettlebell size, but try to increase the weight by about 5 lbs. Securely tie a plate to the kettlebell, and be careful as you clean it. Having the plate fixed tightly to the body of the kettlebell will make the clean go much more smoothly.

Do not change anything else in your heavy session. After the 1RM attempt, finish your remaining number of presses like normal. For the next mesocycle, adjust your intensity according to the new 1RM.

Fitting in the Plateau Breakers

In the chart below, I have tried to outline which plateau breakers are suitable for the HS and the VS. I have also included where in the macrocycle (Russian terminology for "full cycle," or 16 weeks in this program) each plateau breaker will fit and yield the best results.

Plateau Breaker	Suitable for This Type of Session	Suitable for This/These Mesocycle(s)
1: Center of gravity elevation	HS	1, 2, 3, 4
2: Center of gravity depression	HS	1, 2, 3, 4
3: Upper-body plyometrics	VS/HS*	3**
4: Overcoming isometrics	VS	1, 2, 3
5: Band and chain press	VS	1, 3
6: Wobble board press	VS	1, 3
7: Contralateral reflex press—Power rack	HS	1, 2, 3
8: Contralateral reflex press—Band pulldown	HS	1, 2, 3
9: Dead start sticking point press	VS	3
10: Microshock-yielding isometrics	HS	1, 2, 3

* Supplemental exercise
** Weeks 2 and 3 or 3 and 4

There you have it: A template for pressing greatness! You have been shown the path. Now you get to walk it!

Frequently Asked Questions

Q: When is a good time to start implementing the drills and exercises in this book?

A: It is hard to say, but these drills and exercises are not for beginners. If you are just starting out with kettlebells, you should first learn the basic neuromechanics of the press. If you are closing in on pressing the kettlebell closest to half your bodyweight but not quite there, then these drills and exercises are for you.

Q: Can the plateau breakers be combined for even better results?

A: Yes, they can, but the question is, do you really want to do that? Many of the people who perform strength training have some kind of attention-deficit order (ADD) and cannot stick with one thing long enough for it to work. They want to do it all at the same time! Remember that if you try to do everything at once, then you will get good at nothing. Having said that, the really advanced trainee who is far past the half-bodyweight one-arm military press can experiment with combinations in the same session. For instance, combining the wobble board press with the contralateral reflex press is really interesting.

Q: I have doubts about whether my basic pressing mechanics are up to par. Can I still start to implement the drills described in this book?

A: No! If you have doubts about your basic pressing mechanics, then see an RKC in your area and get evaluated. To locate an RKC in your hometown, go to www.dragondoor.com. Also review chapter 1 until you are fully familiar with the 12 axioms and have integrated them into your press.

Q: What kind of results can I expect from performing these drills and exercises?

A: You can expect great results if you have the dedication to work hard. Using myself as an example, I achieved pressing the Beast for one repetition using the information in this book. When I continued, my 1-rep max with the Beast turned into an 11-rep max in just months. I also nailed the goal of pressing two 32 kg kettlebells in one hand, and I will continue to improve for the rest of my life. A long-term goal of mine is to press the Inch Dumbbell at a bodyweight less than 100 kg. I will use the techniques, drills, and exercises in this book to get me there.

To give another example, world-top-ranked Greco-Roman wrestler Mark O. Madsen, RKC, achieved pressing the Beast at a bodyweight of 80 kg within just a few months of having extensive shoulder surgery. His shoulders are now more dense, muscular, and resilient than ever!

Q: What kind of goal should I shoot for in the one-arm kettlebell military press?

A: If you do not know this, then you should not have bought this book, because you are not ready. Instead, pick up a copy of *Enter the Kettlebell*, by Pavel Tsatsouline (2006), and read. You will find that a worthy goal is pressing the kettlebell closest to half your bodyweight. Beyond that, pressing the 48 kg Beast is a respectable achievement.

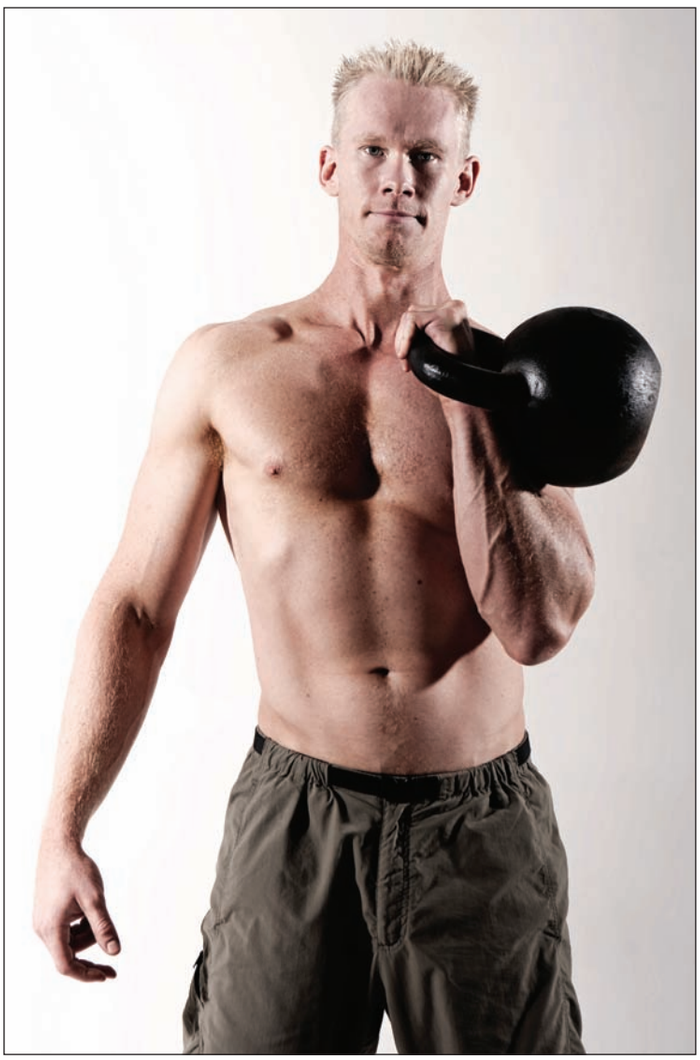
Q: I love your **Viking Warrior Conditioning** *regime, but I want to start implementing the techniques of* **Perfecting the Press.** *How can I combine the two?*

A: There is no short answer to this question, because the possibilities are endless. Also, depending on your current level of Viking Warrior Conditioning (VWC) and which of the five protocols you are working on, there are several good ways of combining the two. Personally, I like simple approaches, so a combination of two or three VWC sessions per week (provided that you are following the 15:15 or 36:36 MVO2 protocol) and two press sessions per week would be a good choice. Keeping it really simple, just follow my favorite *Perfecting the Press* specialization program along with the VWC regime, and make sure that one of the rest days falls on the day after the high-volume press session.

Q: Why dedicate so much time and effort to one lift?

A: The journey toward the goal of mastering something will provide you with the dedication and perseverance you can use in other endeavors. Besides, only normal people are satisfied with mediocrity, and who the heck wants to be normal? I sure don't! I choose to be extraordinary, and so should you!

About the Author



Kenneth Jay (b. 1978) is based in a small town north of Copenhagen, Denmark. He has worked with elite-level athletes since 2000, including world champions and Para-Olympic and Olympic medalists in wrestling and swimming. Kenneth has also traveled the world with one of the best tennis players in Danish history and has been a consultant to several of Denmark's best table tennis and badminton players.

In addition to working as a strength and conditioning coach to elite-level athletes, Kenneth currently does research at the University of Copenhagen and the Danish National Research Centre for the Working Environment and is working toward his PhD in neuroscience. He is the author of the first university experiment done in the Western world on kettlebell training and cardiorespiratory physiology. That experiment served as the basis for his first book, *Viking Warrior Conditioning*, which was published by Dragon Door Publications in 2009. The innovative cardiovascular conditioning regime Kenneth developed has received much attention since he first presented it at the 2007 RKC II certification and in his first DVD, *Advanced Strength Strategies*.

Kenneth also co-stars in the DVD of Pavel Tsatsouline's outstanding sequel to *Enter the Kettlebell*, called *Return of the Kettlebell*, and modeled for the pictures in the book of the same title. Both are available at www.dragondoor.com.

Besides being a Master RKC and having a university degree in sport and exercise science, Kenneth was the first Z-Health certified practitioner in Scandinavia and is currently studying to become a Z-Health Master Trainer. Kenneth is also the only certified Blauer Tactical Systems—Personal Defense Readiness coach in Denmark and loves to teach behavioral-based combatives. His company, Threat Modulation ApS / Kenneth Jay Inc., spreads the good word Z-Health performance enhancement and healthy living to anyone who chooses to be extraordinary.

Kenneth aspires to follow his calling to improve the quality of performance enhancement training everywhere by hosting and giving workshops and seminars and by writing educational materials on performance training. He has conducted over 100 workshops and seminars on a wide range of performance topics—such as muscle location and contraction theory–applied anatomy, occlusion traning, behavioral-based combatives, and performance coaching—for various institutions and clubs, including the Danish Swimming Federation, the Danish Army, the Danish Special Forces (JGK), the Danish Police Academy, and several weightlifting, martial arts, and fitness clubs. In addition, Kenneth has written numerous articles for American, Swedish, and Danish health and fitness magazines, elite performance-applied sports journals, and other resources. Finally, Kenneth has been a guest on several radio shows and in online podcasts.

Kenneth has always been fascinated with the human mind, so when he is not studying physical performance, he submerges himself in the world of applied positive psychology and the quest for authentic happiness and unlimited power. In his leisure time, Kenneth likes to play with his sons, write books on athletic attributes, study the function of the human body and mind, and hone his martial arts and combatives skills.

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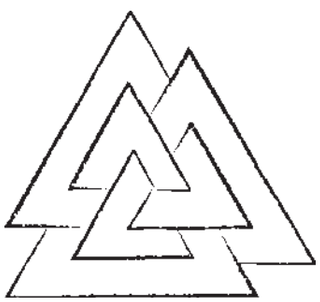

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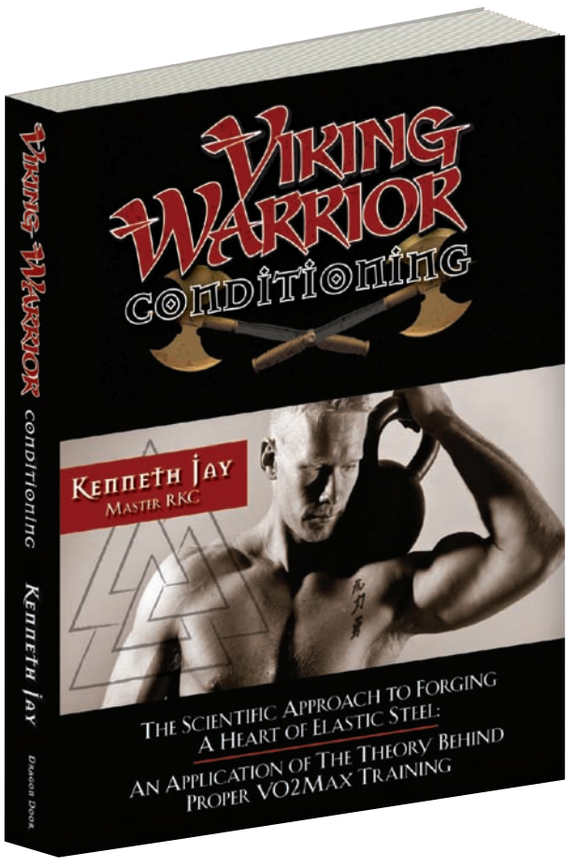
—Pavel Tsatsouline, author of ***Enter the Kettlebell!***



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—Dustin Miller, RKC, Chicago, IL

Thank you Kenneth Jay

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Oh and my over 280lbs is dramatically trimming down. I've lost close to 30lbs and my strength is through the roof. I hope to someday make RKC and I would love to thank all of you at Dragon Door in person. Kettlebells and the RKC have more than changed my life. They've also changed my wife's and about eight of our friends are now using them as well. I highly recommend this training and any k-bell product endorsed by Pavel and the RKC."
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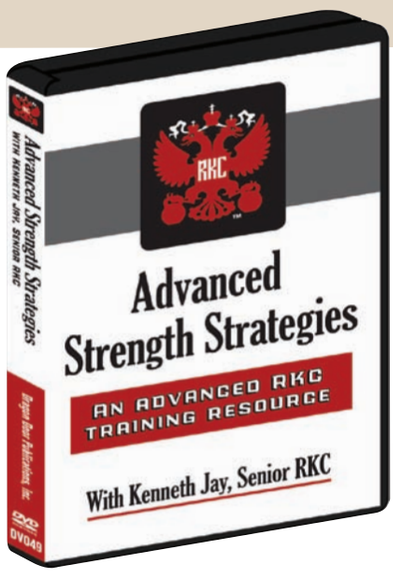

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- **Why** "fast eccentrics" are now all the rage among serious hypertrophy experts
- **Understand how** to manipulate *Z-band streaming* for faster muscle growth… Page 4
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How to Master Advanced Kettlebell Drills—And Explode Your Strength!

Thoroughly master Pavel's *Enter the Kettlebell!* program and you can consider yourself a "Kettlebell Black Belt". But once you're a Kettlebell Black Belt, then what?

Well, say hello to *Return of the Kettlebell*, which takes it for granted you already own those Black Belt fundamentals—and offers you a dramatically tougher, yet highly systematic program for explosive and massive muscle gain.

Return of the Kettlebell's protocols were born from Pavel's insights while training elite power athletes. Several champions made astonishing, almost mysterious, strength and muscle gains—at least two broke new powerlifting world records—thanks to kettlebell training. Pavel decided to reverse engineer this "What the Hell" effect experienced by the champions—so all others could benefit from their success.

Return of the Kettlebell presents the final fruit of Pavel's research—combining the very best of ancient lifting wisdom with modern day scientific breakthroughs.

Like the Breakfast of Champions, consume what's on the *Return of the Kettlebell* menu and watch yourself grow—and grow!

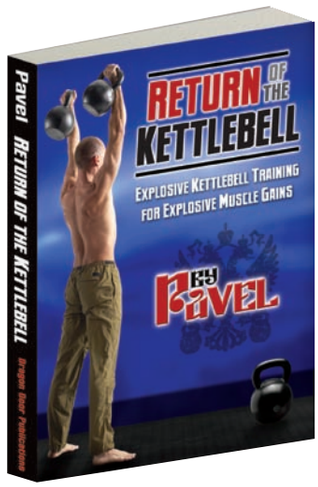
"I have used kettlebells in my program for years with fantastic results. The combination of movements provides the professional athlete with a unique challenge available from no other piece of equipment. I have followed Pavel's principles in designing my training systems. Now with *Return of the Kettlebell* you can take your training to the next level. The guidelines outlined in the DVD and companion book are ideal for athletes who must be strong and explosive. The book has excellent program design hints that allow you to adapt the training to the specific goals you seek. The book and DVD are a STRONG combination that everyone should have in their own personal strength and conditioning library."**—Stan Kellers, Assistant Coach of Strength, Cleveland Cavaliers**

"Pavel is the reason I started using kettlebell exercises with all my clients so I was anxious to get my hands on *Return of the Kettlebell*. Pavel, as always, gets straight to the point with his concise, logical, and entertaining writing style. The pictures perfectly depict what you should and shouldn't do to master these awesomely explosive lifts. The book is loaded with tips, tricks, and proven training principles that will supercharge your body and performance.

The Return of the Kettlebell DVD is the best kettlebell resource I've seen to take your physique and performance to the next level. Pinpoint technique is essential to your success, and Pavel knows it. He shows each exercise from every angle and explains what you should and shouldn't do to get the greatest reward. This DVD, plus hard work, equals your best body."—Chad Waterbury, neurophysiologist, author of Huge in a Hurry

"Pavel's *Return of the Kettlebell* is a no-nonsense guide to advanced kettlebell training. This DVD is for people who have mastered the fundamental of kettlebell training and understand the importance of linked motions and good spinal biomechanics in developing strength and power. He has incorporated new research on high velocity power training and the stretch-shortening cycle to maximize strength fitness using minimal equipment. His emphasis is always on good technique. *Return of the Kettlebell* will improve fitness and performance in any experienced power athlete. This is a 'must have' DVD for any serious student of sport."**—Thomas Fahey, Ed,D., Professor of Kinesiology, California State University, Chico**

"As a strength athlete and a coach, I applaud the effort and quality of this DVD. Although I am known for my hyperbole so I need to be careful here, but let me say this: if you only have one DVD on the shelf for the game of strength and conditioning, this is the DVD. I enthusiastically recommend this work without hesitation to anyone interested in any facet of fitness and health."**—Dan John, author of** ***Never Let Go***



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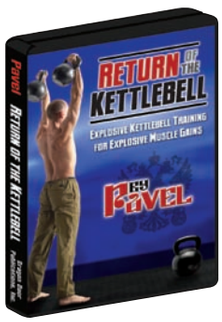

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by Pavel

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Praise for Pavel's Enter the Kettlebell! book and DVD

At age 53 I have regained Strength and Confidence

Rated 10 out of 10

Over the years I have tried many types of programs for attaining my fitness goals. Some of the programs did deliver results to an extent, but I never did attain my ideal for REAL STRENGTH. My weight lifting usually consisted of complicated set/rep schemes with more exercises than I could keep track of, and I would often run for miles. As a result I would find myself injured through overtraining and become frustrated and quit. Injuries included shin splints, extremely sore muscles and a herniated disk.

At age 53 I have finally regained Strength and Confidence. ***Enter The Kettlebell!*** has exceeded all my expectations with regards to becoming strong again. ETK is direct and simple –just follow instructions and within weeks you will be transformed –as I was. Eight weeks ago when I started the ETK program, my waist was 38 inch and I weighed 216 lbs. I now can squeeze into a size 34 inch trousers which I have not been able to do since I left the Marine Corps over 30 years ago, and I have lost 6lbs. of fat. I have much more muscle definition in my arms, chest and shoulders, and my love handles have disappeared. My 8 weeks of progress with ETK have inspired me toward greater effort and although I have not yet achieved my strength/fitness goals, for the first time I feel that those are now attainable. A truly Stand Alone Program for Strength.

—Dennis Vavra, Edmond, OK

Best fitness purchase I've made in years!

Rated 10 out of 10

I've been in the Army for 15 years and have suffered some injuries, plus just normal wear and tear. I was looking for something different, something simple, and something effective. ***Enter The Kettlebell!*** meets all three requirements. I could see results within a few weeks, but the real eye opener was my semi-annual PT test. I had not done pushups or situps in the six months since my last PT test, yet I managed to pump out 73 pushups and 70 situps. My total score was my highest in over 10 years. In addition to that, I feel physically better than I have in years. If you put the honest work into the program, I guarantee you'll be blown away by the results. **—Bryan Shew, Carlisle, PA**

Great guidance for amazing progress

Rated 10 out of 10

I am 55 and wanted something to help me build more strength and endurance. I found Dragon Door and Pavel. In 13 weeks, following the instructions given in the ETK book and DVD I learned to do all of the basic moves. I dropped from roughly 19% body fat to 9.8 % during this period and gained 1 lb. Doing it, I have had a great time. This came from studying and applying the materials in ETK. If you want to grow stronger and feel better, this is the most effective way I have found to do so in a short time. What are you waiting for? Come join the Party! **—Jon Kasik , Atlanta, GA**

Where Were You 35 Years Ago?

Rated 10 out of 10

It took me 54 years to find what I was looking for –a book and a method to get in shape, lose fat, and have the body and strength I always wanted. Thank you, Pavel and Enter the Kettlebell! Direct, to the point, all I had to add was willpower and commitment. I just started my 10th week with Enter the Kettlebell!, and my, oh, my, has it completely trashed all I thought I knew about "being in shape". I was a D1 baseball player in college in the 70's, and now realize that if I had the secrets of this book back then, I might have ended up in the Hall of Fame. I now realize that I have never been in as good a physical condition as I am now, thanks to this book and the methods within –all within the past ten weeks. I can't wait to see what I am like after a year. Do yourself a favor, get the book, and follow it's simple path –you will not be disappointed. –Wayne Rueger, Mount Vernon, IN USA

ETK is awesome!!!

Rated 10 out of 10

I have lost 45lbs, my chronic back pain is gone, and the days of me being injured EVERY SINGLE TIME I GET THROWN TO THE MAT are gone! I have gotten more raw strength and cardio conditioning out of one year of kettlebell training, than ten years of martial arts training. Thank you, Pavel!
—Shane Grubbs, Madison, MS

Pavel Still the Kettlebell King!

Rated 10 out of 10

Enter the Kettlebell! is fantastic! …Clearly written and exceptionally well illustrated, it brought everything together for me. I have been using it for a month, and my gains have already been through the roof! I have lost 18 lbs of bodyfat, went down two pants sizes, and am still going strong! ***Enter The Kettlebell!*** brought together everything I had previously read on kettlebell lifting, and gave it all a brand new relevance and usability. I am trying lifts with kettlebells that I have never tried before and doing them with confidence. Thanks, Pavel!
—Kory Dykstra, Gwinn, Michigan

A MUST HAVE FOR ANY KETTLEBELL BEGINNER

Rated 10 out of 10

In one word, outstanding. The elementary kettlebell routines with a single kettlebell. I lost 20 pounds in a single month just with this basic set of exercises. Best DVD I have ever purchased.
—Keith "Pappy" Iseley, Snellville, Georgia

"Kettlebell Training...The Closest Thing You Can Get to Fighting, Without Throwing A Punch"

—Federal Counterterrorist Operator

The kettlebell. AK-47 of physical training hardware. Hunk of iron on a handle. Simple, sinister, brutal—and ferociously effective for developing explosive strength, dramatic power and never-say-die conditioning. The man's man's choice for the toughest, most demanding, highest-yield exercise tool on the planet. Guaranteed to forge a rugged, resilient, densely-muscled frame—built to withstand the hardest beating and dish it right back out, 24/7.

Once the prized and jealously-guarded training secret of elite Russian athletes, old-school strongmen and the military, the kettlebell has invaded the West. And taken no prisoners—thanks to former **Soviet Special Forces** physical training instructor and strength author, ***Pavel Tsatsouline's*** 2001 publication of ***The Russian Kettlebell Challenge*** and his manufacture of the first traditional Russian kettlebell in modern America.

American hardmen of all stripes were quick to recognize what their Russian counterparts had long known—nothing, nothing beats the kettlebell, when you're looking for a single tool to dramatically impact your strength and conditioning. A storm of success has swept the American S & C landscape, as kettlebell "Comrades" have busted through to new PRs, broken records, thrashed their opponents and elevated their game to new heights of excellence.

With ***Enter the Kettlebell!*** Pavel delivers a significant upgrade to his original landmark work, ***The Russian Kettlebell Challenge***. Drawing on five years of developing and leading the world's first and premiere kettlebell instructor certification program, and after spending five years of additional research into what really works for dramatic results with the kettlebell—we have ***Enter the Kettlebell!***

Pavel lays out a foolproof master system that guarantees you success—if you simply follow the commands!

- **Develop** all-purpose strength—to easily handle the toughest and most unexpected demand
- **Maximize** staying power—because the last round decides all
- **Forge** a fighter's physique—because the form must follow the function

Enter the kettlebell! and follow the plan:

1. The New RKC Program Minimum

With just two kettlebell exercises, takes you from raw newbie to solid contender—well-conditioned, flexible, resilient and muscular in all the right places.

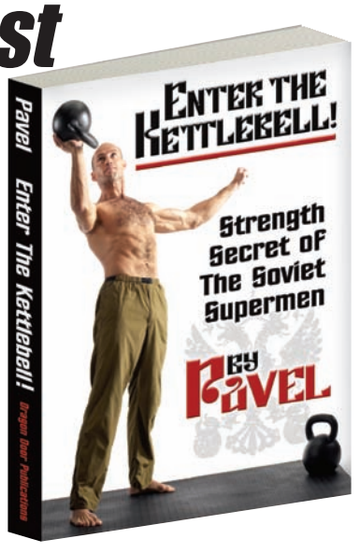
2. The RKC Rite of Passage

Jumps you to the next level of physical excellence with Pavel's proven RKC formula for exceptional strength and conditioning.

3. Become a Man Among Men

Propels you to a Special Forces level of conditioning and earns you the right to call yourself a man.

When you rise to the challenge—and ***Enter the Kettlebell!***—there will be no more confusion, no more uncertainty and no more excuses—only raw power, never-quit conditioning and earned respect.



Enter the Kettlebell!

Strength Secret of The Soviet Supermen

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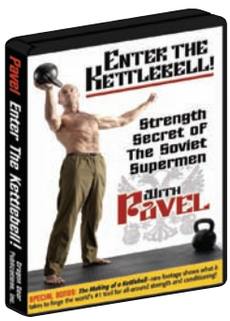

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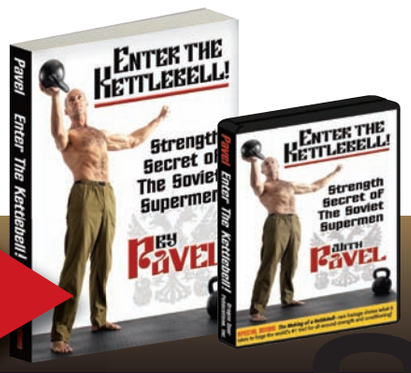

Purchase Pavel's *Enter the Kettlebell!* book and DVD as a set and save... Item #DVS011 $59.90

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Use Kettlebells to:

- **Accelerate your all-purpose strength**–so you can readily handle the toughest demands
- **Hack away your fat**–without the dishonor of dieting and aerobics
- **Boost your physical resilience**–to repel the hardest hits
- **Build your staying power**–to endure and conquer, whatever the distance
- **Create a potent mix of strength-with-flexibility**–to always reach your target
- **Forge a fighter's physique**–so form matches function
- **Be independent**–world's #1 portable gym makes you as strong as you want to be, anywhere, anytime

Kettlebells Fly Air Force One!

"There's a competitive reason behind the appearance of kettlebells at the back doors and tent flaps of military personnel. When Russian and US Special Forces started competing against each other after the Soviet Union broke up, the Americans made a disturbing discovery. "We'd be totally exhausted and the Russians wouldn't even be catching their breath," says… [a] Secret Service agent… "It turned out they were all working with kettlebells."

Now, half the Secret Service is snatching kettlebells and a set sometimes travels with the President's detail on Air Force One."—*Christian Science Monitor*

Pavel's Kettlebell FAQ

What is a 'kettlebell'?

A 'kettlebell' or girya (Russ.) is a traditional Russian cast iron weight that looks like a cannonball with a handle. The ultimate tool for extreme all-round fitness.

The kettlebell goes way back – it first appeared in a Russian dictionary in 1704 (Cherkikh, 1994). So popular were kettlebells in Tsarist Russia that any strongman or weightlifter was referred to as a girevik, or 'a kettlebell man'.

"Not a single sport develops our muscular strength and bodies as well as kettlebell athletics," reported Russian magazine Hercules in 1913.

"Kettlebells—Hot Weight of the Year"—*Rolling Stone*

Why train with kettlebells?

Because they deliver extreme all-round fitness. And no single other tool does it better. Here is a short list of hardware the Russian kettlebell replaces: barbells, dumbbells, belts for weighted pullups and dips, thick bars, lever bars, medicine balls, grip devices, and cardio equipment.

Vinogradov & Lukyanov (1986) found a very high correlation between the results posted in a kettlebell lifting competition and a great range of dissimilar tests: strength, measured with the three powerlifts and grip strength; strength endurance, measured with pullups and parallel bar dips; general endurance, determined by a 1000 meter run; work capacity and balance, measured with special tests.

Voropayev (1983) tested two groups of subjects in pullups, a standing broad jump, a 100m sprint, and a 1k run. He put the control group on a program that emphasized the above tests; the experimental group lifted kettlebells. In spite of the lack of practice on the tested exercises, the kettlebell group scored better in every one of them! This is what we call "the what the hell effect".

Kettlebells melt fat without the dishonor of dieting or aerobics. If you are overweight, you will lean out. If you are skinny, you will get built up. According to Voropayev (1997) who studied top Russian gireviks, 21.2% increased their bodyweight since taking up kettlebelling and 21.2% (the exact same percentage, not a typo), mostly heavyweights, decreased it. The Russian kettlebell is a powerful tool for fixing your body comp, whichever way it needs fixing.

Kettlebells forge doers' physiques along the lines of antique statues: broad shoulders with just a hint of pecs, back muscles standing out in bold relief, wiry arms, rugged forearms, a cut-up midsection, and strong legs without a hint of squatter's chafing.

Liberating and aggressive as medieval swordplay, kettlebell training is highly addictive. What other piece of exercise equipment can boast that its owners name it? Paint it? Get tattoos of it? Our Russian kettlebell is the Harley-Davidson of strength hardware.

"Kettlebells—A Workout with Balls"—*Men's Journal*

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Who trains with kettlebells?

Hard comrades of all persuasions.

Soviet weightlifting legends such as Vlasov, Zhabotinskiy, and Alexeyev started their Olympic careers with old-fashioned kettlebells. Yuri Vlasov once interrupted an interview he was giving to a Western journalist and proceeded to press a pair of kettlebells. "A wonderful exercise," commented the world champion. "…It is hard to find an exercise better suited for developing strength and flexibility simultaneously."

The Russian Special Forces personnel owe much of their wiry strength, explosive agility, and never-quitting stamina to kettlebells. *Soldier, Be Strong!*, the official Soviet armed forces strength training manual pronounced kettlebell drills to be "one of the most effective means of strength development" representing "a new era in the development of human strength-potential".

The elite of the US military and law enforcement instantly recognized the power of the Russian kettlebell, ruggedly simple and deadly effective as an AK-47. You can find Pavel's certified RKC instructors among Force Recon Marines, Department of Energy nuclear security teams, the FBI's Hostage Rescue Team, the Secret Service Counter Assault Team, etc.

Once the Russian kettlebell became a hit among those whose life depends on their strength and conditioning, it took off among hard people from all walks of life: martial artists, athletes, regular hard comrades.

"I can't think of a more practical way of special operations training… I was extremely skeptical about kettlebell training and now wish that I had known about it fifteen years ago…"

—Name withheld, Special Agent, U.S. Secret Service Counter Assault Team

Am I kettlebell material?

Kettlebell training is extreme but not elitist. At the 1995 Russian Championship the youngest contestant was 16, the oldest 53! And we are talking elite competition here; the range is even wider if you are training for yourself rather than for the gold. Dr. Krayevskiy, the father of the kettlebell sport, took up training at the age of forty-one and twenty years later he was said to look fresher and healthier than at forty.

Only 8.8% of top Russian gireviks, members of the Russian National Team and regional teams, reported injuries in training or competition (Voropayev, 1997). A remarkably low number, especially if you consider that these are elite athletes who push their bodies over the edge. Many hard men with high mileage have overcome debilitating injuries with kettlebell training (get your doctor's approval). Acrobat Valentin Dikul fell and broke his back at seventeen. Today, in his mid-sixties, he juggles 180-pound balls and breaks powerlifting records!

"… kettlebells are a unique conditioning tool and a powerful one as well that you should add to your arsenal of strength... my experience with them has been part of what's led me to a modification in my thoughts on strength and bodyweight exercises… I'm having a blast training with them and I think you will as well."

—Bud Jeffries, the author of *How to Squat 900lbs. without Drugs, Powersuits, or Kneewraps*

How do I learn to use the kettlebell?

From Pavel's books and videos: *The Russian Kettlebell Challenge* or *From Russia with Tough Love* for comrades ladies. From an RKC certified instructor; find one in your area on RussianKettlebell.com. Kettlebell technique can be learned in one or two sessions and you can start intense training during the second or even first week (Dvorkin, 2001).

"…I felt rejuvenated and ready to conquer the world. I was sold on the kettlebells, as the exercises were fun and challenging, and demanded coordination, explosion, balance, and power… I am now on my way to being a better, fitter, and more explosive grappler, and doing things I haven't done in years!"

—Kid Peligro, *Grappling* magazine

What is the right kettlebell size for me?

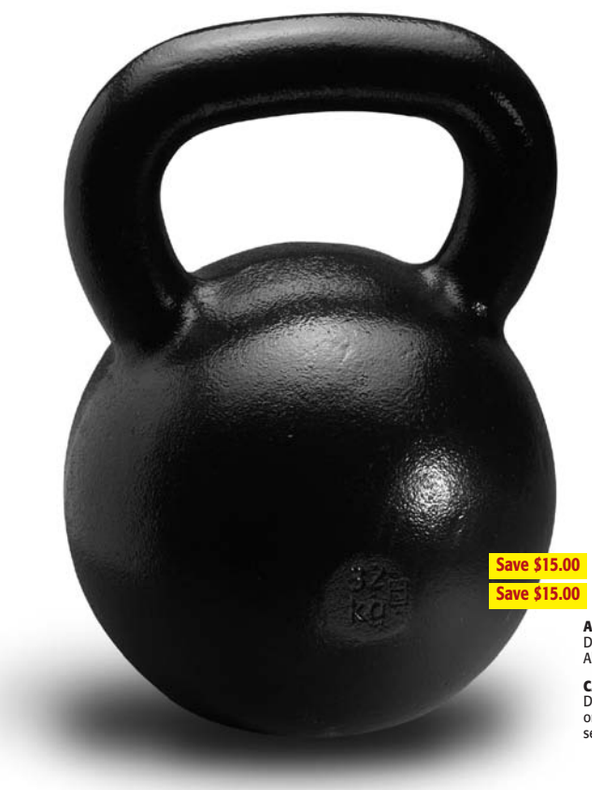
Kettlebells come in 'poods'. A pood is an old Russian measure of weight, which equals 16kg, or roughly 35 lbs. An average man should start with a 35-pounder. It does not sound like a lot but believe it; it feels a lot heavier than it should! Most men will eventually progress to a 53-pounder, the standard issue size in the Russian military. Although available in most units, 70-pounders are used only by a few advanced guys and in elite competitions. 88-pounders are for mutants.

An average woman should start with an 18-pounder. A strong woman can go for a 26-pounder. Some women will advance to a 35-pounder. A few hard women will go beyond.

"Kettlebells are like weightlifting times ten."

"Kettlebells are like weightlifting times ten. …If I could've met Pavel in the early '80s, I might've won two gold medals. I'm serious."

—Dennis Koslowski, D.C., RKC,
Olympic Silver Medalist in Greco-Roman Wrestling



Classic RKC Kettlebells (Cast Iron/E-Coated)

Item	Weight	Price	MAIN USA	PUERTO RICO	AK&HI	CAN
#P10N	10 lb	$37.95	S/H $14.00	$47.00	$53.00	$35.00
#P10P	14 lb	$49.95	S/H $16.00	$51.00	$57.00	$41.00
#P10M	18 lb	$59.95	S/H $22.00	$65.00	$71.00	$46.00
#P10T	10 kg (22 lb)	$64.95	S/H $25.00	$73.00	$79.00	$52.00
#P10G	12 kg (27 lb)	$69.95	S/H $28.00	$80.00	$86.00	$58.00
#P10U	14 kg (31 lb)	$79.95	S/H $34.00	$93.00	$99.00	$64.00
#P10A	16 kg (36 lb)	$87.95	S/H $38.00	$104.00	$110.00	$72.00
#P10S (Women's)	16 kg (36 lb)	$87.95	S/H $38.00	$104.00	$110.00	$72.00
#P10H	20 kg (45 lb)	$97.95	S/H $44.00	$123.00	$122.00	$85.00
#P10B	24 kg (53 lb)	$107.95	S/H $49.00	$141.00	$139.00	$94.00
#P10J	28 kg (62 lb)	$129.95	S/H $53.00	$162.00	$157.00	$107.00
#P10C	32 kg (71 lb)	$139.95	S/H $55.00	$186.00	$193.00	$121.00
#P10Q	36 kg (80 lb)	$159.95	S/H $58.00	$203.00	$209.00	$134.00
#P10F	40 kg (89 lb)	$179.95	S/H $64.00	$223.00	$229.00	$148.00
#P10R	44 kg (97 lb)	$219.95	S/H $69.00	$241.00	$247.00	$160.00
#P10L	48 kg (106 lb)	$239.95	S/H $75.00	$261.00	$267.00	$175.00

SAVE! ORDER A SET OF CLASSIC KETTLEBELLS & SAVE $$$

Save $15.00	#SP10 Classic Set–35, 53 & 70 lb.	$320.85	S/H $142.00	$431.00	$450.00	$287.00
Save $15.00	#SP11 Women's Set–10, 14 & 18 lb.	$132.85	S/H $52.00	$163.00	$181.00	$122.00

ALASKA/HAWAII KETTLEBELL ORDERING
Dragon Door now ships to all 50 states, including Alaska and Hawaii, via UPS Ground.

CANADIAN KETTLEBELL ORDERING
Dragon Door now accepts online, phone and mail orders for Kettlebells to Canada, using UPS Standard service. UPS Standard to Canada service is guaranteed, fully tracked ground delivery, available to every address in all of Canada's ten provinces. Delivery time can vary between 3 to 10 days.

IMPORTANT – International shipping quotes & orders do not include customs clearance, duties, taxes or other non-routine customs brokerage charges, which are the responsibility of the customer.

- KETTLEBELLS ARE SHIPPED VIA UPS GROUND SERVICE, UNLESS OTHERWISE REQUESTED.
- KETTLEBELLS RANGING IN SIZE FROM 4KG TO 24KG CAN BE SHIPPED TO P.O. BOXES OR MILITARY ADDDRESSES VIA THE U.S. POSTAL SERVICE, BUT WE REQUIRE PHYSICAL ADDDRESSES FOR UPS DELIVERIES FOR THE 32KG AND 40KG KETTLEBELLS.
- NO RUSH ORDERS ON KETTLEBELLS!

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Complete and mail with full payment to: Dragon Door Publications, P.O. Box 1097, West Chester, OH 45071

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*Name*_____

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City _____

State _____ *Zip* _____

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SHIP TO: ***(Street address for delivery)*** **B**

*Name*_____

Street _____

City _____

State _____ *Zip* _____

Email _____

Item #	Qty.	Item Description	Item Price	A or B	Total

HANDLING AND SHIPPING CHARGES • NO COD'S

Total Amount of Order Add (Excludes kettlebells and kettlebell kits):

$00.00 to 29.99	**Add $6.00**	**$100.00 to 129.99**	**Add $14.00**
$30.00 to 49.99	**Add $7.00**	**$130.00 to 169.99**	**Add $16.00**
$50.00 to 69.99	**Add $8.00**	**$170.00 to 199.99**	**Add $18.00**
$70.00 to 99.99	**Add $11.00**	**$200.00 to 299.99**	**Add $20.00**
		$300.00 and up	**Add $24.00**

Canada and Mexico add $6.00 to US charges. All other countries, flat rate, double US Charges. See Kettlebell section for Kettlebell Shipping and handling charges.

Total of Goods	
Shipping Charges	
Rush Charges	
Kettlebell Shipping Charges	
OH residents add 6.25% sales tax	
MN residents add 7.125% sales tax	
Total Enclosed	

METHOD OF PAYMENT ❒ Check ❒ M.O. ❒ MasterCard ❒ Visa ❒ Discover ❒ Amex

Account No. *(Please indicate all the numbers on your credit card)* EXPIRATION DATE

☐☐☐☐ ☐☐☐☐ ☐☐☐☐ ☐☐☐☐ ☐☐/☐☐

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