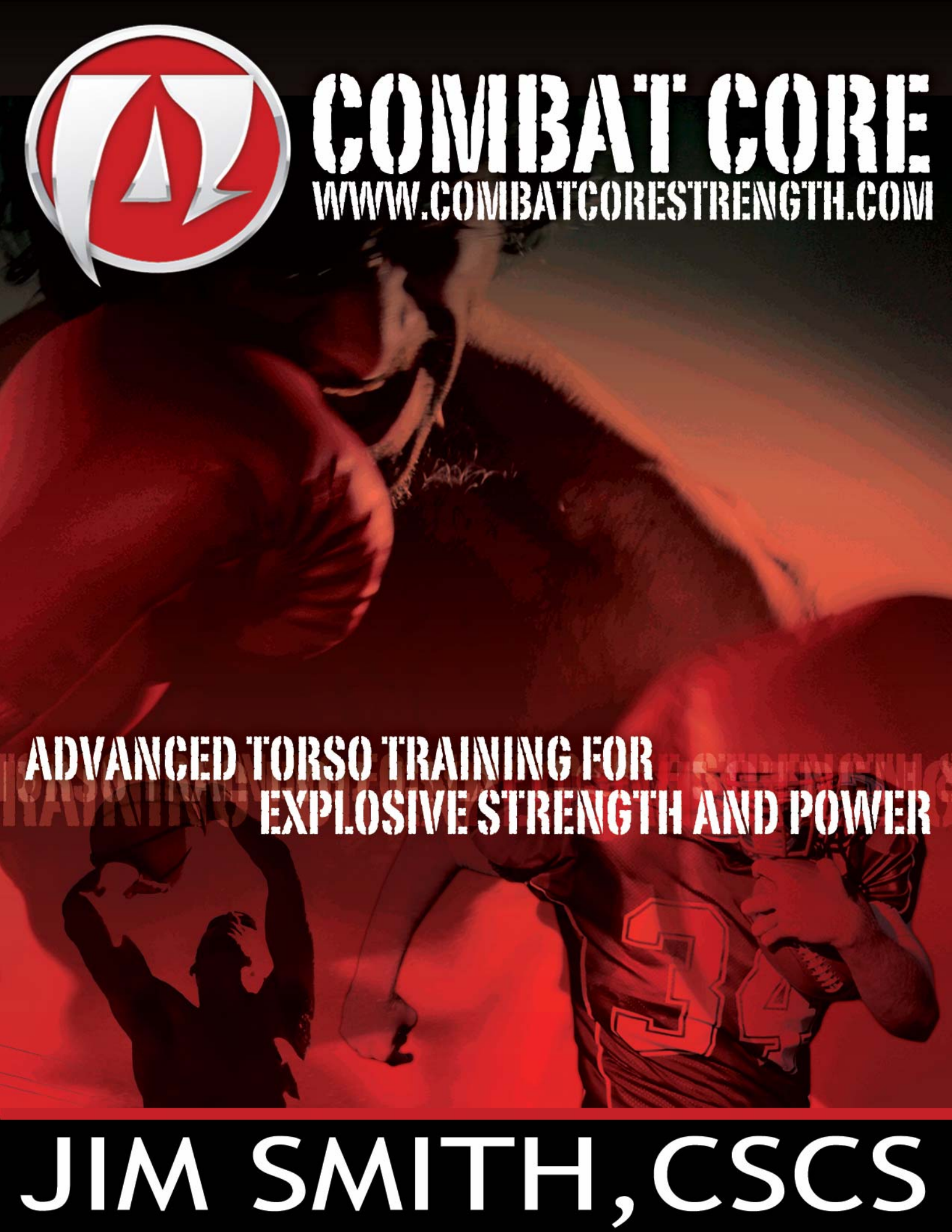
COMBAT CORE
WWW.COMBATCORESTRENGTH.COM
ADVANCED TORSO TRAINING FOR
EXPLOSIVE STRENGTH AND POWER
JIM SMITH, CSCS

By Jim Smith, CSCS

Combat Core
Advanced Torso Training Strategies for Elite Athletes

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“People do not lack strength, they lack will. “

- Victor Hugo

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Dedication

This manual is dedicated to all athletes.

Those who greatly influenced the creation of this manual are:

Juliet Deane
julietdeane.com – for her attention to detail and kindness

Ross Enamait
rosstraining.com – for his strength of character

Mike Fry
grapplersgym.com – for his commitment and passion

Mike Hanley
hanleystrength.com – for his conviction

Jedd Johnson
dieselcrew.com - for his never say die attitude

Mike Robertson
robertsonstrengthsystems.com – for his patience and mentoring

Preface

You've done a tremendous job with your recent *Combat Core* program. This kind of material is exactly what the modern combat athlete needs to see, and more importantly apply.

In recent years, the phrase *"core training"* has been abused by infomercial giants who have inadvertently damaged the credibility of the entire strength and conditioning industry. The fads that have come and gone have left many athletes leery of any core based program. It has come to the point where *core training* is almost immediately associated with an over-hyped gimmick that provides little if any value.

As a result, the core is often neglected by aspiring combat athletes. Insufficient core strength then becomes a bottleneck that hinders, rather than aids in power production. It is refreshing to see a program such as *Combat Core* that serves as an antithesis to the core training fad that we could all do without. This program is creative, innovative, and most importantly beneficial to those who seek greater strength and power.

As a long time proponent for true core strength, I can say without hesitation that I was thoroughly impressed by this material.

Ross Enamait

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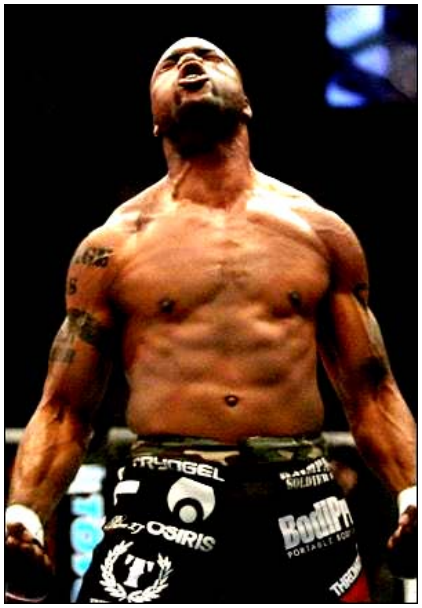
www.myspace.com/rosstraining
www.RossBoxing.com

Combat Core
The Introduction

Combat Core Strength

Combat Core



When you see an athlete, the first thing you notice is that they are typically ripped to shreds. Their strength training along with their sports (SPP) preparation, keeps them at pretty low body fat levels.

But an athlete's abdominals aren't just for aesthetics, they are functional as well.

Developing the "core", or the musculature surrounding the torso, hips and pelvis, anterior and posterior, is essential for all athletes. In fact, it is the elite athletes who are the ones able to utilize this strength to excel in their respective sporting endeavors.

But if we understand what exercises provide us with real abdominal and torso strength, then we can achieve the benefits that, up to this point, some athletes have been able to obtain. I say some athletes, because only a limited number of athletes (or their trainers) understand how to build functional core strength.

When preparing an athlete for the demands of their sport, it becomes necessary to analyze the physiological and metabolic demands of that sport. Then, an assessment must be done of the athlete to determine what gaps can be identified. These gaps would be the difference between what the sport demands and the athlete's state of preparation according to these demands. Not strong enough, not fast enough or not conditioned enough are just some of the most common issues when assessments are made. For this manual, we will focus on getting our athletes stronger, specifically, developing an elite level of torso strength and stability - which, as you will see, has many important benefits.

Recently, the strength and conditioning community has documented and detailed the role of the "core". Not only is the "core" musculature important for strength of movement but it is also important to stabilize and protect the spine and pelvic floor by remaining rigid during the engagement of complex, loaded or unloaded movements.

Strength of movement means strength of torso movement patterns, i.e. flexion, extension, rotation, chaos or no movement at all.

For all athletics, the core musculature is taxed in all movement patterns AND many more. Sports are not patterned, they are random and the athlete's reaction to these random stimuli is also random, and by logic cannot be predicted. That is why we must train in all of these movement patterns, in addition to, training in a random (or chaotic) environment. Athletes who can meet and overcome this demand, will not only be able to absorb impact forces, but also generate them, even late in the game.

Benefits of Comprehensive Core Strategies

In general the "core" musculature is not only responsible for all movement, it is also responsible for protecting the neck, shoulders, spine, hips and pelvis from injury. Specifically for athletes, the role of the core musculature becomes much more complex. An athlete's "core" strength requires them to:

- create and absorb impact forces
- efficiently transfer, accelerate, decelerate and stabilize powerful ground forces
- maintain positioning and spatial awareness
- regulate breathing under heavy duress and fatigue
- build high levels of muscular endurance and power potential
- promoting co-contraction
- protect the lumbo-pelvic-hip-complex or *LPHC*
- improving reaction and reactive abilities
- improving balance, agility and coordination

A more general overview of the benefits of a comprehensive torso training strategy for those interested in getting stronger and meeting their strength goals:

- improving static and dynamic posture
- improving and creating stability and bracing proficiency

- protection of the neck, shoulders, spine, hips, and pelvic floor during loaded and unloaded complex/compound movements
- improving the integrity and distribution of forces across the kinetic chain
- maintaining sufficient rigidity of the torso during compound, ground based movements
- engaging and preventing movements specific to the muscle actions of involved muscle groups, i.e. elimination of compensation patterns and motor unit recruitment dysfunction
- improving the ability to absorb impact or non-functional deviations of the pelvis or spine during high force movements
- improving the ability to generate, transfer, or dissipate forces (if engaged kinetic segments are immobile, hypermobile or weak dependent upon their specific requirements)
- maintain patterning and positioning under fatigue
- regulation of breathing

Quick Definitions

Before moving forward we must identify the difference between general and general specific (GPP) strength training and skills (SPP) training.

Special Physical Preparation or SPP

"If the athlete is performing the actual sport in practice or during a skill day, they are performing SPP. Isolation or segmenting sport skills can also be considered SPP, if the movement is similar in duration, intensity, speed, direction and mechanics. For example, hitting the heavy bag (isolation) for a boxer is considered SPP but it is not the same as sparring or fighting (integration.)"

Excerpted from the Chaos Training Manual
Smith, 2007

General Physical Preparation or GPP

"GPP is a means to increase the athlete's work capacity or conditioning, target and eliminate weaknesses, improve restoration by decreasing the effects of DOMS (delayed onset of muscle soreness.)"

Excerpted from the Chaos Training Manual
Smith, 2007

Even though your *SPP* training requires and develops a high level of specific torso strength and stability, a more focused, general approach can be undertaken to further enhance an athlete's abilities.

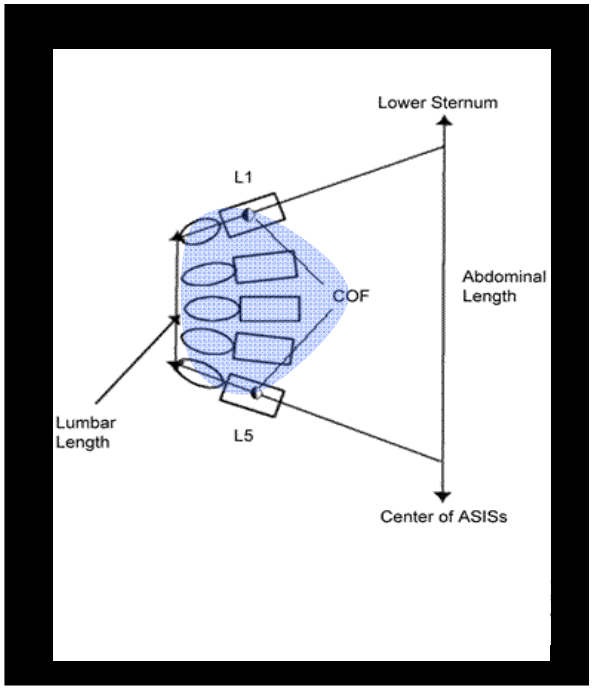
The simplest definitions would describe *SPP* as the actual sport (or the isolated skills of the sport) being engaged and everything else would be considered *GPP*, i.e. strength training, conditioning, etc.

Bracing
Excerpted from the Chaos Training Manual

We know that forcibly pushing our abdominals outward will create muscular tension and a bracing effect that, along with proper breathing techniques, can create the stability and *intra-abdominal pressure* to safety engage or protect against all movements.

What is intra-abdominal pressure?

"Intra-abdominal pressure, aka the Valsalva Manouveur, was first described by an Italian, A.M. Valsalva (1666-1723). It occurs when the breath is held while muscles in the abdomen and chest are contracted. The chest contents become compressed, increasing gas pressure in the cavity of the thorax and blood pressure in the blood vessels." Juliet Deane, 2007.



Intra-abdominal pressure

Intra-abdominal pressure as shown in the shaded area above, along with the engagement of the torso stabilizers (see *Core Anatomy* in the

next section below) coordinate to stiffen and stabilize the torso under load.

Let's discuss a quick bracing example.

How can we instill bracing proficiency for our athletes outside of the typical verbal cues of "Abs out!" or "Push out against the belt!?"

One quick and easy way to teach an athlete how to *brace* is the utilization of an elastic band with compound movements. In the example below, the athlete is performing rack pulls. To ensure proper bracing mechanics an elastic band is tightly cinched around their abdominals. Throughout the duration of the exercise the athlete will try to keep tension on the band and stretch it as far a possible. If the band becomes slack during the movement, verbal cues will be given to the athlete to re-engage bracing.

Rack Pull - Bracing Drill

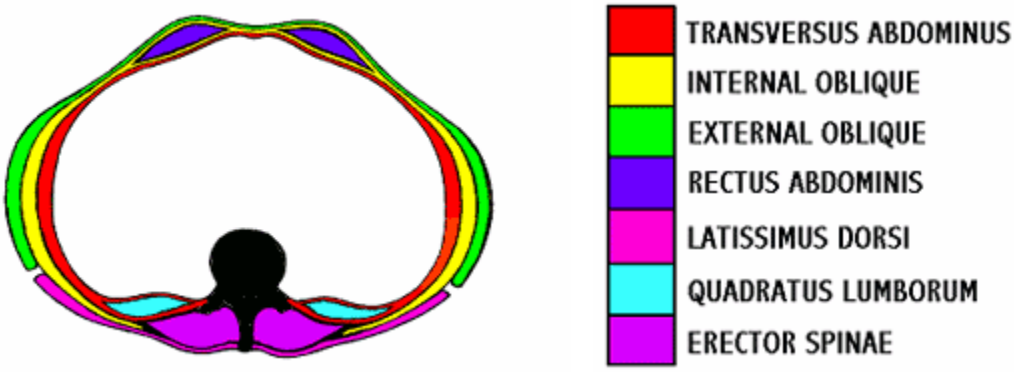
The athlete has elastic band cinched around their abdomen.

Before initiating movement the athlete will create intra-abdominal pressure with patterned breathing and bracing mechanics to initiate a stretch in the band.

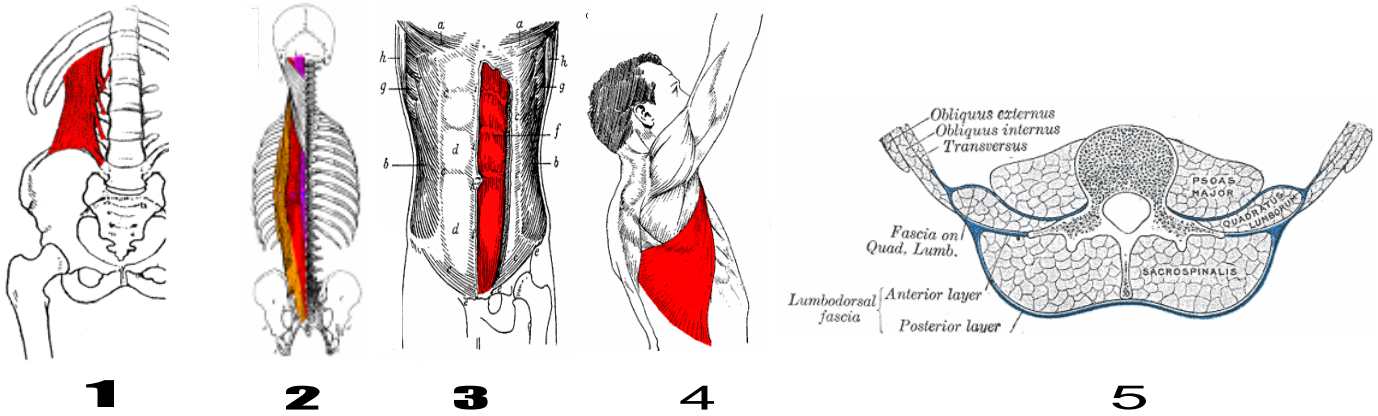
The band should remain stretched throughout the execution of the exercise.

Let's look at what musculature makes up the "core" and is involved in bracing or engaging movement.

Core Anatomy



The Bodies Core and Surrounding Muscles, Darkin



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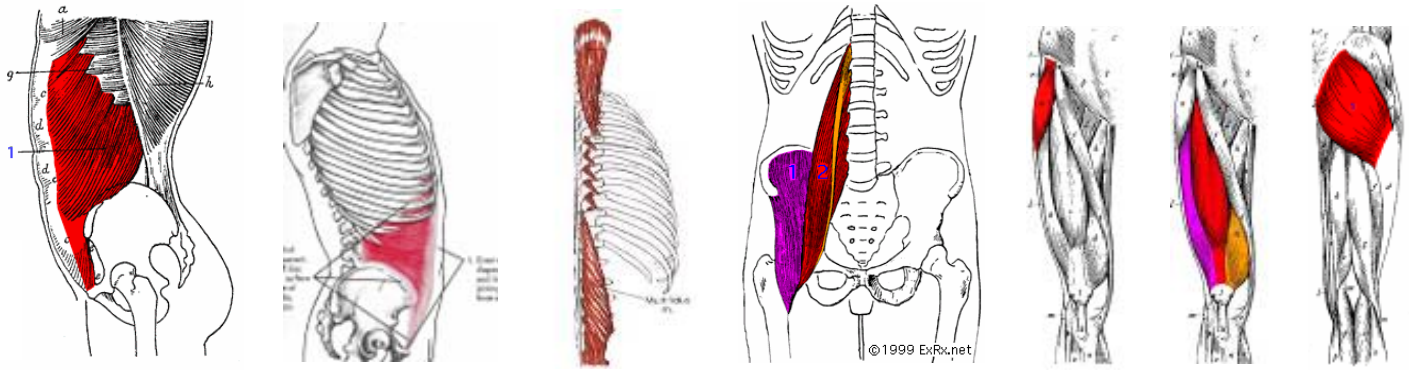
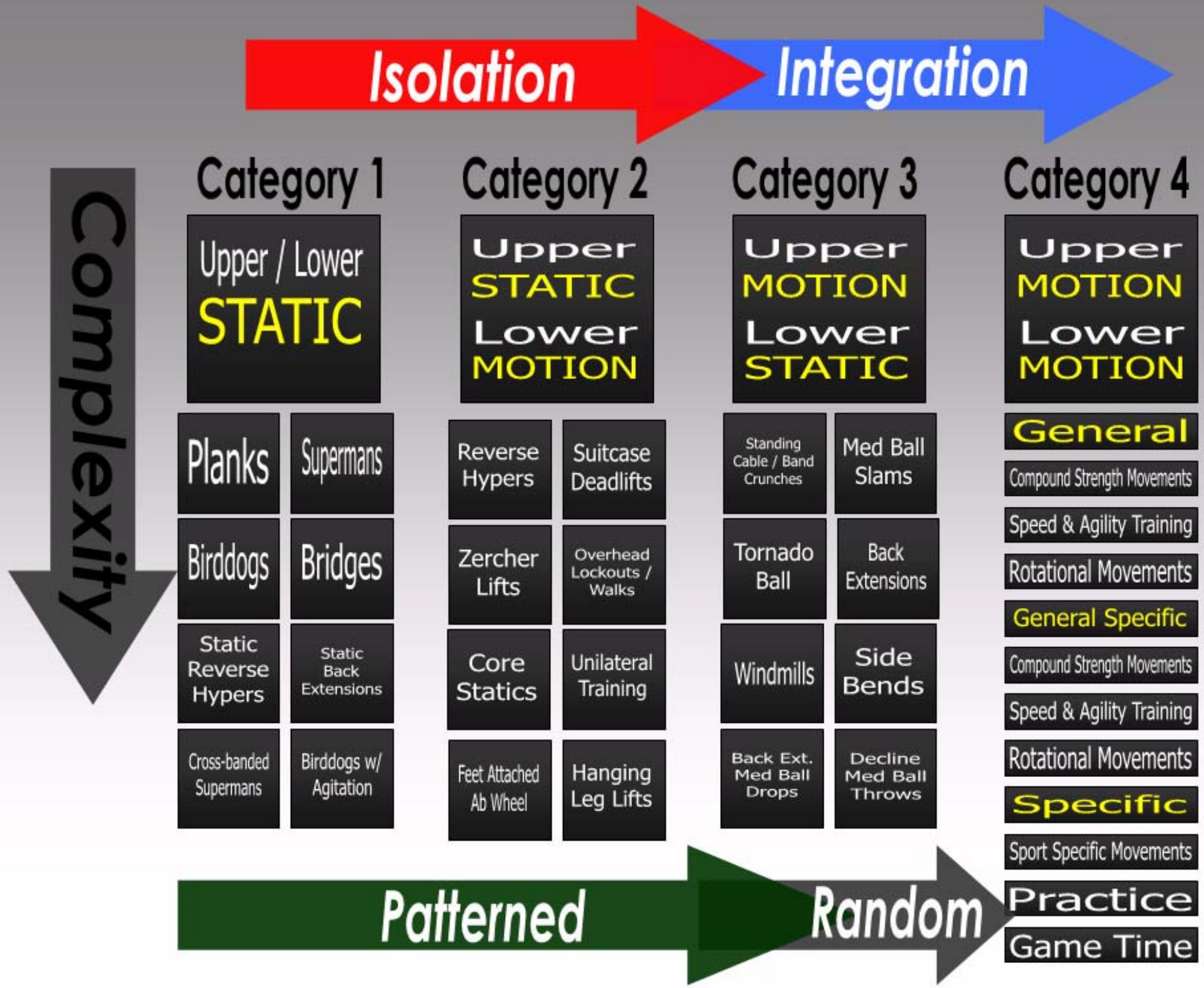


6 7 8 9 10 11 12

Image References 1, 2, 3

Number	Muscle(s) Group	Action
1	Quadratus Lomborum	Lateral Trunk Flexion
2	Erector Spinae - iliocastalis , longissimus, spinalis	Trunk / Neck Extension Lumbar Stabilization Resists Trunk Flexion
3	Rectus Abdominis*	Anti-Rotator Trunk Flexion Resists Trunk Flexion *lateral tendons wrap around to create stability and anchor to thoracic lumbar fascia (TLF, *5 above*) to provide a natural belt (Porterfield and DeRosa, 1198) (3) and protect the LPHC
4	Lattissimus Dorsi*	Shoulder Extension Shoulder Horizontal Adduction Shoulder Internal Rotation *the orientation of the thoracic lumbar fascia or TLF (*5 above*) engages the lattisimus dorsi duration movements, torque resisted (anti-movements) of the trunk
6	Internal Obliques	Same Side Rotation - *ipsilateral* Trunk Flexion Increased Intra-Abdominal Pressure
6	External Obliques	Lateral Trunk Flexion Opposite Side Rotation Posterior Tilt Increased Intra-Abdominal Pressure
7	Transverse Abdominis	Abdominal Hollowing Increased Intra-Abdominal Pressure
8	Multifidus	Segmental Spine Proprioception, Stabilization, Extension, Rotation and Lateral Flexion
9	Hip (Iliopsoas) Complex – iliacus, psoas major, psoas minor	Hip Flexion Hip Lateral Rotation Lateral Rotation of Lumbar Spine Lumbar Extension
10	Tensor Fascia Latae	Hip Flexion Hip Abduction Hip Internal Rotation Hip Transverse Adduction
11	Rectus Femoris	Hip Flexion Knee Extension
12	Gluteals – maximus, medius, minimus	Hip Extension Hip Abduction Hip External Rotation Decelerates Hip Flexion Decelerates Hip Adduction Decelerates Hip Internal Rotation

Publication References 1, 2, 3, 4, 5, 6, 7
Website References 8
Special Thanks to Mike Robertson MA, CSCS

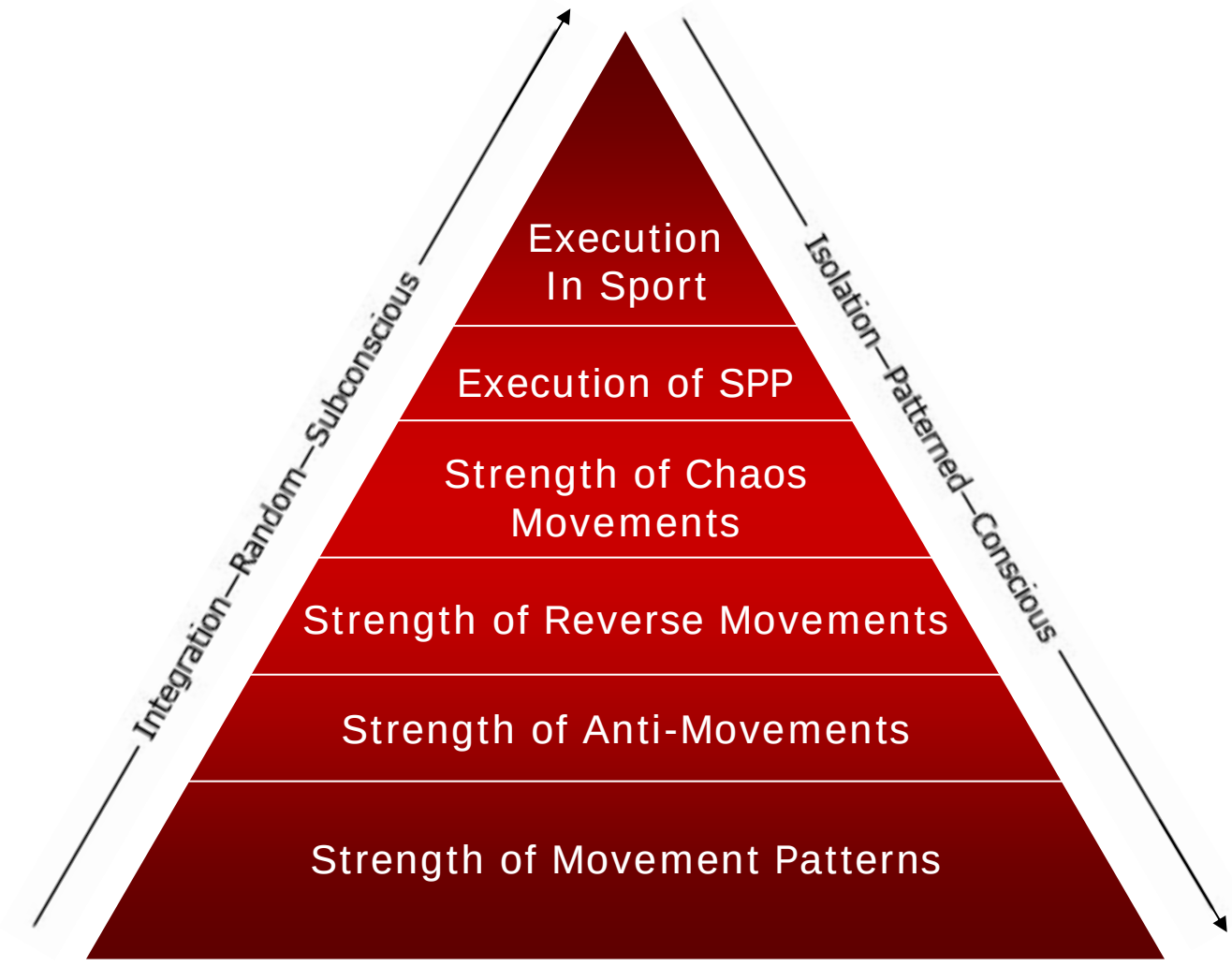

Isolation
Integration
Complexity
Category 1
Upper / Lower
STATIC
Planks
Supermans
Birddogs
Bridges
Static Reverse Hypers
Static Back Extensions
Cross-banded Supermans
Birddogs w/ Agitation
Category 2
Upper
STATIC
Lower
MOTION
Reverse Hypers
Suitcase Deadlifts
Zercher Lifts
Overhead Lockouts / Walks
Core Statics
Unilateral Training
Feet Attached Ab Wheel
Hanging Leg Lifts
Category 3
Upper
MOTION
Lower
STATIC
Standing Cable / Band Crunches
Med Ball Slams
Tornado Ball
Back Extensions
Windmills
Side Bends
Back Ext. Med Ball Drops
Decline Med Ball Throws
Category 4
Upper
MOTION
Lower
MOTION
General
Compound Strength Movements
Speed & Agility Training
Rotational Movements
General Specific
Compound Strength Movements
Speed & Agility Training
Rotational Movements
Specific
Sport Specific Movements
Practice
Game Time
Patterned
Random

Core Strength

Criteria for Core Strength

For many novice trainers, their idea of true core strength lies in the base of our model below, the *strength of movement patterns*. They believe that building strength in the standard movement patterns executed in the gym setting is enough to ensure the athlete or lifter can increase their potential to generate power in a sporting event or real world setting.

Unfortunately, that is not the case. The model below demonstrates what it takes to develop true core strength. As you will see, *strength of movement patterns* is only one important aspect, not the only aspect.



Criteria for Core Strength Model

Level 1
Strength of Movement Patterns

We will define the articulations of the trunk and torso as:

- Anterior
  - Hip Flexion – Torso Loaded
  - Hip Flexion – Trunk Loaded
  - Rotation – Horizontal, Transverse (L ←→ R, F ←→ B)
  - Lateral Flexion
  - Anti-movements or Statics
  - Deceleration of Hip Extension
  - Chaos Movements
- Posterior
  - Hip Extension – Torso Loaded
  - Hip Extension – Trunk Loaded
  - Contralateral Rotation
  - Anti-movements or Statics
  - Deceleration of Hip Flexion
  - Chaos Movements

Isolated abdominal strength training movements performed in the gym setting, such as crunches, leg lifts, cable woodchoppers and saxon side bends would fit into this category.

Level 2
Strength of Anti-Movements

Anti-movements such as bridging, *Core Statics* and the bracing required for compound movements enhance the athlete's ability to transfer forces, absorb impact and the execute sport specific movements. This rigidity of the torso is also required to prevent injuries by protecting the spine, hips and pelvic floor during loaded movements.

Level 3
Strength of Reverse Movements

By training the reverse movement patterns executed in an optimal gym setting or during a repetitive sport specific or SPP movement, an increased power potential can be targeted. By improving the integrity and functioning of the musculature responsible for deceleration, we inhibit the GTO (golgi tension organ), improve absorption abilities,

create a balance and subsequently improve the potential power the athlete or lifter can generate for all movements.

Level 4
Strength of Chaos

Expanded on in great detail in *Chaos Training*, random stimuli introduced in a skills or strength training session will improve the athlete's reactivity and cognitive abilities to execute without hesitation. Sandbag Rippers and Zercher Walks are two examples of *chaotic* core training means and are demonstrated in the exercise index below.

Level 5
Execution of SPP

Verkhoshansky's *Principle of Dynamic Correspondence* provides us with the criteria for determining how specific to the actual sport a movement or exercise is. If a means is executed in the same direction and plane of movement, with the same speed, for the same duration, with the same intensity and so on…the more specific it is to the actual sport. James Smith details this further in his *Classification of Means* article and shows you how to categorize exercises as general, general specific and specific (typically referred to as SPP).

SPP or *Specialized Physical Preparedness* can further be categorized as isolated and integrated means. An example for a fighter would categorize isolated SPP as heavy bag work and integrated SPP as engaging in sparring in the ring or cage. Performing SPP and engaging in an actual sport competition (Level 6) is the demonstration of the core strength developed in training.

Level 6
Execution in Sport

This is the real reason we are here, to improve performance. The athlete is required to demonstrate the strength and proficiency they have developed in training on the field, in the ring or in the weight room. If everything was done correctly, by analyzing the sport and the athlete's weaknesses and strengths, then they will be able to execute to the best of *their* ability. If the athlete's core strength training strategies incorporate these six criteria, complimented with periodically engaging in the actual sport or SPP, then you can be assured that they have been comprehensive in their preparation.

Combat Core
The Programs

Combat Core Strength

Combat Core Programs

The exercises in this manual not only can be implemented directly into your strength training programs but also, as you will see, into your skills training. The basic programs listed below can be manipulated and adjusted to fit your specific needs and requirements.

I will outline three strategies on how this can be accomplished.

As stated above, *strength of movements patterns* defined the articulations of the torso and trunk as:

- Anterior
  - Hip Flexion – Torso Loaded
  - Hip Flexion – Trunk Loaded
  - Rotation – Horizontal, Transverse (L ←→ R, F ←→ B)
  - Lateral Flexion
  - Anti-movements or Statics
  - Deceleration of Hip Extension
  - Chaos Movements
- Posterior
  - Hip Extension – Torso Loaded
  - Hip Extension – Trunk Loaded
  - Contralateral Rotation
  - Anti-movements or Statics
  - Deceleration of Hip Flexion
  - Chaos Movements

Strategies

An integrated, comprehensive core program can be implemented in a variety of ways, I will discuss three versions.

1. Prior to SPP or Strength Training Session
2. During SPP or Strength Training Session
3. After SPP or Strength Training Session

Strategy 1 - Prior to SPP or Strength Training Session

A torso activating sequence can be done prior to your SPP (skills) or GPP (strength, speed, agility, conditioning) training session.

Scheme 1 – 7 Day Program*

- Day 1: Hip Flexion – Torso Loaded / Hip Extension
- Day 2: SPP / Rest / Active Rest / Restoration**
- Day 3: Rotation / Anti-Rotation
- Day 4: SPP / Rest / Active Rest / Restoration
- Day 5: Lateral Flexion / Vertical Pull
- Day 6: Hip Flexion – Trunk Loaded
- Day 7: Statics / Posterior Chain

**Note: For athletes, these sample programs would be in addition to your skills training sessions*
***Note: Dependent upon the athlete's current state of restoration and developmental needs, the volume should be adjusted accordingly*

Day 1
Target - Hip Flexion – Torso Loaded / Hip Extension

Exercise	Sets	Reps	Rest
Foam Roller	-	-	
Dynamic Warm-up	-	-	
Sandbag Sit-ups	4	10-12	120 sec
Sumo Stance RDL's	4	8	120 sec

Day 3
Target - Rotation / Anti-Rotation

Exercise	Sets	Reps	Rest
Foam Roller	-	-	
Dynamic Warm-up	-	-	
Rotational Med Ball Wall Throws	4	10-12	120 sec
Core Statics - Decline Series	4	30 sec	120 sec

Day 5
Target - Lateral Flexion / Vertical Pull

Exercise	Sets	Reps	Rest
Foam Roller	-	-	
Dynamic Warm-up	-	-	
DB Windmills	4	10-12	120 sec
Weighted Pull-ups	4	8	120 sec

Day 6

Target - Hip Flexion – Trunk Loaded

Exercise	Sets	Reps	Rest
Foam Roller	-	-	
Dynamic Warm-up	-	-	
Hanging Leg Lifts	4	10-12	120 sec
Rocky's	4	10	120 sec

Day 7

Target - Statics / Posterior Chain

Exercise	Sets	Reps	Rest
Foam Roller	-	-	
Dynamic Warm-up	-	-	
Weighted Planks	4	30 sec	120 sec
Deadlifts	4	8	120 sec

Scheme 2 – 7 Day Program*

- Day 1: Hip Flexion – Torso Loaded / Statics
- Day 2: SPP / Rest / Active Rest / Restoration**
- Day 3: Posterior Chain
- Day 4: SPP / Rest / Active Rest / Restoration
- Day 5: Lateral Flexion / Rotation
- Day 6: Posterior Chain
- Day 7: Hip Flexion – Trunk Loaded

**Note: For athletes, these sample programs would be in addition to your skills training sessions*

***Note: Dependent upon the athlete's current state of restoration and developmental needs, the volume should be adjusted accordingly*

Day 1

Target - Hip Flexion – Torso Loaded / Statics

Exercise	Sets	Reps	Rest
Foam Roller	-	-	
Dynamic Warm-up	-	-	
Behind the Neck Med Ball on GHR	4	10-12	120 sec
Core Statics – L-sit Pull-ups	4	30 sec	120 sec

Day 3

Target –Posterior Chain

Exercise	Sets	Reps	Rest
Foam Roller	-	-	
Dynamic Warm-up	-	-	
RDL to Power Shrug	4	6-8	120 sec
Back Extension with Plate Raise	4	8-10	120 sec

Day 5

Target - Lateral Flexion / Rotation

Exercise	Sets	Reps	Rest
Foam Roller	-	-	
Dynamic Warm-up	-	-	
DB Side Bends	4	10-12	120 sec
Rotational Sandbag Throws	4	8	120 sec

Day 6

Target – Posterior Chain

Exercise	Sets	Reps	Rest
Foam Roller	-	-	
Dynamic Warm-up	-	-	
Unilateral DB Clean & Press	4	10-12	120 sec
DB Bulgarian Split Squat	4	10	120 sec

Day 7

Target - Hip Flexion – Trunk Loaded

Exercise	Sets	Reps	Rest
Foam Roller	-	-	
Dynamic Warm-up	-	-	
Swiss Ball Leg Lifts	4	10-12	120 sec
Reverse Hyperextension with Med Ball	4	10-12	120 sec

Strategy 2 - During SPP or Strength Training Session

A torso activating sequence can be done during your SPP (skills) or GPP (strength, speed, agility, conditioning) training session.

This strategy creates a training environment that requires the athlete to brace and stabilize while under extreme stress or fatigue.

A SPP or GPP activity is engaged for a specific length of time. During the recovery period between expressions, the athlete must engage a static torso strengthening movement. With labored breathing and in a high lactate environment, the athlete will be challenged to maintain a rigid, static posture for a specific length of time.

SPP / Statics Examples

Example 1
- Grappling (SPP) 2:00 min / Planks (GPP) 0:30 sec
- REPEAT

Example 2
- BJJ (SPP) 2:00 min / Core Statics (GPP) 0:30 sec
- REPEAT

Example 3
- Kickboxing (SPP) 0:30 min / Planks (GPP) 0:30 sec
- REPEAT

Example 4
- Sled Dragging (GPP) 0:30 min / Planks (GPP) 0:30 sec
- REPEAT

Example 5
- Interval Treadmill Runs (GPP) 0:30 min / Core Statics (GPP) 0:30 sec
- REPEAT

Example 6
- Two DB Clean & Press (GPP) 0:30 min / Planks (GPP) 0:30 sec
- REPEAT

Strategy 3 - After SPP or Strength Training Session

A torso activating or strengthening sequence can be done after your SPP (skills) or GPP (strength, speed, agility and conditioning) training session.

Similar to Strategy 1, Strategy 3 can be organized to address weaknesses, establish foundational qualities or to develop specific adaptations needed for the athlete's sport.

Target Volume

Volume = Sets x Reps
Target volume of the torso strength training sessions will be dictated by the movements, by the intensity and by the athlete's goals.

Target Sets
The optimal sets for torso strength and power development would be 2-3 sets per exercise. The target time under tension for the core statics means should stay within the 0:30 – 1:00 min range per set unless targeting a round or period specific time period.

Target Reps
The optimal reps per set for torso strength and power development would be 6-8 reps per exercise. While throwing movements are typically executed for 4-6 reps or until form and/or speed is compromised.

Sticking to this protocol will improve your athlete's ability to display strength, power and bracing proficiency.

	Endurance	***Hypertrophy***	***Strength***	***Max Effort***	***Power (Explosive)***
Sets	3-6	3-10	3-5	3-5	3-5
Reps	12-15	8-12	4-6	1-3	4-7
Rest	30-60 sec	60-90 sec	120-180 sec	5 + min	3 + min

Final Note:

The above sample programs or exercises can be broken down and inserted into your full body or upper / lower split strength routines. The abdominal strength training exercises can be inserted into any of the training sessions regardless of the primary target while the posterior chain exercises should be added to the lower body split or a full body routine, seen in **bold** below.

Full Body Routine				
Movement	*Exercise*	*Reps*	*Sets*	*Rest*
MAIN-Hip Dominant				
Knee Dominant				
MAIN-Horizontal Push/Pull				
Vertical Push/Pull				
Core				
Rehab/Weakness				
Grip				

Upper Body Routine				
Movement	*Exercise*	*Reps*	*Sets*	*Rest*
Horizontal/Vertical Push				
Horizontal/Vertical Pull				
Horizontal Push/Pull				
Vertical Push/Pull				
Core				
Rehab/Weakness				
Grip				

Lower Body Routine				
Movement	*Exercise*	*Reps*	*Sets*	*Rest*
MAIN-Hip Dominant				
SUPPLEMENTAL-Hip Dominant				
Knee Dominant				
Conditioning/Sled				
Core				
Rehab/Weakness				
Grip				

Combat Core Exercise Index

Combat Core Strength

Combat Core
The Decline Series
Combat Core Strength

The Decline Series

The Decline Series has the athlete setup on a decline bench and perform loaded or random movements. The idea is to put the athlete's torso on tension while you require them to perform wide ranging movements. After performing rep after rep, the athlete gains muscular endurance and the ability to brace and move while under fatigue.

Tennis Ball Tosses

The athlete sets up on a decline bench and the coach randomly throws a tennis ball in all directions. The goal is to catch the tennis ball and return it as quickly as possible.






Stick Fighting

For *stick fighting*, the athlete will try to avoid the stick for a certain length of time.




DB Clean & Press

The athlete will clean the dumbbells to a racked position.

From there, they will press the weight overhead.

Return the weights to the starting position and repeat.

DB Military Press

The athlete performs typical dumbbell military press for the desired volume.

DB Curls

The athlete performs typical dumbbell curls for the desired volume.

Pummeling

More advanced then the conventional version of this warm-up exercise, pummeling while the torso is braced will create a very specific training effect, similar to an athlete in guard or in a mounted position. Rotational strength is also developed for striking.






Elastic Band Punches

The bands are anchored behind and below the athlete. This exercise can also be done with an elastic band wrapped around athlete's back and secured in their hands. The athlete will perform punches for a desired length of time.






Core Statics – Elastic Bands

This movement forces an anti-rotation and bracing of the torso. The band is anchored perpendicular to the athlete and stretched across their chest. A more advanced version would require the athlete to respond verbally to questions while under tension and engaged. This teaches the athlete how to breathe without relaxing their abdominals.

Med Ball Throws

The goal is to have the athlete return the med ball to the trainer as quickly as possible. The med ball should be thrown quickly to every angle.






Med Ball Throws (cont.)






Sandbag Sit-ups

Hold the sandbag in a locked position. The weight of the sandbag should be adjusted to the athlete's strength level.

The athlete will perform typical sit-ups

Repeat for the desired volume.

Sandbag Chaos Sit-ups

This exercise is from the *Chaos Manual* and is part of the *Reactive Series*. The trainer will throw a sandbag to the athlete who will decelerate the sandbag and reverse the movement back to the trainer. Decelerating a rotational movement will improve the speed and power of their strikes and will simulate an upper body reactive expression.

Sandbag Sit-ups with Military Press

The athlete will start with the sandbag on their chest. After finishing a sit-up the athlete will perform a military press and return the sandbag to a racked position. The athlete will return to the starting point and repeat.

Sandbag Pop-ups

The athlete will hold the sandbag at arms length and move to a sit-up position. As the athlete moves into hip flexion, the sandbag goes from a front racked position to an overhead lockout.

Combat Core
The Heavy Bag Series
Combat Core Strength

The Heavy Bag Series

I developed a Heavy Bag Series to address a specific need for competitive athletes, not only fighters. The primary focus being their simultaneous need for offensive and defensive tension. Athletes must constantly brace in the anticipation of absorbing an impact, generating rotation while maintaining sufficient tension to generate power.

If you are required to carry an object, while performing *SPP* skills, you will have to contract to keep from dropping the object. If you contract and are under tension, you will be able to absorb a strike, you will have more potential to transfer forces and you'll be developing muscular endurance in the engaged kinetic segments. When the athlete is striking, it is more than likely they will be receiving a strike at the same time. So they better be ready.

There are three options I will demonstrate, but there are many more, so be creative. Also remember to switch hands to evenly develop both sides.

Heavy Bag Series Options

- Sandbag / Heavy Bag with Shadow Boxing
- Sandbag / Heavy Bag with Heavy Bag
- Kettlebell with Shadow Boxing

The sandbag and heavy bag (taken off the hook) can be interchanged for the movements below.

Option 1: Sandbag / Heavy Bag with Shadow Boxing

Option 2: Sandbag / Heavy Bag with Heavy Bag

Option 3: Kettlebell with Heavy Bag

The Heavy Bag Series

Sandbag / Heavy Bag with Shadow Boxing
Combat Core Strength

General Movements / Footwork

The athlete will perform general footwork and movement skills while holding a sandbag or heavy bag in the guarded position.

Knee Strikes

The athlete will perform knee strikes directly against the bag or just executing them with the bag in the guarded position.

Hooks / Jabs

The athlete will perform hooks directly against the bag or just executing them with jabs while holding the sandbag or heavy bag in the guarded position.




Tennis Ball Tosses

The athlete will perform punch combinations or general footwork while the trainer randomly throws tennis balls that they are required to catch. This develops quickness and hand / eye coordination.

Reactive Throws

Explosive hip extension and shoulder flexion will launch the sandbag into the air. While airborne the athlete can punch the sandbag with a combination before they have to re-catch it. This will develop hand speed and absorption mechanics.

Rippers

A thick rope is attached to the sandbag or heavy bag and while the athlete is moving and performing punch or knee strike combinations, the trainer will “rip” them in random directions, trying to knock them off balance. Again, the athlete is building muscular endurance, deceleration mechanics and balance.

Gripper Punches

Muscle tension, co-contraction and hand strength is developed with this variation. The athlete closes a torsion spring gripper and starts punching and moving with the sandbag or heavy bag.






The Heavy Bag Series

Sandbag / Heavy Bag with Heavy Bag
Combat Core Strength

General Movements / Footwork

The athlete will perform general footwork and movement skills while holding a sandbag in the guarded position.




Jabs

The athlete will execute jabs on the heavy bag while holding a sandbag in the guarded position.


Hooks

The athlete will execute jabs on the heavy bag while holding a sandbag in the guarded position.






Heavy Bag Series

Kettlebell with Heavy Bag Sandbag
Combat Core Strength

General Movement / Footwork

The athlete will perform general footwork and movement skills while holding a kettlebell in the guarded position.

Jabs

The athlete will execute jabs on the heavy bag while holding a kettlebell in the guarded position.

Hooks

The athlete will execute hooks on the heavy bag while holding a kettlebell in the guarded position.

Combat Core
The Braced Series
Combat Core Strength

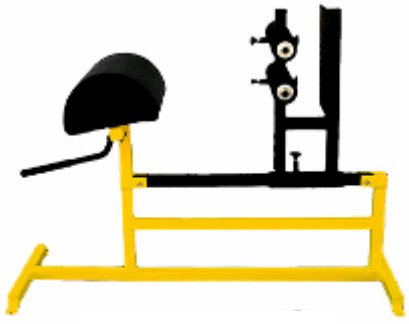
The Braced Series

In these exercise demonstrations a glute ham raise or GHR bench was utilized, but a Roman chair or a 45 deg back extension can also be used. If you don't have any of these pieces of equipment, the athlete can lay off of a picnic table, the edge of a ring or off the tailgate of a trunk, with a partner securing their feet.

Once again, creating great muscular tension for the athlete while forcing explosive and decelerative movements, the *Braced Series* is brutal.

The athlete will setup on the GHR and their torso will be unsupported and extended outward, with only the hips supported on the equipment.

45 Deg Back Extension



Glute Ham Raise (GHR)

Roman Chair

Deceleration Stops – Arms Straight

The trainer will throw a med ball to the athlete who will decelerate it and keep it at arms length. This is to familiarize the athlete with the movement and for them to learn how to balance the med ball for the next progression.

Med Ball Rotational Punches

This is the next level for the previous exercise where the athlete now is required to absorb and decelerate the weight of the med ball to a position next to their shoulder. The movement is reversed and the med ball is thrown back for the next rep. Reversal speed is increased as proficiency and strength increase.

Torso Rotations

In the extended position, the athlete must remain braced and under tension for the duration of the exercise. This requires them to regulate breathing and build serious muscular endurance. The torso will remain rigid which will increase their ability to absorb impact from strikes and kicks while they are throwing their own strikes and kicks.

Torso Rotational Sit-ups

Same rotational movement as above, but now the athlete will rotate back and forth while executing a typical sit-up.






Rotational Catch & Throws

Increasing the decelerative component from the above *Torso Rotations*, *Rotational Catch & Throws* will increase the speed of the movement.






Double Rotational Catch & Throws

The athlete will now catch the med ball and rotate twice before throwing it back to the trainer.

Two Arm Med Ball Chest Passes

This exercise is very tough. This movement is similar to the typical med ball chest passes down on a bench or on the floor, but now the athlete is required to maintain a "planked" position and create a base or foundation with their torso strength to impart momentum into the med ball.






One Arm Med Ball Chest Passes

Same movement as above, but now done with one hand.

Side Plank Chest Throws

The athlete will remain in a side “planked” position while they pass the med ball back and forth with the trainer.

Side Plank Rotational Slams

From this same position, the athlete will now perform rotational med ball slams on the ground. On the upward ascent of the med ball, the athlete will move immediately into the backward swing of the next rep in the set.

Combat Core
The Farmers Walk Series
Combat Core Strength

The Farmers Walk Series

The Farmers Walk Series involves taking various odd objects and walking for a distance.

Again drilling the need to remain rigid with the torso, we are now incorporating movements of the trunk.

Various Odd Objects

- sandbags
- kettlebells
- rocks
- weighted back pack
- x-vest
- clubbell
- blockweights
- elastic bands
- partner's bodyweight

Various Racked Positions

- front racked
- bearhug
- overhead
- zercher
- secured on the athlete
- neutral (at sides)
- shoulder
- back squat position
- dragged

Sandbag / Kettlebell Farmers Walk

The athlete will crush grip a sandbag and hold a kettlebell while walking for a specific distance.

Front Racked Sandbag / Kettlebell Farmers Walk

The athlete will front rack a sandbag and kettlebell while walking for a specific distance.

Off-set Overhead Sandbag / Kettlebell Version 1

The athlete will walk with a sandbag and kettlebell locked in an overhead position while walking for a specific distance.

Off-set Overhead Sandbag / Kettlebell Version 2

The athlete will lock a sandbag overhead and hold a kettlebell while walking for a specific distance.

Off-set Overhead Sandbag / Kettlebell Version 3

The athlete will bearhug a sandbag and lock a kettlebell overhead while walking for a specific distance.

Off-set Bearhug Sandbag / Kettlebell

The athlete will bearhug a sandbag and hold a kettlebell while walking for a specific distance.

Combat Core
The Extra Exercises

Combat Core Strength

Sledgehammer Overhead Slams

The athlete will rapidly slam a sledgehammer onto a car tire, tractor tire or tree stump. This exercise builds explosive hip flexion and grip strength endurance.

Sledgehammer Baseball Swings

The athlete will explosively swing a sledgehammer in a rotational pattern into a tractor tire that is standing on end. This movement is important for grip strength endurance and striking power.

Ab Roller

The athlete will brace their torso and then roll out as far as they can and then return. Progression for this exercise would have the athlete start from a standing position or by adding elastic resistance.

Band Resisted Ab Roller

An elastic band is secured to the ab roller and a partner or stationary object secures the other end of the band with an appreciable tension. This adds accommodating resistance to the concentric portion of the movement.

Core Statics – Lateral Shuffles

An elastic band is secured to a stationary object and pulled to a position where the athlete is waiting while standing securely planted and braced. The band is released and the athlete's goal is to remain unchanged. Progression for this exercise would include verbal interactions with the athlete.

Core Statics – Pull-Up Rippers

The athlete fixes their trunk in a L-sit position and the trainer provides random resistance with an elastic band or rope. The athlete's goal is to remain unchanged.

Kettlebell Renegade Rows

Side pulls are performed from a “planked” position. The athlete’s training cues are to remain fixed and not to compensate by hiking their hips left to right as the weight breaks off of the floor.

Braced DB Squats
Version 1

This exercise also teaches the athlete to remain rigid and unchanged while engaged in a compound movement.

Braced DB Squats
Version 2

The second version of the *braced db squats*, this exercise also teaches the athlete to remain rigid and unchanged while engaged in a compound movement.

L-sit Pull-ups

The athlete will raise their legs and fix them in an L-sit position. From there they will perform typical pull-ups. Progressions for this exercise would see a med ball fixed in the athlete's feet or various grip enhancing mechanisms, such as; towel, tyler grips, vertical bars hung from a rope.

L-sit Rotations

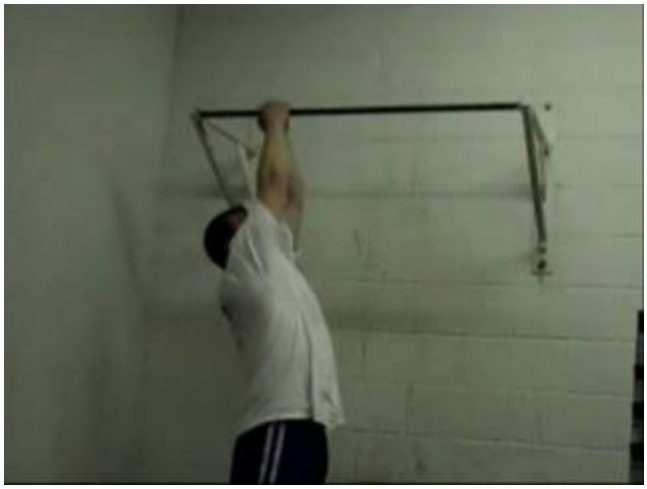
The starting position is the same as the above exercises but now when the athlete is in the L-sit position, they perform horizontal torso rotations back and forth.

L-sit Rotations with Sandbag

Same exercise as above, but now we are utilizing a sandbag in guard.

Gorilla Ups

This exercise has the athlete pulling their legs upward to a point above the pull-up bar. The athlete can pull their legs straight up, or to each side of the bar. A weighted vest or backpack can be added for a more intense movement.



Windshield Wipers

The athlete will perform a ¼ range of motion pull-up and from there they will raise their legs and flex their torso so that their back is parallel to the ground with their legs straight up and above the pull-up bar. The athlete will now rotate their feet back and forth from a 9 and 3 o'clock position.

Alternating Leg Ups

The athlete will touch the anchoring pull-up bar with their feet alternating back and forth on each side of their hand position.

Swiss Ball Leg Lifts

The athlete will anchor their hands onto a stationary object. They will then perform legs lifts. The swiss ball adds a further stabilization component to the movement. A variation would have the athlete rotate their legs side to side to increase the oblique and lats engagement.

Hanging Leg Lifts

The athlete will perform typical leg lifts striving to hit a target above 90 degrees flexion.

Complex Leg Lifts

A modification to the conventional execution of this movement, the athlete raises up onto their hands to engage their lats, traps, rhomboids and serratus anterior prior to and during the execution of the leg lifts. The goal for the athlete is for each rep to be higher than 90 degrees.

Hanging Sandbag Loading

The athlete will hang from a pull-up bar building serious grip and torso strength by loading a sandbag to a partner or to a high platform. After the sandbag is handed off, the athlete will return back to the starting position unloaded and then return back for the sandbag where the movements are repeated.






Power Rope Slams from GrapplersGym.com

Courtesy of Mike Fry at GrapplersGym.com

Utilizing thick ropes for explosive hip extension and flexion, power rope slams are the most basic of movements that can be done with these thick manila ropes. The athlete grabs one end while the other end is anchored to a stationary object or held by a partner. The goal is to create continuous waves down the rope as quickly as you can. The athlete will get a ton of benefits from rope slams, including; grip strength, power endurance, torso strength, mental toughness and incredible conditioning.

Thick Rope Twists

The athlete will start in a side stance position with their inside leg to the front and their outside leg to the back, anchored against the base of the power cage. Keeping their arms straight and locked in front, the athlete will grab a thick rope and rotate to the inside down to a position where they will be facing the cage and looking at the anchor point of the rope. A hard brace and rotation is engaged to return back to the starting position.

Thick Rope Tornados

The athlete will start in an inverted position while grabbing a thick rope that is anchored on a pull-up bar or at the top of the power cage. The movement can be done with the athlete's feet on the floor or on a raised platform, which will be a tougher, more advanced version. To start the movement, the athlete will perform an explosive rowing motion direction into a torso rotation. As the athlete moves into the rotational pattern, they will perform a large step over with their feet to end in a face down position. Reverse the movement back to the starting position. This is an advanced exercise and will be very difficult those athletes with low relative strength levels. On the other end of the spectrum, it can be overloaded with an x-vest for athletes who need a bigger challenge.

Thick Rope Cage Climbing

The athlete will grab a thick rope anchored high on a pull-up bar or power cage. Placing their feet on the pins at various heights (the higher the pins, the more difficult the movement) the athlete will pull themselves up until they are in a standing position and then lower back down and repeat the movement. This exercise is great for increasing grip and upper back strength.

Feet on Floor – Level 1

Feet on Pins (Various Heights) – Level 2

Standing Keg Rotations

The athlete will grab a loaded (water or sand) keg in a bearhug and perform torso rotations. As a progress, at the end range of each rotation, the athlete can also drop into a lunge. This exercise can also be done with sandbags, kettlebells or even a partner's bodyweight.

Crossbows

The athlete will setup in a cable cross over by grabbing the top cables from each weight stack. They will have a forward / back staggered foot position and will be facing one stack. From there they will extend one arm while horizontally abducting, flexing and rotating their torso with the other arm. The motion is reversed and duplicated.

DB Windmill

The athlete will lock one dumbbell over their head with a shoulder width stance. From this position, maintaining their view of the dumbbell, the athlete will laterally flex their torso and bend down to touch the ground, while keeping the db locked and at arms length. The movement is reversed back to the upright position.

Saxon Side Bends

Two dumbbells are locked overhead. The athlete laterally flexes their torso side to side.

DB Side Bends

The athlete laterally flexes as one dumbbell travels down their leg. The lats and opposite obliques are contracted hard and the athlete will return back to the upright position.

Unilateral DB Bracing Bench Presses

The athlete will perform typical unilateral dumbbell bench presses with only their upper back resting on the bench.


Two DB Bracing Bench Presses

The athlete will perform a typical dumbbell bench press with only their upper back resting on the bench.


Overhead Chain Lunges

The walking lunges are done with chains locked overhead. Because of the unstable nature of the chains, the athlete is required to counterbalance, remain rigid and brace their shoulders, torso, hips, knees and ankles throughout the movement.

Band Resisted Med Ball Sit-ups

An elastic band is anchored at each end by a dumbbell. The band is then placed across the athlete's chest while they perform med ball throws back and forth with the trainer.

Swiss Ball DB Rotations

The athlete will sit on a swiss ball and roll out into a level position. A dumbbell will be locked overhead with the athlete's fingers interlaced. The athlete will rotate back and forth maintaining control of the dumbbell. The speed can be increased as they continue to learn the movement. Special attention should be paid to the lower lumbar remaining fixed and braced.

Rotational DB Punches on a Swiss Ball

The athlete will roll out onto a swiss and lock a dumbbell overhead with one arm. The athlete will perform a unilateral bench press movement, but in the bottom of the movement the athlete will "load into" the dumbbell with a slight thoracic rotation. Exhaling forcibly, the athlete will drive the dumbbell to lockout and repeat.

Homemade Tornado Ball Rotations

This exercise is performed by putting a medicine ball inside an Army duffle bag. The athlete will grab and close the one end of the bag and perform explosive rotations while standing with their back against a wall. The movement patterns should be wide ranging, from left to right and diagonal.






Rotational Med Ball Throws

The athlete will repetitively and rapidly throw a med ball against a wall. As the ball rebounds off the wall, the athlete should immediately engage the backward swing of the next repetition.



Tire Rotations with Sandbag Guard

The athlete will statically hold a heavy sandbag or heavy bag in guard while repetitively rotating a tire horizontally back and forth. This movement can also be done by anchoring an elastic band on both sides to create an accumulating tension.

Straight Leg Kettlebell Sit-ups

The athlete will turn into the kettlebell and grab it with two hands. They will then roll it to their chest and press it straight overhead. From there, they will perform a straight legged sit-up, maintaining the kettlebell in the overhead locked position. Initial progression for this exercise would start with the athlete anchoring their feet under a partner's feet, a power cage or any other stable object.

Straight Leg Sit-ups with Hip Abductions

This exercise is executed with the athlete forcibly engaging their hip abductors against a stationary object, in this instance that is the base of a power cage. Holding a dumbbell on their chest, the athlete will perform a straight leg sit-up for repetitions.




Kettlebell Turkish Get-ups (TGU)

Here is Mike Hanley demonstrating a TGU during a recent MMA seminar. This exercise promotes strength and stability of not only the torso musculature and posterior chain musculature, but also of the shoulder complex.






Unilateral Kettlebell Overhead Lunge

Without a doubt, this exercise requires a stabile torso and integrity across the kinetic chain. The quicker the movement, the more deceleration and stability is required. Two variations to this exercise would involve executing a press on the downward movement of the lunge or having the lifter drive forward up onto a box or platform. Again, pressing during the step-up or keeping the kb locked overhead.

Split Stance DB Military Press

The lifter will perform a deep lunge to setup the first part of this exercise. While they're in the split stance position, the lifter will execute a military press with the dumbbells. The lifter can also press the dumbbells in an alternating fashion or against elastic resistance. The goal is to minimize "sway" side to side while the lifter is performing the movement.

Kettlebell Rotational Twist & Lunge

During this movement a kettlebell is held tight against the athlete's chest while a rotational lunge is executed. A upright torso position should be maintained and the athlete should braced the abdominals outward. The athlete's weight should be centered over their heels and the speed of the movement can be increased as proficiency is developed.

Rotational Sandbag Throws

The athlete will explosively rotate and throw a sandbag. Because the bag is released, there is no end-range deceleration to the movement which will improve the athlete's force transfer mechanics and power potential.






Rotational Kettlebell Throws

Coordinating this newly developed core strength and expressing it through the execution of an explosive throw, the athlete will learn how to improve their starting strength as well.

Kettlebell Shotput Throws

Throws will improve the athlete's punching power by coordinating all segments of the kinetic chain. This rotation along with efficient bracing mechanics allows for the rapid transfer of ground generated forces.

Quick Pass Med Ball Sit-ups

The athlete's goal is to quickly pass the med ball back to the trainer. They should be moving as fast as possible and concentrate on reversing the kinetic energy of the med ball explosively.

Side to Side Hoists

The athlete will take a cross body hold on a partner who is facing away from them. They will contract their torso hard and drive the partner into a rotational pattern after a full flip. This movement can be done anywhere and gets the athlete used to elevating a partner of similar or great body weight.






Band Resisted Sit-Outs

The athlete will be in the down position and explode against the band tension into a rotational sit-out. This movement improves explosiveness and rotational torso strength.

Sandbag Rotational Rippers

This exercise is a standing rotational ripper. Here the athlete will be loaded with an odd object that is attached to an elastic band. The partner will provide vibrational or random tension as the athlete performs a rotational abdominal twist.

Rockers

Here is another exercise from Mike Hanley. Rockers are deceptively hard as the goal of the exercise is to keep the elbows and the knees touching as the trainer rocks the athlete back and forth. An advanced progression to this exercise would have the athlete holding a plate or medicine ball behind their head.

Alternating KB Floor Presses

This is the next level of a standard floor press. Instead of a barbell or dumbbell, we are using a kettlebell. As each press nears lockout, the athlete will drive the opposite leg down into the ground and rotate upward to extend the lockout until the arm is parallel with the athlete's back.

Standing Cable Crunches

The athlete will grab the high cable and with a fixed torso will perform standing crunches. This movement can also be performed against heavy elastic tension.

Alternating Knee-Ups

With one or two kettlebell held in a front racked position, the athlete will drive their knees upward toward the opposite elbow. A repetition is done with each step. Coaching points would include regulating breathing, engaging a full range of motion and contracting the abdominals hard. If full range cannot be engaged, hip mobility drills and soft tissue therapies will improve this limitation.

Overhead Med Ball Sit-ups

Sit-ups done on a Roman chair (or GHR or back extension machine) with a med ball locked in an overhead position. This transfers the mass (med ball) further from the fulcrum point of the athlete's hip and increases the difficulty and torso stabilization component.

Behind the Neck Med Ball Sit-ups

Sit-ups done on a Roman chair (or GHR or back extension machine) with a med ball locked behind the athlete's neck.

One Leg Decline Sit-ups

This movement, because it utilizes only one leg, provides a contralateral bracing effect that increases the difficulty beyond a standard decline sit-up. The athlete must engage significant intra-abdominal pressure and bracing to execute the movement.

High Cable Lateral Crunches

Targeting the obliques, QL and intercostals, this exercise has a short lateral flexion range of motion, but because of the isolation aspect, will fatigue the athlete quickly.

Grappler Sit-ups

Targeting the strength and endurance of the hip flexors and adductors, grappling sandbag sit-ups are tough! This exercise is highly functional for combat and mixed martial arts fighters.






Grappler Sit-ups with Punches

Grapping guard exercises can be done on a padded pole (as seen below), on a sandbag that is tied up high or on a keg hung in a power cage or tree. We've added punches to the exercise to further increase the difficulty. The athlete will anchor onto the hold with their hips and with each repetition will perform a punch combination.




Grappler Holds with Punches

Grapping guard holds are done on a stationary object that is on the ground or hanging low enough for the athlete to gab in guard while lying on the ground, i.e. a low hanging heavy bag. The goal is to squeeze as hard as you can with the legs through the duration of the movement. With each repetition the athlete will perform a punch combination.

Planks with Punches

Planks are held for the duration of the exercise while various punches are thrown. Special attention should be made in maintaining a straight line from the head to the feet. There should be no sagging of the hips which tends to occur as fatigue increases.

Rocky's

The athlete will lay on a flat bench with their hands anchored by their head. The athlete will raise up so that only their upper back is in contact with the bench. Once locked out, the athlete braces and lowers down to a position hovering above the bench where they exhale hard and return to the starting position.

Kettlebell Sit-ups on Tire

This movement can utilize a variety of objects to add as external loading, but the uniqueness comes from the 10-15 degree of torso extension, at the start of each repetition, beyond parallel which increases the range of motion where the abdominals are engaged. This movement can also be done on the floor with a bosu ball under the athlete's lower back.

Overhead Kettlebell Sit-ups on Tire

This movement is similar to the above exercise with the exception of now the kettlebell is locked at arms length.

Planks

Planks are the most recognized static exercise for the torso. They should be held for time and can be overloaded with external resistance that is added to the athlete mid to upper back.

Planks with External Resistance

These exercises demonstrate planks with external loading.

Side Planks

Side planks should be done with no sagging of the hips, torso or shoulders. The movement should be held for time. Having the athlete respond to verbal questions or bouncing a tennis ball increases the difficulty.

Bench Side Bends

Dynamic side bends done on a bench will target the obliques and quadratus lumborum through a good range of motion. Stability is added to the bracing shoulder with the opposite hand across the chest.

Med Ball Punches for Bracing

Another static torso strengthening exercise, med ball punches teach the athlete to breath while bracing for impact. The med ball should strike the athlete rapidly back and forth, transversing the abdominals.






Battle Axe Grinders

A sledge hammer or loaded thick pipe is moved in a circular pattern with increasing speed. The torso will be forced to brace and counterbalance and the legs will drive downward to control the implement as it moves through the pattern.

Partner Sit-ups

This extended range exercise can be done right on the mat or in the ring without any other equipment. Manual resistance can be added by a third partner on the chest or hands of the engaged athlete.

Combat Core
The Posterior Chain
Combat Core Strength

The Posterior Chain

Posterior chain described by the shaded area

The *posterior chain* consists of the musculature on the body that you don't normally see, but it makes up the other part of the equation. Developing the musculature that has been collectively grouped as the *posterior chain* is the key to developing power. The body works as a kinetic chain (structural, fascial and neurological systems) and movements across one segment accumulate or dissipate across other segments dependent upon the strength, mobility or stability of the segments engaged.

Examples of Compound Movements Engaging the Posterior Chain

- Squats
- Deadlifts
- GHR's
- Reverse Hypers
- Cleans
- Snatches
- RDL's
- Good Mornings
- Lunges
- Step-ups
- Sled Dragging

Purpose of the Posterior Chain

- Development and proficiency of deceleration and acceleration mechanics
- Creates a balance of antagonistic anterior and posterior muscle group pairings for optimal functioning
- Works with "core" musculature to stabilize and engage all movements

- Injury prevention and protection of the neck, shoulder, spine, lower back and hips
- Developing the posterior chain will make an athlete stronger, faster and more explosive

Posterior Chain Anatomy

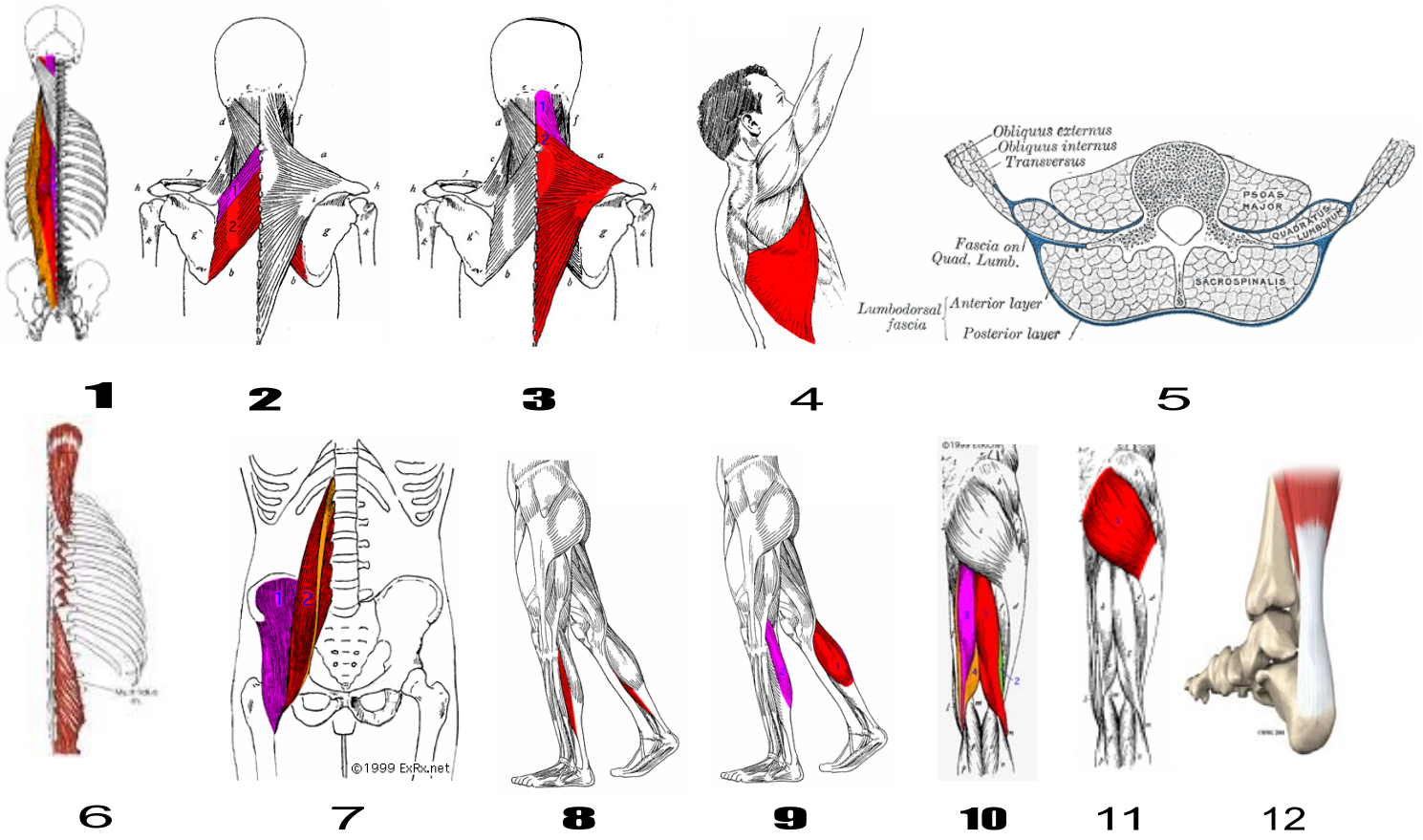


Image References 1, 4

Number	Muscle(s) Group	Action
1	Erector Spinae - iliocastalis , longissimus, spinalis	Trunk / Neck Extension Lumbar Stabilization Resists Trunk Flexion
2	Rhomboids	Scapular Retraction Scapular Downward Rotation Thoracic / Cervical Spine Stabilization
3	Trapezius – Upper	Scapular Elevation Neck Lateral Flexion Neck Extension Neck Rotation Thoracic Spine Extension Cervical Spine Stabilization
3	Trapezius – Middle	Scapular Adduction Scapular Retraction Thoracic / Cervical Spine Stabilization
3	Trapezius – Lower	Scapular Depression Scapular Upward Rotation Thoracic Spine Extension Thoracic Spine Stabilization
4	Lattissimus Dorsi	Shoulder Extension Shoulder Horizontal Adduction Shoulder Internal Rotation
5	Thoracic Lumbar Fascia or *TLF*	Overlays, engages and coordinates movements and forces transversely across the entire back musculature
6	Multifidus	Segmental Spine Proprioception, Stabilization, Extension, Rotation and Lateral Flexion
7	Hip (Iliopsoas) Complex – iliacus, psoas major, psoas minor	Hip Flexion Hip Lateral Rotation Lateral Rotation of Lumbar Spine Lumbar Extension
8	Soleus	Ankle Plantar Flexion
9	Gastrocnemius	Knee Flexion Ankle Plantar Flexion
10	Hamstrings	Knee Flexion Hip External / Internal Rotation Hip Extension
11	Gluteals – maximus, medius	Hip Extension Hip Abduction Hip External Rotation Decelerates Hip Flexion Decelerates Hip Adduction Decelerates Hip Internal Rotation

Publication References 1, 3, 4
Website References 8
Special Thanks to Mike Robertson MA, CSCS

Combat Core
Posterior Chain Exercises

Combat Core Strength

Back Squats

The most basic, compound exercise for developing the lower body is the squat. There are several different versions including box squats, front squats or high bar back squats. The more functional version would be the one that encompasses the greater articulations of the lower body; the ankles, knees and hips. Therefore, we are demonstrating the high bar back squat.

Front Squats

The goal of front squats is to remain upright and neutral with the spine and brace throughout the execution of the movement.

Deadlifts

Developing the whole body, the deadlift is one the most intensive strength and mass building exercises. The athlete will immediately improve their limit strength levels and have a greater potential to display force once deadlifts are integrated into their programs.

Sumo Deadlifts

Incorporating a sumo stance distributes the load across the hips, glutes and hamstrings.

Power Hang Cleans

Weightlifting, by definition, involves moving weights fast. Power and *rate of force development (RFD)* are the goals of this movement. Special attention should be paid to the hands, wrists, elbows and shoulders to ensure the athlete is not over stressing these joints. Other objects can be supplemented instead of the rigid barbell, such as a sandbag or water filled keg to alleviate these issues.

Sumo Stance Power Cleans

A variation not often seen, *sumo stance power cleans* are unique in that they reduce the range of motion of the exercise and therefore require a greater *rate of force development*. Also, because of the sumo stance, a greater distribution of the load is across the hips, glutes and hamstrings.

Good Mornings

Targeting the hip extensors, good mornings should only be done with proper coaching. The athlete should remain rigid with a neutral spine and braced abdomen and move the hips backward, not bend over at the waist.

Glute Ham Raises (GHR)

Glute ham raises or GHR's target the glutes and hamstrings and can be externally loaded with a variety of objects, i.e. weight vest, elastic bands, dumbbells, med balls or Olympic plates. A "natural GHR" is done on the floor with the athlete's feet anchored under a stationary object. Natural GHR are difficult, but can be deloaded with elastic bands or with a plyometric push-up to return back to the starting position.

GHR with Med Ball

The GHR is now loaded with a medicine ball held on the athlete's chest. The movement should be explosive with attention to the athlete's lower lumbar remaining in neutral and not hyper-extended. Keeping the athlete's chin tucked during the movement helps to accomplish this task.

Reverse Hyperextensions

Targeting the glutes and hamstrings, reverse hyperextensions also developing static strength in the erectors. If you don't have a reverse hyper machine, this exercise can be done off the side of the ring, off the tailgate of a truck or off a high table.

Reverse Hyperextensions with Med Ball

Statically contracting the spinal erectors, reverse hyperextensions engage the hip extensors, the glutes and hamstrings. A medicine ball is added in between the athlete's feet to further load the movement and engage the hip adductors.

Back Extensions with Plate Raise

At the peak of the back extension, the athlete flexes their shoulders to drive the Olympic plate to a position parallel with their torso. A progression to this exercise could use a single dumbbell in one hand which requires a cross stabilization effect at the peak of the movement.

Weighted Back Extensions

With a neutral (long) spine, the athlete will perform back extensions with a loaded barbell. Of course, other implements could be used, but the key point to remember is the hard contraction of the posterior chain to move the weight.

Guard Supermans

Supermans are typically done on the floor or on a bench. The bench version limits hyperextension of the lower lumbar. For *Guard Supermans,* the athlete grabs and secures the bench with their hip adductors, which are very important to fighters. From this position the athlete will reach outward, extending and maintaining a straight line down to their hands. Manual resistance can be added to the athlete's back by a partner or a dumbbell can be held. This exercise should be held for time.

Sumo Romanian Deadlifts (RDL's)

Once again by distributing the load across the hips, glutes and hamstrings, *sumo stance Romanian deadlifts* are a great way to target the posterior chain.

BTR RDL's with Axle (using 35 lb plates)

With this *beyond the range* movement we are accomplishing two things; enhancing the grip component by using an axle and increasing the range of motion by using 35 lb plates instead of 45 lb plates.

RDL to Power Shrug

This movement involves linking a Romanian deadlift and a power shrug. Great for developing the posterior chain, *RDL's to power shrugs* also teach acceleration and explosive hip extension. This is essential for elevating an opponent from a high single or for throws.




One Leg KB RDL's

This anti-rotation movement improves glute activation, hamstring strength, balance and coordination. The athlete should move to an upright position by actively firing their glutes hard.

Waiter's Bows

We are now statically engaging the lats by loading shoulder extension and "fixing" the plate to the athlete's chest. The athlete will then perform a good morning type movement for repetitions. Waiter's Bows can also be done with many other odd objects.

Powerbombs

Originated by the Diesel Crew, *powerbombs* are one of the most important kettlebell movements, after the basics like the swing, clean & press and snatch are learned. A partner accelerates the eccentric portion of a typical kettlebell pullthrough by throwing the kettlebell downward, *powerbombs* create a reactive expression engaging the hips, glutes and hamstrings, which is important for agility, absorption abilities, speed and explosiveness.

Trap Bar Deadlifts

The trap bar deadlift is great for athletes who are novice or beginners to strength training. The form can be easily learned and the athlete can start building strength in their legs and upper back. A key point to remember is that the distribution of the load is more on the quads because of the positioning and kinetic alignment. So when incorporating trap bar deadlifts, don't forget movements like RDL's, GHR and reverse hypers to balance out the hamstring development.

Snatch Grip Deadlifts off 4" Box

This movement engages a beyond the range (BTR) deadlift by utilizing two different techniques. The snatch grip on the bar and the raised platform both work to increase the total range of motion of the exercise. We know that the greater the range of motion, the greater muscle fibers are activated. The greater muscle fibers activated, the greater strength is developed.

Zercher Squats

A zercher movement is where an implement is held in the crease of the lifter's arms. This exercise is performing a zercher squat which is a squat performed with the bar in the lifter's arms instead of on their back or in a front squat position. Zercher movements are very difficult and require a significant bracing and rigidity of the torso to maintain proper positioning. Hip and ankle mobility dictate the athlete's ability to engage a full range of motion.

Zercher Walks

Now the athlete will be required to brace during an unstable movement. With each step the kinetic chain has to re-stabilize which will happen repetitively over and over throughout the exercise.

Zercher Good Mornings

Great for building strength and stability in the upper back as well as incredible torso strength, *zercher good* mornings can be substituted for your hip extension movement after squats or deadlifts.

Zercher Squats with Strongman Log

The athlete must have good hip mobility and bracing abilities to remain upright throughout the movement. Because of the diameter of the strongman log, the center of gravity of the implement moves a greater distance away from the center of gravity of the athlete. When this occurs, the exercise difficulty increases because the athlete's leverage decreases. This movement can also be done by placed a 4" PVC pipe over an Olympic bar or with a 6" PVC pipe capped and filled with water (i.e. slosh pipe) - if you don't have a strongman log.

Bodyweight Zercher Squats

Same movement as above, but now we are utilizing a partner's bodyweight, which in essence is an unstable odd object.

Bodyweight Shoulder Squats

Partner shoulder squats require a huge commitment from the athlete to remain upright and stable during the movement. Bracing hard, the athlete will execute a full range squat trying to move in a straight line.

Racked KB Front Squats

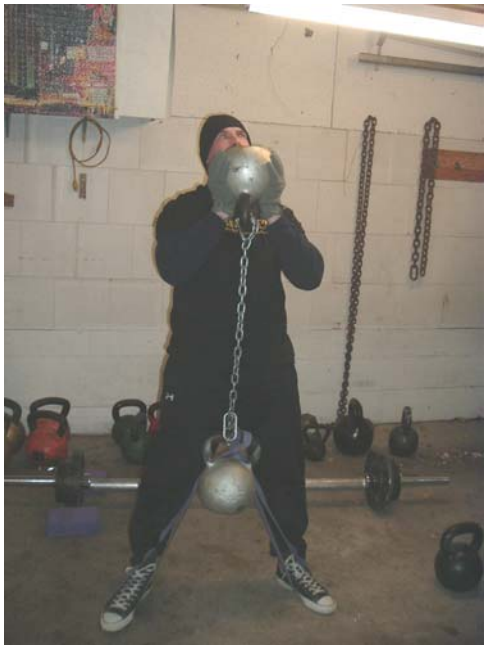
Kettlebell front squats teach an upright posture and increases not only lower body strength but also upper back strength. Hip and ankle mobility is needed to maintain the upper back position while in the bottom squat position.

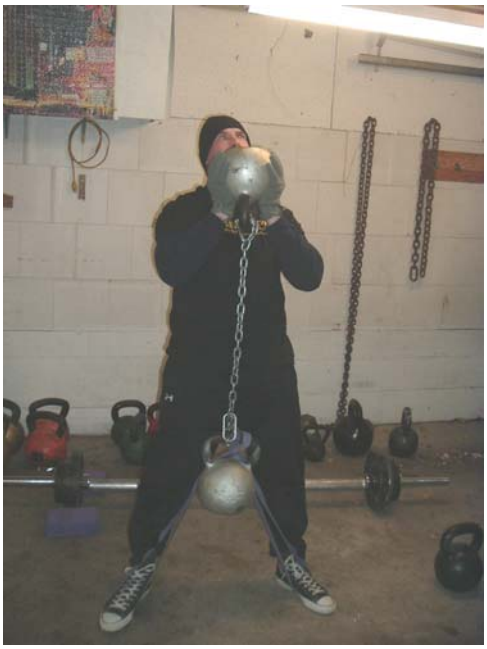
One Arm KB / Chain Farmers Walks

This dragging exercise is another anti-rotation movement which also improves leg drive while building decelerative torso strength.

Suspended / Band Resisted Kettlebell Front Squats

This exercise is unique in that it utilizes elastic resistance in addition to the weights of the two kettlebells. The chain attaches that each kettlebell adds an unstable component to the movement. This exercise can also be done by attaching two dumbbells together with a heavy elastic band.





Sandbag Rippers

Excerpted from the Chaos Training manual

Random forces introduced by a partner *ripping* and pulling a loaded sandbag or heavy bag that the athlete is holding. The goal is to resist being knocked off balance and remain stable for a certain length of time.

Stone Lifting in the Gym

Loaded triple extension with a heavy back engagement, bumper plates stone lifting, is a great way to simulate strongman stone lifting in the gym. Huge posterior chain recruitment, along with a powerful hip extension.






Band Resisted Heavy Bag Punching

A band is wrapped around the heavy bag and around the back of the athlete's neck. This puts their neck, upper back and posterior chain musculature on tension while performing this popular conditioning drill utilized by combat athletes. The band simulates an opponents hands constantly pulling down the head, arms and shoulders while in guard.

Band Resisted Heavy Bag Punching (cont.)




Note: Another variation of this technique would anchor the elastic bands up high in a power cage or on hooks. The athlete would grab one band in each hand and ground and pound the heavy bag against the resistance of the bands.

DB Bulgarian Split Squat

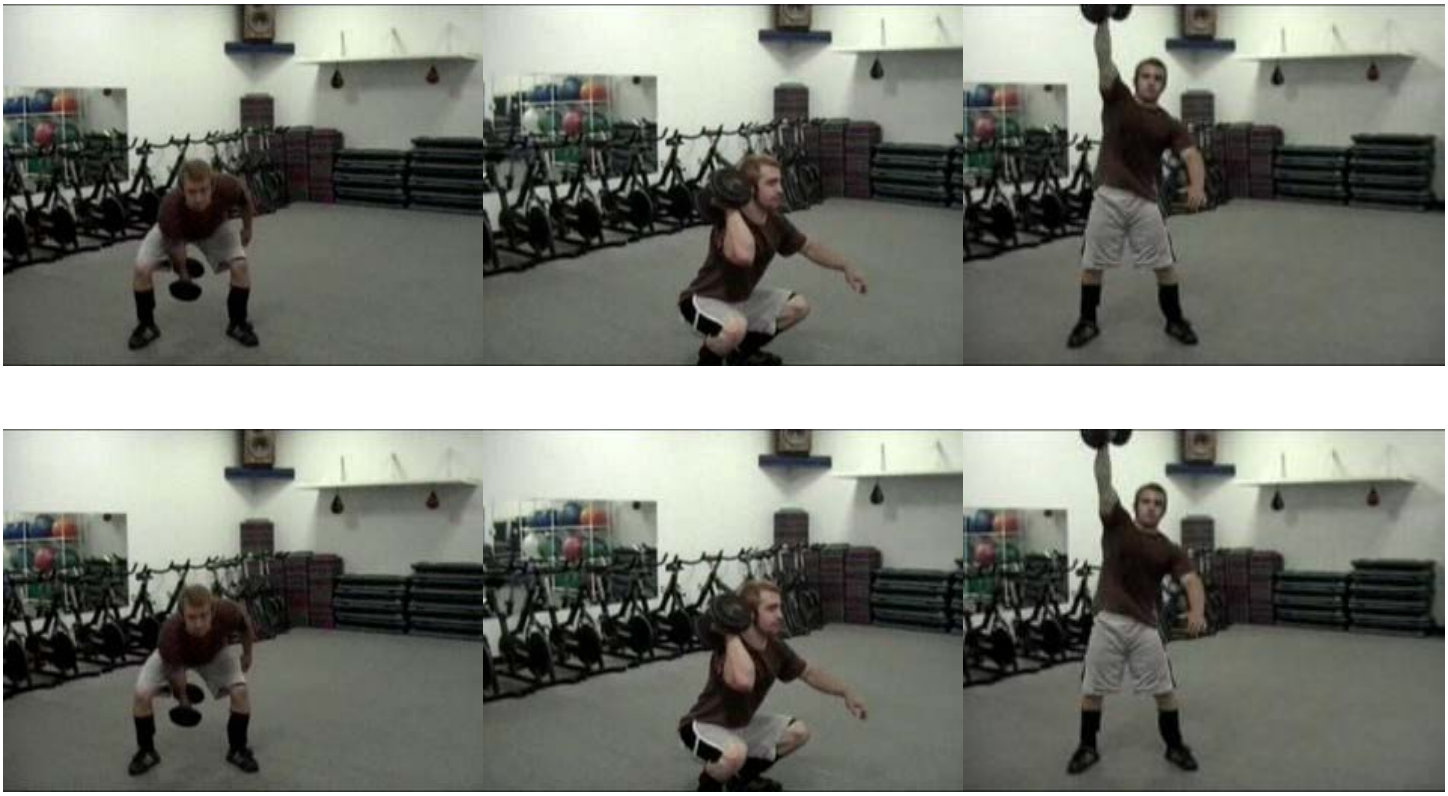
Lateral stabilization in the frontal plane for the torso, hips, knees and ankles. *Bulgarian split squats* also improve leg drive and mobility of the hips. This movement can also be done with kettlebells, with a barbell on the athlete's back, or with the barbell locked overhead.

Unilateral DB Squat Cleans

Similar to the contralateral bracing needed for *partner bodyweight shoulder squats*, *unilateral dumbbell squat cleans* help to improve hip extension and deceleration, along with bracing of the torso. The athlete will extend with the dumbbell to impart momentum and catch it into a full squat. The athlete drives to a standing position and the movement is repeated. This exercise is great for your conditioning circuits.

Unilateral DB Squat Clean & Press

Similar to the movement above, but now the athlete will finish with a dumbbell push press to lockout. The athlete will utilize the momentum created with the leg drive from the squat to accelerate the dumbbell overhead.



Lunge Rippers

Excerpted from the Chaos Training manual

The athlete will perform conventional lunge variations against the resistance of an elastic band. Forward lunges, backward lunges or side lunges can be done against an elastic band locked overhead by the athlete or wrapped around the athlete's waist. This exercise improves bracing, balance, deceleration mechanics and knee stability.

Tire Grappling

I learned this exercise from Doug Smith, the head S&C for Juniata College. It involves a standard tire flip. Once the athlete explodes into the tire and gets it to a standing position a partner slams into it and the athlete is forced to fight and stabilize against these loaded, random movements. This exercise targets the entire posterior chain, chest, torso and upper back. It also improves upper and lower body deceleration abilities.

Bent Over Barbell Rows

Creating muscular endurance in the spinal erectors, rhomboids and traps while developing the lats, *bent over rows* are a great way to add upper back size and strength.

Kettlebell Rows with Thoracic Rotation

Creating muscular endurance in the spinal erectors, rhomboids and traps while developing the lats, *kettlebell rows with thoracic rotation* develop the posterior chain responsible for decelerating powerful rotation movements, such as strikes and grappling throws.

Weighted Pull-ups

Because the lats play an instrumental role in the stabilization of the upper back, they must be developed. Nothing develops the upper back and lats like pull-ups. This movement can be externally loaded with a weight vest, chains, a sandbag in guard or a dumbbell hanging from a dip belt (as seen in these pictures).

Combat Core
The Conclusion

Combat Core Strength

Conclusion

Do not be complacent in your or your athlete's strength training preparation. All sports, including combat athletics, are chaotic and unpredictable. A comprehensive, sound and basic approach will always lay the foundation to improve the athlete's state of preparation, but one can never be too prepared.

To meet and exceed the demands of an elite sporting contest an athlete's preparation will not only develop a sound foundation, but also enhance their abilities to display the *SPP* skills specifically needed for their respective sport.

Combat Core provides a comprehensive look at advanced strategies for developing an elite level of torso strength and stability. It is this level of preparedness that will allow them to express explosive power.

Your strength coach,

Jim Smith, CSCS

Performance Enhancement Specialist
The Diesel Crew
Elite Q/A Staff
Men's Fitness Contributor

ABOUT JIM SMITH

Jim Smith, CSCS, CFT, USAW is the co-founding member of the Diesel Crew. Jim is certified through the *National Strength and Conditioning Association* (NSCA) as a Certified Strength and Conditioning Specialist (CSCS), the *International Sports Sciences Association* (ISSA) as a Certified Fitness Training (CFT) and USA Weightlifting (USAW) as a Club Coach.

He dedicates himself to studying, developing and enhancing athletic performance through the utilization of conventional, non-conventional and grip strength training protocols. Helping athletes of all skills levels attain their goals and *"Achieve Beyond Potential"*, Jim is also a lecturer, author and member of the EliteFTS Q&A Staff. Jim has been published by *Men's Fitness* and also regularly appears on EliteFTS.com, TotalPerformanceSports.com, FightersReview.com and many others sites.

To learn more about Jim, visit his website at www.DieselCrew.com

OTHER PRODUCTS FROM THE DIESEL CREW

ADVANCED KETTLEBELL TRAINING I, II

By Jim Smith and Jedd Johnson
www.DieselCrew.com/ebooks.htm

The *Advanced Kettlebell Training eManuals* have broken all conventional thought around the incorporation of kettlebell training for athletic development.

GRAPPLING CONDITIONING I, II

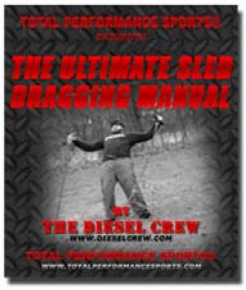
By Jim Smith and Jedd Johnson
www.DieselCrew.com/grappling.htm

The *Grappling Conditioning DVD series* contain many unique and applicable bodyweight exercises that can be done in the matroom, on the field or anywhere! These DVD's have been used by grapplers, firemen, rugby teams and many others to learn how to utilize partner assisted bodyweight exercises to develop functional strength.

CHAOS TRAINING

By Jim Smith
www.ChaosTraining.com

Bridging the gap from typical strength training means to sporting execution. This monster manual is over 670 pages of innovation. Smitty held nothing back as he packed this with all the Diesel secrets.



THE ULTIMATE SLED DRAGGING MANUAL

By Jim Smith and Jedd Johnson
www.DieselCrew.com/sled.htm

The *Ultimate Sled Dragging eManual* has provided many new and innovative sled dragging training ideas to improve restoration, bracing efficiency and conditioning levels.

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Combat Core Workout Sheets

Combat Core Strength

Combat Core Workout Sheets

Date:		Target:			
Target	Exercise	Sets	Reps	Rest	Load
Warm-up					
Strength Training					
Conditioning					
Restoration					

Combat Core
Workout Sheets

Date: 1/2/2008				Target: Lower Body / Upper Back	
Target	Exercise	Sets	Reps	Rest	Load
Warm-up	Foam Roller – Quads, Glutes, Hamstrings	Various			
	Leg Swings	Various			
	High Hurdle Step Overs	Various			
Strength Training	1) Back Squats	8	3	120 sec	225lbs/75%
	2A) Sandbag Zercher Lunges	4	8	60 sec	50 lbs
	2B) Weighted Pull-ups	4	8	120 sec	BW+30 lbs
	3A) Barbell RDL's	3	10	30 sec	135lbs/50%
	3B) DB Side Pulls	3	10	30 sec	75lbs
	4A) DB Clean & Press Decline	2	6	-	30lbs
	4B) Core Statics Decline	2	30 sec	-	
	4C) Med Ball Throws Decline	2	6	120 sec	
Conditioning	Will perform during PM session				
Restoration	Foam Roller – Quads, Glutes, Hamstrings				
	Stretching – Quads, Glutes, Hamstrings				
	Protein Shake + Multivitamin				
	Contrast Shower - PM				

www.dieselcrew.com

www.chaostraining.com

www.thegripauthority.com

"Achieving Beyond Potential"

- Jim Smith "*Smitty*"