

DVRT Restoration: Lift and Chops

What are these lifts and chops that we hear about? Something that many have seen in physical therapy situations or in the gym as mysterious “core” exercises. Why are they important and how do they relate to building better movement?

These types of patterns are foundational to basic human movement and sporting actions. Whether you think about how most people lift, produce power, or do anything athletic, they often have a very strong element, if not predominant aspect of diagonal movement. This is due to the fact that this taps efficiently into our kinetic chains and takes advantage of both structural and neurological aspects of efficiency.



Chopping and lifting is based on PNF (proprioceptive neuromuscular facilitation) patterns that are spiral and diagonal in nature. These are not new concepts by any means. Physical therapists like, Margaret Knott and Dorothy Voss have been using them since 1956 (Voss, et al., 1985.) The spiral and diagonal movements in the Chop and Lift patterns were a popular tool for therapists because they were often found to be more effective in assessing and treating dysfunction than traditional single joint motions. Additionally, these patterns have excellent carry over to real life: “The Chop and Lift represent distinct spiral and diagonal movements that mimic functional patterns occurring in both sport and activities of daily living” (1)

A large reason that these patterns are used is to stimulate our “core”. While we have outlined quite a bit of what core is, it is important to remember that using your “core” is not always reflected in “feeling” your abdominals. Many times, great core training actually won’t come anywhere near the “burn” that traditional exercises such as sit-ups and crunches provide. That isn’t a negative, rather recognition of how the core is suppose to function and the close correlation between pelvic control, cross patterning, and lifts/chops.

As physical therapist, Shirley Sahrmann, states in her book *“Diagnosis and Treatment of Movement Impairment Syndromes”*, *“during most daily activities, the primary role of the abdominal muscles is to provide isometric support and limit the degree of rotation of the trunk....A large percentage of low back problems occur because the abdominal muscles are not maintaining tight control over the rotation between the pelvis and the spine at the L5- S1 level.”* (2) This means that great core function is as much a function of resisting movement as it is anything else!

Lifts/Chops show weaknesses in this type of core control as we move the load and the body into different positions and angles. What does this accomplish? As physical therapist, Pete Holman, cites the main benefit of lifts/chops, *“both the Chop and Lift patterns train the client to preemptively activate the core in a neutral spine position, improving: stability, function, performance and durability* (3).”



People often get hurt from everyday activities because they don't know how to resist

“Preemptive core action” could be a huge missing link for many in the battle against low back pain. What Australian researchers Hodges and Richardson found was those with low back pain had an altered timing of important reflexive core muscles like the transverse abdominis. Therefore, we want to help the body regain its ability to not only activate, but properly time the activation of the correct core muscles.

What is a Lift/Chop Pattern

When the hands are involved moving in the same direction, crossing the mid-line of the body, in a downward or upward movement, it is called a chop or lift. The independent hand exercise is simply called D1 or D2 patterning, the direction of movement is named by flexion (upward) or extension (downward). These are advanced movements based on patterns used in the physical therapy profession. (4)

DVRT Restoration: Lift/Chop Screens

Our screens are looking at foundational movement concepts that should be engrained. Rolling patterns serve as an easy means to evaluate reflexive core stability. They are used in this manner in DVRT Restoration as lifts/chops are all designed to build greater reflexive core strength. The lifts/chops function largely off the PNF idea of “proximal stability creates distal mobility.” The most fundamental way of evaluating this skill is via rolling.

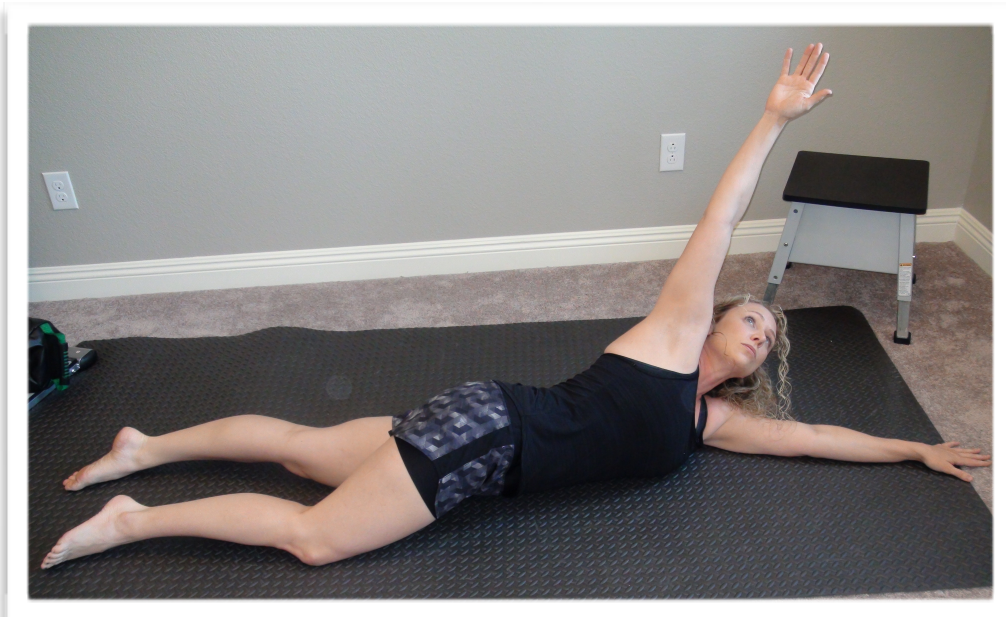
Physical therapists, Hoogenboom, Voight, Cook, and Gill make a strong case that fundamental rolling patterns can be powerful screening tools for just such an outcome.

“Because rolling precedes other locomotion activities in the developmental postures of infants and children, rolling can be used as a discriminatory test that uses regression to a more basic developmental task to locate and identify dysfunction in the form of poor coordination and stability of rotation. Without a doubt, mobility, core stability, controlled mobility, and properly sequenced loading of the segments of the body are required to perform these rolling tests correctly. Assessment of necessary precursor abilities should always precede common measurements of function which include strength, endurance, balance, gait, etc. Simply stated, movement quality appraisal should precede movement quantity appraisal.” (1)

Rolling Upper Body

Lay on your back with the hands overhead and the feet shoulder width apart. In a diagonal pattern reach one arm across the body, while keeping the head in contact with the floor. The lower extremity remains on the floor until the upper body pulls it over. To return to the starting position extend and reach the same arm diagonally across the body. Again the lower extremity remains on the floor and the upper body merely pulls it over. The head always looks at the moving hand.





Rolling Lower Body

Lay on your back, hands overhead, feet shoulder width apart. Flex one hip and reach the leg across the body. The upper extremity remains still on the floor until the lower body pulls it over. To return to the starting position extend and reach the same leg diagonally across the body. Again the upper extremity remains on the floor and the lower body merely pulls it over.



Lifts/Chops Foundations: [Watch HERE](#)

How we choose to progress people through the DVRT Restoration Lift/Chop series will follow our core concepts of DVRT. That means working from stable to unstable positions and patterns. This is done as to engrain the movement pattern as effectively as possible. Too much instability in early phases of training can greatly hamper the development of the desired movement skills and often create new compensation and dysfunctional patterns.

How do we move through stable to unstable when it comes to lift and chop patterns. We are going to start most people on the ground as there is no more stable environment than the ground. This is a big reason we use the rolling patterns as a screen for our lift/chop series. Of course we don't want to stay there, but the ground serves as a good learning environment as it removes a lot of the complexity of the movements.

It should be noted though, even though we are looking at the lift/chops specifically, other drills from the DVRT Restoration program are going to be helpful in improving the reflexive core qualities and movement skills we are targeting. DVRT Restoration drills such as Glute MAX Bridge, Bird Dog variations, and others will all have a positive impact in your training. How to organize all this will be addressed in the programming module later on. Please take the following as an emphasis on the lifts/chops while understanding everything is integrated in this program.

Baby Get-up: [Watch HERE](#)

One of the most challenging aspects of our DVRT Restoration is to help people understand that much of training is about the nervous system and not feeling a specific muscle. If we can positively impact the nervous system then it is literally amazing how fast and well we can improve movement and decrease chronic pain or discomfort.

The Baby Get-up (BGU) is one of those exercises and it may have a horrible name. Because of the name you might assume this is a rudimentary exercise, but many even top strength athletes find it quite challenging. That is because it is a great neural sequencing drill for the body. We must give Dr. Craig Liebenson for introducing this great drill. While Dr. Liebenson may have not originally foreseen the use of the Ultimate Sandbag, you could quickly see how applying the strategic load placement will enhance the BGU. As Dr. Perry Nickelston describes the BGU, *“The BGU is a regression of patterning seen in the traditional Turkish Getup. It is a system of determining if an individual has the proper neuromuscular sequencing pattern to accomplish a fundamental pattern of movement. In my opinion, if someone struggles with the Baby Getup they have not earned the right to perform a Full Turkish GetUp or any standing rotational exercise, loaded or unloaded! Sure, they could power through the exercises, but they would be using*

improper muscle activation to accomplish the task which defeats the purpose of corrective exercise (5).”

Using the appropriate speed and not trying to train to fatigue are going to be critical in using the BGU. Remember, when people feel uncomfortable or weak, clients will try to speed through the series leading to just greater compensations. A few repetitions, even just 2-3, are going to provide a far superior result than trying to complete 10 from day one.

Dr. Nickelston has created some great cues and observations for the performance of the BGU. You can learn more about his techniques at StopChasingPain.com





We can load for Baby Get-up to not only activate, but specifically strengthen the chain.





Movement Set Up and Cueing

- Client Side lying in a plank style position.
- Top leg crosses over the bottom and top foot goes flat. (Foot position close to knee or whatever is comfortable depending on client hip mobility). Ideally perform the test with no shoes!
- Bottom arm out perpendicular to the body. Bend elbow at 90 degrees hand towards sky.
- Top hand goes dorsal surface on the medial knee. This prevents them from helping with the top hand.
- Cervical spine should not be fatigued. If it is this is just a cue to you that the neck is probably weak. A person should be able to support their head weight.
- Initiate movement with the downward arm with internal rotation. When arm reaches normal end-range engage the core to post up on the elbow reaching chest towards the sky. Do you see the similar pattern of the traditional Getup? It is a Diagonal pattern cross body. Highly stressing the oblique system and spiral line of the body.
- Control motion on downward pattern and repeat 3-5 times.

-On the last repetition post up into side plank and see how long client can hold with proper form. Ideally 60 seconds.

-Repeat on opposite side.

Dysfunctions and compensations to look for:

-Weakness and tired in the neck (or pain). Leading with the neck.

-Holding of breath

-Sticking or ratcheting on the movement

-Downward straight leg pops up off the ground

-Top leg comes off the ground

-Client fatigues at the 3-5 rep. You are looking for neural engagement necessary to engage the movement and repetitions look for endurance factors. So if they are cheating it will burn out fast!

-Watch for smooth downward motion. The downward leg should always be in line with the upper torso.

-Last rep move into side plank at top of movement. Observe for torso rotation. Flexion at waist. Losing the plank line. Dipping in the center. Neck goes into flexion (not packed) Head should be in line with the body.

-If they press too much with the top leg into the floor you will see a torque in the torso.

-Have them hold for as long as they can with good form. When and if they dip in the center 3 times. Test is over. In a normal side plank the individual should be able to maintain 60 seconds both sides. If they struggle maintaining the Baby Getup plank for 60 seconds they should not be doing a traditional side plan. Regress to progress!

Leg Threading: [Watch HERE](#)

Leg Threading is not a true lift and chop, yet, more of a rolling pattern, leading us from the BGU. Similar to lifts and chops, rolling patterns are precursors to rotational movements. They also improve the function of the nervous system via the head position and rolling motion. The head must lead the movement by rotating first and avoiding flexion and focusing on a roll is paramount in getting the true effectiveness of the drill.

Why? According to a paper in the North American Journal of Sports Physical Therapy, Hoogenboom, et al, state, “When using rolling as an intervention, the upper extremity patterns make use of the fact that movements of the neck facilitate trunk motions^{3–5} or stated more simply, *“where the eyes, head, and neck go, the trunk will follow.”* By applying the *proprioceptive neuromuscular facilitation (PNF) principle of irradiation* (defined later in this article), the following can be utilized therapeutically: *neck flexion facilitates trunk flexion, neck extension facilitates trunk extension, and full neck rotation facilitates lateral flexion of the trunk. Neck patterns can even be used to achieve irradiation into distal parts of the body, for example, neck extension can facilitate extension and abduction of the hip.*”

Many coaches struggle with this concept because they want to relate Leg Threading to the popular Turkish Get-up. One of the main ways that Leg Threading is significantly different than the Turkish Get-up is the focus and incorporation of head movement. That is why Leg Threading is a more true rolling pattern than the Turkish Get-up.

Why is having a rolling pattern so critical? As the authors describe rolling in relationship to everyday movement, *“Although described in relationship to rotational tasks and movements, rolling is not only related to rotational tasks. The rolling patterns can function as a basic assessment of the ability to shift weight, cross midline, and coordinate movements of the extremities and the core. Abnormalities of the rolling patterns frequently expose proximal to distal and distal to proximal sequencing errors or proprioceptive inefficiency that may present during general motor tasks. Finally, many adults have lost the ability to capture the power or utilize the innate relationship of the head, neck, and shoulders to positively affect coordinated movements.”*

Like the BGU, Leg Threading must be done slowly and time must be committed to looking at the details of the movement. A few repetitions performed well are again, going to be far more effective than performing a higher volume set of movement. You will see a close correlation of the BGU and Leg Threading allowing any level of individual to begin to work through our series.





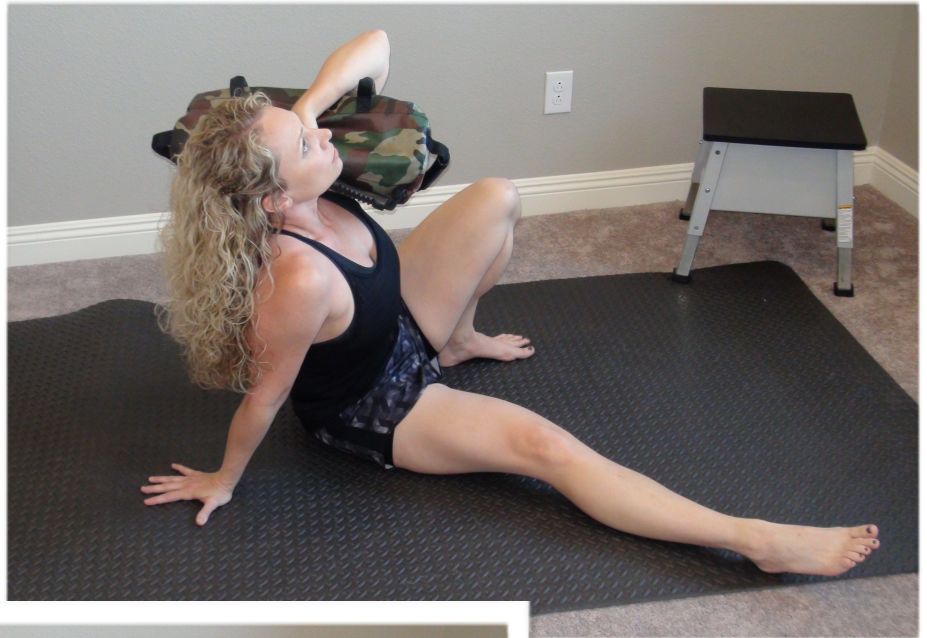
Beast Get-up: [Watch HERE](#)

The Beast Get-up is definitely taking the get-up movement to a more complex level. However, what is so wonderful about this movement is that we get another opportunity for assessment and movement skill training. Additionally, we move through all three planes of motion and see strengths/weaknesses in making seamless functional transitions.

We will get to see shoulder and hip stability/mobility/strength all in one movement. There will be movement from supine to side lying to quadruped. That means the Beast Get-up may be used in later phases of training and the inability to perform it well might be a strong sign to try some of the drills in the following sections. We must realize that there is not a true linear model in progressions and the art of coaching people dictates identifying the MOST appropriate drill based for your client.

There will be likely be two areas that challenge most clients. That would include hip mobility and shoulder stability. Interestingly, they will highly impact one another in this drill. If you or the client do not have the proper hip mobility they will leverage upon the shoulder rather than being able to properly “stack” over the arm. Not being in the proper position for the shoulder and hip will put excessive stress on the shoulder joint.







Watch Lift/Chop Progressions [HERE](#)

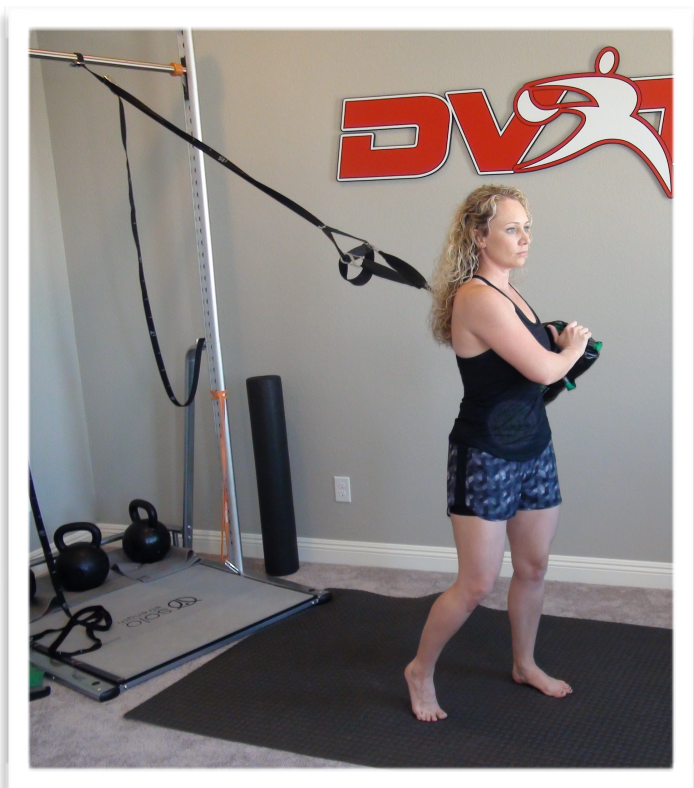
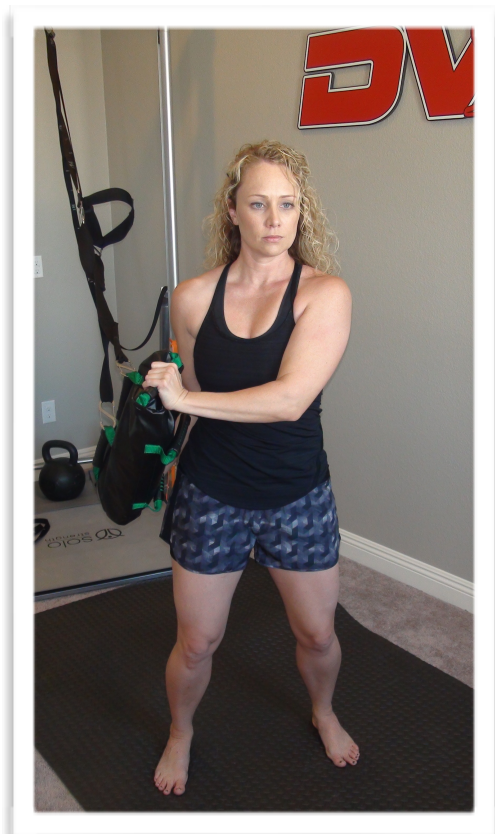
In most therapeutic programs lifts/chops are introduced on the ground. This is done so to engage more of the core muscles. DVRT doesn't start on the ground, but rather standing. The change in philosophy comes from the idea our standing posture is more stable than our ground based positions. As discussed in our philosophy of progressions we want to move from stable to unstable.

Many individuals can also have a very difficult time stabilizing and balancing in the ground based positions. Standing allows us to build good motor patterns and progressively build the strength/stability to move to other variations. Due to the fact that lifts/chops have a long lever arm and rather long distance to cover, body position, not load is going to be the focus upon progression.

The Sprinter Stance specifically has a strong correlation to half kneeling postures. As many individuals have issues performing lunges, they very easily can have problems with just feeling comfortable in the half kneeling postures. Yes, even tall kneeling could present stability and balance issues for many and the Sprinter Stance allows a good bridge in building comfort into the split stance position.

Our Ultimate Core Strap allows us to build further progression by allowing the client to have feedback in the direction of the movement. They can leverage against the weight and understand how to "root" into the ground. The progression would be to remove the feedback of the Ultimate Core Strap as shown in these series of pictures.

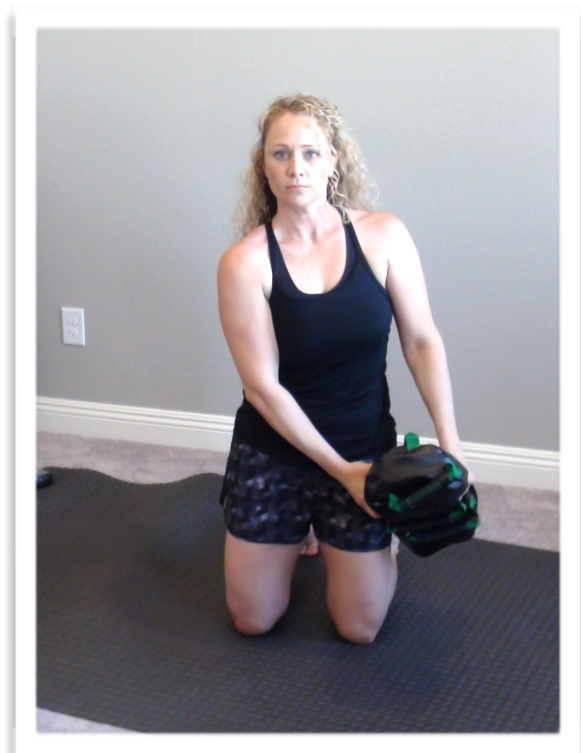


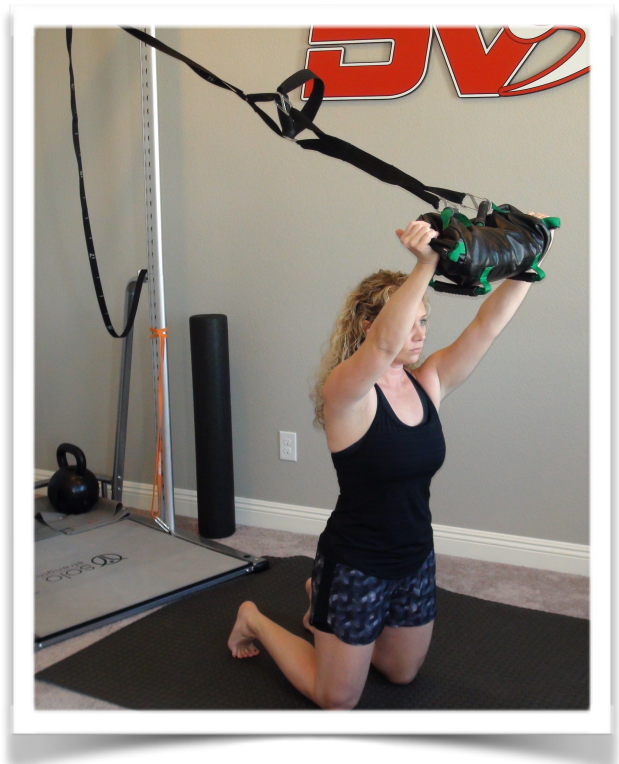
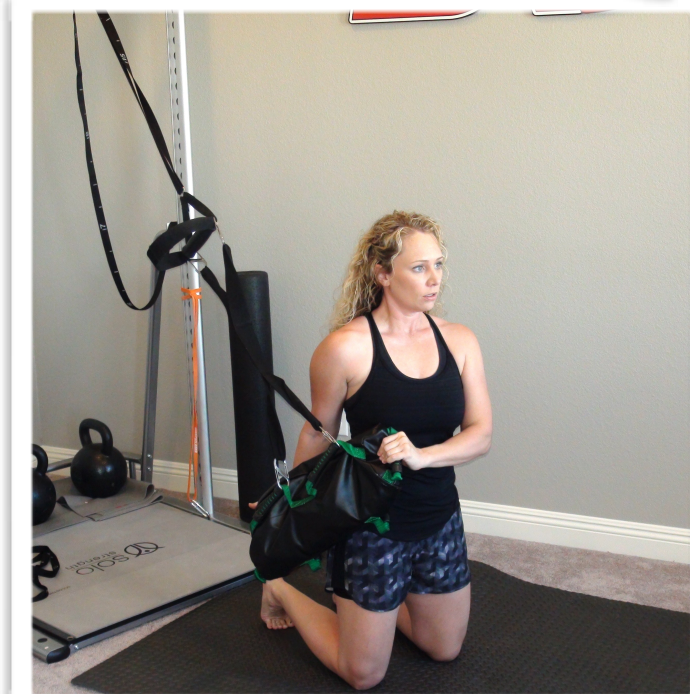
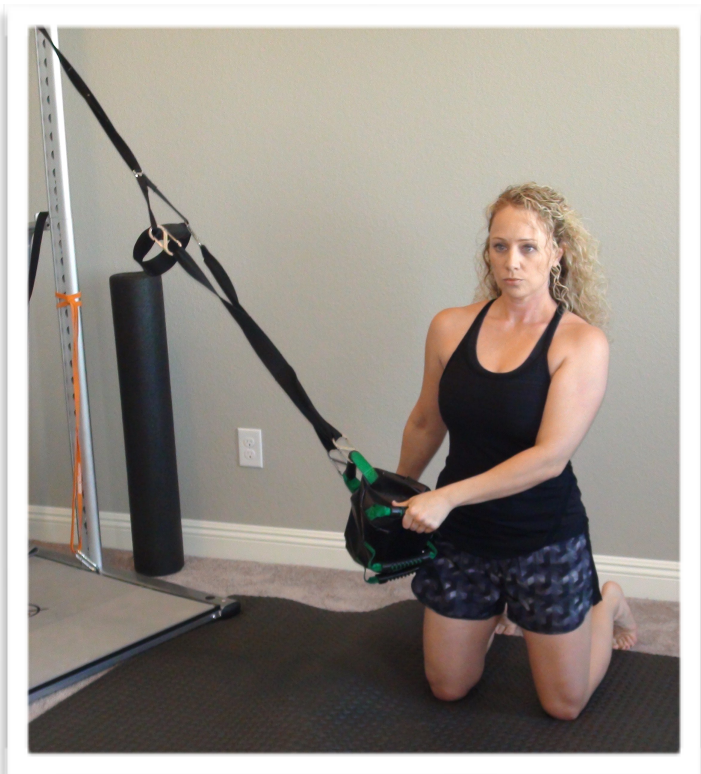


Kneeling/Half Kneeling: Lifts/Chops: Watch HERE

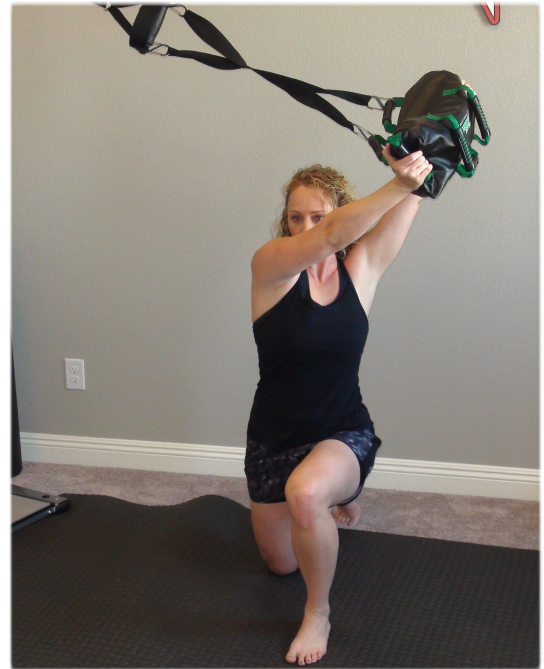
After gaining proficiency in the standing postures, moving to the ground IS the appropriate progressions. The benefit of using the positions of tall and half kneeling is that we reduce the stability that standing provides. This places a higher emphasis on the core to function correctly to not just move the weight, but to maintain proper posture/alignment as well.

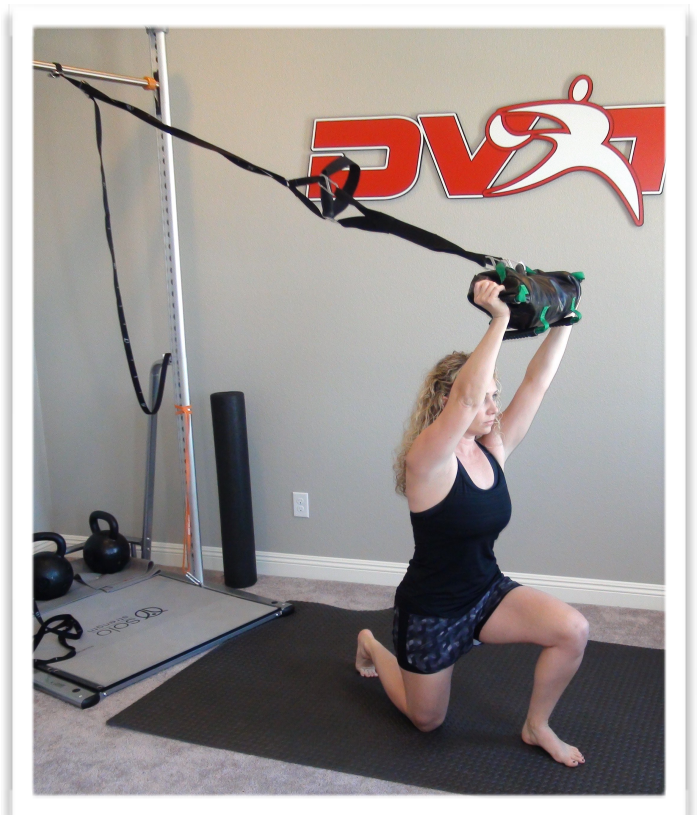
The half kneeling position gives us an opportunity to look for asymmetries as well. Having a large asymmetry can be us strong insight to what could be causing dysfunction for the individual.





Changing the orientation of your body in relationship to the load can be an easy and powerful means of adding progression to lifts/chops







The half kneeling posture not only allows us to look at imbalances from side to side, but how different patterns interact with our core. We can change the foot that is closest to the anchor point and even the position of our body in relationship to the load.

Anti-Rotation Around the World: [Watch HERE](#)

Just as in our lift/chop variations we will work from standing to sprinter stance then leading to the ground variations. The anti-rotational Around the World is both different than our rotational version. It is the progression of the lifts/chops because it takes the load not only into the lift/chop movement, but in 360 degrees. This increases the anti-extension along with anti-rotational effects of the movement of the load.

Most interpret this movement incorrectly and call it a “rotational exercise.” Hopefully you know understand that lifts/chops like the Around the World are anti-rotational drills. The plane of motion and resistance the body absorbs is referenced not by the movement of the load, but by that of the body. While there is a rotational version of the Around the World, you will find the motion of the body, not the weight, is what determines its impact upon rotational based movements.

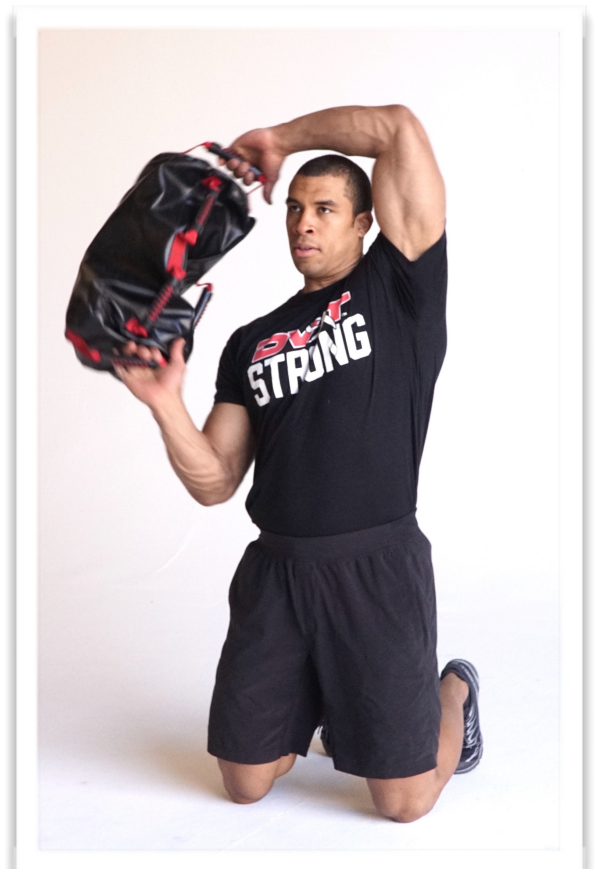


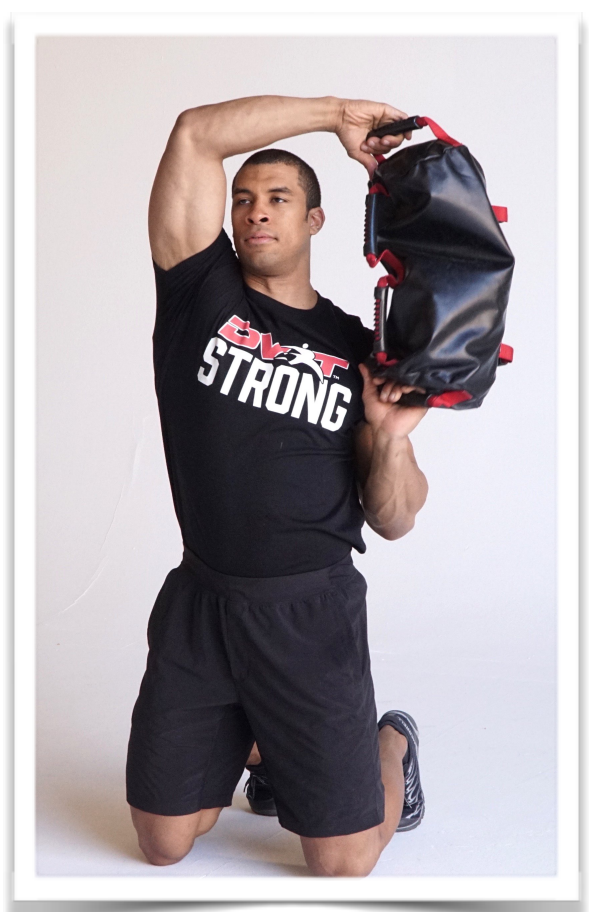
Kneeling/Half Kneeling Around the World: [Watch HERE](#)

Once again, just as in the lift/chop variations, the progression of moving the client to the ground is the next phase. You will find due to the increased complexity of movement that moving to the ground could be more challenging than the previous lift/chop variations.

Moving to the ground increases the demand of the core and precise movement due to less parts of the body that are able to be part of the drill. Special attention has to be paid to compensatory patterns that one will use to help create stability during these more challenging progressions.

While some parts of the body, like the foot, don't have the same contact that they have in the standing progressions, makes them no less important. In fact, it will be specific cuing upon their use that will change the impact of these progressions for many clients. Remember, the goal is NOT to move the torso or hips, but only the arms!







Lunge Lift/Chop: [Watch HERE](#)

Whenever we can combine multiple movements patterns at once we are not only making the exercise more challenging, but truly hitting upon the functional training concepts we want the client to learn. Most specifically, the ability to seamlessly move while both resisting and creating forces while moving with multiple movement patterns at once. A concept that may sound complex, but something we do in every day life and sport without much thought.

The goal with adding a lunging pattern in a lift/chop series is that we are able to combine the positives of both these patterns while building movement confidence, strength, and power in their performance. Sadly, most people regulate exercises like lifts/chops only as “corrective” and never see their potential for higher performance training. Layering in the lunge not only makes a very smooth and coordinated action, but elevates the ideas of our lifts and chops to both power, deceleration training, and more real world actions.

One of the hopes in sharing these progressions is to open our minds to how training is more versatile and possesses more options than we often give credit. Simple alterations to our body position and direction can yield all new information about our movement strengths and weaknesses. We may also find that a specific variation of an exercise speaks to an individual’s needs more than another.

The goal then becomes have a system in place that no matter if you are in a one on one environment, or group, that you have the means to specifically address the needs of the individual in a simply to employ manner. That is you have direction and systemization with your training, you can problem solve much faster and efficiently. You can give your clients success and a better experience through your thought processes rather than having to be married to any specific drills.



Cross Lunge Lift/Chop: [Watch HERE](#)

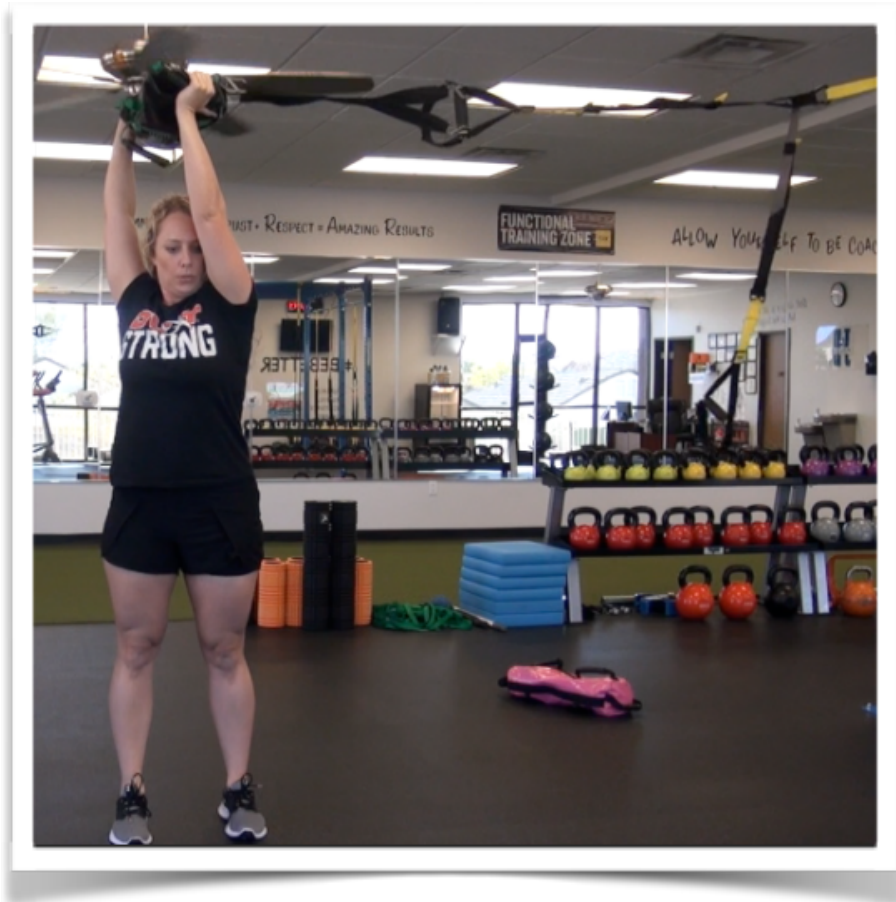
Going to the Cross Lunge Lift/Chop is a great example of how just changing body position can alter a movement. It will change the direction of the load in relationship of the body and therefore create a whole new stress. In saying “all new”, that refers to new enough where if there are holes in one’s movement that they will be identified, yet, similar enough in nature that we can apply the previous taught concepts to make a stronger leap to more complex activities.

While load and volume are variables always available to us in progressing any of our DVRT Restoration movements, they may not always be the best options. In more complex patterns, adding a small amount of weight or repetitions could represent a rather large increase in intensity. That is because these movements have many more elements to them that make increases in these areas potentially more challenging.

The answer in proper progression may not be load or volume, but the continuation of the complexity of movement. In this case, this would be taking the Around the World the whole 360 degrees. Why is this more challenging? The different angles that the load starts to challenge our body are both unique and means of identifying weaknesses in maintaining those kinetic chains.

The beauty of such an exercise is the fact we have the seamless blend of lunging, reactive core, lifts/chops, balance, and mobility. All elements of fitness we really want to represent true functional fitness concepts.





Drop Lunge Full Around World: [Watch HERE](#)

Progressing to the full MAX Lunge we can build greater progression by using the Drop Lunge to Half Around the World. The unique movement of the Ultimate Sandbag helps reinforce the stability of both the hip and core to learn how to resist force just as much as we are learning to also create force.

The Drop Lunge Half Around the World is a great example of how we can start to combine elements of different DVRT Restoration movements. That is truly the sophistication of functional fitness, being able to have multiple patterns being performed at once. Not to mention this is a great way of challenging both core stability and the lunge pattern in all planes of motion.





Re-Evaluating the Role of Lifts/Chops

One of our biggest goals in sharing such a series like the lifts/chops is not only to show you how you can progress functional movement, but also how we can take concepts of traditionally known “corrective exercise” and demonstrate how the lines get blurred. That is the line between corrective and performance training.

Once you understand movement, you tend to have a greater appreciation for the fact that any of these concepts can be used by any fitness level to both learn how to produce proper movement as well as how to create true high performance training. That training continuum we keep referencing is your guidelines to better movement and fitness.

Far too many times we are isolating these exercises into specific categories like “corrective”, or even “strength”. The reality is they have components of all these, especially if they are a worthwhile movement pattern. It is our job to identify what level of the movement most appropriately matches the needs and current fitness level of the individual. If we can such skills then worrying if we have done our “corrective”, “strength”, or even “metabolic” work becomes less and less of a concern because our answer becomes a resounding YES!



