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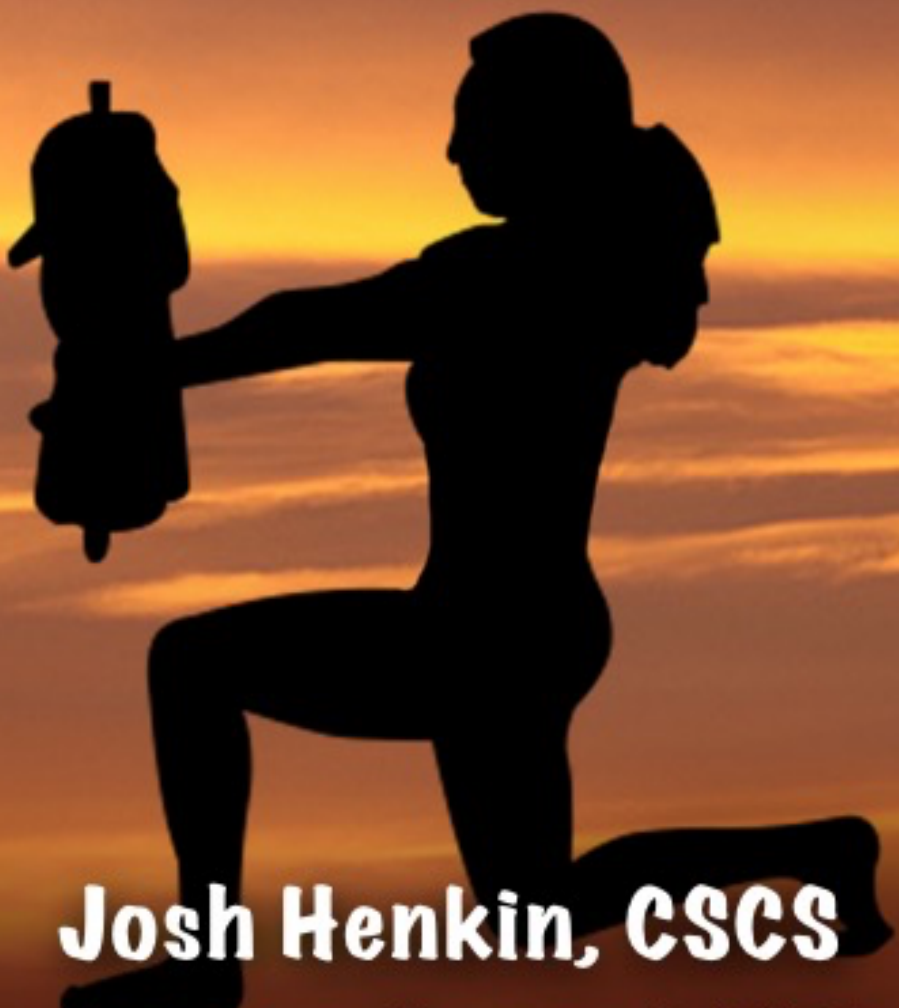
RESTORATION



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Disclaimer

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About Jessica Bento, PT

Jessica Bento, PT always had a love sports and athletics including golf, swimming, tennis and track but particularly excelled as a swimmer. Starting back when she was only 10 and continuing on through high school, she sought a coveted place on the 1996 Atlanta Olympic team but a shoulder injury detailed her dreams. After going through physical therapy for torn rotator cuffs, she decided that she would pursue a career in physical therapy as she was drawn to being able to help people regain their function again.

Jessica graduated with her Masters in Physical Therapy from Wayne State University in Detroit Michigan, back in 2006. Since then has worked in every aspect of physical therapy, including sports rehab, in patient neuro, and even geriatric populations in the home setting making sure to broaden her skills as a therapist. She has obtained several certifications including SFMA Level I, Total Body Kinesiotaping, Spinal Manipulation, and many more. She as written for various publications including Breaking Muscle, PT on the Net, & Weck Method and her works have been translated for publication in several different languages.

Jessica is also the director of operations for Innovative Fitness Solutions and Ultimate Sandbag Training, she heads up the educational programs for Dynamic Variable Resistance Training. Jessica has had the opportunity to travel all over the world helping spread the DVRT educational system and shedding new light on what functional training really is and what it can be.

About Josh Henkin, CSCS

Certified Strength & Conditioning Specialist, Josh Henkin, has been in the fitness industry for over 20 years. In the early 2000's Josh began writing articles on new methods of functional and performance training. Over the years Josh has written over 100 articles for various publications including Men's Health, Muscle & Fitness, Shape, and many other fitness publications.

Teaching has been a great passion of Josh's as he has lectured at some of the top fitness conferences in the US. His work has been recognized not just in the US, but all over the world as well. He has lectured in over 10 countries worldwide and is highly sought after for his innovative functional training concepts.

2005 was the year everything changed for Josh as he created his Dynamic Variable Resistance Training (DVRT™) program as an innovative way to look at functional training. Since the inception, DVRT has been taught to top training facilities, personal training businesses, and military units all over the world. In fact, in 2008 Josh was commissioned by the US Army to create an entire fitness program inspired by DVRT for the US Army Special Forces Recruiting Battalion.

DVRT also saw the creation of the Ultimate Sandbag™. A specifically designed variables resistance sandbag that met the demands of a highly detailed fitness and performance program. The Ultimate Sandbag completely changed how people perform their fitness and performance programs due to the incredible versatility and effectiveness of both the Ultimate Sandbag and DVRT system. The Ultimate Sandbag has grown from an idea in his garage in 2005 to being used in over 80 countries worldwide.

What is functional movement? That simple question is actually quite loaded. When we travel around the world and ask coaches and therapists this question we generally get an answer like the following….

"Functional training is exercise to help you get better at what you do at life."

As wonderful and well meaning as it sounds, the truth is, the above statement tells us very little about what functional training looks like in a program. In comparison, if we were to discuss methods from muscle building, fat loss, speed development, or any number of training goals we would get far more specific in the variables being used.

That is the current issue with the term "functional". How does it look in a training program? One of the goals of DVRT Restoration is to help define functional movement and the means to improve the qualities that make up real world movement.

Defining Functional Training

In order to accomplish this lofty goal, let's start with a definition of functional movement. In DVRT we believe that functional training refers to the following…

"Functional training is compound movements that are targeted at improving movement efficiency based on the natural patterns of human motion."

The above definition starts to lay out a few key components to functional training. The first being we are looking at drills that do integrate more than one segment of the body. The reason I say segment rather than muscle is because we are also referring to the training of ligaments, tendons, muscle, and fascia (which will be discussed in later chapters).

This acknowledges the fact that our body is not singular or groups of muscles, but chains. Our goal of functional training should be to enhance the function and performance of these natural chains. Understanding this concept also infers that we are looking to identify dysfunction in these chains and overall movement patterns.

What Are The Chains In The Body?

While many professionals will argue about the use of the term “functional” the biggest change that the concept has caused is our evolution of looking at individual muscles to examining more closely how the body actually moves in life and sport.

This began with the classification of open and close chained exercises. Such a concept wasn’t new, rather developed in 1955 by Dr. Arthur Steindler. He aimed to adapt the theory of mechanical engineer named Franz Reuleaux proposed that if a series of overlapping segments were connected via pin joints, these interlocking joints would create a system that would allow the movement of one joint to affect the movement of another joint within the kinetic link. Dr. Steindler suggested that the extremities be viewed as a series of rigid, overlapping segments and defined the kinetic chain as a "combination of several successively arranged joints constituting a complex motor unit." The movements that occur within these segments present as two primary types —open and closed. (1): https://www.acefitness.org/blog/2929/what-is-a-kinetic-chain

Steindler defined open kinetic chain as a combination of successively arranged joints in which the terminal segment can move freely. In an open-chain movement, the distal aspect of the extremity, or the end of the chain farthest from the body, moves freely and is not fixed to an object. Here are some examples of open-chain exercises:

- Seated leg extension
- Leg curl
- Bench press
- Lat pull-down

A push-up is an example of a “closed chain” where the bench press is “open chained”

Closed-kinetic chain exercise were defined as a condition or environment in which the distal segment meets considerable external resistance and restrains movement. In a closed-chain movement, the distal end of the extremity is fixed, emphasizing joint compression and, in turn, stabilizing the joints. Closed-chain exercises, such as the examples below, are considered to be more functional than open-chain exercises.

- Squat
- Push-ups
- Lunges

While this may have been one of the first attempts in classifying exercises beyond the muscles they trained, it doesn't address many of the aspects of movement science that we know exists today.

Thanks to people like physical therapist, Diane Lee and soft-tissue expert, Thomas Myers we have a different perspective of what actually makes the body "functional". While we can make it quite complex and this course WILL describe many of the different means in which the body creates movement, we also love simplicity.

Legendary strength coach, Vern Gambetta, has a great way of defining what makes functional training…*"The body is a link system; this link system is referred to as the kinetic chain. Functional training is about linkage – it is how all the parts of the chain work together in harmony to produce smooth efficient patterns of movement. Conventional academic preparation still focuses on studying individual muscles based on classical anatomy. This is where the confusion begins as to what is functional movement. We must remember that we do not function in the anatomical position. The anatomical position is static; it provides us with the perspective of mental convenience to arrange of all the individual muscles for ease of study and observation. In order to truly understand functional training we must get away from the focus on muscles and focus instead on movements. It is important to emphasize that the brain does not recognize individual muscles. It recognizes patterns of movement, which consist of the individual muscles working in harmony to produce movements required by the sport."*

A New Era in Functional Training

Sadly people like Coach Gambetta are not as widely known by many fitness professionals today and they played a critical role in the development of the idea of functional based training programs. Without understanding the body, it is hard to really appreciate what these coaches and professionals were trying to accomplish with the development of functional training.

Individuals like physical therapist, Gary Gray, has been thought of as one of the founding father's of functional training due to his more updated concepts of human movement. His goal of looking at human movement and training it specifically in the gym was a very new idea. Gary Gray's definition of functional training may have not made understanding the concept any easier for most, at least at first glance.

"Applied Functional Science is the convergence of Physical Sciences, Biological Sciences, and Behavioral Sciences that consists of the Principles-Strategies-Techniques process for functional assessment, training and conditioning, rehabilitation, and injury prevention that is practical for any and all individuals regardless of age or ability."

The above definition does tell us that Gary Gray's thoughts on functional training are based on the three sciences of Physical, Biological, and Behavioral. It may be hard to argue that fact, but what does that specifically look like? While Mr. Gray breaks down each, there might be a more efficient means of impacting movement. Yet, we should applaud Mr. Gray's work for making plane of motion an emphasis in training. Something that we don't even see strongly today because of a lack of understanding.

	PRONATION			SUPINATION		
JOINT		PLANE			PLANE	
	Sagittal	Frontal	Transverse	Sagittal	Frontal	Transverse
Hip	flex	adduction	int rot	extension	abduction	ext. rot.
Knee	flex	abduction	int rot	extension	adduction	ext. rot.
Ankle	PF-DF		ADD-ABD	PF-DF		ABD-ADD
Subtalar		eversion	abduction		inversion	adduction
Midtarsal	DF	inversion	abduction	PF	eversion	abduction

Mr. Gray's table above shows the in-depth look at the movement of each individual joint. We can't say if this is right or wrong, but it is the most detailed analysis of looking at how the body really moves in life, sport, and in the gym!

Utilizing and progressing planes of motion is an integral part of the DVRT system and does play a large role in the DVRT Restoration program. Understanding the role and impact of planes of motion will greatly change your thoughts on developing functional fitness programs.

Influence of Planes of Motion on Functional Fitness

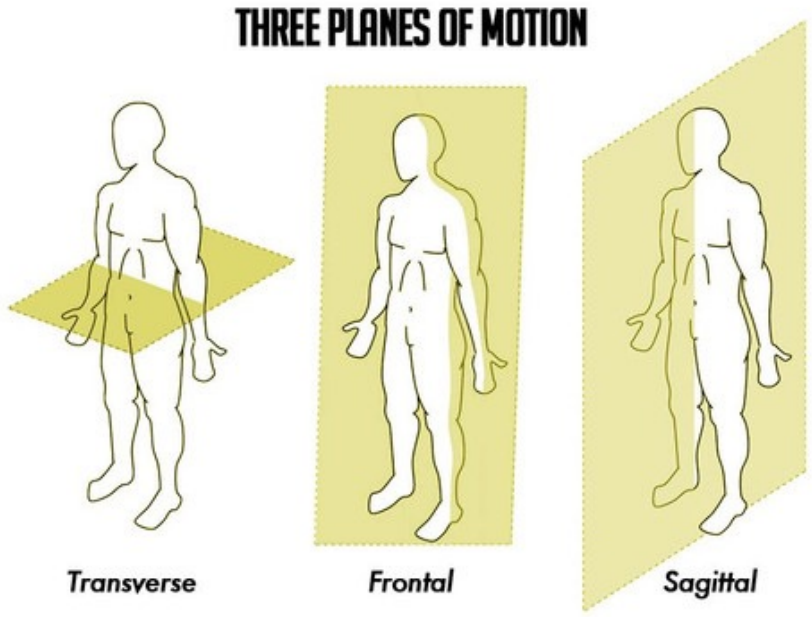
One of the primary reasons that planes of motion has never really gained a hold on how people create fitness programs is due to the fact we haven't every been provided a system of programming it into our workouts. This will be addressed, but we have to understand the role and common confusion that also occurs with planes of motion.

There are three different planes of motion:

- Sagittal: An imaginary plane that divides the body into right and left parts.
- Frontal: An imaginary plane that divides the body into front and back parts.
- Transverse: An imaginary that divides the body into top and bottom parts.

In motion we can think of them as the following:

- Sagittal: Flexion/Extension
- Frontal: Right Lateral Flexion/Left Lateral Flexion
- Transverse: Right Rotation/Left Rotation



There are a few things to consider when we discuss planes of motion and outline this material.

-Whole Body versus Joint:

Each joint has the ability to have its movement basically broken down into the three planes of motion. During many real life or sporting activities you have joints that are moving through different planes to create motion. Coaches that believe in this form of training would have a specific plane designated for each joint in an exercise.

While there is no science to say this works better or worse than more traditional means, we can speak about the level of complexity this provides to programming and the actual logistics of such methods. There are definitely those that have the confidence to apply these concepts in effective

programs, however, this does take an extremely in-depth level of knowledge of biomechanics and the ability to highly assess one's movement to address the specific needs.

It could be argued that planes of motion training has never really caught on due to the very high level of complexity that the above creates. More importantly we should be asking if this is the best method possible.

A large part of our view point on planes of motion has to do with the point that leading spine specialist, Dr. Stuart McGill, points out with whole body versus joint stability (stability is an important concept we will address later). Stable joints are very important for good movement, but when we are thinking about how the body moves and planes of motion, we are typically thinking of whole body stability. That is maintaining our center of mass over our base of support.

Huh? When we move laterally, rotate, front/back, and any combination, what we are looking to maintain is whole body stability. We want to maintain our ability to control our posture and alignment as we move through the different planes of motion. Yes, we want to keep our center of mass over our base of support. This means we can help simplify and improve the training of planes of motion by focusing on the whole body motion versus segmental.

Progressing Planes of Motion

Even though planes of motion are nothing new, the manner in which they are implemented and progressed is a very new concept. For those that were more "in the know" and actually used planes of motion in their training, they were often done rather arbitrary. One of the big missions of DVRT as an educational system was to systemize for people the many training variables that are available for functional movement.

Planes of motion play a big part in how we progress and expand the capability of true functional training. Since our goals follow the science by experts such as Dr. McGill, we always want to make sure that first and foremost build good movement patterns. When people ask, "can I progress?" the answer should always be, is the movement at a high level? If so, we can progress through the appropriate series of progressions.

Sagittal->Frontal->Transverse

Knowing that the movement pattern is our primary concern, that means we have to make sure we take the role of instability into play. As changing the various planes of motion actually alters the stability of the movement pattern. We are going to use the following model as a general guideline for our plane of motion progressions.

It may appear that this means we are going to move through these different planes of movement. The truth is that it is actually more important to learn to RESIST the planes of motion before we begin to move through them.

Renown Strength Coach, Mike Boyle, puts the reason for resisting is so important so well;

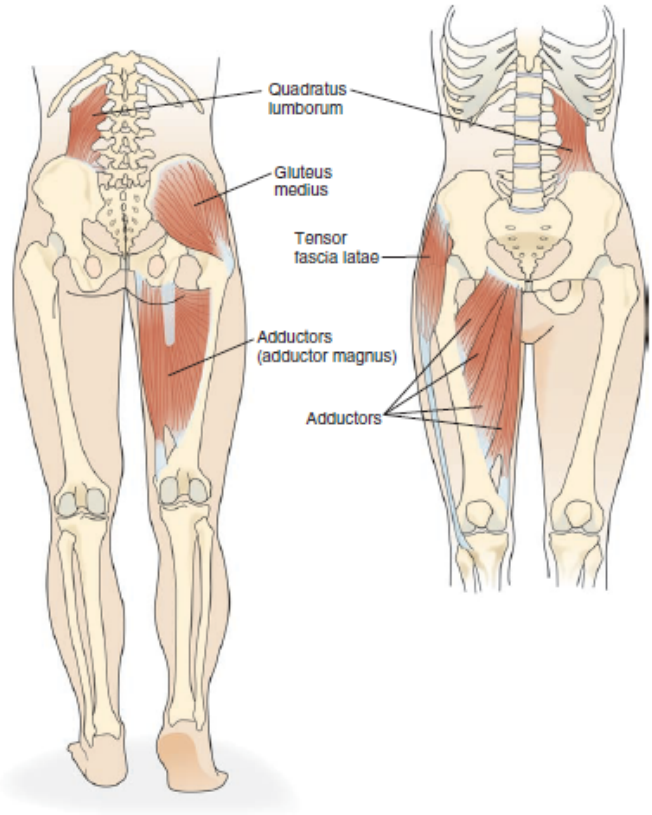
"The ability to resist or to prevent rotation may in fact be more important than the ability to create it. Clients or athletes must be able to prevent rotation before we should allow them to produce it. Porterfield and DeRosa in another excellent book, Mechanical Low Back Pain, come to the same conclusion as Sahrmann. Porterfield and DeRosa state "Rather than considering the abdominals as flexors and rotators of the trunk- for which they certainly have the capacity- their function might be better viewed as anti-rotators and anti-lateral flexors of the trunk." (Porterfield and Derosa, WB Saunders 1998, p99)"

Such thinking is becoming more and more popular and reflected in the work of top scientists and practitioners as we gain a greater understanding of what the body does and needs. Dr. McGill has a great way of explaining in real life situations why the ability to resist motion is so important, *"consider exercises such as the squat. Interestingly, when we measure world-class strongmen carrying weight or National Football League players running planting the foot and cutting—neither of these are exclusively trained by the squat (see Ref. (44)). This is because these exercises do not train the quadratus lumborum and abdominal obliques, which are so necessary for these tasks (53).*

In contrast, spending less time under a bar squatting and redirecting some of this activity with asymmetric carries such as the farmers' walk (or bottoms- up kettlebell carry) (53) builds the athleticism needed for higher performance in these activities in a much more "spine friendly" way. The core is never a power generator as measuring the great athletes always shows that the power is generated in the hips and transmitted through the stiffened core."

Dr. McGill isn't the only one that makes a claim that training the body in this manner is important. Renowned physical therapist, Diane Lee, helps understand the body in more real world actions by depicting what are known as "sling systems". These are natural chains of the body that help coordinate movement. One in particular the "Lateral System" has great relevance the asymmetrical loading and resisting movement.

The Lateral Sling consists of the gluteus medius on one side, the same side adductors, and opposite side quadratus lomborum. As Dr. McGill stated, this is chain in the body is so important in providing us stability in the pelvis. Even if you aren't a NFL or professional athlete this has pro-



found meaning for your strength and health.

Lacking the stability/strength in this system not only places greater load through the back, but greatly reduces your ability to demonstrate power and real world strength. While no one will ever ask (although they should) how strong your Lateral Sling system is or how much it can lift, understanding these concepts is integral in developing real world fitness and performance skills.

What you will find in DVRT Restoration that we will spend quite a bit of time in teaching you how to resist the planes of motion in a variety of mediums to develop more integrated skills over time. Understanding and appreciating the role of planes of motion is interrelated to another important concept of functional fitness, training movement patterns.

The Foundational Movement Patterns

There is often a misunderstanding between basic movement patterns and functional training. Key here is “basic”, we could also call them, “foundational” movement patterns. Our patterns of movement start to form from infancy, this is the entire science of motor development. This would be beyond the extent of this program. However, there are some important ideas about movement patterns we should understand.

While our motor development definitely has an impact upon our functionality as adults, we can’t ignore the role of injury and lifestyle as well. Meaning, trying to diagnosis and identify the EXACT cause of an altered movement is often asking for frustration and an inability to produce real results.

Foundational movement patterns are the baseline level of movement capability. Most people assume that the foundational movement patterns are the END level for movement skills. It would be like learning addition and subtraction as the foundation of math and thinking that is all math involved. You need addition and subtraction, but that just lets you move on to more advanced

skills which gives you deeper meaning of the subject. The same can be said of developing long-term movement skills.

DVRT Restoration is about restoring the lost foundational movement skills that plagues the majority of people. If we can re-gain these movement patterns our ability to decrease pain/aches, improve health, and fitness goes up astronomically. So, learning the why's and how's of each movement pattern will help give you direction to your training.

Movement Pattern Development

Many have tried to create their own lists defining what movement patterns make up human motion. Why have varying models when human motion is rather consistent? It depends upon the lens in which we choose to look at movement from. Paul Chek was one of the first fitness professionals to try to outline the basics of human motion. His seven "primal movements" contained the following.

-Squat
-Hip Hinge
-Lunge
-Rotate
-Push
-Pull
-Gait

Strength Coach, Dan John, simplified the concept to include…

-Carries
-Squat
-Hinge
-Push
-Pull

You will notice similarities and differences in many lists. Who is right? Both are, to varying levels, but the reality is human movement is quite complex and typically a combination of multiple patterns at once! DVRT falls closer to Mr. Chek's "primal movement patterns" as it takes bit deeper of a look at movement beyond the gym. Yet, even with a good start we can add some much needed concepts to the list. The purpose of adding to his list is not to add complexity to the concept, but rather help us identify all aspects of good movement.

DVRT list of natural movement patterns….

-Squat
-Hip Hinge
-Lunge
-Gait
-Push Vertically
-Pull Vertically
-Push Horizontally
-Pull Horizontally
-Rotation
-Anti-Rotation
-Trunk Extension/Flexion
-Trunk Anti-Extension/Flexion
-Single Leg Stance/Balance

Such an extensive list isn't designed to make training more difficult, but more accurate and meaningful. Compared to most actual sporting and everyday activities, these movement patterns are quite simple. Since real functional training will have multiple movement patterns at once it will actually help you understand the variation of the exercise you are using and the impact upon the body.

For example, a DVRT Bear Hug Squat is basically just a squat pattern. It is the reason it is more foundational than a Sprinter Stance Shoulder Squat that possesses elements of squat, anti-rotation, and gait. The more movement patterns that a drill has, the higher the level of complexity. That is why we start with the three primary and impactful concepts of DVRT Restoration of pelvic control, cross patterning, and lifts/chops.

It is important for us to specifically define these patterns as it will help us create balance in the training program, understand proper progression, and identify deficiencies in training.

That means functional training is really about looking at how to get the body to move more effectively and efficiently, so we must understand the components that allow the body to do so. The first being that we want to improve intermuscular coordination. That is the coordination of muscles themselves so that they may perform a movement to a higher level. In other words, we want to train the body to produce motions and patterns that it faces in every day life. Such training also leads us to enhancement of the nervous system.

The nervous system is the governing body of all movements we create. Therefore, it will play an integral role in optimizing its effect on the drills we perform and will help us identify when we have overloaded the system. The beautiful thing about appreciating the power of the nervous system is that we can drastically improve movement and decrease pain if we hit on the right level of

stimulus. On the other hand, overwhelming the nervous system will often lead us to regress. Creating too great of a stimulus for the nervous system can be fixed if identified early in training.

Progressive Overload

It is the one concept of strength training that even top fitness professionals get wrong. What is the fundamental principle to getting stronger? Yes, progressive overload! Yet, when asked what this means, most coaches will say that you have to add weight to an exercise to make it more difficult. However, that is not accurate. The REAL definition of progressive overload is providing a stress to the body greater than it had before. That is a bit of an oversimplification of the terminology, but the point being that load is only one of many variables that we offer.

Not appreciating the multitude of training variables available can hinder the coach, but can cause a change in intensity to training far greater than desired. So, what are the other training variables? Several of them you may already be using, but not thinking about in your programming, some may be brand new.

Training Variables

-Speed
-Range of Motion
-Density (work done in a given amount of time)
-Volume (how much work done)
-Plane of Motion
-Holding Position of Load
-Body Position during exercise
-Level of Stability of the implement
-Load

One of the major goals of DVRT Restoration is to continue to layer the concepts that are discussed in the other DVRT educational programs that establish the foundation of using these concepts. You will continue to notice that many of the exercises and systems we are using are based around these fundamental concepts.

Improving movement is more than a function of adding load. Understanding these variables will give you the means to create better movement solutions.

What is DVRT Restoration?

Disclaimer: It needs to be stated that the intent of DVRT Restoration is NOT to give therapeutic diagnosis, but rather to develop meaningful, quick, and powerful strategies that just about any health care professional can use. If pain is detected in any type of movement immediately stop the exercise and refer to the appropriate health care professional.

Now that we should have a greater appreciation for functional training we can begin to speak more specifically about DVRT Restoration. The obvious question is, "is this a correctives program?" Yes and no. The reason for the mixed answer is because it really depends on the intent of the user. While DVRT Restoration can be used to reduce issues with injuries (assuming you have also contacted your health care provider), the major goal of this program is to find deficiencies in your movement that are keeping you from performing, feeling, and improving more. Simply, accomplishing the overall goal of strength training which is to improve movement efficiency.

Since we now know that in the eyes of DVRT, functional training is really "movement efficiency", we can use these concepts for any individual to really gage where their deficiencies may lie. More than thinking that DVRT Restoration is a separate entity in training, we rather see movement on a continuum and try to identify where the individual lies on that movement continuum. You may find very advanced clients can utilize the following information as well as beginners that are just starting their journey into functional training. We provide you with some specific examples to best utilize the information in this program.

DVRT Restoration will reference all the material already discussed but we will delve a bit deeper into why and what is causing these movement compensations. We are going to focus primarily on three different patterns that are typically not discussed in the more general terms of human movement.

Core Stiffness to Enhance Stability & Movement

Now that we understand that the neutral spine is important not just from a “good looking” spine perspective, but has a critical role in allowing the muscles to perform at their highest level. Yet, there ability to perform and HOW they perform are two separate issues.

We do want to teach people how to create stiffness, but also specific areas and timing of the stiffness. Let’s address just the idea of “core stiffness” and why this is so important in helping people feel and perform better. After all, having people learn how to use the idea of “core stiffness” will drastically change their overall movement.

How does this work? As Dr. Stuart McGill states, *"proximal stiffness enhances distal mobility and athleticism”*. Creating “stiffness” on the core allows for the spine and pelvis to maintain stability which gives the “ok” and platform for the extremities to perform at a higher level.

When our body perceives instability then in an effort to create stability our body will often shut down both the movement capability and power that our extremities can create.

Dr. McGill offers a great real world example of how stability can enhance power;

“On the performance side, "Core Stiffness" is mandatory. It is absolutely essential to carry heavy loads, run fast and change direction quickly. It determines the rate of speed for movement of the arms and legs. There are those people who state they do not need dedicated core training because they lift and squat. Yet when I assess their strength and speed abilities, often I find they are unable to translate their strength to on-field performance. Pointing out their weak links brings them to the realization: Training the core is non-negotiable.

How does core stiffness enhance limb speed and strength? Consider the pectoralis major muscle – it attaches the rib cage at its proximal end, crosses the shoulder joint, and attaches to the humerus of the upper arm at its distal end. When muscles contract they try to shorten. Consider the specific action here – the arm flexes around the shoulder joint moving the arm from muscle shortening at the distal end. But the same shortening also bends the rib cage towards the arm at the proximal end of the muscle. Thus simply using the pec muscle would not result in a fast nor forceful punch. Now stiffen the proximal end of pec muscle attachment – meaning stiffen the core and ribcage so it can't move. Now, 100% of pec muscle shortening is directed to action at its distal end producing fast and forceful motion in the arm. In the same way a stiffened core locks down the proximal ends of the hip muscles producing faster leg motion. A loss of core stiffness causes the torso to bend when sprinting, and a loss of speed – some force was robbed that should have been expressed in leg velocity. Thus, a universal law of human movement is illustrated – "proximal stiffness enhances distal mobility and athleticism".''

Even if you have no plans of going to the NFL you can hopefully appreciate the actions of the pelvis and core are more complex that what we traditionally see and think we are accomplishing in the gym environment. When lifting in most gym exercises we see either the pelvis move anteriorly or posteriorly. However, it should become quickly apparent that ability to control the pelvis in all planes of motion is very important.

These are concepts we are going to discuss time and time again and many of our DVRT Restoration progressions are based upon. When people have the "what the heck" effect from exercises in our program it isn't magic as much as we would like people to think. Rather, it is the application of science to real world, practical environments. You see, that is really the point of using functional training from a coaching and user stand point. If you train the body as it is designed to move the results come faster. The sad part is that so many fitness and performance programs espouse functional training, but rarely the techniques and methodologies do not reflect the true dynamic nature of real world movement.

Inevitably, the question of "how to screen" these movements is going to come into play. We aren't going to hammer screens too much in Restoration for a few reasons. One, Restoration is a system, so it is far easier to just start at the beginning of each section and make sure people possess the movement qualities and progress them rather than trying to make things overly complicated for yourself as the practitioner, or frustrating to them as the client.

Secondly, in our vision of screening, the screen ALWAYS has to be simple and give us valuable information we couldn't collect and identify from just well thought out programming. While this sounds overly simple, it is the collective experience of over 40 years of both the therapeutic, fitness, and performance world that we have lived in ourselves.

When you go through these screens you will see that they will provide you such information, but they will also serve as valuable talking points to educate your client and make them part of the training process.

Single Leg Stance Test: Watch Here

When I worked with a fall prevention clinic, we would examine a lot of qualities of "balance". Which by the way, is a rather vague term for most. What we really want in balance is to maintain our center of mass over our base of support. Okay, so what does that mean for you and do you have good foundational balance?

A single leg balance test is a great start, easy to implement and has a long history of being a reliable baseline measure of balance (9). We will be able to fast and effective snap shot of one's ability to balance properly during movement. There will be the impact of the foot and lower leg, frontal plane core/hip stability, and an overall ability to connect with your kinetic chains to create control.

Simply stand on one leg, can you keep yourself from leaning, rotating, or falling over? Can you hold the posture and position for 30 seconds? If so, you have good baseline balance and stability. Chances are, for many of you or your clients, you will find this to be surprisingly challenging.

While such a test is typically a pass/fail measure, we can see potential issues in movement. The Single Leg Stance Screen is a measure of postural stability. The simple act of standing on one leg allows us to evaluate quickly and simply the strength/stability of the hip and trunk complex in all three planes of motion. We will be evaluating whole body balance in the form of the ability to keep one's center of mass over their base of support.

Performed with eyes open and arms on the hips, the participant must stand unassisted on one leg for 20 seconds. The test is measured simply as a "pass/fail" in the clients ability to maintain this position without touching the ground. Participants unable to perform the one-leg stand for at least 5 seconds are at increased risk for injurious fall.

The coach may also want to take note on the relative stability of the client. Is there quite a bit of lean to one side, rotation of the body occurring, etc. Since they are rather subjective measures, the coach can simply make a note and see if the single leg stance improves in re-screening.

On the left is ideal positioning, the right is instability that will be noted during the screen.

Prone Hip Extension Screens: Watch Here

The prone hip extension test is a very common clinical test in use for more than several decades. The screen has been designed and suggested to measure an integral aspect of our walking pattern and making sure we are using the appropriate sequencing of muscles to create such action.

It has been suggested that there exists an ideal movement pattern when lifting the leg off of the table. It is proposed (Rehabilitation of the Spine, by Craig Liebenson, pg. 214) that his hip hyperextension movement is performed to analyze the hip extension that occurs during the terminal stance phase of gait.

Deviations from the ideal pattern while prone are indicators of the dysfunction that could be occurring during gait or possible other tasks (e.g. an individual might hinge at the spine during a squat rather than the hinge because of a weak/inhibited gluteus maximus aka. gluteal amnesia).

The work of Janda has led him to suggest their is an optimal firing sequence of the muscles during hip extension actions like this one.

1. Gluteus Maximus
2. Hamstrings
3. Contralateral erector spinae
4. Ipsilateral erector spinae

While this may be beyond some to measure and feel very confident. We can look for alterations in the way the movement is performed to gain logical assumptions that compensation during this movements is occurring.

The goal of ANY of these screens is NOT to diagnose. Rather, to have simple means of quickly examining high potential movement issues we will be needing to address. The additional role of screening is to give us a baseline. Many view screens as only the goal to score at a certain level. For many of you and your clients, the greatest value is to have the ability to compare your progress and to make sure your programs are being effective.

Use screening as part of the process. It will be a skill you, as a coach, will need to develop as well as communicate effectively to the client the impact of the results. Focus less on being definitive in findings through one screen and place more emphasis on seeing patterns that tend to point you in the right direction.

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