



Name:

FMS Level 1

V2.9



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Table Of Contents

Course Evaluation.....	3
Preface	5
Introduction.....	7
NDS.....	8
Movement Principles	9
Performance Pyramid.....	11
Screening Guidelines	15
Deep Squat.....	17
Hurdle Step.....	21
Inline Lunge	25
Shoulder Mobility	31
Active Straight Leg Raise	35
Trunk Stability Push-Up.....	39
Rotary Stability.....	43
Documenting the Scores	47
Running Your Best FMS.....	49
Corrective Algorithm.....	50
The FMS Training Cycle	52
FMS Corrective Exercise	53
Corrective Strategy Examples	55
Stoplights, Movement Screening and Exercise	59
Appendix 1 - Motor Control Screens	65
Appendix 2 - Modified FMS	81
Appendix 3 - Score Sheets	88



Course Evaluation

Course _____ Location _____

Date _____ Instructors _____

Please circle the number that best answers the question. The range is from STRONGLY DISAGREE to STRONGLY AGREE.

Program	Strongly Disagree			Strongly Agree	
1. Course objectives were clear	1	2	3	4	5
2. Material was presented in an organized manner	1	2	3	4	5
3. Material was appropriate for course objectives	1	2	3	4	5
4. Were the course objectives met	1	2	3	4	5
5. Was evidence provided to substantiate material presented	1	2	3	4	5
6. Were personal experience and observation the primary source of information	1	2	3	4	5
7. I am confident that I can use the techniques	1	2	3	4	5

Speakers

1. Speakers interacted well with participants	1	2	3	4	5
2. The speaker's knowledge of the subject matter was adequate	1	2	3	4	5
3. Demonstrations were used effectively	1	2	3	4	5
4. There was enough time for questions and answers	1	2	3	4	5

Miscellaneous

1. What was your principle objective in attending this program? _____

2. Was this objective met?

Yes Somewhat Maybe No

3. Overall how would you rate the course just completed?

Excellent Good Satisfactory Poor

4. Was a commercial product promoted?

Yes No

5. If yes, did you feel that product promotion was the sole purpose of the course?

Yes No



	Strongly Disagree			Strongly Agree		
Office Staff						
1. Any phone contact you had was courteous and friendly	1	2	3	4	5	NA
2. Staff were helpful and informative	1	2	3	4	5	NA

Academic

1. What are your degrees/certifications? _____
2. From what source did you learn of this course?
 Website
 A Colleague
 Brochure
 Other

Finally

- | | | | | | |
|--|---|---|---|---|---|
| 1. Likelihood for recommending the course to other | 1 | 2 | 3 | 4 | 5 |
| 2. Overall impression of the course | 1 | 2 | 3 | 4 | 5 |
| 3. What did you find to be the most valuable part of this course? | | | | | |
| 4. Please include any suggestions to improve the learning experience of this course. | | | | | |

Preface

Functional Movement Systems (FMS) was formed in 2001 to improve the overall scope of performance, fitness, rehabilitation and management of injury risk in active individuals. It was the intent of the founders of FMS to provide a better system for sports medicine, fitness and strength and conditioning professionals to identify movement dysfunction as well as improve communication between the professions. This process began in the mid-90s with Gray knowing that in order to create the most holistic approach to functional rehabilitation you must first observe fundamental movement patterns. It was during this process that he began to formulate a systematic way of assessing movement patterns, which was the origin of what is now the Selective Functional Movement Assessment (SFMA). However, this assessment process was designed for patients or individuals who were already in pain, so the goal was then to create a screening process that would allow anyone dealing with active individuals to easily set a baseline of fundamental movements. Once the fundamental movements were observed better decisions could be made on how to better enhance the individual's workout or training plan. The intent was to create a more proactive approach when dealing with movement dysfunction, we wanted to detect movement dysfunction and intervene as soon as possible. It was this objective that allowed us to ultimately create the Functional Movement Screen.

Since this system was first introduced the evidence has continued to suggest that this fundamental philosophy should be followed in order to have the greatest impact for active individuals seeking to improve their level of fitness or patients looking to get back to function. FMS continues to analyze data, review research and gather feedback from professionals so that the evolution of our philosophy and message can continue. We will always work to the best of our ability to bring the latest and greatest information related to movement to the fitness, medical, and strength and conditioning professions so that we can enhance the lives of the individuals we touch.



Introduction

The Functional Movement Screen captures fundamental movements, motor control within movement patterns, and competence of basic movements uncomplicated by specific skills. It will determine the greatest areas of movement deficiency, demonstrate limitations or asymmetries, and eventually correlate these with an outcome. Once you find the greatest asymmetry or deficiency, you can use additional screens that are more precise if needed.

The original idea of the screen was to portray movement-pattern quality with a simple grading system of movement appraisal; it's not intended to diagnose or measure isolated joint movement. Attempting to measure in isolation does a disservice to the pattern—the body is too complex to take isolated movements seriously in the initial stages of screening.

This system was developed to rate and rank movement patterns in high school athletes, in an effort to determine who was ready to engage in higher-level activities in the weight room and on the field. However, during the two-year refining process, we discovered uses well beyond the original intended purpose, the information gathered from its use has broadened our scope of corrective exercise, training and rehabilitation. The screen has taught us how to use it, and helped us gain timely and valuable feedback from our attempts at movement correction.

Our collective expertise has come from working against the screen's standard, not from modifying the screen every time things got confusing or inconvenient. We have changed the way we look at the screen data many times, but we have not changed the way we collect the information. In a way, this work represents our evolution, not that of the screen. The screen patiently waited for us to see and understand all it was providing in return for about 10 minutes worth of time.

The FMS is comprised of seven movement tests that require a balance of mobility and stability. The patterns used provide observable performance of basic, mobility and stability movements by placing clients in positions where weaknesses, imbalances, asymmetries and limitations become noticeable by a trained health and fitness professional.

When the screen's movements mimic athletic moves, it is merely coincidence. The screen is not a training tool, nor is it a competition tool. It's purely an instrument for rating and ranking movements.

The screen's usefulness is its simplicity, practicality and ability to fill a void in the toolbox we use to judge performance and durability. It is not intended to determine why a dysfunctional or faulty movement pattern exists. Instead, it's a discovery of which patterns are problematic. The FMS exposes dysfunction or pain—or both—within basic movement patterns.

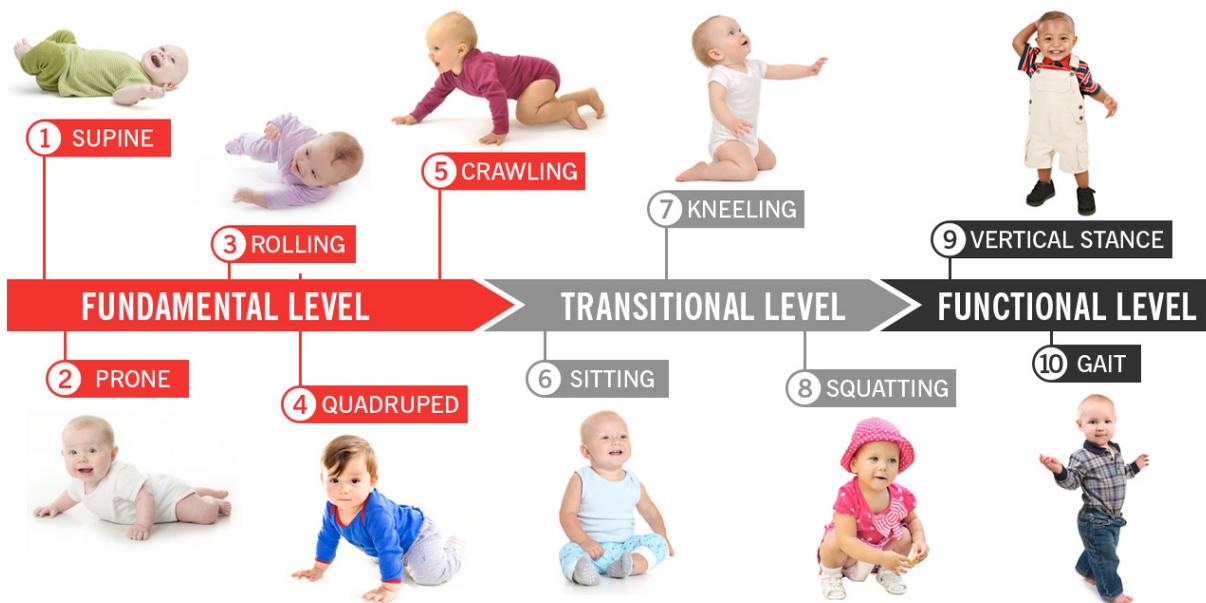
Many people are able to perform a wide range of activities, yet are unable to efficiently execute the movements in the screen. Those who score poorly on the screens are using compensatory movement patterns during regular activities. If these compensations continue, sub-optimal movement patterns are reinforced, leading to poor biomechanics and possibly contributing to a future injury.

The public's knowledge of the intricacies of the FMS is minimal at best. To introduce your client to the process, suggest a visit to the Functional Movement Systems website at FunctionalMovement.com.



A Neurodevelopmental Perspective

Driven by the natural behaviors of being human, we begin to explore movement from the time we are born to about three years of age. We depend on hitting developmental milestones that take us from very fundamental abilities such as breathing and rolling to transitional postures such as kneeling to then standing positions that facilitate gait and locomotion. This allows us to layer higher level abilities on these fundamental layers of postures and movements. This developmental progression gives us the basis for our movement baseline in order to show that we are maintaining the ability to adapt and be durable to the environment and stresses placed upon us. That is why the FMS uses this as a guide to our movement screen and the patterns that we explore for corrective strategies.



THE MOVEMENT PRINCIPLES

Functional Movement Systems is based on ten principles originally appearing in the book *Movement* by Gray Cook. These are detailed, multifaceted action points to guide movement observation, screening, assessment and treatment. That philosophy can now be distilled into three movement principles. They are simple, yet contain every aspect of physical development to better our understanding and guide our efforts:

Principle 1 states that we should first move well, then move often.

Step back from the client to create enough distance, allowing you to see the whole picture at once. Most of the confusion over where to stand comes from being too close and too focused on one area of the test. Stand far enough away to allow a more global focus. View the entire movement and let the test criteria become evident.

- Principle 1 is our "**Natural Principle**".
- Seek a qualitative minimum before worrying about quantities. If moving well is the standard, moving often is the foreseeable outcome.
- FMS firmly believes this is the life lesson that nature teaches us; we see it in animals and those people who are the physically and mentally healthiest.
- We must protect this 1st principle because, despite what many current fitness philosophies say, the principle does not work in reverse. It is not natural to build capacity on incompetence . . . at least, in nature, it usually doesn't have a good outcome.
- You may have noticed that we have incorporated the first principle into the FMS logo. The lack of punctuation after "move often" is not an oversight, but an insight. The period following "move well" means that we need a biomarker before progressing to developing capacity. The lack of a closing period symbolizes sustainability.
- Moving well enables us to adapt. Here's how: It gives us opportunities to develop. Moving often keeps us in contact with our environment and provides us with the ability to explore and expose ourselves to movement opportunities.
- *We should move well enough to respond and often enough to adapt.* Moving well allows us to respond appropriately to environmental signals. It sets up the feedback that is vital for progressive movement learning. Moving often adds volume across time which allows our patterns and tissues to adapt.

Principle 2 directs us to protect, correct, and develop the movement of those in our care.

- Principle 2 is the "**Ethical Principle**".
- Guided by the Hippocratic Oath, first do no harm, and then progress in direction of independence and sustainability.
- **Protect** could mean referring to a healthcare professional to address pain or avoiding patterns and exercises where pain or dysfunction are present. This allows us to reduce exposure to the exercises, activities and drills that may be reinforcing or exacerbating the dysfunction. In some cases, this may be enough to improve the movement pattern without even adding any corrective exercises or strategies.
- Protecting clients first leads us to a paradigm shift! Currently in the fitness mindset if someone lacks fundamental movement, it is common to quickly respond to movement problems by adding supplementary exercises without addressing how to protect the client first. That is the paradigm that

puts quantity before quality—it attempts to build fitness on dysfunction—it focuses on body parts. The first principle has somehow been reversed—people move often and hope that moving well will just happen. It won't. And movement problems will only get worse when compounded by load and frequency. As functional movement professionals, we stop and protect by temporarily removing exposure to patterns and exercises where pain or dysfunction are present and focus on exercises and strategies that ensure a solid movement baseline.

- Protecting clients first leads us to a paradigm shift! Currently in the fitness mindset if someone lacks fundamental movement, it is common to quickly respond to movement problems by adding supplementary exercises without addressing how to protect the client first. That is the paradigm that puts quantity before quality—it attempts to build fitness on dysfunction—it focuses on body parts. The first principle has somehow been reversed—people move often and hope that moving well will just happen. It won't. And movement problems will only get worse when compounded by load and frequency. As functional movement professionals, we stop and protect by temporarily removing exposure to patterns and exercises where pain or dysfunction are present and focus on exercises and strategies that ensure a solid movement baseline.
- **Protection always precedes correction, which in turn, precedes development.** Protect our clients from themselves and us by removing negatives that are reinforcing poor movement quality. Then, using objective feedback of the screen and corrective strategies, improve the movement baseline. Now, the movement patterns will support the exposure and adaptations that develop capacity, fitness and performance.

Principle 3 tells us to create systems that enforce our philosophy.

- Also, called the "**Practical Principle**".
- Implementation of standard operating procedures, the practice of intelligent selection, always matching the risk to challenge ratio to the growth and development desired.
- Standard operating procedures and intelligent selection protect those who entrust their health and fitness to us.
- But where should a system start? It should recognize that we cannot know anything without perspective—that we cannot progress without baselines. We consider movement as a vital sign of life, and along with blood pressure and body temperature and many others, it absolutely is. If we can have a system that looks at fundamental movement patterns, we can create a baseline. With that baseline, we can identify and demonstrate the fundamental movements that are missing, deficient or dysfunctional.
- If movement is below an acceptable standard for a movement vital sign or ability—that's dysfunction. If someone is unable to express physical capacity with a minimum standard of load, energy system response, frequency or volume—that's a deficiency. Understanding the difference and creating a common language will allow us to reinforce responsibility and accountability.

If you believe in Principle 1, you honor it with Principle 2. To take action on Principle 2, implement Principle 3.

The Performance Pyramid

The performance pyramid is a simple diagram constructed to give you a mental image and understanding of human movement and movement patterns. It is constructed of three rectangles of diminishing size, with one rectangle building upon another. Each of these rectangles represents a certain type of movement. The pyramid must always be constructed from the bottom up and must always have a tapered appearance (a broad base with a narrow top).

The first rectangular level is the base platform or foundation. It represents the ability to move through fundamental patterns.

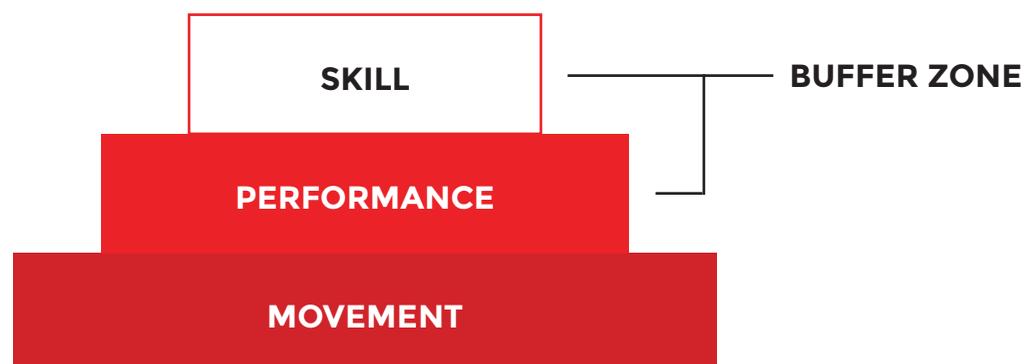
The second rectangular level represents performance. Once you have established your ability to move, you must look at how efficient you are at that movement. This movement efficiency is defined as power. This is not your specific power; this is your general, measurable power, or gross athleticism. An example of a test of gross athleticism is the vertical leap. First of all, gravity affects all bodies equally. Therefore, the vertical leap does not discriminate unfairly against body size. Secondly, even though jumping is very important in some sports (basketball and volleyball) and rarely even considered in others (cycling and marathon running), it demonstrates your ability to produce or generate power.

From a training standpoint, it is very important to be able to compare individuals of different sports in a general format. The first two rectangular levels allow us to make this comparison of functional movement ability and power so that athletes can learn from each other and different training regimes. Moreover, it is important not to get "sport specific" with testing at this level of the performance pyramid. Sport specificity at this point of testing will reduce the ability to compare one athlete to another and learn from them. It is also important not to do too many tests at this level. The more tests you do, the more you complicate matters. A few simple movements will let you know how efficiently the athlete generates power.

The last level of the pyramid is sport specific skill. This level constitutes a battery of tests to assess the athlete's ability to do a given activity, play a specific sport or play a specific position within that sport. It looks at the competition statistics and any specific testing relative to that sport.

The performance pyramid is only a map and not the territory. Each level of the pyramid should be considered as a ratio of the athlete's score over the optimum score within the category. Consider four basic appearances of the pyramid. These are simple generalizations, but they represent how the pyramid can help guide the conditioning program.

1. The Optimum Performance Pyramid



The first pyramid we will discuss is the optimal pyramid. This pyramid represents a type of athlete whose movement patterns (demonstrated by the movement screen), movement efficiency (demonstrated by performance testing) and sports skill (demonstrated by sports specific testing and sport statistics) are balanced and adequate. This does not mean they cannot improve, but any improvement should not upset the balance and appearance of the performance pyramid.

The optimum performance pyramid has a broad base with a slightly smaller rectangular level in the middle section and an even smaller rectangular level on the top. This pyramid demonstrates an individual who has appropriate or optimal functional movement. This individual possesses the ability to explore a full range of movement, demonstrating body control and movement awareness throughout numerous positions.

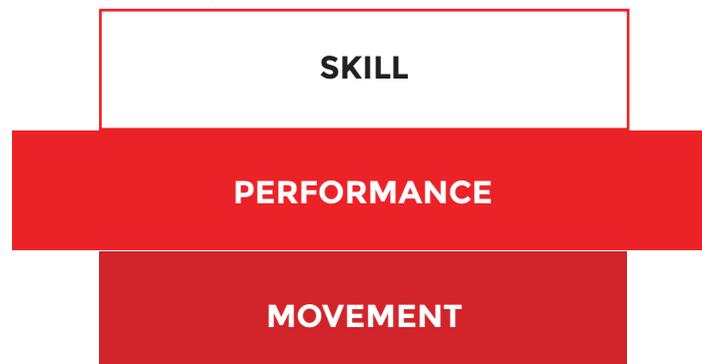
This individual has also demonstrated a requisite amount of power. Compared to normative data, this individual has demonstrated average or above average general power production. This means the individual utilizes well coordinated linking movements or kinetic linking. For example, during the vertical leap, the individual loads the body in a crouched position, throws the arms, slightly extends the trunk, and finally explodes through the legs in a well timed, well coordinated effort so optimal efficiency is present. This individual has the potential to learn other kinetic linking movements and power production movements with appropriate time, practice and analysis.

Lastly, the third rectangular level demonstrates an average or optimal amount of sport specific or activity specific skill.

Note how the broad base creates a "buffer zone" for the second level and the second level creates a buffer zone for the top level. This buffer zone is extremely important. Without the buffer zone, there is a greater potential for injury and power and efficiency could be compromised. This buffer zone simply demonstrates the fact that the individual's functional movements are more than adequate to handle the amount of power that they can generate.

Referring to the top of the pyramid, the power they generate can easily control the skill they possess.

2. The Over Powered Performance Pyramid



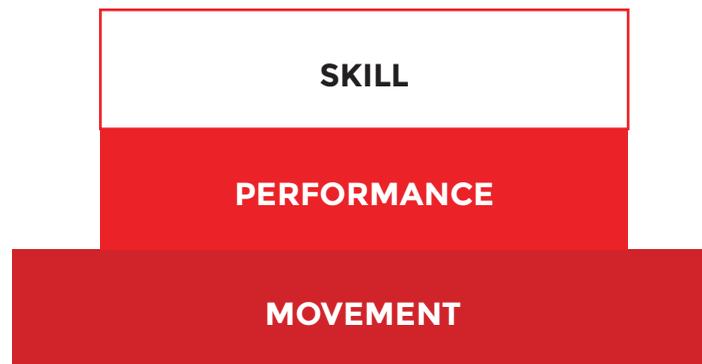
The second pyramid will demonstrate athletes who are "over powered." This does not mean that they are too strong - it only means that their ability to generate power exceeds their ability to move freely. The way to rectify this problem is to improve their movement patterns while maintaining their current level of power.

This pyramid represents the individual who scores very poorly on mobility and stability tests but very high on power production (the second level) and adequately in skill (the third level). Their ability to move freely in simple and basic positions is limited by poor flexibility or poor stability in some of the movement patterns. This causes them to have a less than optimal functional movement score that would appear as a smaller rectangular level at the base.

This individual's performance does not really have the appearance of a pyramid. The base (functional movement) and the power (functional performance) seem to be inverted in size. This individual is generating a significant amount of power with many restrictions and limitations in functional movement. Many highly skilled and well-trained athletes will appear this way when their performance is viewed in the form of a performance pyramid. This athlete may have never experienced an injury and may be performing at a high level. But if this individual chooses to train, the best focus for training would be on functional movement patterns.

Removing the limitations to functional movement would provide a broader base and create a greater buffer zone. There may not be an immediate tangible improvement in performance. As a matter of fact, sport specific performance and power production may remain the same or even go down slightly as mobility and stability improve. However, it is unlikely that this individual would improve in general power production or sport specific skill to any large degree without first improving general fundamental basic movement patterns. Therefore, whether this individual targets functional movement patterns for injury prevention or as a way to realize untapped performance, he or she will eventually see improvements.

3. The Under Powered Performance Pyramid



The third pyramid represents "under powered" athletes who have excellent freedom of movement but whose efficiency is poor and could stand improvement. This individual should be involved in training and conditioning that would improve efficiency or power without negatively affecting the movement patterns.

This pyramid represents the individual who demonstrates a broad base and optimal movement patterns with very poor power production at the second level while demonstrating optimal or above average skill in a specific movement. This individual has the requisite movement patterns to perform multiple tasks, activities and sports skills but lacks gross athleticism or the ability to produce power in simple movement patterns.

This person would benefit greatly from power training, plyometric training or weight training. However, it is important that they maintain functional movement patterns as they gain strength, power, endurance and speed. This reserve of power will create the buffer zone for sport specific skill while improving their efficiency. Consider the example of a young pitcher who has extremely good mobility and stability and has honed his pitching skills through video analysis and expert instruction. To pitch effectively, this individual must use a very high level of energy expenditure for a short amount of time. This individual does not need to be on a mobility or stability program and probably does not need to tinker with pitching mechanics to realize improvement in pitching. This individual should create better strength, power and endurance reserves within the body, thereby improving gross athleticism. This would create a buffer zone between the second and third level of the pyramid. This buffer zone would allow the individual to pitch at the same level of effectiveness with a higher level of efficiency or a lower level of energy expenditure. As this individual improves power, we may not see maximum pitching speed change at all. However, under normal circumstances we should see an improvement in consistency, endurance and recovery between pitching bouts.

4. The Under Skilled Performance Pyramid



The last pyramid represents athletes who are "under skilled." This is a situation in which the movement pattern and efficiency and power generation in the first two blocks of the pyramid are adequate. However, analysis of skill and sport performance demonstrates an overall weakness or below-average performance. Athletes in this category appear to be appropriately conditioned but not appropriately skilled. A training program specifically designed around sports skill fundamentals and techniques would be the best investment of time for this individual.

This pyramid demonstrates an optimal functional movement level, an optimal functional performance level and a below-average specific skill level. This is simply an individual that either naturally or through work has appropriate functional movement patterns and good power production but does not have effective mastery of sports skill. This individual would probably benefit most from technique training to refine or improve mechanics or develop a greater awareness of the movement needed to perform the skill at a higher level.

CONCLUSION

The whole purpose of the testing proposed in this book is to allow you to acquire the information to construct a simple performance pyramid. This method will consistently target the areas on which to focus.

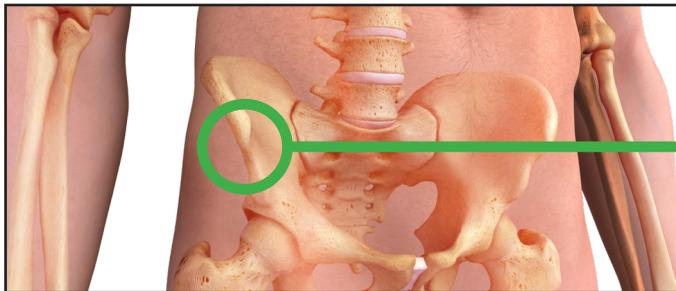
Through seasons and training, the performance pyramid will continually change for some individuals. For others, it will always remain the same. Some individuals will naturally have the ability to generate power but will consistently have to work on functional movement patterns to maintain optimal freedom of movement. Other individuals will naturally have excellent freedom of movement and movement patterns but will need to use supplementary training to maintain a level of gross athleticism and power production. Others will find that they consistently need to work on fundamentals and sports skills while others are naturally gifted with sports skills and should invest their time in conditioning.

The performance pyramid explains why simply replicating the program of one individual will not consistently yield the level of results it does for another individual. Many coaches and athletes over the years have somehow intuitively used this type of approach to consistently expose the category with the greatest weakness and then work on that category. The performance pyramid simply and effectively keeps body balance in check and aids in communicating with the athlete about his or her area of weakness.

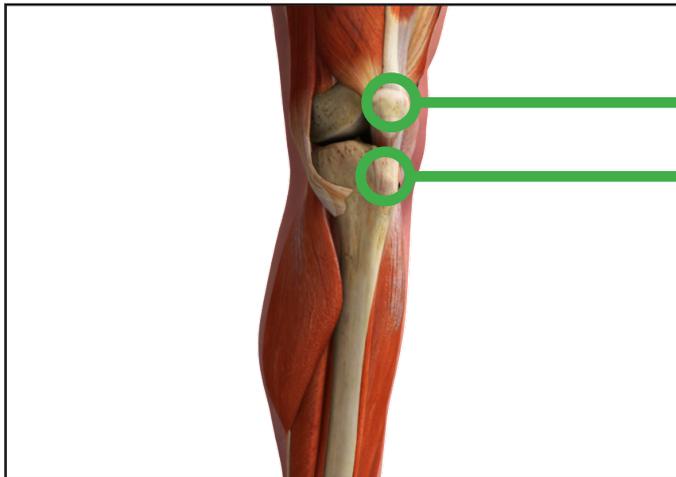
Screening Guidelines

ANATOMICAL LANDMARKS

To administer the FMS correctly, you'll need to be familiar with the following bone structures or superficial landmarks.

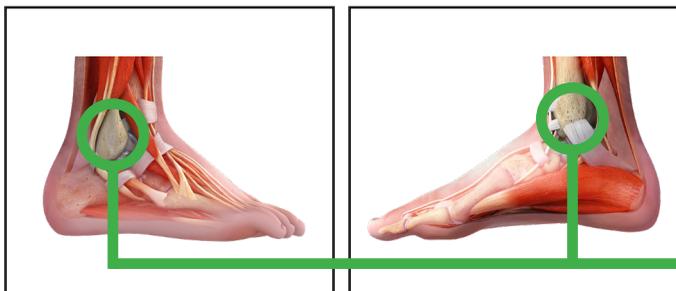


Anterior superior iliac spine (ASIS)

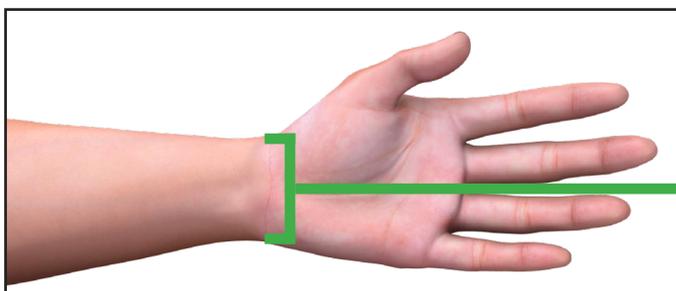


The joint line of the knee/Mid-Patella

Tibial tuberosity



Lateral and medial malleolus



The most distal wrist crease

Positioning

Two things to consider when observing the movements of the screen are distance and movement. Considering these two things will take care of most of the issues involved in trying to see everything during the screen.

Distance

Step back from the client to create enough distance, allowing you to see the whole picture at once. Most of the confusion over where to stand comes from being too close and too focused on one area of the test. Stand far enough away to allow a more global focus. View the entire movement and let the test criteria become evident.

Movement

The client has three attempts to perform each test, so don't be afraid to move around during the test. Depending on the test, standing to the side or facing the person may provide the best vantage point. Take advantage of all three trials and move around if the score is not obvious from one point of view.

FMS Order:

The recommended order for screening takes the client from standing positions to ground-based positions which is a physically efficient and time efficient process for the client while transitioning from one test to another. Although this is the recommended order of tests, during groups screens there may be multiple testing stations. The order the clients move through stations can start and end in any sequence and will not negatively affect the scoring results.

1. Deep Squat
2. Hurdle Step
3. Inline Lunge
4. Shoulder Mobility
5. Active Straight-Leg Raise
6. Trunk Stability Push-Up
7. Rotary Stability

Footwear:

We recommend that the client wear the shoes that they train in the most. The goal is to produce consistent and reliable screening conditions from the first screen to any rescreening conditions. In a majority of cases, our clients live and function in shoes and this is the most reliable way to look at an individual's movement that they experience in their current lifestyle.

Warm-up:

The FMS screen is performed with no prior warm-up, stretching or movement preparation. It is important to know what a person's natural state of movement is when they walk through the door. This is the best indication of the quality and level of movement competency they experience in their current daily activity.

Verbal Instructions:

This manual provides you with specific verbal instructions that should be stated to the client as specifically and consistently as possible. The verbal instructions are designed to guide the client you are screening into the proper set up position and instructs them how to execute the movement. These instructions are designed to give them just enough information to clearly understand how to perform the test without adding coaching or feedback that would alter their natural movement pattern. This will ensure that you don't miss anything in the set up as the screener and to also create consistency for each screen that you administer. As a new screener it is suggested that you consistently use the Verbal Instructions for the first 50 screens you perform! This ensures that you systematically administer the screen for consistent results and integrating FMS into your environment.



Deep Squat Movement Pattern

WHY THE SYMMETRICAL STANCE PATTERN?

The ability to squat is a fundamental movement ability. It appears early in the developmental sequence and is both a posture and a pattern. With the squat, we lower/control our center of mass from a symmetrical stance. It can also be a position of rest.

The exercise world has taught us a type of squat that is really an abnormal or unusual way to squat. This type of squat is designed to protect our spine in order to overload the body with unusually heavy loads or volume to manipulate our environment for specific training goals. This is not a fundamental, everyday squat, but we have adapted it for specific training purposes. This is not the squat that you would see if you were with friends around the campfire. So, let's remove our squatting exercise hat and put on our human movement squatting hat for the moment.

In sports squatting allows us to load the lower body to produce force quickly and explosively and to absorb force during landing. A vertical leap, for example, as used in volleyball, basketball and many other sports and activities is an example of the squat pattern in action. Dropping center of mass to resist an opponent trying to push you out of position is an example of the force absorbing use of the squat pattern.

Some work environments require employees to perform skilled or manual tasks, including positions that require raising and lowering of our center of mass using the squat pattern. When building a home, workers get up and down to lay the foundation, lay the tiles, and put in the cabinets with detailed final touches. For firefighters, it is the ability to lift and get low in a fire that could be life-saving strategies. Healthy squatting is needed to keep important laborers like this functioning well on the job.

When someone cannot perform the squatting pattern it is imperative to look into their lifestyle and/or activity to determine what could be causing the poor pattern. Are there things too harsh in their environment? Like squatting with poor form and heavy weight or jumping with bad mechanics repeatedly. Or are there things too soft in their environment? Like never using the squat and always sitting at a comfortable height that never puts them in a deeper position.

WHY THE DEEP SQUAT SCREEN?

We choose to screen the symmetrical stance pattern using the Deep Squat (DS). This screen shows whether the person can move symmetrically into a full range of motion of the ankles, knees and hips. Maintaining the overhead position of the arms tells us if the individual can fully access lower body mobility without robbing movement from the torso and upper extremities.

The DS places you in a consistently repeatable position that demands a high level of mobility and control. The feet straight ahead and the dowel overhead places the individual at the extremes of lower body motion against the positioning of the upper extremities. This makes the compensations easy to see.

Deep Squat

DESCRIPTION

The client assumes the starting position by placing the inside edge of the foot in vertical alignment with the crease of the armpit to establish the shoulder-width stance. The feet should be in the sagittal plane with no lateral outturn of the toes. The client rests the dowel on top of the head to adjust the hand position, resulting in the elbows at a 90-degree angle. Do not manually manipulate set up positions, but absolutely spot for safety and be aware of possible balance issues that could put the person being screened at risk.

Next, the client presses the dowel overhead with the shoulders flexed and abducted and the elbows fully extended. Instruct the client to descend slowly into the deepest possible squat position with the heels on the floor, head and chest facing forward and the dowel maximally pressed overhead. The knees should align over the feet with no valgus collapse.

As many as three repetitions may be performed, but if the initial movement falls within the criteria for a score of three, there is no need to perform another test. If any of the criteria for the score of two are not achieved while using the FMS board, the client receives a score of one.

VERBAL INSTRUCTIONS

The following statement begins the screen and applies to all seven tests.

Please let me know if there is any pain during the following movements. And if at any time you do not understand the instructions, stop me for clarification. We are going to perform each movement one at a time and in a smooth and controlled motion. Please wait for me to confirm that you have the proper set up position and then I will signal you to begin the movement.

For consistency throughout all screens, this script should always be used. The bold words below should be repeated to the client.

- **Stand tall with your feet shoulder-width apart and toes pointed forward.**
- **Grasp the dowel in both hands and place it on top of your head so your shoulders and elbows are at 90 degrees.**
- **Press the dowel so that it is directly above your head.**
- **While maintaining an upright torso and keeping your heels and the dowel in position, descend into a squat as deeply as possible.**
- **Hold the bottom position for a count of one, and then return to the starting position.**

Scoring the Deep Squat

3

- Torso is parallel with tibia or toward vertical
- Femur is below horizontal
- Knees do not track inside of feet
- Dowel aligned over feet



2

- Torso is parallel with tibia or toward vertical
- Femur is below horizontal
- Knees do not track inside of feet
- Dowel aligned over feet
- Heels are elevated



1

- Tibia and torso are not parallel
- Femur is not below horizontal
- Knees track inside of feet
- Dowel is not aligned over feet



An individual receives a score of zero if pain is associated with any portion of this test. A medical professional should perform a thorough evaluation of the painful area.

Hurdle Step Movement Pattern

WHY THE DOUBLE TO SINGLE LEG PATTERN?

The double to single leg pattern is fundamental to our ability to walk and is the base of our locomotive mechanics. It is a display of control of our center of mass with a changing base of support. Rolling, crawling and other developmental milestones set the stage for this pattern.

In daily living, the ability to use this double to single leg movement to simply walk up a flight of stairs, step over toys left on the ground, or hike up our favorite mountain trail affects our life choices. Later in life it is critical that aging adults maintain this movement ability for independence and quality of life.

In work tasks, we see people load one side to perform off-center tasks and reach from a narrow base over a single leg. Can you imagine climbing a ladder without the ability to efficiently perform the single leg stance? Fire fighters, painters, and construction workers of all types rely on this ability.

In sports if this pattern is challenged, we lose the ability to have first step quickness needed to beat our opponent on the football field. A pitcher in baseball needs this ability during windup, powerfully transferring force through double leg stance to follow through onto a single leg stance. This transfer from double leg to single leg is required in many sport performance skills.

Whether it's a high-level sprinter in the Olympics, a mother quickly returning upstairs to get a child's backpack, or a recreational golfer stepping uphill on the course, double to single leg mechanics show up in all levels of daily activity and sport. The double leg to single leg movement requires the ability to rely on the stance leg while performing the stepping motion with the opposite leg. When this movement ability is performed poorly we alter our locomotive mechanics and efficiency breaks down.

WHY THE HURDLE STEP SCREEN?

The Hurdle Step Screen (HS) looks at single leg stance challenged by a dynamic stepping motion. The pattern demands a higher step than normal to express mobility and range of motion with the stepping leg, while requiring stability of the stance leg. The step over the string imposes a time demand.

The single leg stance must be maintained while the opposing leg is stepping, which creates a dynamic challenge. The HS uses tibial height as a body relative standard for the stepping motion.

The dowel across the shoulders provides a horizontal reference allowing the screener to easily see the subtle dips and shifts in shoulder position and upper body, indicating a compensation. We are asking for full lower body motion and control without having to "rob" from the upper body position.

Hurdle Step

DESCRIPTION

To begin the test, use the dowel to measure the height of the tibial tuberosity. Since it can be difficult to find the true joint line between the tibia and the femur, the top center of the tibial tuberosity serves as a reliable landmark.

To adjust the previously described hurdle to the correct height, have the client stand with feet together and use the dowel to measure from the floor to the height of the top and center of the tibial tuberosity. Slide the hurdle's marking cord to the tibial tuberosity height measured, and adjust the other side until the cord is level and displays accurate tibial tuberosity height on both indicators.

Have the client stand directly behind the center of the hurdle base, feet touching at both heels and toes and with the toes aligned and touching the base of the hurdle. Position the dowel across the shoulders, below the neck. Ask the client to step over the hurdle to touch the heel to the floor while maintaining a tall spine, and then return the moving leg to the starting position. The hurdle step is performed slowly and under control. Do not manually manipulate set up positions, but absolutely spot for safety and be aware of possible balance issues that could put the person being screened at risk.

If any of the criteria for a score of three are not achieved, the client receives a score of two. If any of the criteria for the score of two are not achieved, score this a one.

VERBAL INSTRUCTIONS

For consistency throughout all screens, this script should always be used. The bold words below should be repeated to the client.

- **Stand tall with your feet together and toes touching the test kit.**
- **Grasp the dowel in both hands and place it on top of your head so your shoulders and elbows are at 90 degrees. Then while maintaining hand position, lower dowel to the base of the neck and across the shoulders.**
- **While keeping an upright torso, raise the right leg and step over the hurdle, making sure to raise the foot towards the shin and maintain foot alignment vertically with the ankle, knee and hip.**
- **Touch the floor with your heel and return to the starting position while maintaining the same alignment.**

Referencing the right Hurdle Step, repeat on the left by changing the indicated side

Scoring the Hurdle Step

3

- Hips, knees and ankles remain aligned in the sagittal plane
- Minimal to no movement in lumbar spine
- Dowel and hurdle remain parallel



2

- Alignment is lost between hips, knees and ankles
- Movement in Lumbar Spine
- Dowel and hurdle do not remain parallel



1

- Inability to clear the cord during the hurdle step
- Loss of Balance



An individual receives a score of zero if pain is associated with any portion of this test. A medical professional should perform a thorough evaluation of the painful area.

Inline Lunge Movement Pattern

WHY THE SPLIT STANCE PATTERN?

The lunge is our ability to lower our center of mass in a stride or asymmetrical foot position that is most used in times of deceleration and direction change. This pattern requires us to lower our center of mass like we do in the squat pattern, but in a more dynamic way. The lunge is a natural extension of developmental patterns and the developmental posture called the half kneel position.

We witness lunging in sport when a sprinting football player needs to quickly decelerate and change direction. The player uses this asymmetrical position to lower their center of mass and control changes in their base of support while in motion. We also see lunging used to lengthen the base of support and create a stronger base along the sagittal plane. The complementary and contrasting upper and lower body movements serve to push the limits of mobility, stability, motor control and dynamic balance. We get a glimpse of this when watching a rugby player sprinting to tackle the opponent.

The half kneeling pattern was a developmental pattern used when transitioning from the ground to standing to explore our environment. In everyday life, we can choose the lunge or half kneeling pattern to lower ourselves to pull weeds from our garden or pick up a ball on the golf course. We use the long base of the lunge to brace ourselves in order to push a heavy sofa across the floor or to push a broken-down car off the road. A soldier must maintain a motionless long base when shooting a gun.

Without access to an efficient lunging ability we begin compensating with poor deceleration mechanics. This is one of the known causes of non-contact injuries in many field and court sports. In everyday life lunging and half kneeling are movement strategies for lowering ourselves safely to the ground as well as getting up from the ground. It is obvious that the inability to lunge could impact us in different stages of life and truly affect our quality of life.

WHY THE INLINE LUNGE SCREEN?

The Inline Lunge Screen (IL) places the lower extremities in an inline split-stance position while the upper extremities are in an opposite or complementary reciprocal pattern. This replicates the natural counterbalance the upper and lower extremities use to complement each other, as it uniquely demands spine stabilization. This test also challenges hip, knee, ankle and foot mobility and stability, while at the same time simultaneously challenging flexibility of multi-articular muscles such as the latissimus dorsi and the rectus femoris.

A true lunge requires a step and descent. The inline lunge test only provides observation of the descent and return; the step would present too many variables and inconsistencies for a simple movement screen. The split-stance narrow base and opposite shoulder position provide enough opportunity to uncover mobility and stability compensations within the lunging pattern.

We do not exercise in a position this extreme, but in the screen we are only asking for an In-line Lunge (IL) using body weight.

Inline Lunge

DESCRIPTION

Attain the client's tibia length by either measuring it from the floor to the top center of the tibial tuberosity, or acquiring it from the height of the cord during the hurdle step test. Tell the client to place the toe of the back foot at the start line on the kit. Using the tibia measurement, have the client put the heel of the front foot at the appropriate mark on the kit. In most cases, it's easier to establish proper foot position before introducing the dowel.

Place the dowel behind the back, touching the head, thoracic spine and sacrum. The client's hand opposite the front foot should be the hand grasping the dowel at the cervical spine. The other hand grasps the dowel at the lumbar spine. The dowel must maintain its vertical position throughout both the downward and upward movements of the lunge test. Do not manually manipulate set up positions, but absolutely spot for safety and be aware of possible balance issues that could put the person being screened at risk.

To perform the inline lunge pattern, the client lowers the back knee to touch the board behind the heel of the front foot and returns to the starting position. The knee must touch down on either the test kit or the ground and then return to standing position on the test kit to complete the movement.

If any of the criteria for a score of three are not achieved, the client receives a score of two. If any criteria for the score of two are not achieved, the client receives a score of one.

VERBAL INSTRUCTIONS

For consistency throughout all screens, this script should always be used. The bold words below should be repeated to the client.

- **Step onto the center of the board with the left foot and your toe on the zero mark.**
- **The right heel should be placed according to your tibial measurement at "___".**
- **Both toes must be pointing forward with the entire foot in contact with the board.**
- **Place the dowel along the spine so it touches the back of your head, your upper back and your tailbone.**
- **While grasping the dowel, your left hand should be in the curve of your neck, and the right hand should be in the curve of your lower back.**
- **Maintaining an upright posture so the dowel stays vertical and you maintain the three points of contact, descend into a lunge position so your left knee touches the center of the board.**
- **Then, return to the starting position.**

Referencing the right Inline Lunge, repeat on the left by changing the indicated side

TIPS FOR TESTING

1. The front leg identifies the side you are scoring.
2. The dowel remains vertical and in contact with the head, upper back and tail bone during movement.
3. The front heel remains in contact with the board, and the back heel touches the board when returning to the starting position. Watch for loss of balance. For inline lunge, a loss of balance is stepping off the board.
4. Remain close to the client to prevent a complete loss of balance.
5. It's important to remember that if the person does not at least make contact with the board or ground with the knee somewhere, it is the inability to complete the movement pattern, this is a score of one.
6. Repeat the test on both sides.
7. The client can perform the movement up to three times on each side if necessary

Scoring the Inline Lunge

3

- Dowel contact maintained
- Dowel remains vertical
- Minimal to no torso movement
- Dowel and feet remain in sagittal plane
- Knee touches the center of the board
- Front foot remains in start position



2

- Dowel contact not maintained
- Dowel does not remain vertical
- Movement in torso
- Dowel and feet do not remain in sagittal plane
- Knee does not touch center of the board
- Flat front foot does not remain in start position



1

- Loss of balance by stepping off the board
- Inability to complete movement pattern
- Inability to get into set up position



An individual receives a score of zero if pain is associated with any portion of this test. A medical professional should perform a thorough evaluation of the painful area.

Ankle Clearing

PURPOSE

An important purpose for this screen is to identify pain and to ensure ankle mobility is not a barrier to movement pattern competency and capacity. The lower body motor control is adversely affected when ankle mobility is painful and/or dysfunctional/limited. Normal, adequate mobility without pain is a prerequisite for motor control needed in multiple movement patterns.

VERBAL INSTRUCTIONS

- Please let me know if there is any pain while performing any portion of the screen.
- Please lace or strap your shoes snugly.
- Place the outside of your left foot up next to the FMS test kit so that the outside foot is in contact with the kit.
- Place the right foot in front of the left foot so that you are in the heel-to-toe position with both feet touching each other and the FMS test kit and use a dowel for balance.
- I will adjust the FMS kit so that the red start line is at the front of the medial malleolus.
- While maintaining the heel-to-toe position drop straight down, bending the back knee and taking it as far as possible in front of your toes while keeping the heel down.
- Once you have reached your maximum distance, I will measure and ask you where you felt the stretch (Front, Back of Ankle, or no stretch).

Have the participant perform the ankle clearing screen at least three times for consistent measurement.

TIPS FOR TESTING

- The back foot is the ankle being tested.
- Adjust the FMS kit so that the red start line lines up with the front of the medial malleolus.
- Both feet must remain in the heel-to-toe position throughout the movement.
- Use the dowel for balance so that range of motion is not limited due to a lack of balance.
- The verbal instructions and setup should guide the individual to move the back knee laterally to avoid contact with the forward leg.
- If there is pain, refer to a healthcare professional.

Documenting Ankle Clearing

GREEN

- Knee moves beyond the medial malleolus of the front leg while the heel stays down.
- This indicates the ankle has cleared mobility requirements



YELLOW

- The knee resides within the width of the medial malleolus of the front leg while the heel stays down.
- This indicates a potential ankle mobility limitation.
- Failure on the Ankle Clearing screen implies that ankle mobility should be addressed and cleared.



RED

- The individual's knee does not reach the medial malleolus of the front leg while the heel stays down.
- This indicates a potential ankle mobility limitation.
- Failure on the Ankle Clearing screen implies that ankle mobility should be addressed and cleared.



ADDITIONAL CONSIDERATIONS

- **Pain** - If the individual experiences pain with this screen, indicate positive for pain in scoring and referral to a healthcare professional is recommended.
- **Stretch** - If the individual experiences a stretch or feeling of tightness of the ankle and it does not resolve with soft tissue or stretching applications, further assessment by a health care professional is needed.

Shoulder Mobility Movement Pattern

WHY THE RECIPROCAL UPPER BODY PATTERN?

Upper limb movements are integral to the developmental sequence in early rolling and crawling. As we develop into adults, upper body mobility and control are fundamental to many movements. The reciprocal movement of the upper extremities is part of gait and locomotion, as well as many movements/activities.

In sports the upper body reciprocal pattern is fundamental to a number of throwing, striking and swinging movements. The opposing action of the arms in the tennis serve, javelin throw, or baseball pitch allow for accurate and powerful movements. Walking and running are also reliant on the reciprocal pattern and even jumping is influenced by the coordinated use of the upper limbs.

In daily life our ability to carry, push, pull, reach overhead, and even walk is influenced by the upper body reciprocal pattern and upper limb mobility and control. Reach for something high up in your cabinet, put on your shirt or carry the trash outside and throw it in the garbage can. You'll find your upper body will be quite active in all these activities.

Work environments can also demand coordinated and extended use of the reciprocal upper body pattern. Painting overhead, working on a car, and any number of repetitive motion tasks require mobility, control and endurance from the upper limbs.

WHY THE SHOULDER MOBILITY SCREEN?

We screen the Reciprocal Upper Body pattern with the Shoulder Mobility (SM) screen. The hand length sets a body relative standard for the individual while performing the SM screen. A full reciprocal reaching motion is performed to see if moving both arms at once compromises the movement on either side.

Based on the motion standards of the Apley's Scratch Test, the SM screen looks at coordination of the thoracic spine, scapula, and control of the shoulder and upper limbs.

Shoulder Mobility

DESCRIPTION

First, measure the client's right hand from the distal crease to the longest digit to determine the hand length. The client will stand with the feet together and make a fist with each hand, thumbs inside the fingers. The client then simultaneously reaches one fist behind the neck and the other behind the back, assuming a maximally adducted, extended and internally rotated position with one shoulder and a maximally abducted and externally rotated position with the other.

During the test, the hands should move in one smooth motion and should remain fisted. Measure the distance between the two closest points of the hands to determine the client's symmetrical reach. If there is loss of cervical spine position, Repeat the verbal instruction to "Stand tall...".

Have the client perform the shoulder mobility test a maximum of three times bilaterally. If any of the criteria for a score of three are not achieved, the client receives a score of two. If any of the criteria for the score of two are not achieved, score this a one.

SHOULDER CLEARING TEST

There is a clearing exam at the end of the shoulder mobility test. You do not score this, but instead watch for a pain response. If pain is produced, a positive (+) is recorded on the score sheet, and a score of zero is given to the entire shoulder mobility test.

The client places a palm on the opposite shoulder and lifts the elbow as high as possible while maintaining the palm-to-shoulder contact. This clearing exam is necessary because shoulder impingement will sometimes go undetected by shoulder mobility testing alone.

SM VERBAL INSTRUCTIONS

For consistency throughout all screens, this script should always be used. The bold words below should be repeated to the client.

- **Stand tall with your feet together and arms hanging comfortably.**
- **Make a fist so your fingers are around your thumbs.**
- **In one motion, reach the right fist over the head and down your back as far as possible while simultaneously reaching your left fist up your back as far as possible.**
- **Do not "creep" your hands closer after the initial placement.**

Equipment needed: measuring device

SHOULDER CLEARING TEST VERBAL INSTRUCTIONS

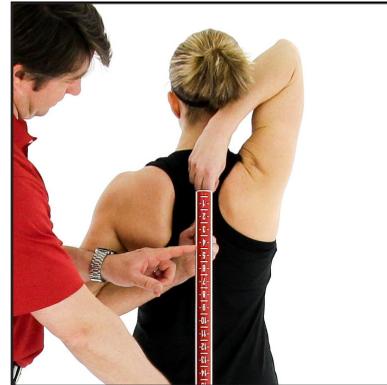
- **Stand tall with your feet together and arms hanging comfortably.**
- **Place your right palm on the front of your left shoulder.**
- **While maintaining palm placement, raise your right elbow as high as possible.**
- **Do you feel any pain?**

Referencing right Shoulder Mobility, repeat on the left by changing the indicated side

Scoring the Shoulder Mobility

3

- Fists are within one hand length



2

- Fists are within one and a half hand lengths



1

- Fists are not within one and a half hand lengths



An individual receives a score of zero if pain is associated with any portion of this test.

A medical professional should perform a thorough evaluation of the painful area.

CLEARING TEST

Perform this clearing test bilaterally. If the individual receives a positive score, document both scores for future reference. If there is pain associated with this movement, give a score of zero and perform a thorough evaluation of the shoulder or refer out.



Active Straight-Leg Raise Movement Pattern

WHY THE RECIPROCAL LOWER BODY PATTERN?

When we learn to crawl, walk and run in our developmental sequence we naturally use the lower limbs in a reciprocal way. This is part of our contralateral movement and counterbalances the upper body movements. The reciprocal lower body pattern is the foundation of our locomotive patterns and is used in many everyday activities as we walk to the car, go for a hike on a nature trail, and climb stairs. Half kneeling and lunging also depend on the reciprocal lower body pattern as well.

This pattern is also expressed in the hip hinge. The control of your center of mass and weight shifting through the hips while protecting the spine is a critical component of many daily, work, and sport movements. Such as, when bending over to pick something up, deadlifting to lift a heavy object, or sitting back into your hip on one side to stop and change direction on the field.

You can imagine that if you are limited in this pattern that acceleration, deceleration and change of direction will be significantly affected. This can impact a multitude of sport and recreational activities. Dysfunction in the pattern could have a cascade of movements, postures and positions.

WHY THE ACTIVE STRAIGHT-LEG RAISE SCREEN?

The reciprocal lower body pattern is screened using the Active Straight Leg Raise screen (ASLR). Lumbo-pelvic control, extension of the down leg and flexion of the raising leg are the component pieces of this pattern. The set-up position has the arms to the side with palms up so the upper body cannot contribute to stability by pressing into the ground.

The ASLR is often misunderstood as a hamstring test but it requires us to perform extension on the down leg while at the same time performing flexion of the raising leg. This requires appropriate stabilization of the pelvis and lumbar spine before and during the execution of the movement. Don't forget that you are grading a pattern involving two legs and a degree of core control. The ASLR is another screen that uses body relative measurements of the individual's mid-thigh and mid-patella for the scoring criteria.

Active Straight-Leg Raise

DESCRIPTION

The client lies supine with the arms by the sides, palms up and head flat on the floor. A board is placed under the knees; this can be either the FMS kit board or a board of similar dimensions as described earlier. Both feet should be in a neutral position, the soles of the feet perpendicular to the floor. Ask the client to bring the feet together while maintaining the soles of the feet perpendicular to the floor. If they are unable to touch the inside edges of the feet together, ask them to bring them as close together as possible and allow them to start from that position.

Find the point between the anterior superior iliac spine (ASIS) and the mid-patella then place a dowel at this position, perpendicular to the ground. Next, the client lifts the test limb while maintaining the original starting position of the ankle and knee.

During the test, the opposite knee should remain in contact with the board; the toes should remain pointed upward in the neutral limb position, and the head remains flat on the floor.

Once reaching the end range, note the position of the upward ankle relative to the non-moving limb. If the malleolus passes the dowel, record a score of three.

Perform the active straight-leg mobility test a maximum of three times bilaterally. If any of the criteria for a score of three are not achieved, the client receives a score of two. If any of the criteria for the score of two are not achieved, score this a one.

VERBAL INSTRUCTIONS

For consistency throughout all screens, this script should always be used. The bold words below should be repeated to the client.

- **Lie flat with the back of your knees against the board, feet together with toes pointing up.**
- **Place both arms next to your body with the palms facing up.**
- **With the left leg remaining straight and the back of the opposite knee maintaining contact with the board, raise your right leg as high as possible.**

Referencing right Active Straight-Leg Raise, repeat on the left by changing the indicated side.

Scoring the Active-Straight Leg Raise

3

- Vertical line of the malleolus resides between mid-thigh and ASIS
- The non-moving limb remains in neutral position



2

- Vertical line of the malleolus resides between mid-thigh and joint line
- The non-moving limb remains in neutral position



1

- Vertical line of the malleolus resides below the joint line
- The non-moving limb remains in neutral position



An individual receives a score of zero if pain is associated with any portion of this test. A medical professional should perform a thorough evaluation of the painful area.

Trunk Stability Push-Up Movement Pattern

WHY THE REACTIVE SAGITTAL PLANE PATTERN?

In the developmental sequence planking and sitting upright begin to establish the reactive sagittal plane pattern. This strong connection between our upper and lower body allows us to support many important activities. As we push a lawn mower in the yard or lift something heavy overhead, we use this pattern to resist the forces that would take our trunk out of alignment.

Reactive sagittal plane stability is fundamental to many sport activities such as running and jumping by resisting extension and transferring forces from the lower body to the upper body. This strong connection between the upper and lower body also allows us to perform movements in the gym like pushing a sled, the kettlebell swing, cleans or snatches.

Individuals who work in warehouses and distribution centers press objects overhead at work and push heavy objects around all day. The FedEx employee delivering packages to your door performs these types of tasks daily. They need to be able to resist extension forces to remain productive and healthy in the workplace.

WHY THE TRUNK STABILITY PUSH-UP SCREEN?

The reactive sagittal plane pattern is screened using the Trunk Stability Push-up (TSPU). The TSPU screen has you start in an extended push-up position on the ground then asks you to press up while maintaining the trunk position to resist extension forces. This start position of the TSPU creates a reflexive challenge to the pattern. The gender-based hand position accounts for the difference in upper body mass and strength.

TSPU is not meant to test upper body strength in isolation. The goal is to use the upper body movement in this position to challenge the trunk stability pattern.

Trunk Stability Push-Up

DESCRIPTION

The client assumes a prone position with the arms extended overhead. They then slide the hands down at shoulder-width apart until they reach the start position. During the test, men and women have different starting positions. Men begin with their thumbs at the top of the forehead, while women begin with their thumbs at chin level. The thumbs are then lowered to the chin or shoulder level, per the scoring criteria. The knees are fully extended, the ankles are neutral and the soles of the feet are perpendicular to the floor.

Ask the client to perform one push-up in this position. The body should be lifted as a unit; there should be no sway in the spine during the test. If the client cannot perform a push-up in the initial position, the hands are lowered to the second designated start position being the chin for males and the clavicle for females.

Perform the trunk stability push-up test a maximum of three times. If any of the criteria for a score of three are not achieved, move the hands to the appropriate position so the individual can test for a 2. If any of the scoring criteria for a score of two are not achieved, the individual receives a score of 1.

EXTENSION CLEARING TEST

There is a clearing exam at the end of the trunk stability push-up test. This press up movement is not scored; it is performed to observe a pain response. If pain is produced, a positive (+) is recorded and a score of zero is given to the entire push-up test. We clear extension with a press up from the push-up position. If the client receives a positive score, document both scores for future reference.

TSPU VERBAL INSTRUCTIONS

For consistency throughout all screens, this script should always be used. The bold words below should be repeated to the client.

- **Lie face down with arms extended overhead at shoulder-width apart.**
- **Pull your thumbs down in line with your (forehead for men, chin for women).**
- **With your legs together, pull your toes toward the shins.**
- **Extend your knees and then lift your elbows slightly off the ground.**
- **While maintaining a rigid torso, push your body as one unit into a push-up position.**

Referencing hand position for Score of 3, if needed repeat with hand position for score of 2 that is chin for men, clavicle for women

EXTENSION CLEARING VERBAL INSTRUCTIONS

- **While lying on your stomach, place your hands, palms down, under your shoulders.**
- **With no lower body movement, press your upper body off the ground until your elbows are straight.**
- **Do you feel pain?**

Scoring the Trunk Stability Push-Up

3

- Men perform a repetition with thumbs aligned with the top of the forehead
- Women perform a repetition with thumbs aligned with the chin
- The body lifts as a unit with no lag in the spine



2

- Men perform a repetition with thumbs aligned with the chin
- Women perform a repetition with thumbs aligned with the clavicle
- The body lifts as a unit with no lag in the spine



1

- Men are unable to perform a repetition with thumbs aligned with the chin
- Women are unable to perform a repetition with thumbs aligned with the clavicle



An individual receives a score of zero if pain is associated with any portion of this test. A medical professional should perform a thorough evaluation of the painful area.

EXTENSION CLEARING TEST

Extension is cleared by performing a press-up in from the floor with hands under the shoulders. If there is pain associated with this motion, give a positive (+) score with a final score of zero and perform a more thorough evaluation or refer out. If the individual does receive a positive score, document both scores for future reference.



Rotary Stability Movement Pattern

WHY THE REACTIVE TRI-PLANAR PATTERN?

The reactive tri-planar pattern is something we experience when we resist rotation to maintain a position when there is a push or a pull on one side of the body. Rotary Stability (RS) is expressed when we create or resist rotation to crawl, climb, run, swing and throw. In our developmental stages we use the cross connection of opposite arm to opposite leg to crawl. As kids, we learn to climb, run, and bound by expressing this ability.

When heading to the airport, we may need to toss a heavy bag into the car. Many of us naturally will load into a bit of rotation then uncoil to toss it in. This coiling affect is the natural extension of the crossing diagonal pattern that we see in something as simple as walking. If we take a step forward with one leg, the opposite arm should also swing forward. We also depend on the ability to resist rotation when we pick up an object on one side of the body and brace ourselves with the opposite side.

Many sport and recreational movements are heavily dependent on this reactive tri-planar pattern. Whether throwing a punch or a baseball, we need the ability to coil and uncoil the torso to transfer forces to our extremities. We also see this when resisting an opponent in soccer who is trying to push you out of position to get to the ball. Activities like paddling use rotation to perform each stroke.

Resisting rotation is seen on the job when a firefighter drags the firehose over one shoulder to move it closer to the fire. Police officers and soldiers must maintain RS in order to set a steady, precise position to aim a firearm and handle the force when taking a shot.

WHY THE ROTARY STABILITY SCREEN?

The reactive tri-planar pattern is screened with the Rotary Stability screen. This screen is not designed to replicate crawling, even though crawling may be very restorative and corrective for this pattern. It is better to consider this a perturbation challenge. Perturbation literally means an agitation or a loss of balance. The change in base of support when you lift an arm and a leg forces the need for a shift and disturbance to your stability that requires the body to react quickly and communicate using the deeper core musculature to maintain the position.

Not many people practice the unilateral movement seen in this screen and there is an obvious inability to do it when someone fails this motor control challenge. This unique unilateral challenge also allows us to observe the reactive tri-planar on both sides in order to identify asymmetries in this pattern. The opportunity allows us to further explore the pattern to insure it contributes fundamental stability to the movement baseline.

TSPU looks at motor control to see if you sacrifice stability to complete a task. RS looks at a feedback motor control on the left and right side with a perturbation.

Rotary Stability

DESCRIPTION

The client gets into the quadruped position with a board, either the FMS kit board or one of similar size, on the floor between the hands and knees. The board should be parallel to the spine, and the shoulders and hips should be 90 degrees relative to the torso, with the ankles relaxed and plantar flexed with toes pointing backwards.

Before the movement begins, the hands should be open, with the thumbs, knees and feet all touching the board. The client should shift and lift the same side hand and knee to initiate the movement. Then the client reaches back with the hand to touch the same-side ankle. Following the touch, they then flex the shoulder while extending the same-side hip and knee so that it creates a straight line and is in-line with the board on the ground. The hand is brought back to touch the ankle for a second time, then return to the start position. Do not manually manipulate set up positions, but absolutely spot for safety and be aware of possible balance issues that could put the person being screened at risk.

This is performed bilaterally for a maximum of three attempts if needed. If one repetition is completed successfully, there is no reason to perform the test again.

FLEXION CLEARING

A clearing exam is performed at the end of the rotary stability test. This movement is not scored; it is performed to observe a pain response. If pain is produced, a positive (+) is recorded on the sheet and a score of zero is given to the entire rotary stability test. We clear flexion from the quadruped position, then rocking back and touching the buttocks to the heels and the chest to the thighs. The hands remain in front of the body, reaching out as far as possible. If there is pain associated with this motion, give a zero score. If the client receives a positive score, document both scores for future reference.

RS VERBAL INSTRUCTIONS

- Get down on your hands and knees straddling the board with your thumbs, knees and toes touching the board.
- Your hands are under your shoulders and your knees are under your hips with your toes pointing backward.
- At the same time, in one smooth and controlled motion, shift and lift the same side arm and leg.
- Without touching down, reach back with your hand and touch the outside of the ankle.
- Then extend that same side leg backward and arm forward, fully extending knee and elbow.
- Finally reach back to touch the ankle with the hand again, and then return to the starting position.
- Perform this pattern while keeping the arm and leg moving in-line with board.

FLEXION CLEARING VERBAL INSTRUCTIONS

- Get into the same start position with feet pointed backwards, and rock your hips toward your heels.
- Lower your chest to your knees and reach your hands in front of your body as far as possible.
- Do you feel any pain?

SCORING THE ROTARY STABILITY

3

- Hand and knee leave ground at the same time.
- Ability to perform this pattern while keeping the arm and leg moving in-line and parallel with the board.
- Fingers touch the lateral malleolus.
- Knee and elbow achieve full extension.



2

- Hand and knee did not leave ground at same time
- Inability to keep the arm and leg moving in-line and parallel with the board
- Fingers touch the lateral malleolus
- Knee and elbow achieve full extension



1

- Loss of balance
- Hand does not touch the lateral malleolus
- Knee and elbow do not fully extend
- Inability to get into set-up position



An individual receives a score of zero if pain is associated with any portion of this test. A medical professional should perform a thorough evaluation of the painful area.

FLEXION CLEARING TEST

Flexion can be cleared by first assuming a quadrupedal position, then rocking back and touching the buttocks to the heels and chest to the thighs, the hands should remain in the front of the body, reaching out as far as possible. If there is pain associated with this motion, give a positive (+) score with a final score of zero and perform a more thorough evaluation or refer out. If the individual receives a positive score, document both scores for future reference.



Documenting FMS Scores

We realize that in today's training and rehabilitation environments FMS Certified Professionals may use either the FMS Pro mobile app or a formatted score sheet to write in screening documentation. We have provided you with a scoring sheet format that will help while learning how to document the scores and you can also use in your professional setting. The most important aspect when recording scores is to be consistent and follow the rules of the scoring criteria. Over the years we have seen many different versions of score sheets created specific to the organization or facility's needs. You may choose to add verbal instructions, scoring criteria or even more detailed instructions based on your setting. Feel free to create a scoring document to fit your needs, just remember when it comes to follow the scoring rules.

Remember the FMS is designed to be a quick and simple, and we do not want to create opportunities to overanalyze the specific screens. When documenting the screen scores we suggest that you mark the score and move on. In our experience excessive notes on the score sheet will not provide you an advantage.

The FMS scoring sheet provides you with a Raw Score, Final Score and a Total Score. All of these scores are important when determining your intervention strategies. These scores will be utilized differently depending on your setting, whether you are a fitness professional working one-on-one or you are a strength and conditioning coach at a high school working with a couple of hundred athletes. If you are working one-on-one, you may be using the Raw Score to determine your priorities for protecting the client and then programming corrective exercises. In a large group situation the Final Score may be more important for determining next steps for the entire group. The Total Score may be important when comparing to other groups or other individuals.

When referring to some of the current and future research the Final and Total Scores are often used to determine cut-off for injury risk and general trends in different populations. However, this doesn't discount the importance of the Raw Score. This score gives you the best profile of how the individual is moving. As you become proficient in the FMS system you will find yourself using all the scores to your benefit.

The Raw Score represents the right and left side results of the five tests that allow for bilateral comparison. The Final Score is simply the lower of the two Raw Scores. For the two tests that do not have right and left scores, there is only one score recorded. The Total Score is simply the sum of the Final Scores. This format is certainly easy to follow (example 1).

It is very clear in the scoring criteria that when pain is noted a 0 is given and a more detailed evaluation from a medical professional is recommended. Now without getting into the debate on what is and isn't pain, we want to discuss simply how you should document the 0 score. You should consider two options depending on your professional background and setting. The first and maybe more appropriate way to document the 0 score would be to give the individual a Raw and Final score of 0, stop the test and refer. The second option will give you and the healthcare professional more specific information when performing the evaluation. That is, if a person exhibits pain during a screen you could continue on with the rest of the FMS and only document the 0 score in the Final Score section for that screen. For example, a person could get a 3 on the Trunk Stability Push-up test but have pain in the right shoulder; the Raw Score would be 3 and the Final Score a 0. If you choose this option, you will now have more information to utilize when referring or performing a more detailed evaluation (example 4).

There are four screens that use clearing screens, which are not scored since they are used to determine if pain is provoked or in the case of the Ankle Clearing, if minimum range of motion criteria is not passed. These clearing screens are documented as a "Positive" for pain or a "Negative" for no pain. The clearing screens do influence the Final Score but not the Raw Score. The results of the clearing screen will make the Final Score a 0 if pain is provoked. Many times we get the question as to why we would even need to document a Raw Score if the clearing screen overrides it. The answer is quite simple; if pain is provoked we want to gather as much information on that person as necessary prior to the more detailed evaluation being performed by a qualified medical professional. If the individual being screened shares this information with their healthcare provider, they can create the best opportunity to address the painful pattern and any possible underlying medical concerns. For example, during the Shoulder Mobility Screen you have two individuals. The first individual gets a 3 on the right and 3 on the left, while the second individual gets a 2 on the right and 1 on the left. They both receive a positive score on the Shoulder Clearing. The final score for both of these individuals is 0 but they have completely different movement patterns, which for the second individual may be the cause of pain. By having the Raw Score we can now help direct the focus of the evaluation and intervention strategies (example 3).

The Ankle Clearing is also documented for passing the minimum criteria for range of motion by noting R for red, Y for yellow or G for green. (example 2) If the Ankle Clearing results in red or yellow, corrective strategies for ankle mobility will be prioritized. However, this does not change the final score. The only instance that Ankle Clearing changes the final score, is when the individual is positive for pain. If the Ankle Clearing is green, ankle mobility is considered to pass the minimum range of motion criteria.

Hopefully these few tips will allow you to understand the overall scoring system as well as use the results more effectively. The FMS was designed to be a simple grading system, however the more proficient you become at using the FMS and its results, the more effectively you will be able to apply corrective strategies.

**FMS™**

FUNCTIONAL MOVEMENT SCREEN SCORE SHEET

NAME: _____ DATE: _____ DOB: _____

TIBIA HEIGHT: _____ HAND LENGTH: _____ AGE: _____ GENDER: _____

		SCREEN	RAW SCORE	FINAL SCORE	COMMENTS
EXAMPLE 1	DEEP SQUAT		2	2	
	HURDLE STEP	R	2	1	
L		1			
EXAMPLE 2	INLINE LUNGE	R	2	2	
		L	2		
	ANKLE CLEARING - PAIN +/-	R	-		
		L	-		
	ANKLE CLEARING - MOBILITY R-Y-G	R	G	Y	
		L	Y		
EXAMPLE 3	SHOULDER MOBILITY	R	3	0	
		L	3		
	SHOULDER CLEARING +/-	R	+		
		L	-		
ACTIVE STRAIGHT-LEG RAISE	R	2	2		
	L	2			
EXAMPLE 4	TRUNK STABILITY PUSHUP		3	0	PAIN IN RIGHT SHOULDER
	EXTENSION CLEARING +/-		-		
	ROTARY STABILITY	R	2	2	
L		2			
FLEXION CLEARING +/-			-		
TOTAL SCREEN SCORE				9	

Raw Score: This score is used to denote right and left side scoring. The right and left sides are scored in five of the seven tests and both are documented in this space.

Final Score: This score is used to denote the overall score for the test. The lowest score for the raw score (each side) is carried over to give a final score for the test. A person who scores a three on the right and a two on the left would receive a final score of two. The final score is then summarized and used as a total score.

Clearing Test: A positive indicates pain. A negative indicates no pain. If pain is present (+), the score for that test would result in a 0. Ankle Mobility Clearing results are recorded as Green (G), Yellow (Y) or Red (R) and does not affect the final score for Inline Lunge.



Running your “Best” FMS Screen

1. As stated above, be sure you have a deep understanding of the Purpose, Description and Tips for Testing. Use the Verbal Instructions and then apply the Scoring Criteria.
2. The first and last questions are the most important - "Do you have pain with this movement? and Do you understand these instructions?"
3. The person being screened needs as much information as they need to understand the movement they are being asked to perform. For most the verbal instructions will suffice, some will need pictures and some will need some form of demonstration (video even) but everyone screened needs to understand what is being asked of them.
4. Every rep needs to start from the proper set up position. For example, if the feet "turn out" during the first rep of the DS then it is up to you to repeat the instructions and make sure the feet are straight ahead for the second and third reps.
5. Step back and watch the entire movement. Do not restrict your vision to one area and don't try to scan from "part to part" or criteria to criteria. Artists use a technique called "negative space" or looking for what "isn't" there - give it a try.
6. Every rep gets a "number" or score. If the person performs three deep squats with their heels on the board then every rep gets either a 1 or a 2 in your mind with the best of the three attempts being the final score for that movement.
7. Why they receive a score doesn't matter only the score matters. Do not worry with trying to figure out "why" the person being screened scores a 1 or 2 or 3 only put that movement into the right "box" according to the scoring criteria.
8. Do not "blame" based on the score. A 1 left /3 right SM does not mean the left shoulder is the "problem". It means you need to look at the SM Pattern by working through the corrective strategies for that pattern.
9. Proper feedback and communication - the person being screened does not need to know the score or why the score is the score. Set the expectation early by letting the person know that you will not be giving a lot of feedback until the end of the screen when you will discuss the results with them. Communicate with them like they are the client not the people you learned the screen with at the workshop.
10. Keep it Fun! That's right - fun!

A good corrective strategy begins with a good movement screen- the quality of the screen determines the effectiveness of the strategy.

Corrective Strategy Algorithm

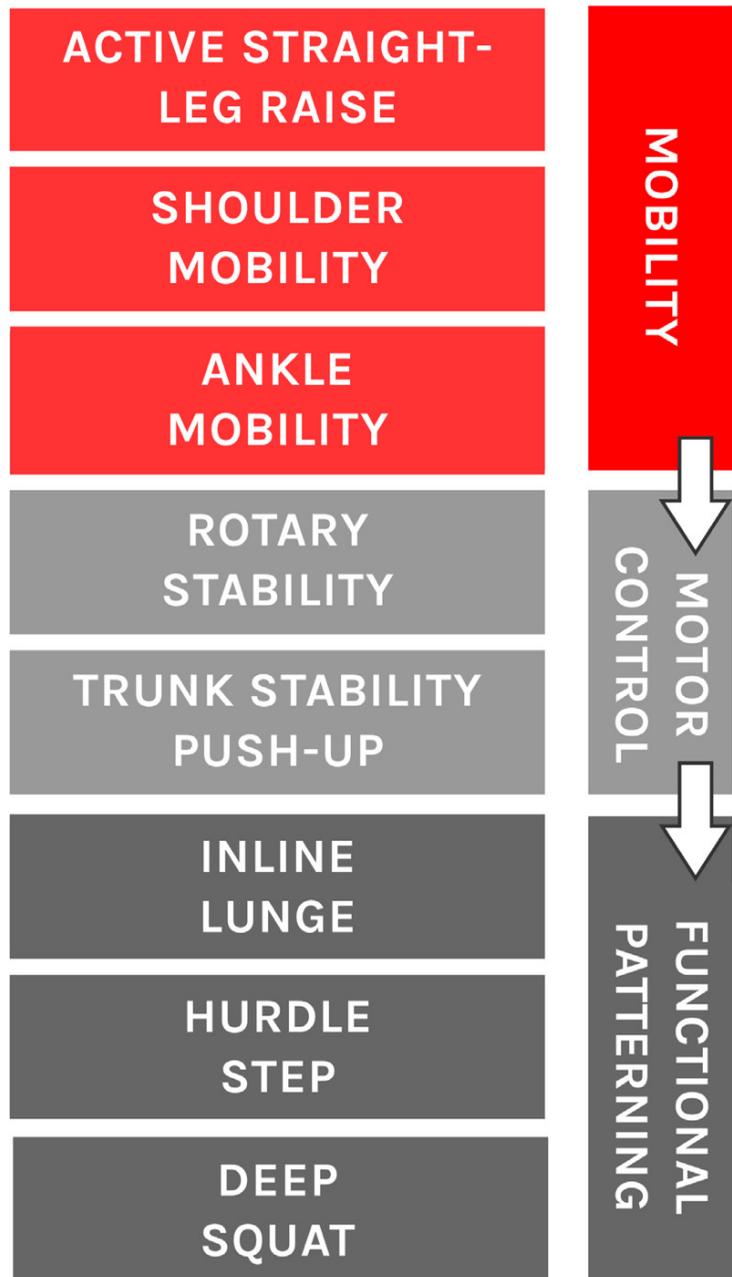
An algorithm, as defined by Cormen, Leiserson, Reivest and Stein in Introduction to Algorithms, is "any well-defined procedure describing how to carry out a particular task." Within the FMS there is an algorithm or procedure for addressing the "weak link" found using the screen.

Remember that you don't have to fix "everything" but rather the algorithm should point you towards the "one" thing you need to address as your priority.

While this may seem like a long process it takes less than a second or two to look at a score sheet and apply the algorithm.

GENERAL SCORING RULES

1. A score of Zero must be referred to the appropriate medical professional.
 - a. It is extremely important to establish a referral network of professionals
 - Physician, physical therapist, chiropractor, massage therapist, sports psychologist, etc. One thing to actively seek out in your immediate area is an individual trained in the SFMA where you can send those patients that score a 0 to be further evaluated based on a movement-based diagnostic system sharing the Functional Movement System philosophy.
2. Mobility patterns are addressed first because Stability/Motor Control cannot be present with reduced mobility. (Mobility must be restored before addressing stability or motor control. Appropriate levels of mobility ensure that adequate sensory input is being used to develop the appropriate stabilization strategies and the appropriate levels of motor control. Without quality levels of mobility, stability and motor control cannot and will not be maximized.)
3. A score of 21 is not the goal. The goal is to set a baseline and to work towards achieving at least 2's on each movement screen.



The FMS Training Cycle

IDENTIFY CORRECT PATTERN

MOBILITY COMPETENCY

MOTOR CONTROL COMPETENCY

PERFORMANCE

NOTES

FMS Corrective Exercise

AN EXCERPT FROM MOVEMENT BY GRAY COOK

For all practical purposes, the FMS is refined or even broken down by the corrective exercise progressions. This means exercises associated with each movement pattern in the FMS are actually a continued part of the screen. There's no need to score these, but we still pay close attention. The corrective exercises are not simply performed with blind confidence—they should be used as a gauge to identify proficiency or deficiency for each exercise task.

FMS corrective exercises are grouped two different ways. First, we group the exercises by the seven movement pattern tests within the screen. Second, the exercises follow a linear path from basic mobility to basic stability to movement pattern retraining.

Specifically each of the seven movement patterns is linked to—

- 1. Mobility Exercises—** Focused on joint range of motion, tissue length and muscle flexibility.
These demonstrate the basic mobility required within each moving segment of a specific movement pattern. The mobility category includes any form of stretching or joint mobility work within the movement pattern. Exercises in this category need to explore and eventually demonstrate all the available mobility required for that pattern.
- 2. Stability/Motor Control Exercises—** Focused on basic sequencing of movement.
These exercises target postural control of starting and ending positions within each movement pattern. The stability category includes any form of postural control work, with a particular focus on starting and end-range postural control. Don't think strength, think timing. Timing is a quick tap of the breaks, whereas strength is a force that locks the wheels. Stability is about fine-tuned control, not force. These exercises need to demonstrate appropriate postural control without verbal coaching or visual cues.
- 3. Movement Pattern Retraining—** Incorporates the use of fundamental mobility and stability into specific movement patterns to reinforce coordination and timing.
These exercises reinforce confidence through repetition and reactive drills and should explore the entire movement pattern in order for improved mobility and stability to interact and become coordinated.

The corrective exercise progression always starts with mobility exercises. These exercises are performed bilaterally to confirm mobility limitation and asymmetry. Never assume you know the mobility restriction location or side of the mobility restriction. Always check both sides and always clear mobility before performing all the mobility exercises.

If these exercises reveal limitation or asymmetry, you have confirmed a mobility problem within the pattern and it should be the primary focus of the corrective exercise session. If no change in mobility is appreciated, do not proceed to stability work. Use the exercises to prove mobility is present or continue working on all mobility problems until you note an appreciable, measurable change. Mobility does not need to become full or normal, but an improvement must be noted. You can proceed to a stability corrective exercise only if the increased mobility allows the person to successfully get into the appropriate exercise posture and position.

If there is any question about compromised mobility, always return to mobility exercises at the beginning of each exercise session before moving to stability/motor control exercises. This will assure that proper tissue length and joint alignment are available for stabilization exercises.

The mobility exercise will remove stiffness or muscle tone that is performing the role of stability. If optimal mobility is achieved, it is appropriate to move directly to stability, but periodically reconfirm mobility just to be sure.

The stability exercises demand posture, alignment, balance and control of forces within the newly available range and without the support of compensatory stiffness or muscle tone. Consider stability exercises as challenges to posture and position rather than being conventional strength exercises.

When no limitation or asymmetry is present in the mobility corrective exercises, move directly to stability corrective exercises. Seeing no limitation or asymmetry indicates the mobility required for the movement pattern is present, but is not responding to efficient motor control.

Using the idea of motor control will help you think beyond weakness as the only explanation for poor stabilization. Motor control is a broad category that includes mobility, alignment, balance, timing, sub-maximal muscle quickness, coordination and efficient co-activation. The absence of efficient motor control looks like weakness, but strength training the stabilizers is not the solution.

Stability can be separated from strength by improved motor control demonstrated by rigidity and firmness at end ranges. This is why many of the stability exercises use a light load, good posture and a hold or a movement into the end ranges. Quick firmness and adjustments to changes in load are more important than force generation.

Stability in the middle ranges is also important, but particular interest must be taken to assure end-range function. If end-range function is present, mid-range function is usually acceptable, but the reverse is not necessarily true. Look at good mid-range tension as strength, and good end-range tension as stability, timing and integrity. This is the main reason why mobility is important. You must make sure you are testing end-range motor control.

When improved stability is noted, it is possible to progress to movement pattern retraining. Movement pattern retraining should always follow proper attainment and demonstrations of mobility and stability within corrective exercises. Perfection is not necessary and is rarely possible, but do not attempt to retrain a movement pattern if the mobility and stability to support the pattern is not available.

Many forms of assistance facilitation can be provided to reduce compensation and allow quality practice within movement patterns. The general rule is to only use techniques that improve form and quality of the movement. Overload is not an effective corrective tool at this level of training.

Quick progressions with load and intensity will usually cause a default to a more limited or dysfunctional movement pattern.

Corrective Strategy Examples

MOBILITY DRILLS TO INCREASE JOINT RANGE OF MOTION, TISSUE LENGTH AND MUSCLE FLEXIBILITY:



**Half-Kneeling
Dorsiflexion Stretch
with Dowel**



**T-Spine Rotation
with Rib Grab**



**Strap Assisted
Straight-Leg Stretch**



**Leg Raise Core
Engagement with
FMT**

MOTOR CONTROL DRILLS TO IMPROVE POSTURAL CONTROL IN POSITIONS TO IMPROVE REFLEX STABILIZATION:



**Half Kneeling
Rotation with Dowel**



**Chop from Tall
Kneeling**

MOTOR CONTROL DRILLS TO IMPROVE REFLEX STABILIZATION THROUGHOUT A MOVEMENT PATTERN TO REINFORCE COORDINATION AND TIMING:



Toe Touch Progression



Single Leg Single Arm Deadlift with FMT



Deep Squat w/ Valgus Correction with FMT

CORRECTIVE APPLICATION EXAMPLE FOR ACTIVE STRAIGHT-LEG RAISE:

First do not simply think of this example as a "cook-book" approach. The following exercises are suggestions that can improve the ASLR pattern. There are many other exercises that could improve a dysfunctional leg-raise pattern. The key is to identify which exercise gives your individual the best results. The FMS is designed to identify the pattern of focus and then use retesting to determine if the chosen strategy is having a positive impact. It is more important that you follow the FMS training cycle and progress by first gaining mobility competency, then motor control competency.

You should also consider using corrective packages instead of just one exercise. Use a circuit approach. An example of this would be:

2-3 circuits

Strap Assisted Straight-Leg Stretch X 5
Leg Raise Core Engagement with FMT X 10
Half-Kneeling Rotation with Dowel X 10
Hip Hinge Single Leg w/ Dowel X 10

EXAMPLE OF CORRECTIVE EXERCISE STRATEGIES APPLIED TO THE ACTIVE STRAIGHT-LEG RAISE PATTERN AS SHOWN IN THE PRESENTATION:



Assisted Leg-Lowering to Bolster



Leg Raise Core Engagement with FMT



Leg-Lock Bridge

MOTOR CONTROL:



Half Kneeling Set-up



Half Kneeling Chop

MOTOR CONTROL:



**Toe Touch
Progression**



**Hip Hinge Double
Leg with Dowel**



**Hip Hinge Single-
Leg with Dowel**



**Deadlift Single
Leg with Valgus
Correction w/ FMT**

PERFORMANCE:



**Deadlift Single Leg
with two KB**

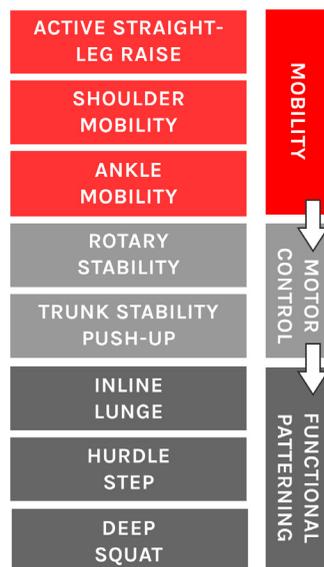
Stoplights, Movement Screening and Exercise

**BRETT JONES, ATC, CSCS, CHIEF SFG
FMS ADVISORY BOARD**

"Stoplights, movement screening and exercise" is all about how FMS professionals approach the results of your FMS screen and make exercise recommendations based on those results. This is the implementation of Principle #2 – Protect, Correct, and Develop. Protect before you correct is a powerful tool. Sometimes what we remove is as or more important than what we add. Removing the exercises that challenge a pattern with a score of zero, one, or asymmetry can be an essential step in the corrective process.

Stoplights help us to safely navigate our roads with a simple color-coded series of signals. Red means stop. Yellow means slow down then prepare to stop or proceed with caution. Green means go. The results of your FMS screen will direct us toward your weak links and asymmetries and can be "color-coded" for ease of understanding the implications of each screen. Exercise recommendations can be color-coded using this stoplight analogy.

If you are an FMS practitioner, you should be familiar with the Corrective Strategy Algorithm used in evaluating the results of an FMS screen.



By reading Movement by Gray Cook and understanding the corrective algorithm, you will be able to easily explain to your client why you are prioritizing a pattern like the ASLR over the DS. Put simply, it means the priority is on mobility first since adequate mobility is the foundation for stability, and the five more primitive patterns of the screen (ASLR, SM, AM, RS, TSPU) form the building blocks for the three "functional" patterns (ILL, HS, DS) as seen in the algorithm order above.

Now we come to the "interesting" part of the stoplight approach: how the FMS screen is used to provide exercise programming recommendations using the Red/Yellow/ Green format. The basis of exercise recommendations using the FMS screen is rooted in two of the central FMS corrective concepts:

1. Do not add fitness to dysfunction.
2. Remove the negative

(Remember that dysfunctional in FMS terms means inability to access the pattern and could negatively impact your progress or success. And we do not call our clients "dysfunctional".)

"Do not add fitness to dysfunction" simply means do not exercise a dysfunctional movement pattern. So, scores of 1 or 0 should not be part of your exercise programming (you will see how this is implemented in the actual Red/Yellow/Green list for exercise recommendations based on the weakest link). "Remove the negative" means two things: First, it means addressing asymmetry and dysfunction found in the screen using the algorithm. Second, it means removing those exercises from the routine that will challenge the dysfunctional pattern. This is also known as the "Protect, then Correct, then Develop" rule from Movement Principle #2.

A key point here – the Red Lights are temporary!

I am not asking you to stop performing an exercise "forever." The conversation is based on what I need to ask you to not do for now – not forever. As the pattern improves red lighted exercises become green again. An analogy we use is not trying to fix the car while driving it. You are better off taking it to the mechanic for a couple of days and then you are back on the road. Removing the negative or offending activity may be enough to improve the movement pattern and FMS score. And then corrective exercise will make sure they can own and hold on to those improvements in the movement pattern.

Also keep in mind the Lifestyle "red lights" of sleep, nutrition, hydration, stress and programming. There is a chance you don't really have a "movement issue" but rather a lifestyle issue is causing a movement issue. Sleep, nutrition, hydration and stress can be major factors in how your body adapts to your exercise routine. Programming is also a huge component especially when it does not cycle or vary the intensity, volume and frequency.

How do we implement the stoplights?

Suggestions are based on the weakest link—if multiple weak links are found, follow the Red Lights for each one. For example, overhead work might be cleared for an ASLR weak link only if the SM is a pass. Simply put, if a particular movement pattern is a 1 or 0, you can look at the Red/Yellow/Green list to see which exercise patterns are in the warning zone



Red Light

These exercises will directly challenge a movement pattern already established to be dysfunctional or asymmetrical. These should therefore be avoided until the movement pattern is symmetrical 2's or 3's—these results prove the individual cannot access that movement pattern and loading or challenging that pattern will only cement the dysfunction.



Yellow Light

Yellow indicates exercise patterns that do not directly challenge the dysfunctional movement pattern, however, these patterns should be used with caution, since they may or may not have a positive impact. Re-screening the dysfunctional pattern will tell you if the Yellow Light exercise is having a positive or negative impact.



Green Light

Green Lighted exercise patterns do not challenge the dysfunctional movement pattern. They might even be helpful in correcting the movement pattern and can be used in training.

EXERCISE RECOMMENDATIONS BASED ON RESULTS OF FMS SCREEN:

Active Straight-Leg Raise

-  Red Light - hip hinging (deadlift—all variations), KB swing and ballistic drills, jumping, running
-  Yellow Light - step-up, lunges, split stance, squatting
-  Green Light - upper body training, core work (excluding sit-ups), tall and half kneeling chop/lift

Shoulder Mobility

-  Red Light - overhead pressing, pulling, carries and some Indian Club work, and handstand position/work, low/high bar barbell position, versa-climber
-  Yellow Light - horizontal pressing and rowing, partial get-ups, rack walk/carries
-  Green Light - deadlift, swings, lower body work, core work (excluding roll outs), farmer's walk/carries

Ankle Mobility

-  Red Light - Lunges, full get-up, split stance exercises, running, jump rope, jumping, prowler/sled push, Squats
-  Yellow Light - deadlift, kettlebell swing, single leg deadlift, elliptical
-  Green Light - half get-up, half kneeling chop/lift and exercises, upper body training

Rotary Stability

-  Red Light - asymmetrical loaded exercises (dumbbell snatch, kettlebell swing)
-  Yellow Light - partial get-up, tall kneeling pressing/chop/lift exercises, half kneeling pressing/chop/lift, deadlifting and symmetrically loaded squatting exercises
-  Green Light - floor press, symmetrical positioned and loaded upper body training

Trunk Stability Push-Up

-  Red Light - pressing (overhead, standing chest press), kettlebell swing and ballistic drills, running, prowler/sled push, overhead carries
-  Yellow Light - deadlift, squatting, core work, push-up progressions, lunges, rack and farmer's walk/carries
-  Green Light - step-ups, split stance exercises, single leg deadlift, half get-up

Inline Lunge and Ankle Clearing Pain

-  Red Light - Lunges, full get-up, split stance exercises, running, jump rope, jumping, prowler/sled push
-  Yellow Light - deadlift, squats (red light if ankle mobility fail), kettlebell swing, single leg deadlift, elliptical
-  Green Light - half get-up, half kneeling chop/lift and exercises, upper body training

Hurdle Step



Red Light - single leg exercises, full get-up, running, prowler/sled push, carries



Yellow Light - symmetrically loaded deadlift and squat variations



Green Light - half get-up, half kneeling chop/lift and exercises, suitcase deadlift, upper body training, core work

Deep Squat



Red Light - squat and variations, jumping



Yellow Light - single leg squatting, split stance and lunge exercises, rowing machine, running



Green Light - get-up, deadlift, single leg deadlift, half kneeling chop/lift and exercises, tall kneeling chop/lift and exercises, upper body training

This list of exercise recommendations is NOT exhaustive or "complete" but should provide adequate direction in which exercises to Red Light, which exercises to proceed with caution (Yellow Light) and which exercises receive a Green Light for exercises based on the weakest link of the FMS screen.

Remember that movement patterns that received a Green Light for the FMS results (scores of 2/2 or 3/3) are cleared to exercise, and you should see that there are many options for exercise recommendations even within movement patterns that received a Red Light. Also keep in mind that the expectation is that the Red Lighted patterns will efficiently become Green Lights with the application of the corrective strategies so no pattern (outside of certain medical or injury related situations) will be Red Lighted "forever" or for long.

Stoplights, movement screening and exercise: a simple way to use the Red, Yellow and Green Light concepts for understanding exercise recommendations based on those scores. Please visit us on the FMS forum if you have questions or comments.

LIGHT SYSTEM CHART OF POPULAR EXERCISES

This chart provides examples of popular exercises and is simply giving you examples of how you may identify programming needs using the stop light colors with each movement pattern. Many of these examples can be included or excluded based on the intensity, volume or technique you are using. In other words, an exercise such as the Get-up may be exercise when loaded for strength and intensity and it may also be a corrective exercise when removing or reducing the load to work on improving key movement qualities. So please bare that in mind with these examples.

Categories:

- COMBO (Multiple Patterns Involved)
- HIP HINGE
- PULL
- PUSH
- SPLIT STANCE
- SQUAT

Movement	Exercise	ASLR	SM	Ankle	RS	TSPU	IL	HS	DS
Combo	Barbell Snatch	Red	Red	Green	Green	Red	Green	Green	Red
Combo	Battling Ropes	Green	Yellow	Green	Yellow	Yellow	Green	Green	Green
Combo	Biking (Stationary)	Yellow	Yellow	Yellow	Green	Green	Yellow	Green	Green
Combo	Cycling	Yellow	Yellow	Yellow	Yellow	Green	Yellow	Green	Green
Combo	Double Kettlebell Clean	Red	Green	Green	Green	Red	Green	Green	Green
Combo	Double Kettlebell Snatch	Red	Red	Green	Green	Red	Green	Green	Green
Combo	Farmers Carry Two-Arm	Green	Green	Green	Green	Yellow	Green	Yellow	Green
Combo	Get Up - Loaded Full	Yellow	Red	Yellow	Yellow	Yellow	Yellow	Green	Green
Combo	Jerk	Yellow	Red	Red	Yellow	Red	Red	Green	Red
Combo	Jerk Barbell	Yellow	Red	Red	Green	Red	Red	Green	Yellow
Combo	Jerk Single Arm	Yellow	Red	Green	Yellow	Yellow	Green	Green	Yellow
Combo	Jump Rope Double Unders	Yellow	Green	Yellow	Green	Yellow	Green	Green	Yellow
Combo	Jump Rope Single Leg	Green	Green	Yellow	Yellow	Green	Green	Red	Green
Combo	Kettlebell Clean	Red	Green	Green	Yellow	Red	Green	Green	Green
Combo	Kettlebell Snatch	Red	Red	Green	Yellow	Red	Green	Green	Green
Combo	Lateral Speed/Agility Work	Green	Green	Red	Yellow	Yellow	Red	Red	Yellow
Combo	Partial/Half Get Up	Yellow	Yellow	Yellow	Yellow	Yellow	Green	Green	Green
Combo	Pendlay Row	Yellow	Yellow	Green	Green	Yellow	Green	Green	Green
Combo	Pistol Squat	Red	Green	Red	Yellow	Yellow	Red	Red	Red
Combo	Power Snatch	Red	Red	Green	Green	Red	Green	Green	Green
Combo	Push Press Barbell	Yellow	Red	Red	Yellow	Yellow	Green	Green	Green
Combo	Rower	Yellow	Yellow	Green	Green	Yellow	Green	Green	Yellow
Combo	Running (Medium Pace)	Red	Yellow	Red	Yellow	Yellow	Red	Red	Green
Combo	Running (Slow Paced)	Red	Yellow	Red	Yellow	Yellow	Red	Red	Green
Combo	Sit Ups	Yellow	Yellow	Green	Red	Red	Green	Green	Green
Combo	Sprinting	Red	Green	Red	Yellow	Yellow	Red	Red	Green
Combo	Barbell Clean	Red	Yellow	Green	Green	Red	Green	Green	Red
Combo	Dumbbell Snatch Single Arm	Red	Red	Green	Yellow	Red	Green	Green	Yellow
Combo	Farmers Carry Single Arm	Green	Green	Green	Green	Yellow	Green	Yellow	Green
Combo	Get Up—BW Full	Yellow	Yellow	Yellow	Yellow	Green	Yellow	Green	Green
Combo	Hang Power Clean	Red	Red	Yellow	Green	Red	Green	Green	Red
Combo	Hang Power Snatch	Yellow	Red	Yellow	Green	Red	Green	Green	Yellow
Combo	Hang Snatch	Yellow	Red	Red	Green	Red	Green	Green	Red
Combo	Jump Rope Double Leg	Green	Green	Red	Green	Green	Green	Green	Green
Combo	Muscle Up	Yellow	Red	Green	Green	Yellow	Green	Green	Green
Combo	Power Clean	Red	Yellow	Green	Green	Red	Green	Green	Red
Combo	Prowler Push	Yellow	Green	Yellow	Green	Red	Yellow	Yellow	Green
Combo	Push Press Double Arm	Yellow	Red	Red	Green	Yellow	Green	Green	Green
Combo	Push Press Single Arm	Yellow	Red	Red	Yellow	Yellow	Green	Green	Green
Combo	Renegade Row	Green	Green	Green	Yellow	Red	Green	Green	Green
Combo	Toes to Bar	Red	Red	Green	Green	Yellow	Green	Green	Yellow
Combo	Wall Ball	Green	Red	Red	Green	Yellow	Green	Green	Red
Hip Hinge	Conventional Deadlift	Red	Green	Green	Green	Yellow	Green	Green	Green

Movement	Exercise	ASLR	SM	Ankle	RS	TSPU	IL	HS	DS
Hip Hinge	Double KB Deadlift	Red	Green	Green	Green	Yellow	Green	Green	Green
Hip Hinge	Double KB Suitcase Deadlift	Red	Green	Green	Yellow	Yellow	Green	Green	Green
Hip Hinge	Double KB Swing	Red	Green	Green	Green	Red	Green	Green	Green
Hip Hinge	Good Morning	Red	Red	Green	Green	Yellow	Green	Green	Green
Hip Hinge	Hip Hinge BW	Yellow	Green						
Hip Hinge	Kettlebell Deadlift	Red	Green						
Hip Hinge	Kettlebell Deadlift-Elevated	Yellow	Green						
Hip Hinge	Romanian Deadlift	Red	Green	Green	Green	Yellow	Green	Green	Green
Hip Hinge	Single Arm KB Deadlift	Red	Green	Green	Yellow	Yellow	Green	Green	Green
Hip Hinge	Single Arm KB Suitcase Deadlift	Red	Green	Green	Yellow	Yellow	Green	Green	Green
Hip Hinge	Single Arm KB Swing	Red	Green	Green	Yellow	Red	Green	Green	Green
Hip Hinge	Single Leg Deadlift	Red	Green	Green	Yellow	Green	Green	Yellow	Green
Hip Hinge	Single Leg Deadlift - Elevated	Yellow	Green	Green	Yellow	Green	Green	Green	Green
Hip Hinge	Snatch Grip Deadlift	Red	Green	Green	Green	Yellow	Green	Green	Yellow
Hip Hinge	Sumo Deadlift	Red	Green	Green	Green	Yellow	Green	Green	Green
Hip Hinge	Trap Bar Deadlift	Red	Green	Green	Green	Yellow	Green	Green	Green
Hip Hinge	Two Arm KB Swing	Red	Green	Green	Green	Red	Green	Green	Green
Hip Hinge	GHD Back Extension	Red	Yellow	Green	Green	Yellow	Green	Green	Green
Hip Hinge	Glute/Ham Raise	Red	Green	Yellow	Green	Green	Yellow	Green	Green
Pull	Bent Over Row	Green	Yellow	Green	Green	Red	Green	Green	Green
Pull	Double Arm Row	Green	Yellow	Green	Green	Yellow	Green	Green	Green
Pull	Hanging	Green	Red	Green	Green	Green	Green	Green	Green
Pull	Inverted Row	Green	Yellow	Green	Green	Yellow	Green	Green	Green
Pull	Jumping Pull-up	Green	Red	Green	Green	Green	Green	Green	Yellow
Pull	Kipping Pull-up	Yellow	Red	Green	Green	Yellow	Green	Green	Green
Pull	Pull-up Assisted	Green	Red	Green	Green	Green	Green	Green	Green
Pull	Pull-up	Green	Red	Green	Green	Green	Green	Green	Green
Pull	Single Arm Row	Green	Yellow	Green	Yellow	Green	Green	Green	Green
Pull	TRX Row or Suspended Ring Row	Green	Yellow	Green	Green	Yellow	Green	Green	Green
Push	Bench Press	Green	Yellow	Green	Green	Yellow	Green	Green	Green
Push	Handstand Hold	Green	Red	Green	Green	Green	Green	Green	Green
Push	Handstand Push Up	Green	Red	Green	Green	Red	Green	Green	Green
Push	Incline Press	Green	Red	Green	Green	Yellow	Green	Green	Green
Push	OH Press Barbell	Yellow	Red	Green	Green	Red	Green	Green	Green
Push	OH Press Double Arm	Yellow	Red	Green	Green	Red	Green	Green	Green
Push	OH Press Single Arm	Green	Red	Green	Yellow	Red	Green	Green	Green
Push	OH Walks Double Arm	Green	Red	Green	Green	Red	Green	Yellow	Green
Push	OH Walks Single Arm	Green	Red	Green	Yellow	Red	Green	Yellow	Green
Push	Push-up	Green	Yellow	Green	Green	Red	Green	Green	Green
Push	Push-up Plank	Green	Yellow	Green	Green	Yellow	Green	Green	Green
Push	Push-up: Elevated or Assisted	Green	Yellow	Green	Green	Yellow	Green	Green	Green
Push	Single Arm Bench Press Dumbbell	Green	Yellow	Green	Yellow	Yellow	Green	Green	Green
Push	Single Arm Push-up	Green	Red	Green	Red	Red	Green	Green	Green
Split Stance	Forward Lunge	Yellow	Green	Red	Yellow	Yellow	Red	Green	Green
Split Stance	Reverse Lunge	Yellow	Green	Red	Green	Green	Red	Green	Green
Split Stance	Split Squat	Yellow	Green	Red	Yellow	Yellow	Red	Green	Green
Split Stance	Step Up	Yellow	Green	Red	Yellow	Green	Red	Yellow	Green
Squat	Barbell Back Squat	Yellow	Red	Red	Green	Yellow	Red	Green	Red
Squat	Double KB Front Squat	Yellow	Green	Red	Green	Yellow	Red	Green	Red
Squat	Front/Zercher Barbell Squat	Yellow	Green	Red	Green	Yellow	Red	Green	Red
Squat	Goblet Squat	Yellow	Green	Yellow	Green	Green	Yellow	Green	Yellow
Squat	KB Front Squat	Yellow	Red	Red	Yellow	Green	Red	Green	Red
Squat	Overhead Squat	Yellow	Red	Red	Green	Red	Red	Green	Red
Squat	Bodyweight & Assisted Squats	Green	Green	Yellow	Green	Green	Yellow	Green	Yellow

Appendix 1

Motor Control Screen

Introduction to the Motor Control Screen

PURPOSE

The Motor Control Screen (MCS) determines whether an individual has the minimum level of motor control with body weight to allow maximal adaptability for human performance. Through research, the MCS adopts the science and validity of the Y Balance Test to effectively and efficiently screen basic motor control. The Y Balance Test was developed over a decade ago to comprehensively test a person's motor control. The Y Balance Test sections the body into quarters and thoroughly tests the person's motor control at the limit of stability. When a person is at their limit of stability, dysfunction is magnified. A full Y Balance Test is necessary for return to sport or discharge testing in rehabilitation or if a comprehensive test of motor control is needed.

Based on our research, we can use the anterior reach of the Y Balance Test Lower quarter and the Superolateral reach of the Y Balance Test Upper Quarter.

Our practical definition of motor control is *necessary input, sufficiently processed, with an acceptable output.*

The MCS gives you vital information on how you stabilize, balance and control your movement. This is an important link between the FMS and an individual's fitness/capacity activities. We designed the Motor Control Screen to deliver a tight feedback loop that not only measures dysfunction in the lower and upper body but sets a baseline to measure actionable changes in motor control quickly and reliably.

The results of these quick reaches will be compared to the norms for that individual's environment (sport/activity/occupation), group (individuals in the same environment), role (specific subgroup of the group) and age (when appropriate). This will ensure minimal competency and identify motor control capacity is not a restriction.

WHAT'S INVOLVED?

1. Ankle Clearing
2. Lower Body MCS
3. Upper Body Clearing
4. Upper Body MCS

CLEARING EXAMS AND PAIN

Pain alters motor control. The lower body and upper body clearing exams help identify painful movements which may affect the overall MCS scoring. If pain is present during a clearing test, the individual being tested should be referred to a healthcare professional for further assessment.

Ankle Clearing

PURPOSE

The purpose of the test is not to remove ankle mobility, but to ensure ankle mobility is not a barrier to movement pattern competency and capacity. Lower body motor control screen cannot be respectively measured when ankle mobility is considered dysfunctional because adequate mobility is a prerequisite for motor control. Failure on the screen implies that ankle mobility should be addressed and cleared before performing the Lower Body Motor Control Screen.

DESCRIPTION

While holding the dowel rod for balance, have the person place their right foot along the left side of the kit, and place the left foot in front of the right foot in the heel-to-toe position. Line up the front edge of the medial malleolus of the front foot behind the 0 line of the Functional Movement Screen Kit with the inside of the left foot touching the kit, adjust kit when necessary.

The back ankle is the one being measured. Have the person drop straight down, bending the knee taking the back knee as far as possible in front of the toes with the heel down. Visualize a vertical line from the forward most part of the bent knee to the floor, determine if the knee crosses the front edge of the medial malleolus. Ask the person if they felt any pain in the ankle, and if so where? (Front of the ankle or back of the lower leg?). If there is pain, refer and **do not** complete the Forward Reach.

Ankle Clearing

VERBAL INSTRUCTIONS

The following is a script to use while administering Ankle Clearing. For consistency throughout all testing, this script should be used during each screen. The bold words represent what you should say to the participant.

- **Please let me know if there is any pain while performing any portion of the screen.**
- **Please lace or strap your shoes snugly because this is a loaded ankle clearing test.**
- **Place the outside of your right foot up next to the FMS test kit so that the outside foot is in contact with the kit.**
- **Place the left foot in front of the right foot so that you are in the heel to toe position with both feet touching each other and the FMS test kit, and use a dowel for balance.**
- **I will adjust the FMS kit so that the red start line lines up with the medial malleolus.**
- **While maintaining the heel-to-toe position drop straight down, bending the back knee and taking it as far as possible in front of your toes while keeping the heel down.**
- **Once you have reached your maximum distance, I will measure and ask you where you felt the stretch (Front, Back of Ankle, or no stretch).**
- **Do you understand the instructions?**

Have the participant perform the ankle clearing screen at least three times for consistent measurement.

TIPS FOR TESTING

- The back foot is the ankle being tested.
- Adjust the FMS kit so that the red start line lines up with the front of the medial malleolus.
- Both feet must remain in the heel-to-toe position throughout the movement.
- If there is pain, refer and **do not** complete the Forward Reach.
- If the client fails the Ankle Clearing by not passing the scoring criteria and there is no pain involved, it is recommended to proceed to the Forward Reach to create a movement baseline. This allows you to compare the movement before and after correctives have been applied and ankle mobility has been cleared.

Documenting Ankle Clearing

GREEN

- Knee moves beyond the medial malleolus of the front leg while the heel stays down.
- This indicates the ankle has cleared mobility requirements



YELLOW

- The knee resides within the width of the medial malleolus of the front leg while the heel stays down.
- This indicates a potential ankle mobility limitation.
- Failure on the Ankle Clearing screen implies that ankle mobility should be addressed and cleared.



RED

- The individual's knee does not reach the medial malleolus of the front leg while the heel stays down.
- This indicates a potential ankle mobility limitation.
- Failure on the Ankle Clearing screen implies that ankle mobility should be addressed and cleared.



ADDITIONAL CONSIDERATIONS

- **Pain** - If the individual experiences pain with this screen, indicate positive for pain in scoring and referral to a healthcare professional is recommended.
- **Stretch** - If the individual experiences a stretch or feeling of tightness of the ankle and it does not resolve with soft tissue or stretching applications, further assessment by a health care professional is needed.

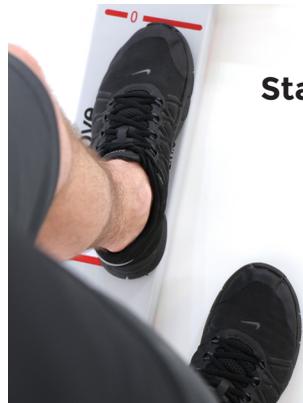
Lower Body MCS

OBJECTIVE

The Lower Body MCS can identify balance deficits and asymmetries in motor control.

SET-UP

The individual will stand with their right foot on the FMS kit - the most distal aspect of their shoe just behind the red starting line and the inside of their right foot aligned along the edge of the kit.



Starting Foot Position

ACTION

While maintaining a single-limb stance on their right leg, have the individual reach with their left limb in the forward direction. They will slide the box with their toes as far as they can, without touching left foot to floor, and then return to the starting position. Note that the right heel may NOT come up during the test.



This specific screening order is:

- Right Forward Reach - 3 trials minimum
- Left Forward Reach - 3 trials minimum

WHAT ARE WE LOOKING FOR?

The individual must perform a minimum of 3 successful repetitions, continuing until the next reach does not improve the final score. For example, you have 5 repetitions - the first is unsuccessful, second 58 cm, third unsuccessful, fourth 68 cm, fifth is 63 cm. The final score would be 68 cm. If the fifth attempt was greater than the fourth, then additional attempts are required until you see a decline. Once the max distance is achieved you would repeat on the opposite side.

Lower Body MCS

HOW TO MEASURE

The reach distance is measured by using the measure on the FMS Kit. Document the number, to the nearest half-inch or centimeter (depending on your device), of where the slide box has reached the farthest point the person can push it out, or the farthest point the most distal

part of their foot reached.



Additionally, a measurement of the individual's foot length needs to be documented. This can be done by placing the heel of the right foot on the 0 line on the FMS Kit and measuring the distance from the heel to the most distal part of the shoe. Record the measurement to the nearest half-inch or centimeter, depending on the FMS Kit.



SCORING

Pass - Reach is greater than 2 foot lengths and above the environment specific minimum threshold (based on age, gender, sport/activity); less than a 1.5 inch or 4cm right/left asymmetry.

Fail - Reach is less than or equal to 2 foot lengths or below the environment specific minimum threshold (based on age, gender, sport/activity); greater than or equal to a 1.5 inch or 4cm right/left asymmetry.

SAFETY CONSIDERATIONS

- Can the individual stand on 1 leg for 10 seconds?
- Can the individual safely ascend/descend stairs?
- Does the individual have current/previous lower extremity joint instability or cartilage tears?
- Has the individual undergone any surgeries in the lower extremity?

Lower Body MCS

VERBAL SAFETY INSTRUCTIONS

The following is a script to use while administering the Lower Body Motor Control Screen. For consistency throughout all testing, this script should be used during each screen. The bold words represent what you should say to the participant.

- **Before we start, I would like to ask you a few safety questions.**
- **Do you have trouble safely ascending/descending stairs?**
- **Do you have current/previous lower extremity joint instability or cartilage tears?**
- **Have you undergone any surgeries in the lower extremity?**
- **When ready can you please attempt to balance on 1 leg for 10 seconds?**
- **I'll now check the other leg.**

VERBAL INSTRUCTIONS

The following is a script to use while administering the Lower Body Motor Control Screen. For consistency throughout all testing, this script should be used during each screen. The bold words represent what you should say to the participant.

- **Please let me know if there is any pain while performing any portion of the screen.**
- **Please lace or strap your shoes snugly.**
- **Place the inside of your right foot on the FMS kit with your toes just behind the starting line with the inside of your foot lined up next to the edge of the kit.**
- **While maintaining the foot on the platform, I want to see how well you can maintain balance while pushing the slide box with the opposite foot.**
- **The reach foot must maintain contact with the slide box on the target area while it is in motion (i.e. cannot kick the slide box).**
- **Do not use the slide box for stance support (i.e. place foot on top of slide box).**
- **Return the reach foot to the starting position under control (i.e. return the reach foot to the floor behind the red starting line, next to the stance platform).**
- **Do you understand the instructions?**

TIPS FOR TESTING

- Ensure the heel of the stance leg stays in contact with the board during the repetition. The heel coming up will almost always be the limiting factor.
- Maintain contact with the slidebox during reach and don't kick it forward.
- Do not use the slidebox for stance or support.
- Return to starting position under control, not allowing foot to touch the ground.
- Do not coach the movement; simply repeat the instructions if needed.

Determining Foot-Length

FOOT-LENGTH (IN)	2 X FL
5	10
5.5	11
6	12
6.5	13
7	14
8	16
8.5	17
9	18
9.5	19
10	19
10.5	21
11	22
11.5	23
12	24
12.5	25
13	26
13.5	27
14	28
14.5	29
15	30
15.5	31
16	32
16.5	33
17	34
17.5	35
18	36

FOOT-LENGTH (CM)	2 X FL
12	24
13	26
14	28
15	30
16	32
17	34
18	36
19	38
20	40
21	42
22	44
23	46
24	48
25	50
26	52
27	54
28	56
29	58
30	60
31	62
32	64
33	66
34	68

FOOT-LENGTH (CM)	2 X FL
38	76
39	78
40	80
41	82
42	84
43	86
44	88
45	90
46	92

Upper Body Clearing

OBJECTIVE

The purpose of the wrist extension and horizontal adduction clearing tests is to identify pain and appropriate range of motion of the upper extremity to ensure it is not a barrier to movement pattern competency and capacity. The upper body motor control screen is adversely affected when either wrist extension or horizontal adduction is considered painful and/or dysfunctional/limited. Normal adequate mobility without pain is a prerequisite for motor control.

If pain is present with either test, do not proceed with upper body MCS - refer the individual to a healthcare professional for further assessment.

WRIST EXTENSION CLEARING

SET-UP

Start by having the person place the palms of their hands together at the center of their chest, fingers pointing upwards.



ACTION

The person will slowly lift their elbows, trying to get their forearms parallel to the ground, while keeping their palms together. Stop the movement as soon as the palms start to separate.

WHAT ARE WE LOOKING FOR?

Place a dowel parallel to the floor against their forearms. To pass the clearing exam there should be no pain and no greater than one hand width distance between the dowel and the base of the hands.



SCORING

To pass the wrist extension clearing exam, they must meet two criteria:

- No pain
- No greater than one hand width distance between the dowel and the base of the hands

It is possible to fail this exam due to presence of pain and/or the lack of range of motion.

HORIZONTAL ADDUCTION CLEARING

SET-UP

Start by having the person bring their right arm to 90 degrees of shoulder flexion, placing their left hand on right forearm.

ACTION

The person will use their left hand to pull their right arm across their chest into horizontal adduction. Repeat this test switching arm position.

SCORING

This test is considered positive if the person reports pain.



This test does not have a range of motion component. It is only performed for provocation of pain.

If they do not have pain with both clearing tests, but do not pass wrist extension, proceed with caution to the upper body MCS. However, wrist mobility is still the priority.

WRIST EXTENSION VERBAL INSTRUCTIONS

The following is a script to use while administering Wrist Extension Clearing. For consistency throughout all testing, this script should be used during each screen. The bold words represent what you should say to the participant.

- Please let me know if there is any pain while performing any portion of the test.
- Place the palms of your hands together above your chest and slowly lower your hands keeping your palms together.
- Stop the movement as soon as the palms start to separate.
- I will then place a dowel parallel to the floor.
- Do you understand the instructions?



HORIZONTAL ADDUCTION CLEARING VERBAL INSTRUCTIONS

The following is a script to use while administering Horizontal Adduction Clearing. For consistency throughout all testing, this script should be used during each screen. The bold words represent what you should say to the participant.

- Please let me know if there is any pain while performing any portion of the screen.
- Raise your right arm so it is level with your chest.
- From there use your left hand to pull your right arm across your chest.
- Do you understand the instructions?



Upper Body MCS

OBJECTIVE

The Upper Body MCS can identify balance deficits and asymmetries in motor control.

SET-UP

The individual will begin in the quadruped position, placing their right thumb parallel with the red 0 line on the FMS Kit. The little finger should be in-line with the white line on the slide box (slide box starting near support hand). The midline of their body should be in line with the gray section on the top of the slide box. Get into the push-up position with feet shoulder width apart. Shoes are on for this screen.

Hand Position



Body Position



ACTION

When the individual is ready, they will slide the box with the left hand as far as possible in the horizontal reach. The elbow may bend during this test, but the individual must return without falling. Read the reach distance while the individual rests. The person will return to the start position to perform the next trial.



The specific screening order is:

- Right horizontal reach (minimum of three trials)
- Left horizontal reach (minimum of three trials)

WHAT ARE WE LOOKING FOR?

The individual must perform a minimum of 3 successful repetitions, continuing until the next reach does not improve the final score. For example, you have 5 repetitions the first is unsuccessful, second 58 cm, third unsuccessful, fourth 68 cm, fifth is 63 cm. The final score would be 68 cm. If the fifth attempt was greater than the fourth, then additional attempts are required until you see a decline. Once the max distance is achieved you would repeat on the opposite side.

Upper Body MCS

HOW TO MEASURE

The reach distance is measured by using the measure on the FMS Kit and is named by the stance arm. (This simply represents the pattern and does not imply the functional ability of a body part or side.) Document the number, to the nearest half-inch or centimeter (depending on your device), of where the slide box has reached the farthest point the most distal part of their hand reached.



Additionally, a measurement of the individual's foot length needs to be documented. This can be done by placing the heel of the right foot on the 0 line on the FMS Kit and measuring the distance from the heel to the most distal part of the shoe. Record the measurement to the nearest half-inch or centimeter, depending on the FMS Kit.



SCORING

Pass - Reach is greater than 2 foot length and above the environment specific minimum threshold (based on age, gender, sport/activity); less than a 1.5 inch or 4cm right/left asymmetry.

Fail - Reach is less than or equal to 2 foot lengths or below the environment specific minimum threshold (based on age, gender, sport/activity); greater than or equal to a 1.5 inch or 4cm right/left asymmetry.

SAFETY CONSIDERATIONS

- Is it safe for the individual to perform push-ups?
- Does the individual have current/previous shoulder instability or surgical history?
- Did the individual score a 1 or 0 on the FMS Shoulder Mobility, Trunk Stability Push-Up and/or the Rotary Stability Tests?
- Is the individual's Beighton criteria greater than or equal to 5/9?

Upper Body MCS

VERBAL SAFETY INSTRUCTIONS

The following is a script to use while administering the Upper Body Motor Control Screen. For consistency throughout all testing, this script should be used during each screen. The bold words represent what you should say to the participant.

- **Before we start I would like to ask you a few safety questions.**
- **Do you have any pain or trouble performing push-ups?**
- **Do you have current shoulder instability or surgical history that may stop you from performing this test?**

VERBAL INSTRUCTIONS

The following is a script to use while administering the Upper Body Motor Control Screen. For consistency throughout all testing, this script should be used during each screen. The bold words represent what you should say to the participant.

- **Please let me know if there is any pain while performing any portion of the screen.**
- **Please lace or strap your shoes snugly.**
- **Start on your hands and knees and place the right thumb parallel with the start line with the little finger in line with the white line on the slide box.**
- **Line up the mid-line of the body with the gray section of the slide box.**
- **When ready get into the push-up position feet shoulder width apart and while maintaining the right hand on the platform, push the slide box in the red target.**
- **The reach hand must maintain contact with the slide box (i.e. cannot shove the slide box).**
- **Do not use the slide box for stance support (i.e. don't place hand on top of slide box).**
- **You may bend the elbow, but must return the reach hand to the starting position under control.**
- **You will perform a minimum of 3 successful repetitions, continuing until the next reach does not improve the final score.**
- **Once the max distance is achieved you would repeat on the opposite side.**
- **Do you understand the instructions?**

TIPS FOR TESTING

- The arm that is being measured is the stance arm. This simply represents the pattern and does not imply the functional ability of a body part or side.
- Use the dowel rod as a visual marker to line the mid-line of the body with the gray section of the slide box.
- Performing two practice trials off the kit or on another kit can speed the testing process but is not required.
- Person must maintain unilateral stance on the platform.
- Person must maintain reach hand contact with the slide box on the target area while it is motion (i.e. cannot shove the slide box).
- Person cannot use the slide box for stance support (i.e. place hand on top of slide box).
- Person may bend the elbow but feet must remain in starting position (in contact with ground).
- Person must return the reach hand to the starting position under control.



MOTOR CONTROL SCREEN SCORE SHEET

NAME: _____ DATE: _____ DOB: _____

ADDRESS: _____

CITY, STATE, ZIP: _____ PHONE: _____

SCHOOL/AFFILIATION: _____

HEIGHT: _____ WEIGHT: _____ AGE: _____ GENDER: _____

PRIMARY SPORT: _____ PRIMARY POSITION: _____

HAND/LEG DOMINANCE: _____ HAND LENGTH: _____ FOOT LENGTH: _____ PREVIOUS TEST SCORE: _____

MOTOR CONTROL SCREEN	RIGHT	LEFT	TARGET	SYMMETRY
Ankle Clearing <i>(Beyond/Within/Behind Malleolus)</i>			Beyond	
<i>Pain</i>				
<i>Where is it felt?</i>				
Forward Reach				
<i>Wrist Extension Clearing -/+</i>				
<i>Horizontal Adduction Clearing -/+</i>				
Horizontal Reach				
FOOT LENGTH				

Appendix 2

Modified FMS

Introduction to the Modified FMS

The Functional Movement Screen(FMS) has given us a better perspective on human movement for almost 20 years. We've seen its benefits within all activity levels from the ages 7 to 70 , however, some have been concerned that the FMS may not be appropriate for all populations. The need for a screen that still gives the necessary information, yet is suitable for certain individuals has not been overlooked. We understood the desire for a screen that will give professionals utility and knowledge without overly taxing positions or making a client feel intimidated.

Over the past few years, we've been studying vast amounts of data from the FMS and Y-Balance Test as well as feedback from many professionals. We have taken all of this information and have developed a Modified FMS. We believe this modified version will still give you a good movement baseline when developing programs for some individuals.

The modified FMS is a special purpose distillation of the FMS and YBT and when used as such can vet mobility and functional motor control. It will give you an option to gauge movement ability in individuals who may warrant a less demanding movement screen. We will always recommend a full FMS, however, we understand this may not always be a practical option for some.

Modified FMS consists of:

- 1.** Deep Squat
- 2.** Lower Body MCS
- 3.** Shoulder Mobility
- 4.** Active Straight-Leg Raise

Client Path

You must first decide if the Modified FMS is appropriate, this can be achieved by checking medical and fitness history. Additionally, below are questions designed to help you decide what path your client should be on, and if it is safe for you to place greater demands on the individual during screening and testing.

If client answers YES to this statement then proceed with full FMS.

"Does the client regularly participate in fitness, sport, recreational or occupational activities that require a high degree of dynamic balance control or agility including, but not limited to, basketball, skiing, soccer, surfing, off-trail hiking, trail running, gymnastics, martial arts, ice skating, rollerblading, volleyball and tennis?"

If there is any doubt as to whether the activities qualify as 'high balance demand activities' then err on the side of caution and answer NO to this question."

If client answered NO to the initial question then consider asking these questions:

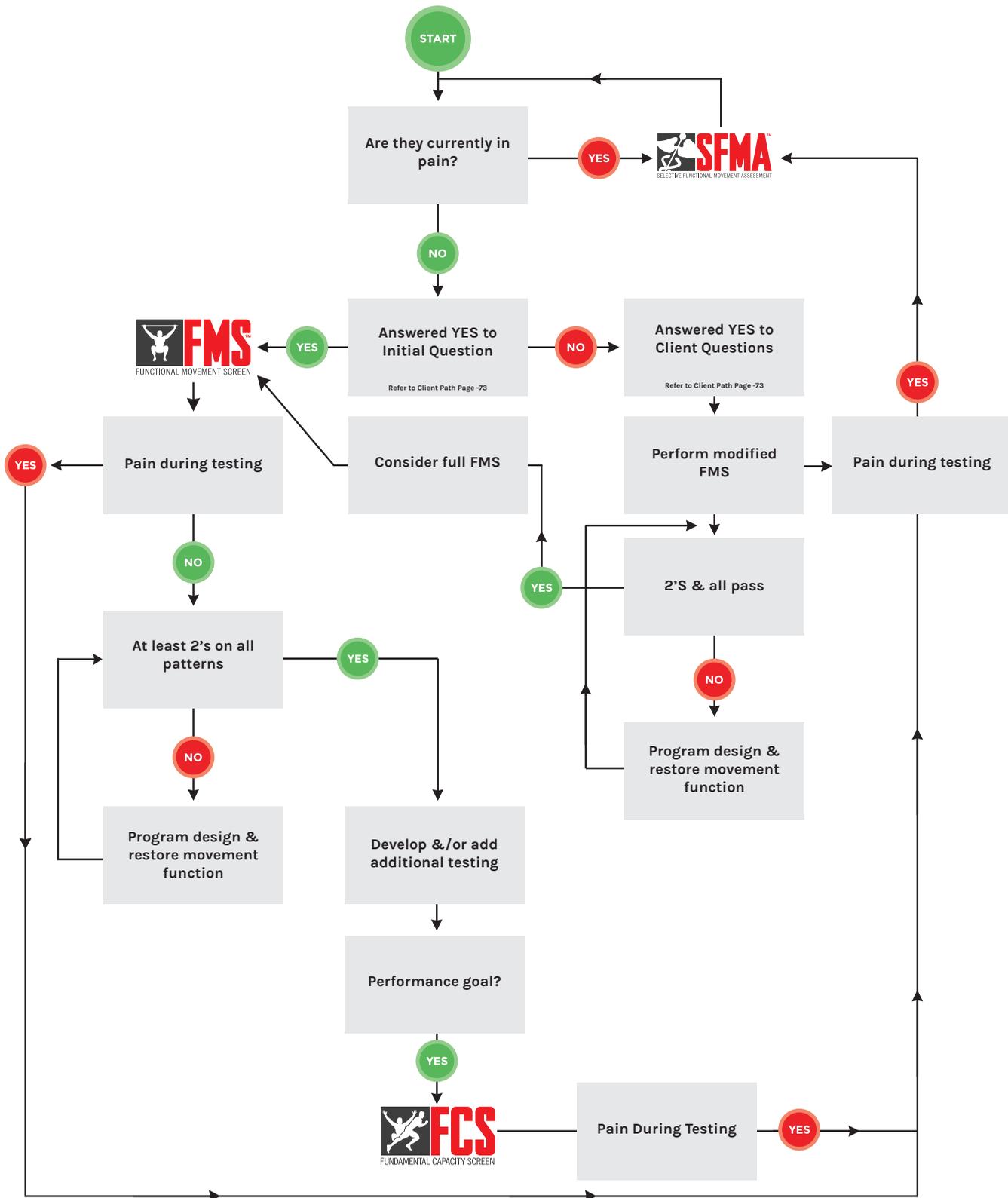
If client answers YES to any of the following questions start with the Modified FMS:

- Have you fallen in past year due to balance issues?
- Do you feel unsteady when standing or walking?
- Do you Worry about falling?
- Do you use an assistive device such as a cane or walker?
- Do you have a medical condition known to increase risk of falling (e.g. Parkinson's, post-stroke, diabetic neuropathy)?

If you have any significant concerns with having the individual perform the full FMS, continue with the Modified FMS.

If the client passes the Modified FMS then you can more confidently apply the tests that are included in the full FMS in order to gain a more robust look at the movement baseline that will assist in your programming.

Modified FMS Decision Tree



Corrective Strategy Algorithm

Modified FMS follows the same corrective algorithm as the full FMS.

For example, if the raw scores on a score sheet are as follows:

DS - 1

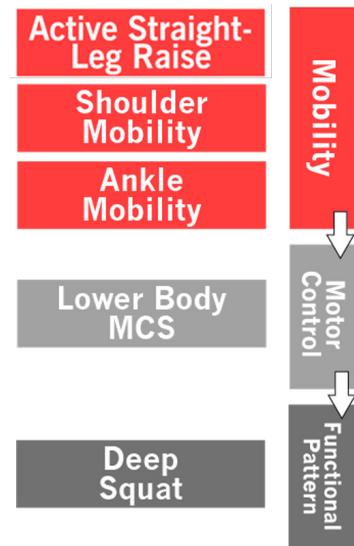
Ankle Mobility - Fail

Lower Body MCS - Fail

SM - 2/2

ASLR - 1/1

Following the order of the algorithm, look for scores of 1 or an asymmetry in order to identify the "weak link". (Remember the order of the score sheet is designed for efficiently administering the screen. The order of the algorithm is different based on the priorities for the corrective process.) So for this example, your eyes should immediately go to the ASLR and Ankle Mobility and stop there because you have found your "weak link" in the order designated by the algorithm and don't need to look any further. Ignore all other scores and address the ASLR and Ankle Mobility. Once addressed retest Lower Body MCS to see if your corrective interventions made an appreciable change in motor control.





MODIFIED FUNCTIONAL MOVEMENT SCREEN SCORE SHEET

NAME: _____ DATE: _____ DOB: _____

ADDRESS: _____

CITY, STATE, ZIP: _____ PHONE: _____

SCHOOL/AFFILIATION: _____

HEIGHT: _____ WEIGHT: _____ AGE: _____ GENDER: _____

PRIMARY SPORT: _____ PRIMARY POSITION: _____

HAND/LEG DOMINANCE: _____ HAND LENGTH: _____ PREVIOUS TEST SCORE: _____

TEST		RAW SCORE	FINAL SCORE	COMMENTS
DEEP SQUAT				
ANKLE CLEARING TEST	L +/-			
	R +/-			
LOWER BODY MCS	L			Asymmetry:
	R			Foot Length:
SHOULDER MOBILITY	L			
	R			
SHOULDER CLEARING TEST	L +/-			
	R +/-			
	R +/-			
ACTIVE STRAIGHT LEG RAISE	L			
	R			





MODIFIED FUNCTIONAL MOVEMENT SCREEN SCORE SHEET

NAME: _____ DATE: _____ DOB: _____

ADDRESS: _____

CITY, STATE, ZIP: _____ PHONE: _____

SCHOOL/AFFILIATION: _____

HEIGHT: _____ WEIGHT: _____ AGE: _____ GENDER: _____

PRIMARY SPORT: _____ PRIMARY POSITION: _____

HAND/LEG DOMINANCE: _____ HAND LENGTH: _____ PREVIOUS TEST SCORE: _____

TEST		RAW SCORE	FINAL SCORE	COMMENTS
DEEP SQUAT				
ANKLE CLEARING TEST	L			
	+/-			
	R			

LOWER BODY MCS	L			Asymmetry:
	R			Foot Length:
SHOULDER MOBILITY	L			
	R			

SHOULDER CLEARING TEST	L			
	+/-			
	R			
ACTIVE STRAIGHT LEG RAISE	L			
	R			

Appendix 3

FMS Score Sheets

**FMS™**

FUNCTIONAL MOVEMENT SCREEN SCORE SHEET

NAME: _____ DATE: _____ DOB: _____

TIBIA HEIGHT: _____ HAND LENGTH: _____ AGE: _____ GENDER: _____

SCREEN		RAW SCORE	FINAL SCORE	COMMENTS
DEEP SQUAT				
HURDLE STEP	R			
	L			
INLINE LUNGE	R			
	L			
ANKLE CLEARING - PAIN +/-	R			
	L			
ANKLE CLEARING - MOBILITY R-Y-G	R			
	L			
SHOULDER MOBILITY	R			
	L			
SHOULDER CLEARING +/-	R			
	L			
ACTIVE STRAIGHT-LEG RAISE	R			
	L			
TRUNK STABILITY PUSHUP				
EXTENSION CLEARING +/-				
ROTARY STABILITY	R			
	L			
FLEXION CLEARING +/-				
TOTAL SCREEN SCORE				

Raw Score: This score is used to denote right and left side scoring. The right and left sides are scored in five of the seven tests and both are documented in this space.

Final Score: This score is used to denote the overall score for the test. The lowest score for the raw score (each side) is carried over to give a final score for the test. A person who scores a three on the right and a two on the left would receive a final score of two. The final score is then summarized and used as a total score.

Clearing Test: A positive indicates pain. A negative indicates no pain. If pain is present (+), the score for that test would result in a 0. Ankle Mobility Clearing results are recorded as Green (G), Yellow (Y) or Red (R) and does not affect the final score for Inline Lunge.



**FMS™**

FUNCTIONAL MOVEMENT SCREEN SCORE SHEET

NAME: _____ DATE: _____ DOB: _____

TIBIA HEIGHT: _____ HAND LENGTH: _____ AGE: _____ GENDER: _____

SCREEN		RAW SCORE	FINAL SCORE	COMMENTS
DEEP SQUAT				
HURDLE STEP	R			
	L			
INLINE LUNGE	R			
	L			
ANKLE CLEARING - PAIN +/-	R			
	L			
ANKLE CLEARING - MOBILITY R-Y-G	R			
	L			
SHOULDER MOBILITY	R			
	L			
SHOULDER CLEARING +/-	R			
	L			
ACTIVE STRAIGHT-LEG RAISE	R			
	L			
TRUNK STABILITY PUSHUP				
EXTENSION CLEARING	+/-			
ROTARY STABILITY	R			
	L			
FLEXION CLEARING	+/-			
TOTAL SCREEN SCORE				

Raw Score: This score is used to denote right and left side scoring. The right and left sides are scored in five of the seven tests and both are documented in this space.

Final Score: This score is used to denote the overall score for the test. The lowest score for the raw score (each side) is carried over to give a final score for the test. A person who scores a three on the right and a two on the left would receive a final score of two. The final score is then summarized and used as a total score.

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**FMS™**

FUNCTIONAL MOVEMENT SCREEN SCORE SHEET

NAME: _____ DATE: _____ DOB: _____

TIBIA HEIGHT: _____ HAND LENGTH: _____ AGE: _____ GENDER: _____

SCREEN		RAW SCORE	FINAL SCORE	COMMENTS
DEEP SQUAT				
HURDLE STEP	R			
	L			
INLINE LUNGE	R			
	L			
ANKLE CLEARING - PAIN +/-	R			
	L			
ANKLE CLEARING - MOBILITY R-Y-G	R			
	L			
SHOULDER MOBILITY	R			
	L			
SHOULDER CLEARING +/-	R			
	L			
ACTIVE STRAIGHT-LEG RAISE	R			
	L			
TRUNK STABILITY PUSHUP				
EXTENSION CLEARING +/-				
ROTARY STABILITY	R			
	L			
FLEXION CLEARING +/-				
TOTAL SCREEN SCORE				

Raw Score: This score is used to denote right and left side scoring. The right and left sides are scored in five of the seven tests and both are documented in this space.

Final Score: This score is used to denote the overall score for the test. The lowest score for the raw score (each side) is carried over to give a final score for the test. A person who scores a three on the right and a two on the left would receive a final score of two. The final score is then summarized and used as a total score.

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**FMS™**

FUNCTIONAL MOVEMENT SCREEN SCORE SHEET

NAME: _____ DATE: _____ DOB: _____

TIBIA HEIGHT: _____ HAND LENGTH: _____ AGE: _____ GENDER: _____

SCREEN		RAW SCORE	FINAL SCORE	COMMENTS
DEEP SQUAT				
HURDLE STEP	R			
	L			
INLINE LUNGE	R			
	L			
ANKLE CLEARING - PAIN +/-	R			
	L			
ANKLE CLEARING - MOBILITY R-Y-G	R			
	L			
SHOULDER MOBILITY	R			
	L			
SHOULDER CLEARING +/-	R			
	L			
ACTIVE STRAIGHT-LEG RAISE	R			
	L			
TRUNK STABILITY PUSHUP				
EXTENSION CLEARING +/-				
ROTARY STABILITY	R			
	L			
FLEXION CLEARING +/-				
TOTAL SCREEN SCORE				

Raw Score: This score is used to denote right and left side scoring. The right and left sides are scored in five of the seven tests and both are documented in this space.

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**FMS™**

FUNCTIONAL MOVEMENT SCREEN SCORE SHEET

NAME: _____ DATE: _____ DOB: _____

TIBIA HEIGHT: _____ HAND LENGTH: _____ AGE: _____ GENDER: _____

SCREEN		RAW SCORE	FINAL SCORE	COMMENTS
DEEP SQUAT				
HURDLE STEP	R			
	L			
INLINE LUNGE	R			
	L			
ANKLE CLEARING - PAIN +/-	R			
	L			
ANKLE CLEARING - MOBILITY R-Y-G	R			
	L			
SHOULDER MOBILITY	R			
	L			
SHOULDER CLEARING +/-	R			
	L			
ACTIVE STRAIGHT-LEG RAISE	R			
	L			
TRUNK STABILITY PUSHUP				
EXTENSION CLEARING	+/-			
ROTARY STABILITY	R			
	L			
FLEXION CLEARING	+/-			
TOTAL SCREEN SCORE				

Raw Score: This score is used to denote right and left side scoring. The right and left sides are scored in five of the seven tests and both are documented in this space.

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**FMS™**

FUNCTIONAL MOVEMENT SCREEN SCORE SHEET

NAME: _____ DATE: _____ DOB: _____

TIBIA HEIGHT: _____ HAND LENGTH: _____ AGE: _____ GENDER: _____

SCREEN		RAW SCORE	FINAL SCORE	COMMENTS
DEEP SQUAT				
HURDLE STEP	R			
	L			
INLINE LUNGE	R			
	L			
ANKLE CLEARING - PAIN +/-	R			
	L			
ANKLE CLEARING - MOBILITY R-Y-G	R			
	L			
SHOULDER MOBILITY	R			
	L			
SHOULDER CLEARING +/-	R			
	L			
ACTIVE STRAIGHT-LEG RAISE	R			
	L			
TRUNK STABILITY PUSHUP				
EXTENSION CLEARING +/-				
ROTARY STABILITY	R			
	L			
FLEXION CLEARING +/-				
TOTAL SCREEN SCORE				

Raw Score: This score is used to denote right and left side scoring. The right and left sides are scored in five of the seven tests and both are documented in this space.

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