

1. FMR (Functional Manual Reaction) is the use of functionally consistent drivers to produce the desired motion and **Chain Reaction** we want
2. Tweakology is the exploitation of drivers, in order to create the desired **Chain Reaction** affect within the context of the desired function
3. To be effective at FMR, we must first understand the biomechanics of function
4. The number one goal of manual therapy is to enhance function and to enhance life
5. FMR, by definition, must be transitioned into a Homeworkable program
6. FMR creates not only the appropriate mobility within the context of function, it also begins to create the stability . . . therefore creating Mostability
7. We need to have a grasp of the real motion of the bones and the relative motion between the bones in order to effectively apply functional manual reaction
8. The importance of analyzing hip function with everyone for everything
9. Functional analysis with gait, balance reach, excursion, lunges and FMR techniques
10. The specific FMR techniques for the hips in all three planes
11. Utilizing the **Chain Reaction** approach through other parts of the body to create appropriate FMR to specific regions of the body in all three planes
12. "Getting it to happen" with our hands and turning our patients loose to do it on their own, consistent with the desired **Chain Reaction** and function
13. Understanding how to transform our understanding of function into an effective FMR analysis of walking, throwing and all forms of function
14. The use of box loaded golf drills in reinforcing FMR mostability techniques
15. Research reveals the evidence to support the need for FMR for the hips as they relate to the **Chain Reaction** of the rest of the body



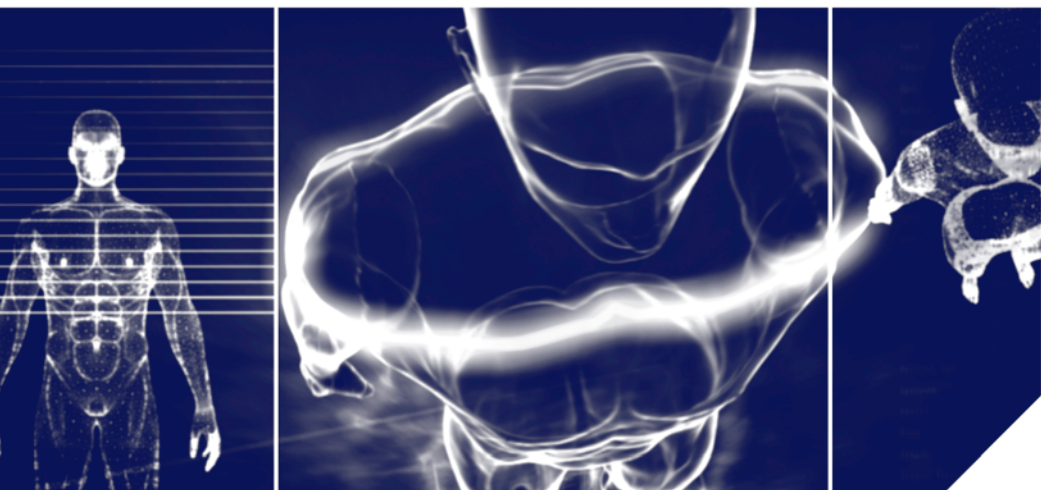
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v3.1 FUNCTIONAL MANUAL REACTION (FMR) The Hips

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OBJECTIVES FOR FUNCTIONAL MANUAL REACTION OF THE HIPS FUNCTIONAL GUIDE

To assimilate up-to-date information and knowledge about functional manual reaction techniques of the hip. To learn how to apply effective functional techniques when testing and training the hips.

To understand and appreciate the tri-plane **Chain Reaction** principles as they apply to the hip.

HOW TO USE THIS FUNCTIONAL GUIDE

This *functional guide* can be used as a convenient summary of the program's contents to take with you after viewing. You can also use this guide as a notebook; space has been provided so that you can make notes on relevant tracts as you watch them.



FUNCTIONAL
Video Digest Series

STRATEGY 1

Strategically realizing the power and wisdom of FMR is within the body, with the hands being the compliment

STRATEGY 2

Strategically taking advantage of the functional drivers of gravity, ground reaction force, momentum and muscle forces

STRATEGY 3

Strategically understanding the biomechanics of all forms and function in order to implement a FMR program

STRATEGY 4

Strategically appreciating real and relative motions of bones with respect to function

STRATEGY 5

Strategically engaging FMR tweaks of planes, range, force, speed, feedback, stability and reaction

STRATEGY 6

Strategically analyzing for FMR rehabilitation with a functional analysis profile including FMR analysis



STRATEGY 7

Strategically executing the FMR techniques for the hip

STRATEGY 8

Strategically transforming FMR mobility into functional stability

STRATEGY 9

Strategically designing training and conditioning programs to enhance our FMR techniques

STRATEGY 10


Strategically empowering our patients and clients to take advantage of their gained function

STRATEGY 11

Strategically integrating our FMR abilities into the entire **Chain Reaction**

STRATEGY 12

Strategically gleaned from research direct clinical applications to restore function through FMR techniques



FMR (Functional Manual Reaction) is the use of functionally consistent drivers to produce the desired motion and **Chain Reaction** we want

FMR utilizes the science of tweakology

Tweakology is the exploitation of drivers, in order to create the desired Chain Reaction affect within the context of the desired function

To be effective at FMR, we must first understand the biomechanics of function

The number one goal of manual therapy is to enhance function and to enhance life

FMR takes advantage of biomechanically consistent drivers

Biomechanical drivers include:

- gravity
- ground reaction force
- momentum
- muscle function forces
- the *Chain Reaction* result of the functional task

The application of the FMR techniques are simple . . . the mental configuration to figure out what simply to do is complex

With FMR our hands become extremely important in the analysis, rehabilitation and training and conditioning of our patients and clients

FMR, by definition, must be transitioned into a Homeworkable program

FMR creates the same reaction in the proprioceptors that the proprioceptors get during function

Understanding what "turns on" the proprioceptors, and how they get turned on is a key strategy of FMR

FMR creates not only the appropriate mobility within the context of function, it also begins to create the stability . . . therefore creating Mostability

FMR provides for the ideal transition into transformation



Additional environments must be designed in order to effectively create functional stability

FMR takes advantage of integrated isolation . . . while the body is integrated within its functional positions and motions we isolate segments or a segment to facilitate its pure function within the integrated system

Description of the five ways to produce motion

- Proximal bone moves, distal bone does not
- Distal bone moves, proximal bone does not
- Proximal bone moves faster than the distal bone in the same direction
- Distal bone moves faster than the proximal bone in the same direction
- Proximal bone moves in one direction and the distal bone moves in the opposite direction

Description of both bone motion in the sagittal, frontal and transverse planes

Front leg tri-plane loading of the hip

Back leg tri-plane loading of the hip

We need to have a grasp of the real motion of the bones and the relative motion between the bones in order to effectively apply functional manual reaction

Our FMR question is: "If it ain't got it . . . how does function give it to it?"

Our hands say: "Authentically create it but let me help you"

Discussion of tweakology with FMR:


Plane tweaks, range tweaks, force tweaks, speed tweaks, feedback tweaks, stability tweaks and reaction tweaks

With FMR our hands become a compliment to function

Our hands essentially create a functional attractor well

If there ever was a neuromusculoskeletal brain in the body, it's the butt

The beauty of FMR is that it is a functional blended spectrum



Introduction of Dr. Dave Tiberio

The importance of analyzing hip function with everyone for everything

Everything has to “go through” the hips

The hip truly is the “causative cure”

Description of tweaking the gait as an initial part of our analysis profile

Sagittal plane gait tweaks

Frontal plane gait tweaks

Transverse plane gait tweaks

With the analysis of gait we are simply looking for symptoms . . . we are looking to see how the butt feeds the body and how the body feeds the butt

Description of balance reaction tests with leg drivers in all three planes of motion

Starting with toe touch and then pure balance reach test

Description of balance reach tests with arm drivers in all three planes of motion

Utilizing both arms and one arm

Description of specific hip excursion tests in all three planes of motion

Looking at quantitative as well as qualitative motion

Quantitating with the use of the Functional 3D Testing System™

Combining an excursion test with a reach test in the same plane or in the other two, looks more specifically at the tri-plane function of muscles and joints



Discussion of non-weightbearing hip tests

Discussion of three dimensional lunge tests . . . not only for distance but for reps. and for time

With lunge tests we are looking at both hips at the same time

Description of lunge tests with three dimensional hand drivers

Analysis within the TrueStretch™

Description of the **Chain Reaction** of hip adduction

Positioning for the function of gait and then utilizing various drivers to create the desired motion to properly analyze the isolated motion within an integrated position of all joints throughout the entire body

With FMR, the tests immediately becomes the exercise and the exercise becomes the test

Transitioning into the FMR techniques



FMR Techniques of the Hips

Functional Hip Adduction

- Within the function of gait
- Front leg tri-plane loading
- Opposite arm driver
- Analysis of pelvis
- Pelvis moving faster than the femur
- FMR driving pelvis in frontal plane with FMR deceleration of femur in frontal plane
- FMR transverse plane driving the pelvis consistent with hip adduction
- FMR transverse plane driving of the femur consistent with hip adduction
- Discussion of ground reaction force tweaks

Transitioning from FMR to homeworkable function

- Becoming significantly insignificant to our patients
- Driving with opposite leg with FMR through pelvis and femur
- Driving with the same side leg with FMR through the pelvis and femur with additional arm drivers
- Excursion exercises with various drivers and tweaks
- Utilizing the new function in function
- Progressing to step down and return with tweaks

Functional Hip Internal Rotation

- “Getting it” is functionally dependent
- Different types of internal rotation
- Internal rotation specific to the front leg in gait
- Positioning from the bottom up and top down
- FMR of femur faster than pelvis
- Description of pelvis escaping
- FMR decelerating the pelvis in the transverse plane
- Internal rotation specific to the front leg in golf
- Motion of the trunk with arm drivers
- FMR of pelvis and femur in the transverse plane with femur faster than pelvis
- Internal rotation specific to the back leg in gait
- Position leg back
- Utilization of arm driver
- FMR of pelvis and transverse plane over the femur
- FMR of femur to decelerate the femur while it is going through external rotation
- FMR with analysis



- Discussion of ground reaction force tweaks
- Discussion of internal rotation with lifting
- Position for the lift
- Opposite arm driver
- FMR pelvis in transverse plane with FMR femur in sagittal plane
- Pelvis in going more than the femur driven by the arm to lift up the object

Functional Hip Extension

- Understanding three dimensional hip extension
- Positioning back leg for gait
- Back leg toe in tweak
- Bilateral arm sagittal plane driver
- FMR pelvis and FMR femur in sagittal plane
- FMR pelvis in sagittal plane and transverse plane
- Transition from mobility into stability . . . mostability
- Creating dynamic motion in all three planes
- Use of the TrueStretch™
- Position of front leg and back leg
- 3D arm drivers
- Front leg knee flexion drive
- Frontal plane, transverse plane, sagittal plane pelvis drive
- The integration of the **Chain Reaction** of functionally consistent motion
- FMR in the TrueStretch™
- The need for a stabilized environment

Functional Hip Flexion

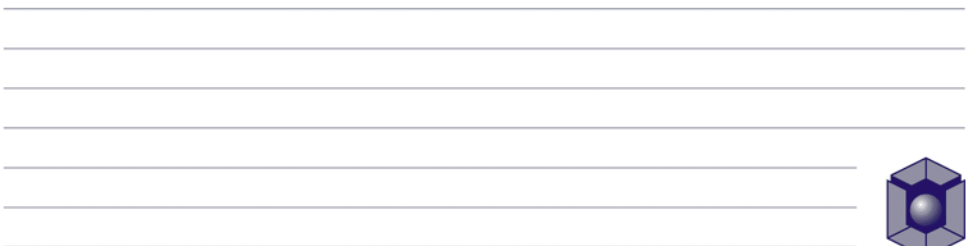
- Biomechanical analysis of hip flexion
- Position of front leg
- FMR pelvis and femur in the sagittal plane . . . tweaking also the transverse and frontal planes consistent with front leg biomechanics

We need to know function first and let the hands become the compliment

Understanding what we do with our hands in all three planes is the essential ingredient to FMR

- Utilizing the **Chain Reaction** approach through other parts of the body to create appropriate FMR to specific regions of the body in all three planes

A special thanks to Dr. David Tiberio



A SPECIAL THANKS TO SCOTT FAUST FOR AN OPPORTUNITY TO TRAIN AND CONDITION AND TRANSFORM WITH HIM

We want to “turn the butt on” . . . we want to turn the motor on.

Discussion of FMR of the hips

We have to create stability of the hips as we concurrently create mobility through an FMR training and conditioning approach

The 3D Lunge Matrix™

The 3D Lunge Matrix™ with arm drivers

Making it functional for the function

Balance reaction exercises with arm drivers

“Getting it to happen” with our hands and turning our patients loose to do it on their own consistent with the desired **Chain Reaction** and function

3D Box Step Downs With Return

- Left anterior step down and return
- Left posterior step down and return
- Looking at three dimensional pelvis motion and trunk motion
- Left medial step down and return
- Looking at three dimensional trunk motion
- FMR in the transverse plane with the right shoulder . . . tweaking in and tweaking out



- Left anterior lateral step down and return
- Looking at hip motion through the pelvis and femur
- FMR of the pelvis and femur
- Left posterior medial rotational step down and return
- Left anterior lateral rotational step down and return
- Analysis and FMR of femur and pelvis and trunk
- “Lazy man’s” FMR
- Left posterior step down and return
- FMR of the trunk, pelvis and femur
- Left posterior step down and return with bilateral overhead reach

3D Box Lunges™

- Right anterior lunge from the box
- Right posterior lunge from the box
- Right lateral lunge from the box
- Right posterior lateral rotational lunge from the box
- Right anterior medial rotational lunge from the box
- Discussion of distance, height and arm driver tweaks
- FMR during the box lunges
- Lunges can be done from the box and to the box in all three planes



Transformation of our biomechanical knowledge of hip function with respect to the golf swing and all other forms of function

FMR analysis of the pelvis and the femur and the rest of the **Chain Reaction** within that function

FMR analysis in all three planes

FMR of pelvis relative to the back leg in golf

FMR of the femur relative to the front leg in golf


FMR of the hips in the backswing and the follow through

Understanding how to transform this to FMR analysis of walking, throwing and all forms of function

Golf Range Drill

Back Leg Box Load

- Frontal plane wide base
- Frontal plane narrow base
- Sagittal plane flexion
- Sagittal plane extension
- Transverse plane external rotation
- Transverse plane internal rotation




Front Leg Box Load

- Frontal plane wide base
- Frontal plane narrow base
- Sagittal plane flexion
- Sagittal plane extension
- Transverse plane external rotation
- Transverse plane internal rotation

FMR of the hip . . . “ABCD goldfish, LMR no goldfish, OSMRD goldfish, OICD goldfish”

Training and conditioning is getting the hips to do even more of what we want during the functional activity that we want it

A special thanks to Scott Faust



RESEARCH ROUNDTABLE WITH DR. DAVID TIBERIO

Studies referred to:

Watelain E, Dujardin F, Babier F, Dubois D, Allard P, Pelvic and lower limb compensatory action of subjects in an early stage of hip osteoarthritis. Archives of Physical Medicine and Rehabilitation. 2001; 82:1705-1711.

Research relative to FMR of the hips

The need to know function and the need to know real and relative motion

Review of previous research revealing the cause and effect of hip dysfunction contributing to low back pain

The cycle of dysfunction feeding pain and pain feeding dysfunction and dysfunction leading to future pain

Understanding the “chicken or the egg”

Understanding decreased stride length and it’s relationship to early degenerative changes without the driver of pain

Stride length as revealed in all three planes

The functional attractor well causing a groove degenerative change in the acetabulum and on the femoral head

Functional tri-plane loading and exploding

Looking at the second phase of loading . . . in the study the significant decrease in the tri-plane load and therefore a significant decrease in the tri-plane unload

FMR facilitating the load



Proprioceptive neuropathy precedes osteoarthritic changes

Limited motion creates proprioceptive neuropathy

Side with the early arthrosis demonstrated a significant change in the power of the knee

Revealing the **Chain Reaction** of hip dysfunction

Discussion of frontal plane ankle changes and the understanding of the “chicken or the egg”

With the **Chain Reaction** functional approach we don't need to differentiate between the chicken or the egg because we will treat both concurrently through a **Chain Reaction** functional approach . . . “by frying the chicken and scrambling the egg”.

Our hands do have a subtle yet significant power to create function . . . to facilitate appropriate relative motion and to turn on proprioceptors to facilitate an enhanced tri-plane load in order to ultimately create an enhanced tri-plane unload to contribute to the function needed

We have to have an intact proprioceptive system, an intact muscular system, an intact capsular system and an intact osseous system throughout the entire **Chain Reaction**

These studies reinforce the common sense and the wisdom of the body

A special thanks to Dr. David Tiberio for sharing such relevant research articles

