

1. *"When in doubt go to the point of transformation and understand what is really happening at that time in all three planes"*
2. The drivers of FMR . . . gravity, ground reaction force, massive momentum, purposeful intent, reaction, the hands and feet
3. The initial part of transformation is called distal deceleration loading
4. The last critical piece of transformational load . . . proximal acceleration loading
5. *"We have to spend more time proprioceptively sequencing and subconsciously driving to get done what we are after"*
6. The hands become powerful because of our functional biomechanical thought process
7. The whole idea of loading is to get to the point of transformation where the critical mass of strength occurs
8. The name of the game is that we have the confidence that our patient's home program will facilitate ongoing functional improvement
9. Distal deceleration and proximal deceleration are the bookends of transformation . . . the ultimate point of loading
10. You have to understand the function of biomechanics first before you feel that which you should feel or do feel



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v4.2 FUNCTIONAL MANUAL REACTION (FMR)

The Shoulder

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OBJECTIVES FOR FUNCTIONAL MANUAL REACTION OF THE SHOULDER FUNCTIONAL GUIDE

To assimilate up-to-date information and knowledge about FMR of the shoulder. To learn how to apply effective functional techniques when testing, training, and rehabilitating using FMR of the shoulder.

To understand and appreciate the tri-plane **Chain Reaction™** principles as they apply to FMR of the shoulder.

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 appreciating the miracle of the shoulder and the rest of the body that allows for function and fun

STRATEGY 2


Strategically comprehending the points of transformation for all forms of shoulder function

STRATEGY 3

Strategically discovering distal deceleration and proximal acceleration loading of the shoulder

STRATEGY 4

Strategically identifying the critical points of transformation throughout the entire **Chain Reaction™**



STRATEGY 5

Strategically analyzing the six vectors of shoulder function

STRATEGY 6

Strategically facilitating all the drivers of functional manual reaction to enhance function

STRATEGY 7


Strategically realizing the importance of segmental sequencing

STRATEGY 8

Strategically rehabilitating and training at the point of transformation

STRATEGY 9

Strategically taking advantage of research to validate our functional approach



Once again thankful for Dave's valuable assistance

Some times we try to out think function itself

How is it really happening and does it make sense the body would do it that way?

If we are going to facilitate function with our Functional Manual Reaction (FMR) techniques . . . if we are going to take advantage of the things that cause function . . . we really need to understand the function

"When in doubt go to the point of transformation and understand what is really happening at that time in all three planes"

Looking at sequencing of the segments of the body in all three planes within the movement pattern

Looking at sequencing that gets us to the point of transformation and the sequencing that occurs at the point of transformation

In the upper extremity, most often the role of the shoulder is to allow the hand to do something

The drivers of FMR . . . gravity, ground reaction force, massive momentum, purposeful intent, reaction, the hands and feet

When we use FMR, we first want to create a load

The more the chain of the body we can get effectively involved, the more success we create

Integrated isolations, although functional, create greater functional difficulty

Facilitating the peltrunkula phenomenon . . . the tri-plane load of the pelvis creates a tri-plane load of the trunk, which creates a tri-plane load of the scapula in order to facilitate the transformational load at the shoulder

Understanding the strategy of getting everything involved and then logically and functionally tweaking out specific joint segments and planes

Facilitating a load through the hand to the humerus into the scapula and through the body to the scapula

"Make sure the things that feed the shoulder are feeding the shoulder"

Take advantage of our previously described FMR techniques throughout the entire chain of the body

The value of proprioceptive stimulants in FMR



The initial part of transformation is called distal deceleration loading

Understanding proprioceptive loading at the end of the spectrum

Movement is what tells the proprioceptors to tell the muscles what to do

With distal deceleration loading both bones are going in the same direction with relative rotation occurring because the distal segment is going faster

With the distal segment going faster the proprioceptors excite the system to prepare for transformation . . . a change in direction

The last critical piece of transformational load . . . proximal acceleration loading

With proximal acceleration loading we are still in a loading phase in the distal parts of the chain with unloading occurring in the proximal parts of the chain

Looking at other parts of the body . . . the posterior tib with front leg loading

- Distal deceleration loading with calcaneal eversion
- Proximal acceleration loading with femoral internal rotation with the initiation of swing phase with the opposite leg

Looking to the mother ship . . . the storehouse of power

Transformational loading is understanding sequencing

"We have to spend more time proprioceptively sequencing and subconsciously driving to get done what we are after"

With functional manual reaction . . . allowing our hands to become the subtle drivers to get the right sequence occurring between the segments in all three planes of motion

The hands become powerful because of our functional biomechanical thought process

Allowing the hands to subtly drive and to constantly assess

Understanding the why to the what as we create **Chain Reaction™** environments for evaluation, FMR techniques, and exercises

Our challenge, within our patient, within the form of function we want them to get better at, within their success, within their symptoms and dysfunctions is to determine what is the most functional way to facilitate proximal acceleration at the critical point of transformation

Start with success and under functional control and progress to get our patients to be able to create their own proprioceptive control



Sincere appreciation for Mike Howe . . . Mike has the passion and gift of coaching

Insuring healthy, safe, productive and powerful shoulders

Discussion of initiating our FMR techniques with a comprehensive evaluation and assessment

Applying the concept of distal deceleration loading and proximal acceleration loading to our FMR techniques

Decide on what planes to attack first

- Positioning for sagittal plane distal deceleration loading and accessing foot position, the hip, the scapula and the humerus
- Facilitating a sagittal plane pelvic drive

Understanding the reciprocal nature of loading

- Facilitating posterior drive of the scapula with a subtle load also to the humerus to get the distal deceleration load
- Positioning for the sagittal plane proximal acceleration load
- Facilitating the posterior drive of the pelvis for the proximal acceleration load
- Facilitating a posterior drive of the opposite arm for the proximal acceleration load

- Positioning for the frontal plane distal deceleration load and accessing the hip and the scapula load
- Accessing distal deceleration loading
- Facilitating frontal plane pelvic drive and frontal plane scapula drive with distal deceleration loading

Always analyzing with our FMR approach

- Positioning for the frontal plane proximal acceleration load
- Facilitating frontal plane pelvic drive to facilitate the proximal acceleration load
- Facilitating frontal plane pelvic and scapula drive
- Facilitating frontal plane opposite hand drive
- Facilitating frontal plane opposite scapula drive



- Positioning for transverse plane distal deceleration loading and assessing the hip and the scapula and even the subtalar joint
- Facilitating transverse plane thoracic drive and transverse plane scapula drive
- Facilitating transverse plane scapula drive with anterior approach
- Facilitating transverse plane scapula drive with humeral control
- Positioning for the transverse plane proximal acceleration load
- Facilitating transverse plane pelvis drive for the proximal acceleration load
- Facilitating transverse plane scapular drive for the proximal acceleration load

Functional slide and glide with the scapula and humerus going in the same direction with the scapula going faster providing a proximal acceleration transformational load

- Facilitating an opposite hand transverse plane drive for the proximal acceleration load

FMR needs to be subtle

Working at the tough ends of the sagittal planes, frontal plane and transverse planes

Strategically assessing and treating “the other ends” of each of the planes first

- Demonstrating the sagittal plane distal deceleration position and load
- Demonstrating the sagittal plane proximal acceleration position and load

If we make the fatal error of thinking treatment only and not constantly assessing, we are dead in the water

- Demonstrating the frontal plane distal deceleration position and load
- Demonstrating the frontal plane proximal acceleration position and load
- Demonstrating the transverse plane distal deceleration position and load
- Demonstrating the transverse plane proximal acceleration position and load

Now that we have created functional mobility we need to create functional stability . . . mostability

Discussion of lunge matrix with reaches and a proper functional progression after the loading path is clear and the distal deceleration and proximal acceleration sequencing is proprioceptively intact for the point of transformation




Debrief with Bob Wiersma, Executive Director, Functional Rehabilitation Network

- FMR conceptually . . . “loaders and floaters”
- We need to look at who is driving who
- We want to use consistent drivers of function with our FMR approach
- Understanding what is unique about each joint
- Using the driver of gravity first
- Go from our foundation of what we know is happening to build towards what we want to have happen
- The priority is the sequencing of the segments in the system
- Understanding the mental gymnastics of FMR
- The more acute the shoulder the further away we can stay from the shoulder



- Looking at the **Chain Reaction™** loading of the activity . . . can the body get into the critical point of transformation effectively?
- The whole idea of loading is to unload and to explode
- The whole idea of loading is to get to the point of transformation where the critical mass of strength occurs
- Our first goal is to see how much we can get our patients to do themselves
- The name of the game is that we have the confidence that our patient's home program will facilitate ongoing functional improvement
- Distal deceleration and proximal deceleration are the bookends of transformation . . . the ultimate point of loading
- Nothing in function is new . . . just our understanding of it

Special thanks to Bob Wiersma



G2's opportunity to work out with Trevor Faust

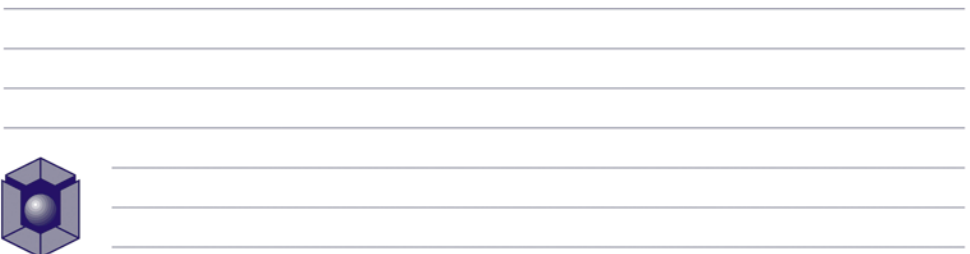
3D Coreball shoulder loading

3D Distal Deceleration Loading Matrix

- Right right rotational mini lunge with left right rotational shoulder reach
- Left left rotational mini lunge with left left rotational shoulder reach
- Right right lateral mini lunge with left right lateral knee reach
- Left left lateral mini lunge with left left lateral overhead reach
- Left anterior mini lunge with left posterior knee reach
- Left posterior mini lunge with left posterior overhead reach

3D Proximal Acceleration Loading Matrix

- Right right rotational lunge with left right rotation shoulder reach with transformational left left rotational lunge shuffle step
- Left left rotational lunge with left left rotational shoulder reach with transformational right right rotational lunge shuffle step
- Right right lateral lunge with left right lateral knee reach with transformational left left lateral lunge shuffle step
- Left left lateral lunge with left left lateral overhead reach with transformational right right lateral lunge shuffle step
- Left anterior lunge with left posterior knee reach with transformational right posterior lunge shuffle step
- Left posterior lunge with left posterior overhead reach with transformational right anterior lunge shuffle step



- Right anterior lunge with left right rotational knee reach
- Right anterior lunge with left right rotational knee reach with transformational left left rotational lunge shuffle step
- Left left rotational lunge with left overhead left rotational reach
- Left left rotational lunge with left overhead left rotational reach with transformational right anterior lunge shuffle step

Floating into a bookend pattern exercise

Discussion of the tweak of weight and speed

The beauty of Chain Reaction™ training and conditioning

G2 expressing his appreciation and admiration of Trevor Faust



Applying our transformational power

Understanding the points of transformation with all functional activities including the golf swing

Clearing the proximal acceleration loading of the shoulder for an effective golf swing

"After a proper three dimensional golf specific integrated isolation warm-up".


The Two Club Drive Drill

- Frontal plane distal deceleration at each end of the spectrum
- Transverse plane distal deceleration at each end of the spectrum
- Sagittal plane distal deceleration at each end of the spectrum

The One Club With Opposite Hand Drive Drill

- Frontal plane into the backswing
- Frontal plane into the follow-through
- Transverse plane into the backswing
- Transverse plane into the follow-through

"Releasing the hounds from the ground up".



Distal Stabilization Tree Drill

- Position left hand into point of backswing transformation with transverse plane pelvis and opposite hand drive
- Position right hand into point of backswing transformation with transverse plane pelvis and opposite hand drive
- Position left hand into point of backswing transformation with frontal plane pelvis and opposite hand drive
- Position right hand into point of backswing transformation with frontal plane pelvis and opposite hand drive
- Position right hand into point of follow-through transformation with pelvis and opposite hand transverse plane and frontal plane drive
- Position left hand into point of follow-through transformation with pelvis and opposite hand transverse plane and frontal plane drive

Discussion of distal deceleration and proximal acceleration to provide for a powerful unloading

Knee Release Drill

If we understand how the links of the body function and how they sequentially load and unload, we can take advantage of this transformational understanding to facilitate all forms of function



RESEARCH ROUNDTABLE WITH DR. DAVID TIBERIO

Lukasiewicz AC, McClure P, Michener L, Pratt N, Sennett B. Comparison of 3-dimensional scapular position and orientation between subjects with and without shoulder impingement. *J Orthop Sports Phys Ther.* 1999, 29 (10): 574-83.

Ludewig PM, Cook TM. Alterations in shoulder kinematics and associated muscle activity in people with symptoms of shoulder impingement. *Phys ther.* 2000 80 (3): 276-291.

Hebert LJ, Moffet H, McFayden BJ, Dionne CE. Scapular behavior in shoulder impingement syndrome. *Arch Phys Med Rehabil.* 2002, 83(1): 60-9.

The key to the shoulder and the rest of the body is sequencing

The seeds for impingement and shoulder symptoms are altered sequencing

Making sure we have seeds for flowers instead of weeds

Alteration in scapular kinematics

How gravity creates seeds for weeds

The problem of the humerus moving first

The train (chain) analogy

The need for FMR to facilitate the sagittal plane rotation while concurrently inhibiting upward translation



Who turned the serratus anterior off through the bad seeds of the weeds that were planted somewhere in the body

The first suspect is what motion and in what plane did it not load

The need to look elsewhere when something is messing with the scapula

The root of the weeds are not at the site of the symptoms

Get the deep rooted weeds out of there

Take advantage of analysis with ongoing analysis with our FMR techniques

You have to understand the function of biomechanics first before you feel that which you should feel or do feel

Discussion of too early proximal acceleration before the entire chain takes advantage of distal deceleration loading

Example of the root of the weed being at the subtalar joint, causing the thrower "to open up too early", causing premature proximal acceleration

We have to look at the entire garden

A special thanks to Dr. Dave Tiberio

