1. The Matrix is the potential of the body to function
2. Our “envelope of function” can reveal an empty envelope or a full envelope
3. The **3D Matrix System** provides limitless ways to analyze, rehabilitate, train and condition
4. Our peaks of potential are dependent upon a stronger and larger 3D Matrix foundation of function
5. The **Matrix System** creates simplicity within the complexity of function
6. The **Matrix System** is a systematic way to make sure we are not missing something
7. We can *provoke potential* by analyzing what is inhibiting potential
8. With the **Matrix System** we analyze throughout the entire chain of the body, along all vectors and at all heights, on both sides from the top down and the bottom up
9. Based on thresholds of success we determine what components of what Matrixes we utilize
10. Our gifts to our patients and our clients are the gifts of their own personal Matrix that they can do themselves
11. Positioning our patients and clients for success is the key to provoking potential and encouraging transformation
v4.5 THE MATRIX SYSTEM
Functioning in 3D
By: Gary Gray, PT

OBJECTIVES FOR THE MATRIX SYSTEM FUNCTIONAL GUIDE

To assimilate up-to-date information and knowledge about the Matrix System.

To learn how to apply effective functional techniques when testing, training, and rehabilitating using the Matrix System.

To understand and appreciate the tri-plane Chain Reaction™ principles as they apply to the Matrix System.

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.

TAPE CONTENTS    PAGE
Contents / Objectives 1
Functional Strategies 2
Functional Understanding 4
Functional Analysis 6
Functional Rehabilitation 8
Functional Training 10
Functional Transformation 12
Functional Fun 14
Key Messages / Information 16
Introduction by Doug Gray

The Matrix of Doug’s chocolate cherry cheesecake

Passing on what Corby taught Doug

• The Matrix System of cooking
• The Matrix System of Faith
• The Matrix System of Function

STRATEGY 1
Strategically appreciating the power behind the Matrix System

STRATEGY 2
Strategically documenting the 3D functional environment

STRATEGY 3
Strategically taking advantage of the common threads of function

STRATEGY 4
Strategically building a successful Matrix foundation of function
STRATEGY 5
Strategically analyzing and rehabilitating within a structured Matrix System

STRATEGY 6
Strategically designing effective personal Matrix programs

STRATEGY 7
Strategically integrating Matrixes within other Matrixes

STRATEGY 8
Strategically transforming a Matrix foundation into a Matrix skill

STRATEGY 9
Strategically utilizing the Matrix System to interpret and take advantage of relevant research
The power behind the **Matrix System**
Bringing in a three dimensional sharing between Dr. David Tiberio, Bob Wiersma and Gary
Utilizing our own triangle of friendship and knowledge to share the **Matrix System**

The original creation of the **Matrix System** . . . to be able to lift at all levels, and along all vectors, in all three planes

The **Matrix System** started with an emphasis on strength . . . but now involves flexibility, cardiovascular, balance, agility . . . essentially all aspects of function and all activities. The Matrix is the potential of the body to function.

Plugging a form of function or type of function into the **Matrix System**

The importance of heights within the Matrix configuration

Our “envelope of function” . . . our sphere of function

Our 3D functional environment is the combination of all heights and all vectors

Our “envelope of function” can reveal an empty envelope or a full envelope

Holes in our infrastructure . . . potential vulnerabilities

Going after the skill without developing the foundation and the Matrix infrastructure

Building an ability to create flexibility in the functional system . . . to accomplish a goal in many different ways . . . not getting caught in an attractor well

The analogies of music and art provide an insight into the richness of the **Matrix System**

The seven notes of music and the three primary colors in art

What functional things have we not accomplished yet because we have not developed the Matrix foundation of function?

The **3D Matrix System** providing limitless ways to analyze, rehabilitate, train and condition

Functionally experiencing and enjoying the **Matrix System**

What does the **Matrix System** do? . . . Allows us to see all of the potential and deficits of our clients . . . it shows us everything.

The pyramid of function . . . technique at the top, skill underneath technique, fitness underneath skill, with function as the foundation of the pyramid

Provoking potential . . . the power behind the **Matrix System**

Our peaks of potential are dependent upon a stronger and larger 3D Matrix foundation of function
Sagittal plane - anterior and posterior vectors
Frontal plane - right lateral and left lateral vectors
Transverse plane - right rotational and left rotational vectors
Heights - floor, ankle, knee, hip, shoulder, overhead

If function is millions and millions of grains of sand, then we as experts in function need to understand all the grains of sand

Taking advantage of the common threads . . . the functional palettes of motion and the strategies of function
Strategy of always building upon the successful foundation
Strategy of not getting up into the skill and technique without a strong foundational matrix of function and fitness

Where do you start . . . understanding the Points of Transformation for the needed and desired activity.
Analyzing the functional substance at the Point of Transformation
The **Matrix System** creates simplicity within the complexity of function
The **Matrix System** is a systematic way to make sure we are not missing something

The Homeworkable strategy . . . what components of what Matrixes are best for my patient and client . . . designing a personal Matrix
The **Matrix System** is dynamic, not static . . . it is constantly being tweaked and customized

**Our morning devotional**
- NOOMA by Rob Bell . . . a short film that “touches on issues that we care about, that we want to talk about, and it comes in a way that fits our world”
- Rob Bell has the gift of communicating “complex spiritual things and transforming them into something we can understand and appreciate and hopefully take advantage of”.

The **Love Matrix**: the three dimensions of love as described in the Old Testament . . . as originally written in the Hebrew language.
- Raya - Friendship, companionship
- Ahava - Dedicated, commitment
- Dod - Romantic, physical, sexual

Rob provokes the potential of love by putting together the flames of raya, ahava, and dod.
Please check out [www.nooma.com](http://www.nooma.com) to obtain this NOOMA entitled “Flame” and to see clips and get information about other available NOOMAs

The three dimensionality of our jibber jabbering . . . G2 thankful for Dave and Bob
The purpose and passion of provoking potential . . . of encouraging transformation

Provoking potential by analyzing what is inhibiting potential

Embedding and integrating The Matrix System into our analysis system

Looking at the Points of Transformation as we analyze and allow the wisdom of the body to show us its potential

We can subtly, yet powerfully, provoke the Chain Reaction™ we need to see in order to find out how our patient’s body configures the movement

Key question . . . “What is going on with the NeuroMusculoSkeletal system at the Points of Transformation?”

Over the years we have missed a lot of opportunities for the wisdom of our patient’s body to show us what is going on

With the Matrix System we analyze throughout the entire chain of the body, along all vectors and at all heights, on both sides from the top down and the bottom up

How to “navigate around the Matrix”

The Gait Matrix . . . forcing the body to “give up some information”

Balance analysis within the Matrix System

The strategy of what driver or drivers to use

The strategy of toe touch stability

“What they show me dictates what I do next”

“The patient’s response dictates the path”

What to do next . . . think Matrix System

The “memory bag” . . . the envelope and sphere of function
Sticking with the same navigational tool within the **Matrix System**

Plugging lunging into the **Matrix System**
- Anterior and posterior lunging
- Same side lateral and opposite side lateral lunging
- Same side rotational and opposite side rotational lunging

What in the world is going on at the Points of Transformation?

Lunges as a core analysis tool within the **Matrix System**

Combining lunges with arm drivers within the **Matrix System**

With analysis we use the **Matrix System** to lead us quickly to the thresholds of function

The Stretch Matrix . . . using lunge leg drivers and bilateral arm reach drivers within the **Matrix System**

The **Matrix System** gets us to the “giggle quotient” . . . these functional movements may tell us the most

The “giggle quotient” . . . functional instability . . . may be the movements that create injury

The structure of the **Matrix System** is really a “cheat sheet”

Creating stability within the TrueStretch within the **Matrix System**

Functional flexibility is talking to the muscle and asking - “Within the context of what you do in real life, how can I best feed you the stuff that you need to be fed in order to get a better eccentric capacity for a better concentric production of force?” . . . answer from the muscle; “put me into the Matrix . . . matrixize us”

The **Matrix System** . . . a functional and logical system
Unmasking the deficit by combining all three planes and driving from above and below

Using the **Matrix System** to “sniff something out”, the **Matrix System** of tweaking in and tweaking out . . . is dependent upon our in depth knowledge of the biomechanics of function

Using the strategy of the **Matrix System** to determine . . . “Did I make you better or worse?”

Understanding matrix of what our patients and clients need to do and want to do . . . i.e.; the matrix of the function itself

Looking at both sides, top down and bottom up, all six vectors and all heights relative to the desired function

**Provoking potential** to close the gap on gaposis

Thinking of a lifting matrix . . . lunging in all planes and reaching along all six vectors at the various heights

The path of rehabilitation and the path of training and conditioning is not a straight line forward, not a protocol, not an algorithm

Based on thresholds of success we determine what components of what Matrixes we utilize

Our gifts to our patients and our clients are the gifts of their own personal Matrix that they can do themselves

The design of our Functional Manual Reaction techniques are embedded within the **Matrix System**

Our objective functional test on the spot and as a follow up, determines if we are successfully navigating the Matrix

Positioning our patients and clients for success is the key to provoking potential and encouraging transformation

Teaching the foundation of the **Matrix System** to empower our patients and clients
Debrief with Bob Wiersma, Executive Director, Functional Rehabilitation Network

- Getting our arms around function . . . need to give it an organization . . . a Matrix thought process
- We have learned a ton over the last 30 years and prayerfully we will continue to learn more about function
- How we use the **Matrix System** in analysis, rehabilitation, and training and conditioning
- The sequencing of first of all getting to the 3D Points of Transformation . . . functional NeuroMusculoSkeletal flexibility
- Where to go with our **Matrix System** analysis at the Points of Transformation . . . it is driven by what we are after
- Getting to the Points of Transformation of the feet through the **Matrix System** in order to punch better
- Having solid biomechanical consistent nomenclature
- The significant movement tweak of “planes of motion”
- Integrating all the tweaks
- The analogy of jazz and the **Matrix System**
- We want to “jazz up” our patient’s and client’s function
- Giving us opportunities for improvisation
- Getting to the **exercise and activities** and techniques of jazz through the buckets of functional **principles and concepts** and through the buckets of functional **strategies and applications**
Training and Conditioning with Doug Gray

Analysis of the original 3D Dumbbell Matrix . . . taking advantage of mid-range motion within the three planes of motion

The Matrix System . . . allows and encourages the development and growth of function

The structure of the Matrix System
• Three planes of motion . . . sagittal, frontal and transverse
• The vectors of motion . . . anterior, posterior, right lateral, left lateral, right rotational, left rotational
• The heights . . . floor, ankle, knee, hip, shoulder, overhead

Emphasizing the ends of each vector with a range tweak to facilitate an enhanced Point of Transformation

Designing a personal Matrix System . . . identifying the functional emphasis within the desired function

A Matrix within a Matrix, within a Matrix, within a Matrix, within a Matrix

Going through the buffet line of Matrixes in order to come up with a Lift Matrix, Lift with Lunge Matrix, Squat Matrix, Squat Thrust Matrix, and a Push-Up Matrix

The 3D “Dougy” Matrix . . . The 3D “Body Bash” Matrix

Series One
3D Shoulder to overhead alternate dumbbell lift Matrix
• Anterior  • Same side lateral  • Opposite side rotational

3D Hip to shoulder alternate dumbbell lift Matrix
• Anterior  • Same side lateral  • Opposite side rotational

3D Lunge with bilateral dumbbell knee to shoulder lift Matrix
• Anterior  • Same side lateral  • Opposite side rotational

3D Lunge with bilateral dumbbell floor to overhead lift Matrix
• Anterior  • Same side lateral  • Opposite side rotational

3D Normal width squat to squat thrust transition to push-up Matrix
• Neutral  • Right stride  • Left stride  • Neutral rotated in  • Right stride rotated in  • Left stride rotated in
• Neutral rotated out  • Right stride rotated out  • Left stride rotated out
Series Two
3D Shoulder to overhead alternate dumbbell lift Matrix
• Posterior • Opposite side lateral • Same side rotational

3D Hip to shoulder alternate dumbbell lift Matrix
• Posterior • Opposite side lateral • Same side rotational

3D Lunge with bilateral dumbbell knee to shoulder lift Matrix
• Posterior • Opposite side lateral • Same side rotational

3D Lunge with bilateral dumbbell floor to overhead lift Matrix
• Posterior • Opposite side lateral • Same side rotational

3D Narrow width squat to squat thrust transition to push up Matrix
• Neutral • Right stride • Left stride • Neutral rotated in • Right stride rotated in
• Left stride rotated in • Neutral rotated out • Right stride rotated out • Left stride rotated out

Series Three
3D Shoulder to overhead alternate dumbbell lift Matrix
• Anterior to posterior • Same side lateral to opposite side lateral
• Opposite side rotational to same side rotational

3D Hip to shoulder alternate dumbbell lift Matrix
• Anterior to posterior • Same side lateral to opposite side lateral
• Opposite side rotational to same side rotational

3D Lunge with bilateral dumbbell knee to shoulder lift Matrix
• Anterior to posterior • Same side lateral to opposite side lateral
• Opposite side rotational to same side rotational

3D Lunge with bilateral dumbbell floor to overhead lift Matrix
• Anterior to posterior • Same side lateral to opposite side lateral
• Opposite side rotational to same side rotational

3D Wide width squat to squat thrust transition to push up Matrix
• Neutral • Right stride • Left stride • Neutral rotated in • Right stride rotated in
• Left stride rotated in • Neutral rotated out • Right stride rotated out • Left stride rotated out

Painting our own functional picture . . . enhancing the functional picture of our patients and clients

A special thanks to Doug Gray
A joy to be with Doug

Going from the golf course to the hardwood floor

12 years ago, the Doug Gray Lay-Up Drills videotape

Developing the whole system, a Matrix of moves near the basket

**Lunge foot work . . . 3D Lunge Matrix**
- Anterior, posterior
- Same side lateral, opposite side lateral
- Same side rotational, opposite side rotational

Working from the ground up . . . getting the foot work before developing the skill

**Pivot foot work - 3D Pivot Matrix**
- Sagittal plane
- Frontal plane
- Transverse plane
- Mixing the planes up

**Shuffle foot work - 3D Shuffle Matrix**
- Anterior, posterior
- Right lateral, left lateral
- Right rotational, left rotational
Getting the foundation for the skill

- Sagittal plane posterior lunges to prepare for a lay-up
- Frontal plane same side lateral lunge
- Frontal plane opposite side lateral lunge
- Transverse plane same side rotational lunge - back pivot
- Transverse plane opposite side rotational lunge - front pivot
- Transverse plane same side rotational lunge - (back pivot) to a lunge, shuffle, or step in any of the three planes of motion
- Sagittal plane posterior lunge to a transverse plane spin
- Transverse plane same side rotational lunge to an opposite side rotational pivot
- Transverse plane opposite side rotational lunge to an anterior step
- Frontal plane base line shuffle
- 3D razzle dazzle
- 3D Lunge to pivot matrix with the dribble matrix

The Matrix System prepares us for everything . . . gives us the entire arsenal

Functional transformation is looking at what we want to do and utilizing the Matrix System to develop the strategies in order to take advantage of and enjoy all of our abilities and to provoke potential and to encourage transformation

Doug evoking tremendous pride in his dad

To order a copy of the Doug Gray Lay-Up Drills videotape contact Functional Design Systems at 517-266-4653 or visit us online at www.functionaldesign.com.
RESEARCH ROUNDTABLE WITH DR. DAVID TIBERIO


Trying to improve and maintain all forms of function

A basic human function is gait

Older individuals compared with younger individuals on a treadmill, gradually increasing the speed

Findings of seeing a decrease in hip extension with the older population

Findings of those with a history of falling versus those without a history of falling

The correlation of hip extension with hip internal rotation within a three dimensional analysis

The findings of decreased ankle dorsiflexion, increased anterior pelvic tilt in the sagittal plane and increased rotation of the pelvis in the transverse plane

The correlation of decreased hip extension, decreased ankle dorsiflexion, increased pelvic rotation in the transverse plane and the potential of falling
The finding of decreased ankle power

The correlation between the load of the hip and the power of the hip and the load of the ankle and the power of the ankle

Looking at the “second loading phase” of gait as more of a top down influence

The Matrix System involves the planes of motion, the vectors of motion, the heights of motion, as well as the drivers of motion . . . “Who drives who?”

With increased speed of the older population, increase in transverse plane pelvic rotation, but a decrease in transverse plane trunkal and shoulder rotation in space . . . demonstrating the decreased ability of the thoracic spine to counter-rotate

What is happening to the core . . . the use of the Matrix System thought process to facilitate effective Points of Transformation and core loading

Selfishly looking at the research and taking advantage of the Matrix System

Findings of less head rotation

Hypothesizing the effects of eye drivers relative to the cervical spine . . . thinking about an Eye Matrix strategy

Great research, when interpreted properly, guides us

A special thanks to Dr. Dave Tiberio