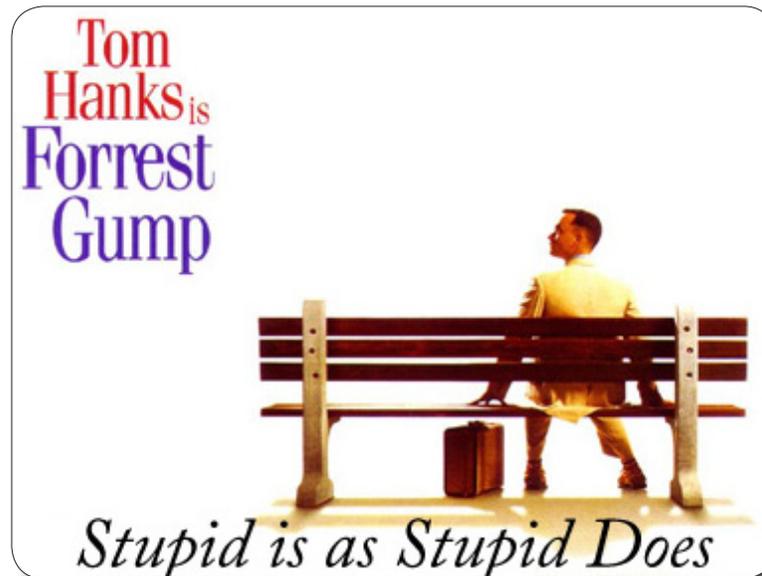


# FUNCTION?

*If you can't logically define it, don't talk about it.*

Gray Cook



We should all own a little of the famous Forrest Gump saying *Stupid is as Stupid Does*. I like that little saying because it keeps me in check. It makes me consider if what I'm doing is consistent with what I believe.

We can all use a little dose of humility sometimes, and I have a great example for you. We've all spouted out the term function at some point in our careers—the stupid part is in not clearly defining function first. Whether for or against the term, we'd better define it before we champion or bash it. It's our professional responsibility and personally I'm not satisfied with all our inconsistencies.

The term function as it's applied in functional exercise, training, rehabilitation and testing fits nicely as an adjective for our attempts to help people reach their movement goals. It's a convenient way to say that our approach is in some way more practical, appropriate, efficient and holistic. Besides all the marketability that function provides for us, what have we done for the concept in return?

- Have we helped adequately define the term before using it?
- Have we developed standards that foster clarity and communication between the many who provide a functional service?
- Have we used the functional approach objectively to advance our profession and enhance the lives of those who depend on our knowledge, direction and abilities?
- Have the national organizations that provide our certifications and licensure provided us with or endorsed organized objective and standardized tools to manage functional movement patterns?

If you are having trouble with any of these answers, let me help: Not even close.

We started selling functional exercise as a wonderful solution before we clearly defined the problem. We proposed an alternative to classical exercise long before we had metrics to demonstrate function or dysfunction with regard to movement. The irony is that the oldest forms of exercise were not sports-specific and did not isolate body parts. The old exercise forms are now regaining popularity specifically because of their functional merit. The sports-specific and isolation stuff started in the '60s, continued into the '70s and '80s, and we still have not fully recovered.

The big problem: We deviated from authentic functional exercise when we placed physical form and individual muscle training over earlier forms of exercise that targeted general-purpose movement patterns. Some noticed this and tried to reinvent exercise under a term that seemed to fit the needs of all. The term ‘functional’ was simply placed in front of whatever we were doing at the time—functional exercise, functional training and functional rehabilitation. In reality, we invented a solution and went looking for a problem we hadn’t clearly defined. Don’t feel too bad—drug companies do it everyday, but I would like to think we have higher standards, the kind that compel us to right our wrongs as soon as they are exposed.

When the focus on functional training first started achieving popularity, its utility was in creating more realistic movement patterns as opposed to isolated strength or muscle development training. Functional training sprung from some degree of intuitive inadequacy with strength training and rehabilitation. It most likely grew legs in conditioning when we saw athletes looking more muscled and getting stronger in a particular exercise without quantifiable benefit in a particular sport or activity. They looked better and exercised better—they just didn’t perform any better. That’s when we started saying things like—

*“Weight room All-American—game day disappointment”*

or

*“Looks like Tarzan—Plays like Jane”*

Some probably wondered if we were training for the poster or the playoffs. We saw the same things in fitness. Fitness ads sold better figures, not better movement capability. From there, some started to ask, “So why were we doing this exercise? What is its benefit?”

In rehabilitation, professionals also experienced a little ah-ha moment when we realized our high-tech muscle dynamometers indicated normal strength around a knee even though that knee had less-than-optimal practical function when it was unstrapped from our fancy apparatus and put into a real-life situation.

Today, most trainers, coaches and rehabilitators use a constructive blend of classic isolation training and functional training in a vain attempt to leave nothing out. It’s like eating fast food and taking a multivitamin—a random paranoid blend of what we find comfortable and convenient, and what we think is good for us. Our intentions and intuitions are good but without standards we are just making up the rules to fit what ever the day throws at us.

Unfortunately, there’s still quite a bit of confusion when you look just under the surface. What we do each day is more influenced by what we did yesterday than the latest emerging evidence on movement and motor control. It’s not a black and white issue. Not all things that seem functional have been proven good, and not all isolation or classic weight training has been proven bad. Today’s professionals sit in their comfort zones of training and argue for their favorite methodologies without much evidence either way. It’s like we’re all riding in a car with a broken speedometer, all riders commenting on how fast we’re going—much more opinion than fact. Unless we have a gauge to measure the correctness of our opinions, we should find another way to objectively calculate the speed of the car.

The problem is simple to articulate, even though it will take time to fix. We have moved forward with opinions about functional training and testing without defining function. We’re trying to buy equipment and copy programs to reinforce optimal function, rather than creating an operational definition of function and letting natural selection tell us what works. If a definition for function were established, the debate would cease because the merit of a new piece of equipment or a controversial program could simply be measured by its influence on a defined functional baseline. The end!

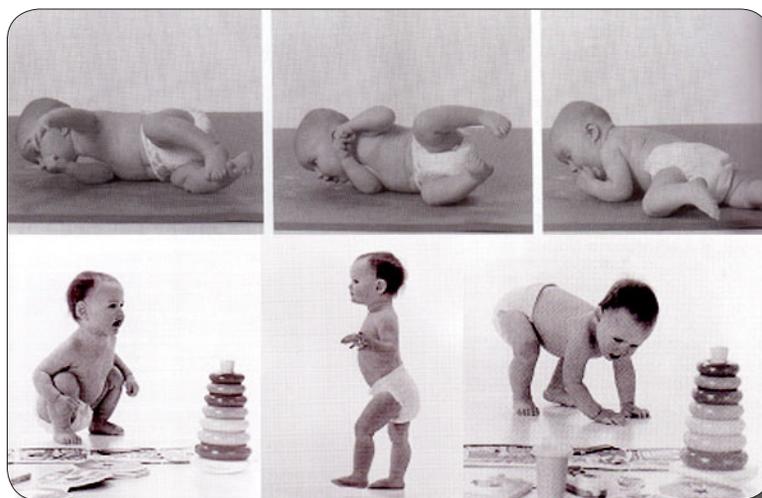
The word function is a dividing line in the professions of coaching, exercise instruction and rehabilitation. This is because most professionals with an opinion on one side of the line or the other have independently defined function as it applies to their specific interests as they forgo the responsibility to consider general principles across the landscape of our professions. The specific approach to function has done little to produce universal general functional standards. Simple solution: Develop general functional standards.

Without this foundation, we have no business pursuing more specific standards, because specific skillful movements grow out of fundamental general-purpose movements. If general-purpose movements are flawed, the foundation of specific skill will be flawed. We are hard-wired to be movement-learning machines. We learn basic and fundamental stuff and it prepares us for higher levels of specialization. Unfortunately, there is nothing in our current practice that systematically forces us to revisit the basics when we encounter problems with the special stuff. Most attempts set the bar much too high or far too low to create real change. Function should be viewed as a basic competency. Some turn functional measurement into an Olympic event while others wrongly assume that if you can dress yourself and make it to the gym you are good to go!

First and foremost we are made to move, and if you don't believe me, check out this TED talk by Daniel Wolpert—

[http://www.ted.com/talks/daniel\\_wolpert\\_the\\_real\\_reason\\_for\\_brains.html](http://www.ted.com/talks/daniel_wolpert_the_real_reason_for_brains.html)

We all seem to start with the same movement platform. Once we master the fundamental general platform, we create the foundation for more specific and individualized pursuits of movement that helps define us in a more personal way. If we skip a step or lose part of our movement foundation, we are obliged to regain it before expecting more advanced skill acquisition, because the movement foundation is part of the learning software. Natural law requires a foundation under basic function and basic function under specialized function. This law is broken everyday in gyms and fitness centers... but babies never break the law and make bigger daily gains than the best strength coaches on the planet could hope to produce!



Learning to crawl before walking is common sense; we require a degree of competence on four limbs before two limbs should be considered. Unfortunately, we do not have standardized functional movement measurement tools to establish movement competence once we're walking. Without a fundamental movement competence measurement tool, we cannot put our common sense to good use, and that is the big problem. Half the information of any trip is knowing your starting point and the other half is your destination... We head for the destination without knowing our starting point—the baseline functional competency at the start of the trip.

Historically, we rushed straight into measuring the pieces of movement without looking at the whole pattern. We wrongly assume that if strength and flexibility is adequate, movement patterns are atomically normal. Instead, we should only investigate fundamental strength and flexibility issues within patterns that seem limited or incomplete. Without logical general standards of functional movement patterns, we haven't adequately defined our professional scope or our statistical influences on the way people really move.

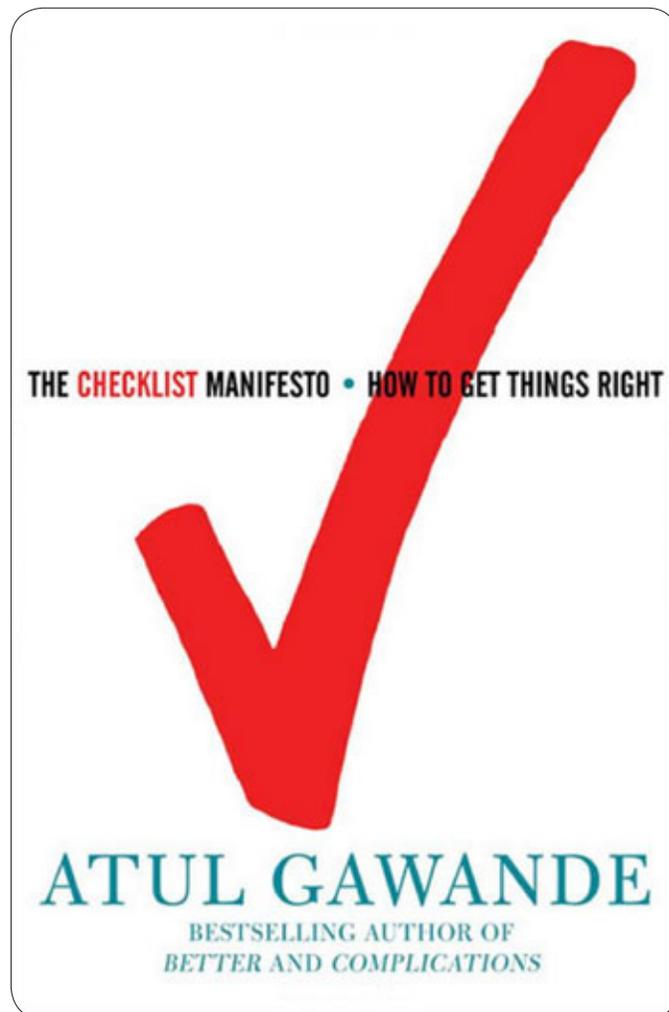
Although muscle isolation training proved to be successful in bodybuilding, coaches noticed that big bulging muscles looked better than they performed. Old-school coaches had no problem with good muscle—muscle gained through practical movement. These coaches prize muscle developed through big natural movements, not

small, focused joint bends targeting isolated hypertrophy. Natural muscle development is good enough, and the extra bit of hypertrophy gained by isolation does not yield extra movement performance for the extra work and time it consumes.

In other words, we want adaptable strength that can work in changing environments. Adaptable strength is developed through complex movement patterns, not over-rehearsed, over-coached lifts in a never-changing environment. The athlete, warrior, outdoor enthusiast or physical adventurer embraces change and challenge, while the gym rat needs comfort and consistency for a happy workout. If you believe this, you may want to read *Strong is Not Necessarily Tough*, here <http://graycook.com/?p=682>.

In response to the isolation trend of bodybuilding misapplied to general-purpose training, well-intentioned trainers, coaches and rehabilitation professionals suggested we not focus on extra muscle work with hypertrophy as a goal. They said to keep the focus on movement and movement patterns, and introduced new things and brought back some old things, too.

There was only one problem: They did not set functional standards to prove the benefit of their innovations. They did not introduce screening, testing and assessment to create a bell curve of functional movement attributes to check progress against. It is the nature of the exercise industry to dispense with objective baseline testing and just start developing programming. Without a reliable functional baseline, it has been very easy for trainers to argue whose program is more functional. Mike Boyle recently introduced me to a book that articulates our problems in exercise and rehabilitation perfectly. *The Checklist Manifesto* shows us how standardization and little checklists make monumental differences in surgery, aviation, and other specialized professions, but exercise and rehabilitation are lagging behind.



I highly recommend the book, as it articulates the same message of two more of my favorite books, *Why We Make Mistakes* and *Blunder*.

These books did not cause me to create the FMS or the SFMA, but they helped me understand how these were my way to creating a standard checklist approach as I observed inconsistency in my own practice.

The oversight to develop functional standards wasn't intentional; I rather think it was a passionate plea to, "Stop the madness even though we did not understand it." Early proponents of the functional movement wanted us to make training more practical, and that was good.

If training and exercise do not have practical carryover to things other than exercise, why do it? Think about it for a minute—the average person does not exercise today in order to just exercise tomorrow. They assume that other aspects of their physical lives will be enhanced as well. Exercise should have practical carryover, and most expect that even if it is simply assumed and not measured.

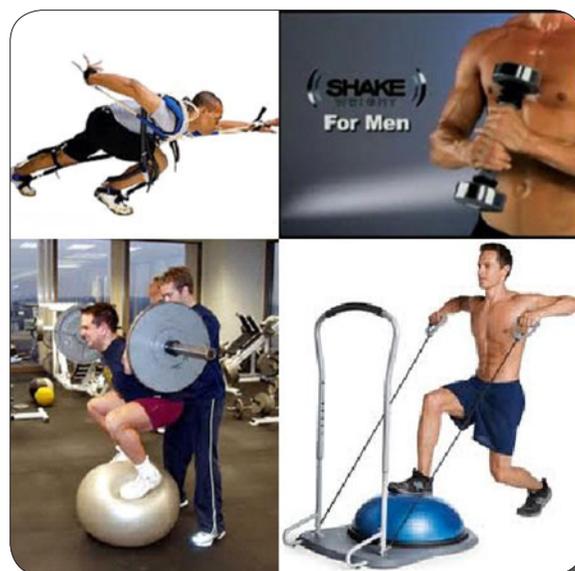
At that point, a new exercise movement began—a movement toward better movement, if you will. The pioneers of this new movement were armed with concepts of proprioception, multi-planer movement, spiral and diagonal patterns and movement efficiency. Their ideas were good, and their observations were more holistic. They simply wanted to build a better exercise model.

Then the mistakes started to multiply, because when you don't have standards and checklists, that's what happens. The passion and desire for a better exercise model was present; objective functional metrics were not. These professionals did not prove isolation programs were producing lower levels of function; they simply assumed it. They assumed we had an epidemic of bad function and decided everyone needed a vaccine for dysfunction. That kind of thinking creates a problem, because in an epidemic, we assume everyone is sick and we treat everyone without testing or diagnosing each individual.

The testing and diagnostic process reveals interesting information that shouldn't be disregarded. It's possible for some people to remain functional on non-functional programs, while others become more dysfunctional performing accepted functional programming. We can logically say it's not really about the program at all; it's about how each individual responds to the program, just like it's not the nutrient value of the food, but the nutritional absorption rate of the individual.

Some people who didn't understand higher-level problem solving assumed they had a solution to make training safer and more effective. They thought they had developed a vaccine to make movement more functional, to guard against dysfunction. From there, other assumptions were made, such as functional training required abandoning classic forms of heavy weight training to adopt new, lightweight multi-planar movements.

The sad truth is most exercise and rehabilitation professionals define the functional value of an exercise by what it looks like, and not by what it produces. This is not good, but unfortunately, it is true.



Others go a step further and define functional exercise by the type of equipment used. And some even give extra credit for using more pieces of equipment in a single exercise.

*I do my shake weight curls, standing on my BOSU, wearing my spandex core engagement body suit—  
it's awesome!!!*

I don't mean to bash creative applications of exercise; I'm just having some fun. The issue is to create a functional standard or truth in advertising, if you will. If we want to work without a functional standard, we just need to issue a disclaimer statement, for our programs that goes something like this:

*We cannot prove this exercise will improve the way you move. It has not been shown to make you more functional. It has not been proven to create better performance or metabolism. It is simply the result of your trainer's creativity and a surplus of time and equipment. It is an unscientific attempt to reduce your boredom with your current training program. This combination of equipment and movement is a way to entertain you and will distract from the objective tangible results you may not be getting.*

*Please do not try this at home—we have no way to charge you for it.*

Anyone not concerned about the baseline influence of a particular exercise is just selling a product or program. I test functional assumptions all the time using slides of exercises in my talks and ask the audiences if the exercises I show are functional. Everyone responds to the pictures and videos. No one ever asks what the exercises produced or how they changed function. We're prepared to comment on function by superficial appearance, and not by its influence on objective functional metrics. It is a flaw in our professional logic and education will not change it—standards and checklists will!

Individuals respond to the programs differently. Some need to work hard to maintain strength or speed, while some barely practice and thrive. Some stay lean without work, and some work continuously to maintain what they have. Some never focus on flexibility and stay flexible, while others maintain strength with little focus on strength. We already know the same dosage of anything produces different results across a group; those who ambitiously seek a universal functional solution are heading for disappointment. The investigation should not be on exercises and programming. It should be on the current functional status of the individual in front of you. Once you have a baseline, you can see how your program improves that.

Any good journey has to have a starting point. The starting point of the functional debate has nothing to do with equipment, exercise programs, testing or screening. It has to do with a clear definition and scope of purpose. Until an acceptable definition of general function is developed, the question can never be answered or appropriately addressed.

In logical and philosophical terms, if the definition of function seems to be too broad and all encompassing, the next best thing to do would be to define its opposite. The opposite of function would be dysfunction, and that must be now defined. If we have the definition of dysfunction it gets easy because the absence of dysfunction would be considered function, and this might actually be easier.

What is the absence of dysfunction? The honest and logical approach is to produce functional standards and create minimal acceptable levels. Anything below those levels would be considered dysfunctional. The minimal acceptable level of competence is important to consider. That is the way it works for other body functions like vision and hearing. However, when we measure movement, we just measure as if we are trying to find a world record. We look for superior performance and poor performance, and ignore the natural distribution of things.

At some point you are legally blind. At some point you are legally deaf. But at what point does your movement get labeled dysfunctional? Someone please make the call!

Exercise and rehabilitation professionals should be concerned with the functional tipping point—the point at which an individual or group crosses the line into dysfunction. Maybe we could get Malcolm Gladwell on the job, who wrote the great book, *The Tipping Point*. We became so busy measuring strength, flexibility, fitness and sports performance that we forgot to establish a minimum level of movement competence. Remember, individuals with significant variance in strength, flexibility and fitness can actually have similar functional abilities.

We use the attributes we have to create function, so we should first test the level of functional competence. If we then determine this is lacking, we can break down the attributes of function to localize the problem. Functional competence is the important marker, because everything above it is functional and everything below it is dysfunctional.

Here is my logic: If movement competence is below a minimal acceptable level, higher-level testing can incorrectly reveal deficiency that might look like a fitness or performance problem when it's a movement competence problem. On this mistaken path, a well-intentioned professional might recommend more performance or fitness training when the problem is a fundamental movement issue. Minimal acceptable levels of function should not be set by opinion, nor by strength or flexibility standards.

Two simple concepts in the form of a checklist can put us on the right track when we seek to understand movement competence. These concepts are risk and limited adaptability.

**Elevated Risk**—research has shown that previous injury is the number one risk factor for a future injury. Additionally, motor control limitations such as balance, stabilization and basic coordination, plus asymmetries like right-to-left imbalances in muscle activity and flexibility are the next highest indicators associated with risk of future injury. Since previous injury is unavoidable, we should focus on motor-control limitations and asymmetries as priorities for prevention or reduction or risk factors. In my opinion, the reason previous injury is the number one risk factor for elevated risk is because we as exercise and rehabilitation professionals define recovery from an injury as the absence of pain—not the return of a previous level of function. This is because we have no objective baseline and no one ever checks your function when your feeling fine..

**Limited Adaptability**—It is universally accepted that the same exercise program across a large group will yield a bell curve of results. Some individuals will achieve higher levels of change than others. A large number will have change, but to a lesser degree, and some will have little or no change. This means some will have significant adaptation in the presence of stress. It also means most will adapt to the stress with some success, and some will not. Why do some not adapt in the presence of what we consider constructive stress? Many factors can play a role, but the most obvious is fundamental movement-competency issues. These people are obliged to compensate because it is their only option. Fundamental and functional movement issues can distort body awareness and proprioception, and can also cause compensation. These issues, along with pain, distort or retard optimal motor development and successful, efficient adaptation to stress.

You may want to lump a lot of other things onto what's minimally acceptable, but I think you will find these two labels capture our most fundamental problems in fitness, performance and rehabilitation. If your movement competency is so low that you are at higher risk of injury even in structured activities we are dysfunctional. Likewise if our ability to improve with conventional physical education, fitness and performance programming, we are also dysfunctional. This is not a discriminating or politically incorrect label—it's a necessary management title if change is desired. Once the label is assigned, we need to see if the situation can be improved, but by putting them category of dysfunction, the subject has been protected for increased injury risk and the frustration of limited progress with programming toward more functional individuals.

The first order of business is to make sure fundamental movement patterns reach minimal standards. When these patterns are not sound and don't reach minimal standards, investigate the basic constructs of mobility and motor control that provide the foundation for these patterns. Unfortunately, we have done the opposite with our research; we investigate mobility and motor control looking for a magic number, but people can make acceptable function with infinite combinations of mobility and motor control. Researchers should look for patterns of dysfunction and not just the impairments associated with dysfunction.

To fix function, we must define what is functional, and standardize general testing for movement that produces meaningful information—movement competency. Next, we should define the extra movement capabilities

necessary for specific function in sports and other specialized occupations and activities. This process would produce minimum risk and adaptability standards for general movement function and specific movement functions.

General movement standards should be satisfied and maintained before specific standards are pursued exclusively. For example, soccer, baseball and rock climbing should have the same general movement base: fundamental mobility, stability, motor control and movement patterns, and also require more specialized and unique attributes on top of the general base. There is no need for sports-specific movement screens—the movement screen should be general; sports-specific skill testing already exists.

General abilities of function means the human neuromuscular and musculoskeletal systems are in a state of ready adaptation. The system can learn; the system can become something more than it is. That is a functional base, gross physical preparedness in the functional realm.

Levels of function that provide individuals with a particular affinity in a given sport or activity would reflect sports specificity demonstrating a functional level, with an affinity toward specificity of activity.

What would define a minimum level of movement competence? It would either need to speak to risk of injury, which is a safety issue, or lack of a minimum level of efficiency and adaptability. These two categories demonstrate both risk with training and inadequate motor control within patterning below a certain level of efficiency.

The first is most important because when we suggest direction or programming, the first order of business should be to minimize risk – or do no harm. If certain movement patterns lend themselves to higher risk, identify these quickly and address them efficiently.

The other issue would be if a particular movement pattern were limited, with obvious inefficiency. Compensation would be the result when training in that deficient movement pattern.

Dysfunction should be defined as movement patterns that lack a minimum level of movement competence. Unfortunately, we also lack standards for dysfunction.

When compared to other body systems, the musculoskeletal system lags far behind in our ability to be proactive. The renal system, the cardiovascular system and the visual system all enjoy tests that demonstrate a tendency toward dysfunction prior to advanced degeneration. We look at these systems for early warning signs of risk—we've defined normal and abnormal function. We have largely failed to do this in the musculoskeletal system.

Instead, we still take a reactive approach. Many of our attempts to create functional systems are in response to injuries. We measure the injured to try to reverse engineer health. Wouldn't it be better to investigate those who seem successful, adaptable and resistant to injury and map out their specific data to engineer that?

Most discussions of functional training are geared toward performance, but we already have clearly defined performance testing and training. This pushes potential, whereas functional basics—fundamental testing—should require minimums. Those who don't perform at the minimum level of functional competency should probably spend time gaining function, not hammering performance or skill. Once function is addressed, they can target performance and skill and expect to adapt efficiently to the training.

My definition for functional training and testing doesn't limit me to the frou-frou exercises many strength-minded individuals consider functional training to be. I totally agree with the strength coaches who don't like the soft side of functional training. I've demonstrated on multiple occasions how my pitchers and quarterbacks at the high school, collegiate and professional levels can receive more functional gains from deadlifting and deadlifting variations than internal and external shoulder rotation with an elastic band. I'm not saying one is better – I'm saying they got deadlifting because the checklist said they need more robust integrity in the deadlifting pattern. If the checklist said they needed more cuff work they would get the elastic band.

My definition of function doesn't limit me to certain forms of equipment. It simply defines a functional deficit and offers a remedy, followed by a retest to see if the deficit is still present. If the deficit is still present after my ef-

forts were targeted at function, my outcome wasn't functional. I can live with that, and I can learn from that. I've been bouncing my opinions off of a functional standard for years and learn something from every attempt.

My current expertise in corrective and functional exercise comes from 10,000 hours of testing, training and retesting. However, when most hear me lecture, they just follow my advice on training and forget that testing and retesting frame my picture of function. If I'm supposedly an expert, and I still test and retest, why wouldn't you?

Here is the history of my 10,000 hours: In 1997, because no operational definition of function or dysfunction existed to encapsulate what I was seeing as a strength coach and physical therapist, I offered the Functional Movement Screen (FMS) as a way to baseline and define general function. I saw the FMS as a way to numerically capture our departure from authentic movement. My intent with the screen was to improve communication and reliability of measurement with regard to movement pattern function.

In 1998, I was fortunate enough to present the FMS at both the NATA and NSCA conferences. My first words from the platforms at each event were as follows:

*“We need some sort of movement baseline. My colleagues and I have been doing this functional movement screen. It does not replace anything we currently do. It simply offers a movement-pattern-based perspective against our other information. As soon as a better movement screen is introduced, I will be its biggest fan, but until that time I will use this little FMS tool. It seems to be working pretty well.”*

To date, neither organization has decided to adopt the FMS or any other movement screen into standard practice for their certified professionals. Fourteen years later, we still don't have a standard operating procedure for looking at movement and we still don't have a general definition for function.

But we're closer than we've ever been. A grassroots movement of forward-thinking professionals has decided to be more professional than current certification require. Like them, I still push myself to do my part and continually ask myself if I've accomplished the goals outlined in the opening bullet points.

The reason I have pushed this line of thinking is because my profession did not really own function or have a practical tool to baseline movement. I was more compelled to change my profession and myself than defend the comfortable status my credentials provided. I want tomorrow's PT, PTA, DC, MD, ATC, personal trainer and strength coach to collectively be more than we are today. This starts with standards, clarity, defined purpose and communication. If pilots and surgeons use checklists to save lives why don't we use them to improve the quality of those same lives. I did not write this to be popular—I wrote it because it's important...10 years from now.

Just remember, we are defined by our actions—just ask my man Forrest Gump.

“Stupid is as stupid does.”