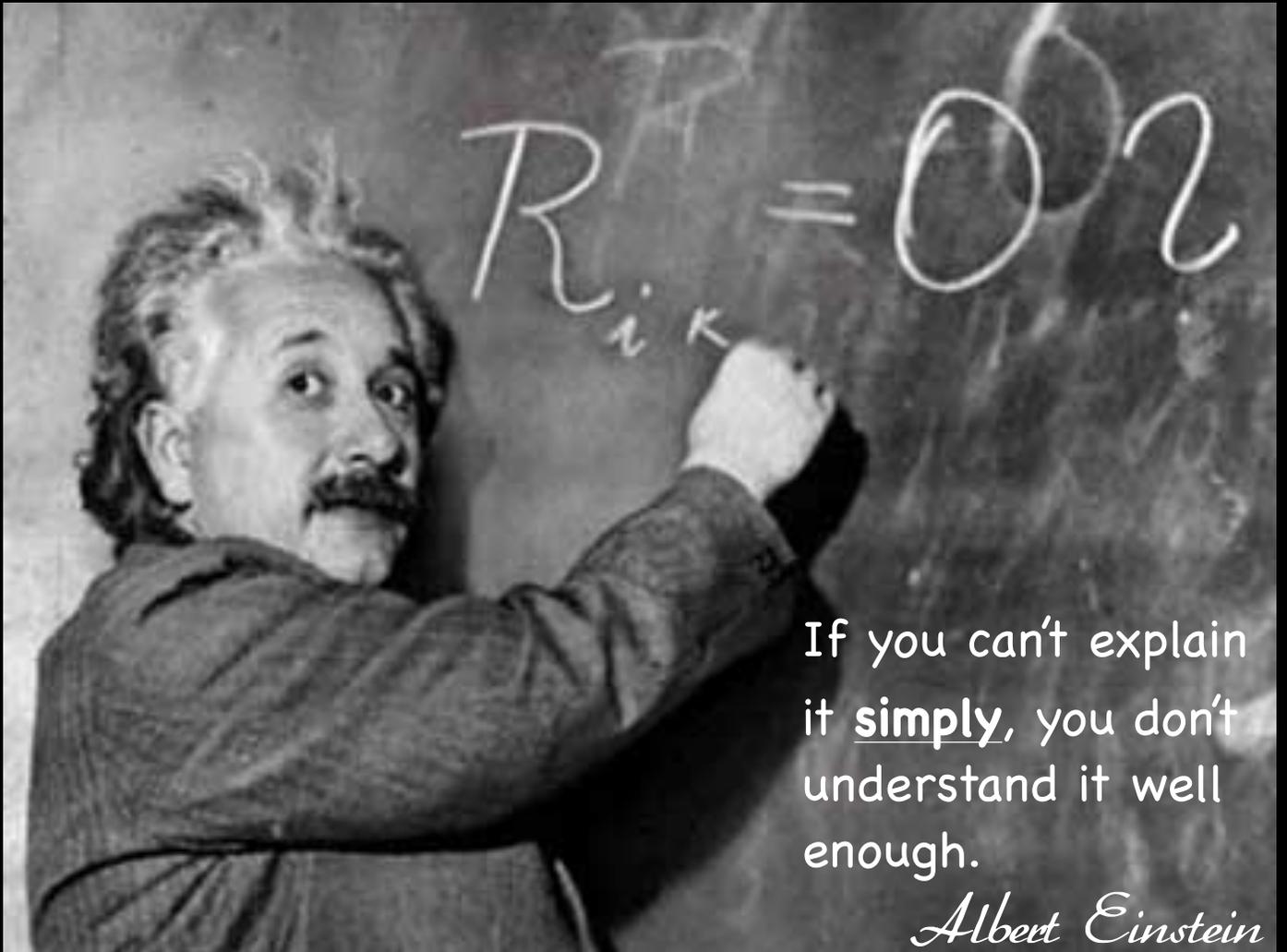


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U N C O N S C I O U S C O M P E T E N C E

The Memories of Riding



If you can't explain
it simply, you don't
understand it well
enough.

Albert Einstein

Bruce Nock, MS, PhD

UNCONSCIOUS COMPETENCE

The Memories of Riding

Bruce Nock, MS, PhD

Memories are not just about the past.

They determine our future.

Jeff Bridges



Liberated Horsemanship, LLC was established in 2003 by Dr. Bruce Nock, career scientist and professional horseman. *Liberated Horsemanship, LLC* provides high-quality training and services to horse enthusiasts and professionals through carefully selected experts.

UNCONSCIOUS COMPETENCE

The Memories of Riding

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A B O U T
T H E
A U T H O R

Bruce Nock, M.S., Ph.D. has been a scientist for 43 years. He is a tenured faculty member of the *Psychiatry* and the *Neuroscience*¹ departments at *Washington University School of Medicine* in St. Louis, Missouri. He is a subject of biographical record in both *Marquis' Who's Who in America* and *Who's Who in Medicine and Healthcare*.

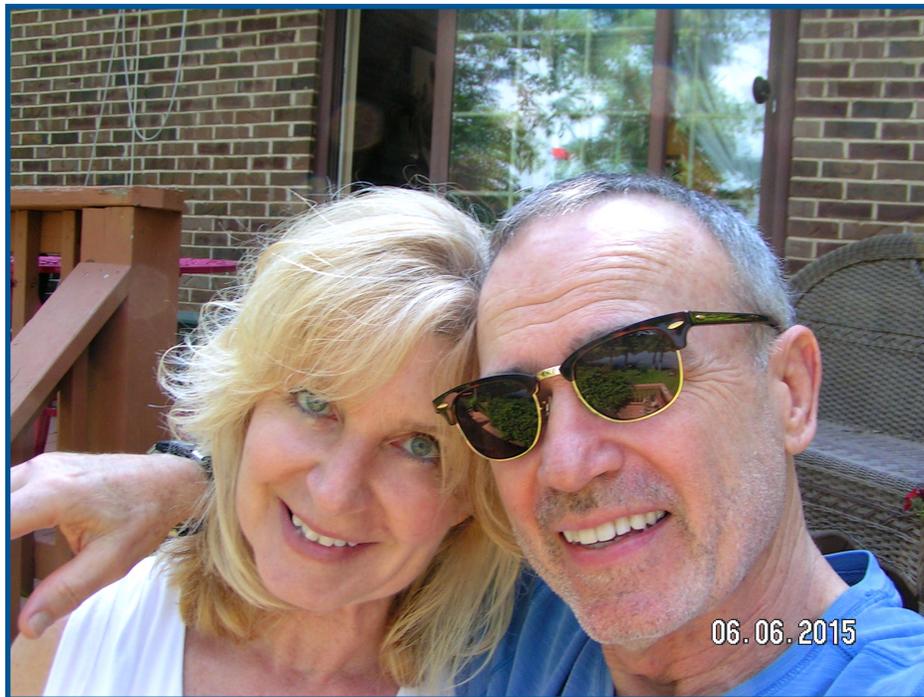
Bruce has published numerous articles of original research in leading scientific journals on diverse topics including behavioral neuroendocrinology, learning theory, wild horse behavior and stress physiology. Currently, his research is funded by the *United States National Institute of Health* and focuses on transgenerational and epigenetic effects of morphine.

Bruce has a deep practical and academic knowledge of animal behavior and related topics. He has a Master of Science degree from a psychobiology program at *Bucknell University* that focused almost entirely on animal behavior and related subjects. He earned a PhD from the world renown *Institute of Animal Behavior, Rutgers University*, and continued with four years of post-doctoral studies that focused on behavioral neuroendocrinology. The best part is, he can relate what he knows to horse management and use and communicate it in straightforward, understandable terms.

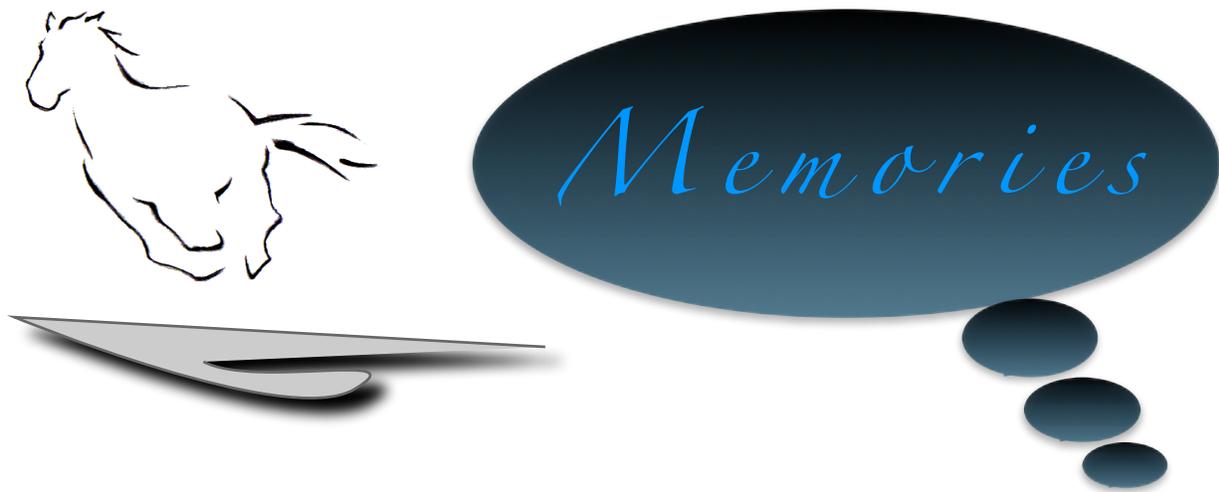
¹ If any one who actually reads this stuff: The department of Anatomy and Neurobiology, which was previously listed, recently changed its name to the department of Neuroscience.

Bruce is an avid horseman—a dressage and trail rider. He has been helping people train and ride horses for many years through books, articles, clinics and private lessons. Bruce is the author of the acclaimed books *Ten Golden Rules of Horse Training: Universal Laws for all Levels and Riding Styles*, and *Ride For Tomorrow: Dressage Today* and the highly regarded series of articles entitled *The Biology of Natural Horsemanship* and *Speaker For The Horse*. Bruce has also published numerous other articles in leading scientific journals and the popular press.

In addition to *Liberated Horsemanship, LLC*, Bruce serves on the faculty of *The Kerulos Center*—a non-profit organization which finds science-based solutions to pressing questions and concerns that affect the lives of animals. He is also a member of the *Advisory Board of the American Wild Horse Preservation Campaign (AWHPC)*, a broad-based coalition representing over 10 million supporters. Bruce has written a series of science-based articles for the AWHPC on how Bureau of Land Management practices negatively impact the long-term health and welfare of America’s wild horses. He has also written a number of declarations to support legal actions by advocate groups against the government’s management of our wild horses.



Bruce with his best friend & wife, Jean



*M*y first useful means of transportation was a 1950 *Columbia* balloon-tire bicycle. It was built tough ... made to endure the punishment active boys can inflict. It took all the abuse I dished out and even came through our neighborhood demolition derbies unscathed. I loved that bike. I learned to ride on it.

At first, I had to work to get it to go where I wanted it to go and to keep my balance. I don't know how many times I would have crashed without those [embarrassing] training wheels. But I lived through those early days with just bumps, bruises, and brush burns. No broken bones. And before long, with help from mom and dad, I became, in my mind at least, a crackerjack bike rider. It never occurred to me to try to do some of the incredible things bike riders do today ^{e.g.} ², but I could easily take friends "double" — on the back of my bike or on the handlebars. I could even guide the

² See Danny MacAskill's *Imaginate* at https://www.youtube.com/watch?v=Sv3xVOs7_No.

bike with no hands, just by shifting my weight.³ And rough terrain and curbs weren't obstacles. I still had to think about where and how fast to go, but the details of riding, like staying balanced, took care of themselves. They just happened without effort or conscious thought. I could even do them while my attention was directed toward other things, like talking to a buddy, eating a nickel bag of *Stehman* potato chips⁴, looking back to check on my pals, etc.

The same transition from challenging to effortless also occurred when I learned to walk ... I assume. I don't actually remember learning to walk but I've seen enough other babies go through the process to suspect I wasn't the exception. I know for certain I went through the transition when I learned to ice skate, wrestle, play baseball and basketball, drive a car, type, write with pen and pencil, play trumpet⁵, tie shoelaces, button a shirt, brush my teeth, eat with chopsticks, etc. With practice, I learned to do such things proficiently, without really thinking about it.

I'm sure you have had similar experiences. You see, all motor skills are challenging at first. Then, with sufficient practice, they become second nature ... so ingrained they happen automatically. Without thinking. Instinctively. Naturally. Take your pick. Label the phenomenon as you see fit. Either way, I'm sure you have experienced it and intuitively understand what I'm referring to.

³ Of course to turn without hands I just shifted my balance/center of gravity slightly in the direction I wanted the bike to go. In contrast to what some people advocate, you do the same when riding a horse ... shift your balance toward the direction you want the horse to go and he will naturally shift his center of gravity in the same direction to rebalanced his load.

⁴ A very popular brand of potato chip in the area of Pennsylvania where I grew up. And yes, a small snack size bag cost just five cents when I was a kid ... obviously that was some time ago.

⁵ Well, I'm not sure I ever went through the transition with regard to playing the trumpet. My mother thought I was exceptional ... that's the way mothers are. Truthfully though, I don't think I ever got passed the barely mediocre level. But other musicians certainly reach the point where playing requires little conscious thought. If you want an example, check out these videos by Tommy Emmanuel (<https://www.youtube.com/watch?v=S33tWZqXhnk>) and Bence Peter (<https://www.youtube.com/watch?v=kcOFqhDYSmk>). There isn't any way they can consciously think about every note they play and how to play it. As I discuss below conscious thought just takes too much time.

But, have you ever wondered what happens when something that is initially challenging, like staying balanced on a bike, becomes second nature? How do you explain such a transition? The term “muscle memory” might come to mind. It is often used to explain why muscle-related tasks, like riding a bike, get easier to perform and require no conscious thought with sufficient practice. Here is how one writer put it: “When a movement is repeated over time, a long-term muscle memory is created for that task, eventually allowing it to be performed without conscious effort.”⁶

Muscle memory is also often given credit for the ability to perform certain tasks competently even when the task has not been performed for some time. If you learned to ride a bike, for example, you are likely to still be able to do so even if you haven’t done it for a long time. You might not be quite as sharp at first but the transition back to being a crackerjack rider happens much more quickly the second time around.

Here’s the thing. Giving something a name doesn’t explain it. Attributing the progression of a motor skill from challenging to effortless to “muscle memory,” tells us little, if anything, about what actually takes place. More importantly, it doesn’t tell us anything about how to maximize the advancement of a skill or the pitfalls that might occur along the way. And, in this instance, it can be totally misleading. Case in point: Muscles don’t even have memories. They don’t have the capacity to remember one darn thing. So what’s up with that? What is really going on? And what does it have to do with riding horses?

That’s what this third article in the *Speaker For The Horse* series is about. You see, like so many other things we learn to do over our lifetime, riding a horse involves the acquisition of motor skills ... developing a secure balance, developing body, hand, and leg movements that are synchronized to and do not interfere with the movement of the

⁶ Muscle Memory at <http://www.revolvvy.com/main/index.php?s=Muscle%20memory>.

horse, developing the competent use of rein, leg and weight aids, developing the ability to mount and dismount fluidly, and so on. And the processes associated with learning such riding skills and the progression to proficiency are the same as those for learning to ride a bike. With practice, they should become second nature and happen automatically, guided by your subconscious. Sound boring? Maybe. But understanding the processes that take place when a skill progresses naturally toward a point where you can do it without conscious thought can provide insights to all sorts of riding-relevant things, like training success, plateaus in performance, and why some people seem to be able to train horses so quickly and easily. It can even help guide the choice of riding instructors.



The acquisition of motor skills occurs in three definable phases called the cognitive, associative and autonomous stages. What do those names tell you? Correct. The stages were named by learning theorists.⁷ They might be technically appropriate, but they don't mean much to most of us. And frankly, I find them hard to remember. So, I'm going to exercise my literary license and rename them. I'm going to go with stages *One*, *Two* and *Three*. Call me crazy but that seems a little easier to deal with than cognitive, associative and autonomous. Besides a rose by any other name ..., right? In any event,

⁷ Fltts, P.M. and Posner, M.I. *Learning and skilled performance in human performance*. Belmont, CA: Brooks/Cole, 1967.

One, Two, and Three falls more in line with my previous promise^{8,9} to do my best to avoid using a lot of obscure learning theory jargon. But learning theory is what the articles in the *Speaker For The Horse* series are based on.



Stage *One*—it’s where all motor skills start. Stage *One* motor skills are slow, awkward, often abrupt, require a lot of self-feedback¹⁰ and feedback from others¹¹, and errors are common. I know, you’re probably thinking, “That’s not always true ... at least not for everyone.” You know of gifted people who excelled at some activity even as a young child, like the golfer Tiger Woods, the British musical savant Derek Paravicini¹², or the harp prodigy Alisa Sadikova, right? Well, even those talented people progress through the three stages of motor skill development. But their intrinsic assets, e.g., genes, musculature, neural processing, etc, make them initially better equipped to perform motor tasks, or at least the ones they excel at. Nevertheless, all motor skills, even those of individuals who are “naturally” talented, start in stage *One*.

⁸ Nock, B.: *Creating Fearless Horses: Do’s & Don’ts*. Liberated Horsemanship, LLC Press. 2014. Available at LiberatedHorsemanship.com.

⁹ Nock, B.: *Preventative Reciprocation: Eliminating Undesirable Behavior Under Saddle*. Liberated Horsemanship, LLC Press. 2014. Available at LiberatedHorsemanship.com.

¹⁰ It is why rider’s tend to look down at the horse as they signal rather than looking where they are going.

¹¹ Like riding instructors and friends.

¹² Derek at <https://www.youtube.com/watch?v=Ak2jxmhCH1M>.

Stage *One* motor skills, including those associated with riding a horse, are guided chiefly by explicit memories. That is the defining characteristic of stage *One*. In other words, if you use explicit memories to perform a motor task, then it is a stage *One* skill.

Explicit memories are the kind of memories we typically think of as ... well, as memories. They are memories of information we can *consciously* recall. What I wrote above about my first bicycle was drawn from my explicit memories. You are calling on your explicit memories when you think back to what I wrote about my first bicycle, or to an image of your first car, what you had for lunch, last year's vacation, your wedding, where you put your car keys, a lock combination, telephone numbers, a cooking recipe, your postal address, which app to use for some certain purpose, where you work and what you do there, and so on. When you consciously try to follow step-by-step riding instructions or the directions of a riding instructor you are also using explicit memories to guide you. When you emulate what you saw someone do at a riding clinic, horse show, on TV or at your local boarding barn you are also using explicit memories to do so.



So, if riding is initially guided by explicit memories, maybe you are wondering where those memories come from. How can someone have memories of something they haven't done or have done only a little?

Well, as I alluded to above, the explicit memories that guide riding early on come

mostly from all sorts of secondary sources. They come from watching people ride horses on TV and in movies, from reading magazine articles and books about riding, from watching friends ride, from reading information on the internet, from talking with people about riding, and so on.

But hold on! Just to be clear. I'm not saying riding skills can be developed just by reading about riding or by watching others ride. I was very *explicit* about that in the Epilogue of *Ten Golden Rules of Horse Training*.¹³ But learning about what to do is a crucial part of building explicit memories that form the foundation for and guide the development of riding skills. You have to know what to do before you can refine how you do it. And that's what stage *One* is mostly about ... finding out what to do.¹⁴ Refining the motor skills associated with riding mainly takes a back seat until later on.

But stage *One* shouldn't be just about reading and watching. It should also be a time when personal exploration is a priority. Find out what works and what doesn't work first hand. Trial and error. Again, it is an important part of building a useful explicit memory library to guide the development of proficient riding skills.

Unfortunately, many people are hesitant to try things on their own because they are afraid to make a mistake and "ruin" the horse. This is unfortunate because it restricts the acquisition of knowledge from first-hand experiences. And gosh, everyone at every level makes mistakes. Even the great Nuno Oliveira candidly admitted to making "countless errors in the training of literally thousands of horses."¹⁵ If you are consistently gentle and tactful, mistakes are always correctable and they do not

¹³ Nock, B.: *Ten Golden Rules Of Horse Training: Universal Laws for all Training Levels and Riding Styles*. Half Halt Press, Inc., 2004.

¹⁴ The musical savant Derek Paravicini started playing the piano as a child by karate chopping the keys. He had to learn how to strike the piano keys with individual fingers before he could refine that motor skill. See <https://www.youtube.com/watch?v=Ak2jxmhCH1M>.

¹⁵ *Reflections on Equestrian Art* by Nuno Oliveira, p. 30, J.A. Allen, 1988.

psychologically scar a horse in any way. And experience with the process of undoing mistakes is important to the development of training skills and techniques.

Some time ago, I was watching a young girl, maybe 12 or 13 years old, ride in an arena. I noticed her horse was flawlessly on the bit,¹⁶ moving with grace and power. So I called the girl over to the side and told her how impressed I was. I asked how she got her horse to move in such a beautiful way. She replied, "I don't know. I just found that he does it if I tap lightly on his side with my leg." The girl had stumble upon a method of relaxing a horse's topline ... and everything else fell into place. The girl benefited because it improved the horse's gaits and made him easier to ride. The horse benefitted because it allowed him to move in a biomechanically beneficial posture that was easy on his joints and conducive for carrying his rider comfortably. Happy girl. Happy horse. So go ahead. Don't be afraid. Experiment. See how things work. Maybe you will discover something beautiful too.



I think of stage *Two* as a transitional stage ... a bridge between stages *One* and *Three*. In stage *Two*, motor skills commonly have characteristics of stage *One* and stage *Three*. It is the blending of the traits of those stages that makes stage *Two* distinct. So,

¹⁶ A horse that is on the bit maintains light rein contact with his face positioned slightly in front of the vertical. The horse's topline is relaxed, somewhat stretched rather than contracted, and, of course, he is laterally balanced, a natural consequence of proper shoulder-hindquarter alignment. Riding on the bit is the keystone of riding to improve a horse physically and emotionally.

understanding stage *Two* is really a matter of understanding stages *One* and *Three*. Yikes! Imagine how unintelligible this paragraph would have been had I stuck with calling the stages, cognitive, associative and autonomous. In any event, I've already described stage *One*. So, let's move on to stage *Three* and come back to stage *Two* later.



Riding in stage *One* is defined chiefly by the use of conscious thought. Stage *Three* is defined by ... well, let's call it the stage of unconscious competence. Riding skills in stage *Three* are controlled by implicit, rather than explicit, memories.¹⁷ Implicit memories are subconscious memories. They cannot be consciously recalled. Let me repeat that. Implicit memories **cannot** be consciously recalled. Nevertheless, they are powerful and highly efficient guides of motor tasks.

Try typing the following sentence without looking at the keyboard. "Every day is a precious gift." No really. Go ahead and type it. Finished? If you are a good typist, a so-called touch typist, it should have been easy for you to do. Now, again without looking, try to name the ten letters on the upper row of the keyboard. Not so easy, huh? I typed the sentence without error but I could not recall any of the letters in the top row. It was like looking at a blank wall. Oh, after a while I figured out the position of several

¹⁷ Actually, learning theorists classify the memories that guide motor skills as a subset of implicit memories called procedural memories. I stuck with the term "implicit memory" in this article to avoid the unnecessary complexity associated with defining subsets. To do otherwise would not have added anything positive to the article in my opinion. And, if you read this footnote, you now know about all there is to know on the subject anyway.

letters by mentally working through it. But I really couldn't visualize the position of any key without doing that.

Typing without looking is a motor skill controlled by implicit memories.¹⁸ The positions of the keys are accessed subconsciously ... automatically as you type. Try to recall the positions of the letters consciously and you aren't likely to be very successful.

When a rider reaches a skill level where riding could be considered performance art, nearly all of the associated motor skills have progressed to stage *Three* ... think riding masters like Nuno Oliveira, François Baucher, Egon von Neindorff, and Alois Podhajsky to name a few. Riding is second nature, natural, to them. It appears to be and actually is effortless. Unfortunately, few of us progress that far. But that doesn't mean that none of our skills reach stage *Three*. Riding skills don't all progress in parallel. Some are easier to acquire than others.

The motor skills associated with balancing on a horse generally progress most rapidly to stage *Three*, or at least to stage *Two*. This might surprise you but it makes sense when you consider that balancing is something we do all the time while walking, jumping, riding a bike, playing sports, climbing over or under a fence, kicking, etc. Consequently, there is a good deal of carryover when learning to stay balanced on a horse. And the more extensive your past experiences with activities that require balancing the faster you are likely to acquire a firm seat. Besides, there is survival value to staying balanced in the saddle so there is significant motivation to acquire the skill. You might think I'm being facetious but I'm not. You see, in contrast to balance, too often, particularly with some riding disciplines, there is a lack of motivation to learn other types of skills and consequently they progress very little.

The use of the reins is a good example. Because we typically have a lot of

¹⁸ If you have to look at the keyboard to type, your typing skills are in stage *One*. You use explicit/conscious memories to help you find the letters.

experience manipulating things with our hands there is a good foundation to acquire and refine the use of the reins. But, as I just suggested, in my experience many people lack the motivation to learn any more than the most rudimentary things that can be done with the reins. Without that knowledge, refinement is impossible. You can't refine a skill you don't use.

I once had a student from another country take a riding lesson here at Watershed Farm. She was an experienced rider. Based on her history, I figured our Thoroughbred Rupert would be a good fit for her. First time around, Rupert calmly walked straight out of the arena and down the hill. I stood there dumbfounded as this experienced rider exclaimed, "Oh! You have to guide him?" You can't refine a motor skill if you never use it or don't even know you should or could be using it.

That's how it often is with "the core" too. Generally speaking, the skillful use of "the core" while riding develops most slowly. I wrote extensively about it in *Ride For Tomorrow*.¹⁹ The core is a group of muscles which establish a firm connection between the lower and upper body. It is a terrific source of power that should automatically activate for stabilization. When the arms or legs act without the participation of the core, their effectiveness is greatly reduced. The sophisticated use of hands and legs is absolutely impossible without the participation of the core. Unfortunately, the vast majority of

Many people can't activate their core even while standing on the ground. If you can't do that it isn't going to be automatically activated when you are in the saddle. Try this. Get a set of exercise bands. The use of your core is essential for stabilizing you when you use them. Experiment. Activate the muscles of your midsection until you find a combination that gives you added power and stability. Notice how it feels. Then, build on it. Activate it when you sit down. Activate it when you stand up. Activate it when you walk up a hill. The use of the core helps you perform all sorts of motor tasks. It is essential to athletics. When activating your core becomes second nature during everyday activities, then you will be ready to learn how to use it on a horse. It is supremely important if you want to master riding or even be truly good at it.

¹⁹ Nock, B.: *Ride For Tomorrow: Dressage Today*. Liberated Horsemanship, LLC Press, 2009.

riders never activate their core beyond the rudimentary use of it to keep from falling off.

A large dark blue oval thought bubble with a gradient, containing the text "Stage Two Revisited" in a light blue cursive font. Three smaller, smaller dark blue ovals trail downwards and to the right from the bottom of the main bubble.

Stage Two Revisited

Now you have some idea about the differences between the stages of motor skill acquisition. Or at least you should have a clear understanding of stages *One* and *Three*. A stage *Two* motor skill has characteristics of both stage *One* and stage *Three*. Stage *Two* is where many people who strive to be good riders get stuck. The skill stabilizes. *Stagnates* might be a better term. It's that plateau in performance that so many people can't seem to get past. Errors are fewer in stage *Two* than in stage *One*. But there is a tendency to make the same ones over and over again. The rider just can't seem to stop making them (I explain why below). This is when a good riding instructor can be helpful by focusing on the errors and helping the rider correct them.

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Doing Vs Teaching

So, it makes sense to find a good riding instructor. Someone who can help you develop your skills and avoid those frustrating plateaus in improvement that go along with stage *Two*. Logic probably tells you that would be an instructor who is also an

accomplished rider. Someone who has stage *Three* skills and rides elegantly and effortlessly. Someone who others have judged to be a highly competent rider. Someone who can spot your riding errors. Someone who you can imitate. Hmmm! Well, ... not necessarily. Let me explain.

Do you recall that little experiment we did with typing? It's stored up there in your explicit memory library. I'll give you a brief review in case it didn't stick. A competent typist can easily type a sentence without looking at the keyboard. Her fingers fly errorlessly across the keyboard like a flash without giving any conscious thought whatsoever to where the individual keys are positioned. The positions of the keys are stored as implicit memories. The information is accessed and her fingers are controlled subconsciously. It isn't necessary to consciously recall the position of individual keys. In fact, most touch typists **can't** consciously recall the position of the individual letters. And there's the rub.

Now consider the implications for riding instruction. The movements and actions of an accomplished rider are automatic. Like typing, they are controlled by implicit memories ... subconscious memories that **cannot** be consciously recalled. Whoa! That can be a real problem when an instructor tries to describe what she does and what you should do while riding, right? The implicit memories that guide stage *Three* riding skills cannot be consciously accessed or verbalized. It is exactly the same as a typist trying to consciously recall where individual letters are located on a keyboard. Most typists can't do it very well. Most riders with stage *Three* skills can't describe what they do either.

Consequently, descriptions of what to do and how to do it are often superficial and inaccurate ... even when they come from a very sophisticated rider. What an accomplished rider can describe does not typically represent or reflect her riding ability

any more than recalling the position of the letters on a keyboard represent typing skill. The inability to accurately describe reactions and movements that are automatically controlled by subconscious thoughts is normal. It is a known, well studied, well-documented phenomenon. It is the price that is paid for attaining stage *Three* where performance is under subconscious control.

You see, riding and teaching are separate skills. Riding competently requires the use of implicit, subconscious memories. Teaching requires the verbalization of consciously recalled explicit information. Many people are good riders but can't teach a lick. Now you know why. The ability to ride and the ability to teach riding are not mutually exclusive but they do not automatically go hand-in-hand either.

Look around the sports world. Many great coaches were never particularly good at the sport they coach. It is not a myth. It is a very common phenomenon. Vince Lombardi, Paul Brown, Bill Walsh and Bill Belichick, for example, never played in the National Football League (NFL). Nevertheless, they are Hall of Fame NFL coaches. In fact, only 19% of the NFL head coaches in 2014 actually played NFL football. Coaching and playing football requires different skills and use information that is stored and accessed differently.

The path to competent riding requires practicing motor skills to the point where they are controlled subconsciously. The path to becoming a good riding instructor requires the acquisition of an extensive explicit memory library that can be consciously accessed and verbalized. You have to work at riding to be good at it. And, you have to work just as hard at teaching to be good at it too.

Explicit memories, as I mentioned above during the discussion of stage *One*, can be derived from all sorts of sources like reading about riding and watching others ride. Riding experience and trial and error exploration to find out what works and what

doesn't work are important to building explicit memories too. Here's the thing. I have come to believe that people who struggle the most to become good riders, i.e., the people who do not have a great deal of inherent talent for riding and have to work hardest to advance out of stage *One*, have an advantage in this regard. If they persist in their efforts and advance their skills to stage *Three* or at least stage *Two*, then it is likely that they developed a fairly extensive explicit memory library along the way ... maybe only because they had to work harder than those with more innate talent to get answers about how to do things. I wouldn't go so far as that old saying, "Those who can, do. Those who can't, teach." But I would say it is a mistake to take riding competence as a leading or sole indicator of teaching competence.

Instead, if you aspire to become unconsciously competent, look for an instructor who can discuss riding in depth. Pick one who can call forth alternative descriptions of what you should be doing. Pick someone who can adjust their approach to suit your style and level and the situation. Someone who can describe alternate paths to goals. Someone who understands how hard it is to stop doing something wrong when it is driven by implicit memories ... and who doesn't make you feel inadequate during the process. And, most importantly, make sure she can tell you why to do things and not just what and how. Understanding "why" takes a rider beyond imitation. Imitation, as I alluded to above, relies totally on explicit memories. Explicit memories can provide an initial foundation for developing riding skills but you don't want to get stuck using them. Understanding the "why" of things is imperative for growth and adaptation. Knowing "why" is the gateway to true unconscious competence.



Memories & Training

The use of explicit memories to guide riding requires a good bit of mental activity. Consequently, the reactions of novice riders, i.e., riders with stage *One* skills, are relatively slow. Let's say, for example, a horse starts to do something undesirable. It takes a little time for a novice rider to recognize it. Then, it takes a little more time to access explicit memories and shuffle through them to ascertain exactly what to do about it. After figuring that out, the rider does it. More time passes. It adds up to a slow reaction time. Conscious thought, i.e., registering a need for action, accessing explicit memories, choosing the relevant action, and acting takes time. And the delay coupled with unrefined riding skills typically causes a novice rider's reaction to be abrupt and inefficient, if not ineffective.

Over the years, I've seen riders react too late over and over again. It happens even when a rider with stage *One* skills actually knows what to do. Conscious mental processing to get it done just takes too much time and the delay makes the rider's reaction less effective than it could be. It is one of the major roadblocks to proficiently training horses. The difference between successful and unsuccessful training is often no more than a nuance, as I have written before.²⁰ More often than not that nuance is timing.

But reaction time isn't the only problem facing riders with stage *One* skills. Errors

²⁰ Nock, B.: *Ten Golden Rules Of Horse Training: Universal Laws for all Training Levels and Riding Styles*. Half Halt Press, Inc., 2004.

are also common. Let me explain. Have you ever watched one of those TV shows about cooking? They usually feature some master chef, like Gordon Ramsay. Their speed and accuracy when chopping food is dazzling. They do it in a supersonic blur. Master chefs have stage *Three* chopping skills. The chopping is controlled subconsciously by implicit memories.

Then there's me. Jean and I sometimes joke that I'm the *sous* chef of the house. But that's a terrible over-representation of my contributions. Mostly I just help Jean by doing menial tasks, like chopping celery, onions, cilantro, tomatoes and the like.²¹ Even there my skill set is pretty rudimentary. Sadly, I'm a novice chopper ... a stage *Oner* for sure. I chop food at a snail's pace and consciously think about every move I make. If I tried to go as fast as those chefs on TV, I'd lose an appendage. Even so, I sometimes have casualties ... a nicked fingernail or two. And that is another symptom of a stage *One* skill. Errors aren't uncommon.

So, add errors to a novice rider's performance ... slow reaction time, abruptness of movement, and errors. It spells trouble. If the horse is already well trained such shortcomings can quickly undermine his training. It's often just a matter of time until the horse is labeled a problem and sent back to a professional trainer or sold. It saddens me when a horse gets blamed for a rider's shortcomings. And it happens all of the time.

But what if the horse is green, i.e., has only recently learned to carry a rider on his back or has very little training? Then the problem is compounded. Two individuals trying to interact and make a go of it with limited knowledge and stage *One* communication skills. You see, a horse's reply to signals, i.e., aids and cues, are motor skills. And, the motor skills of horses progress through the same stages that ours advance through. Early on they are controlled by explicit memories. That means they

²¹ Sometimes I get to stir stuff too, like the meat for tacos. But then I get accused of "over processing." The life of a "*sous*" chef can be arduous.

occur slowly, are often abrupt, and errors are common. It is easy to see why things can go awry. The two-way communication between rider and horse is understandably ... well, a jumbled mess. And that is the basis for the commonly held view that a green rider and green horse don't do well together.

Then, there are riders with stage *Three* skills. Adjustments and reactions occur quickly, without the delay that is characteristic of motor skills in stage *One*. In addition, movements are highly fluent and errorless, not abrupt or inaccurate as in stage *One*. It is easy to understand why people like Nuno Olivera can train horses to amazingly high levels in a relatively short amount of time. Their timing and clarity of communication, guided by subconscious thought, are impeccable. Riding skills and training skills, in contrast to riding and teaching skills, do go hand-in-hand.



Have you watched the movie *Tin Cup*? There is a scene²² in it that's relevant to riding and this article. If you haven't seen the movie, here's the gist of it: Roy McAvoy (Kevin Costner) was a golfer with a bright future on the PGA tour. But his rebellious nature and bad attitude put a damper on that. Now working as a golf instructor at a backwater driving range, he falls for a new pupil, Dr. Molly Griswold (Rene Russo), who happens to be the girlfriend of Roy's old golf rival and now PGA star, David Simms (Don Johnson). After Simms humiliates him at a celebrity golf tournament, Roy decides to

²² You can watch the scene at <https://www.youtube.com/watch?v=Bb9ARJdM81I>.

make a run for the US Open tournament ... and Molly's heart. Roy qualifies for the tournament but then develops a chronic problem with his golf swing. He keeps shanking the ball.²³ Before the opening round of the tournament, he mis-hits shot after shot on the practice tee in front of all of the other golf pros. He just can't get his swing right.

So Romeo Posar (Cheech Marin), Roy's best friend and caddy, tells Roy to put all of his change in his left pocket, tie his left shoe in a double knot, turn his hat around backward, and stick a golf tee behind his left ear. Roy looks around at all of the other pros who are now watching the proceeds and says, "I look like a fool." Romeo agrees. Then he tells Roy to hit the ball. Whack ... a perfect shot right up the middle of the fairway. Problem solved. Roy turns to Romeo and asks, "How'd I do that?" Romeo says, "Because you're not thinking about shanking, you're not thinking about the doctor lady, you're not thinking period." Then, Romeo adds, "Your brain was getting in the way."

So, at the beginning of the movie, Roy had a beautiful golf swing ... a stage *Three* skill controlled by implicit, subconscious thoughts. His swing was effortless and automatic. Then, he qualified for the US Open. He wanted to win, beat his old rival, Simms, and impress the "doctor lady." That got him consciously thinking about his golf swing. Bingo! Explicit memories took control. That spelled trouble. His swing was no longer automatic or errorless. But Romeo understood the problem. He asked Roy to do a bunch of things that took his mind off of his swing. Zap! Implicit memories took back control of his swing and it once again was fluid and errorless.

It's not just a movie fantasy. Explicit thoughts can sabotage even a stage *Three* skill. And it happens to riders often. They work so hard at trying to ride well, like during a lesson or show, that they don't even do things well that they normally do well.

²³ When a golfer shanks a shot the ball darts to the right rather than flying straight ahead.

Their performance regresses from stage *Two* or *Three* back to stage *One*. Conscious thoughts take control of performance, and reactions become slow and errors creep in. It can be frustrating and even embarrassing.

I think it happens more often to adults who are just learning to ride than to kids. As people get older some also seem to get more obsessive about following instructions and doing what they are supposed to do. That rebel without a cause mentality is long gone. It's another facet of the hesitancy to experiment to see what happens. They want detailed information about what to do and when to do it. Consequently, they get stuck in explicit thinking. For some adults, riding never becomes automatic. It's not a matter of agility or innate ability ... their progress gets stuck by their own obsession with trying to get it right. They think too much ... just like Roy.

Kids, on the other hand, ... well, they just get it done. They don't worry about how it looks or what other people think. Their repertoire of skills might be limited. But those they do have advance to stages *Two* and *Three* quickly. There's not a lot of conscious thinking to get in the way. They ride to have fun. And the refinement of their skills progresses naturally, as it should. Like when we learned to walk.

So, maybe it pays to be more kid-like sometimes. Relax. Find the tension in your body and let it go. Enjoy the moment. You can focus on improving your riding skills without getting obsessive and trapped in explicit thoughts. It's the mental equivalent of seeing with "soft eyes" versus "hard eyes. Hard eyes focus intently on something ... say a tree, for example. The rest of the world gets blurred out. With soft eyes, you can still see the tree and can even mentally focus on it but at the same time, you take in the entire scene, i.e., the forest that surrounds the tree, the birds at its base, and so on. Riders should always ride with soft eyes. Hard eyes tend to cause tension in the body which is the enemy of fluid movements. A hard mind that focuses intently on a riding

skill does the same thing while trapping the rider in explicit thoughts. A “soft mind,” on the other hand, is much more conducive for developing riding skills. A soft mind allows the rider to mentally focus on the performance of a riding skill **without** shutting out the rest of the world ... i.e., without becoming obsessively focused on the skill itself.



Will Munny (Clint Eastwood) had just shot and killed five men in the *Unforgiven*²⁴, when W. W. Beauchamp (Saul Rubinek), a writer, ask him how he knew who to shoot first. Will replied, “I was lucky in the order.” That’s it? Luck? But then Will added, “I’ve always been lucky when it comes to killing folks.” Ah, now we’re getting somewhere. So if Will was always good at “killing folks,” what does that tell you? It probably wasn’t just blind luck, right? Will had stage *Three* shooting people skills, and consequently couldn’t verbalize what he actually did ... how he picked the order of people to shoot. I’m thinking that’s the truth of the matter.

Here’s the thing, for most of the movie Will couldn’t hit the broad side of a barn door with a gun ... definitely stage *One* skills. Then, he drank enough whiskey to kill a mammoth mule. And Voilà! He turned into a deadeye, stone-cold, shootist with fast, errorless reactions ... call ‘em stage *Three* shoot ‘em up skills.

OK. Give me a minute to calm down. I got a little carried away with Will’s

²⁴ You can watch the scene I’m referring to at Great movie moments - *Unforgiven* 1992, <https://www.youtube.com/watch?v=0B5IFuTUhso>.

amazing sprint through the stages of motor skill acquisition. But, there's an important point to be made here: Despite what you might see in the movies, there are no magic elixirs that can instantly give a normal human being stage *Three* motor skills. Maybe drinking a bunch of whiskey can make someone **think** they have stage *Three* skills, but that's just an illusion. Stage *Three* skills are acquired *only* through patient, persistence practice ... by repeating a movement ... repeatedly.

Now I've done it. I probably conjured up an image of designated practice sessions with a rider drilling on improving her skills. That last paragraph I wrote in the preceding section about having fun and riding with a soft mind is long forgotten, right? Well, I hope not. Sometimes practice sessions are helpful and may even be necessary. But more often, especially with basic skills, special practice sessions really aren't what the doctor ordered. It's better, in my opinion, to integrate practice with things you and your horse enjoy doing. It is simple to do. Just ride as frequently as you can and do what you should be doing each and every time you should be doing it.

Remember my story about Rupert and the student who exclaimed, "Oh! You have to guide him?" Well, she missed an opportunity to practice using rein, leg and weight aids when she failed to turn him. It's a very common oversight. Many people just sit on their horse as he follows the walls of an arena or the turns on a trail. Instead, take control. Be an active rider, not just a passenger. Each time you want a horse to stop, go, back up, or change gaits it is an opportunity to practice. It is a chance to improve your riding skills. At the same time, they are opportunities to sharpen your horse's sensitivity to signals.

There are also many ways to practice and improve your riding skills even when you aren't riding. I already mentioned above in a sidebar about learning to use your core with exercise bands and by activating it during everyday activities. I learned to

move my legs independently of the rest of my body by sitting in a saddle on a stand. I work on my balance by standing on one leg while moving my other leg and upper body around. I learned how to change my shoulder and hip positions for the transitions between all of the lateral movements of dressage walking on the ground to music.²⁵ Be creative. There are plenty of opportunities to learn and perfect riding skills without designated practice sessions and even without the presence of a horse.

But, and this is important, make sure you practice the right thing. If you practice the wrong way of doing something, it will, just like doing something the right way, progress through the stages of motor skill acquisition. Eventually, it will become ingrained, a stage *Three* motor response. A habit that occurs automatically. And, it is difficult to alter habits based on implicit memories. Why? Because to do so requires being consciously aware of the action. And by now you should know how difficult that is to do once a skill has reached stage *Three*. “Bad habits are like comfortable beds, easy to get into but hard to get out of.”²⁶

In most cases, the resistance of implicit memory-based actions to change is a good thing. You wouldn't want to have to relearn motor skills over and over again even after you mastered them, right? But, if you learn to do something incorrectly, there's a price to pay when you try to learn to do it correctly. Old habits die hard ... especially if they are driven by unconscious, implicit memories.²⁷ If you don't believe it is hard to change skills controlled by implicit memories, watch the video, “Everyone Failed To Ride This Bicycle.”²⁸

²⁵ Why to music? Well, because I think of riding as dancing with the horse. It helps me to be more fluid and rhythmic while riding and while practicing on the ground. But that's a story for another time.

²⁶ Anonymous.

²⁷ A riding instructor can help by understanding the difficulties of undoing implicit memory-based bad habits and patiently calling out the error each time a rider does it.

²⁸ Everyone Failed To Ride This Bicycle at <http://www.viralvo.com/bicycle/>.

So learning the right way to do things as early as possible is greatly advantageous. I'll let you decide for yourself what that means. There is a tremendous amount of diversity in styles and approaches in the horse world. What is the right way for some isn't the right way for others. This isn't the place to argue about such things. I'll just say this, as you practice, don't become so focused on what you are trying to accomplish that you get stuck in explicit thoughts or, even worse, that you forget about your partner, the horse. Don't push so hard that you jeopardize his mental or physical health. As you practice, the sensitivity and responsiveness of the horse should improve right along with your motor skills. Remember? Riding and training skills go hand-in-hand.



*Memories are the key not to
the past, but to the future.*

Corrie ten Boom

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