

# **Are Drummers Right-handed or Left-handed? They're Both!**

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Most of us are familiar with the history and development of the drumset as well as the numerous grip and hand, wrist, and arm movement techniques that have resulted over the years (see my recent article titled "Traditional or Matched Grip, Which is Better?"). In this article I'm going to outline some issues that impact choices that we all make - or that have been made for us - about technique, practice, learning, and playing the drums. I also want to provide some important information relating to the latest research and findings in the areas of science, physiology, and medicine in order to position drumming in a larger context.

From a very early age, through a combination of genetics, mirroring, culture, and preference, we all began to favor the use of one hand over the other for everyday tasks. This is often referred to as 'handedness'. Most people self-identify as being right- or left-handed depending on which hand they use to write. What seems like a relatively simple either/or determinant of handedness is actually not so simple, and in the case of drumming, may not be accurate or helpful. It should be noted that there is a potential chicken-and-egg situation with skill and preference as it relates to drumming: does the preference exist because one hand is more skilled, or is that hand more skilled because it is the preferred hand and therefore used more frequently? It seems likely, though, that handedness is a result of a few factors rather than only an inborn skill difference.

Much research continues to attempt to define handedness and quantify it. However, depending on which part of the world is surveyed and how it's measured, it's estimated that somewhere between 75% and 90% of us prefer the use of the right hand over the left for executing certain tasks.

Numerous on-line questionnaires claim to accurately measure your degree of handedness on a scale from strong left-, to mixed-, to strong right-handed. In these surveys, in addition to your preferred hand for writing, you're asked to indicate which hand you always, or most often use to brush your teeth, hold a cup, throw a ball, open a jar or box, use scissors, etc. When completed, you're given a 'laterality index' indicating where you land on the handedness scale.

Although it might be interesting to discover your 'score', it really should make no difference to how you learn, practice, play, and set-up the drums. A drumset is not a right or left-handed instrument, and it's best to approach it as a two-handed one where both hands are coordinated, and work together and in tandem with the right and left foot.

Yes, we may feel more comfortable using one of our hands to write, draw, and use a spoon, but when we play drums we need both of our hands to be equally skilled and coordinated to satisfy the musical demands for fast, precise, and uncoupled movements. The same is true for timpanists, vibraphonists, congueros, pianists, guitarists, and violinists, as well as surgeons, airline pilots, and athletes. This also applies to us in our everyday lives – we need both hands working together to drive a car, use a computer, eat, etc.

The hands are our primary means of motor interaction with the environment. Their neural organization is fundamentally asymmetric, meaning both sides of the body work together and can perform separate tasks simultaneously. In playing the drums, as with most musical instruments, we are heavily reliant on the development of motor skills and neural pathways in order to physically play. The notion of independence, interdependence, and simply playing single strokes are examples of this asymmetry.

This also applies to the use of our feet. Whether we're playing rhythmic independence with the left foot on the high hat, clavé rhythms with our left foot using a bracket and a cow bell, or right and left foot double-bass drum patterns, we benefit by having both feet equally developed physiologically and neurologically, and perfectly coordinated with our hands.

We train our fingers, hands, and arms to work with our brains and nervous systems to enable us to achieve a virtuosic level of control and fluency. The incredible physical dexterity, articulation, and timing that musicians are able to exact is aided, in part, by mechanoreceptors - neuroscientists' term for sense organs. The highest concentration of these sense organs are in our hands and fingers, clearly essential to drumming. Equally important to this discussion, this tactile acuity is the same in both hands.

The high concentration of these sensory receptors is what enables violinists, for example, to play the correct notes, in tune, with their left hand on a very small fretless fingerboard, accurately at breathtaking speed. This is no small feat considering that the vast majority of them are 'right-handed' and they've learned to do this with their non-dominant (weak) hand.

According to Dr. Molly Gebrian, Professor, researcher, and musician at the University of Arizona... "All bowed string players (unless they have a severe abnormality on one side of their body) learn to play with the left hand fingering the instrument and the right arm in charge of bowing. It's irrelevant whether the student is right or left-handed. This is because the brain is highly plastic (changeable) and both the motor cortex (which controls voluntary movement) and the somatosensory cortex (which controls the perception of sensation from the body) change in response to how we use our bodies. In the brains of string players, for instance, the parts of the motor and somatosensory cortices that control the left-hand fingers are significantly bigger than the parts that control the right-hand fingers. This is true whether someone is right or left-handed and it has developed in response to training. These areas are also bigger than in non-musicians."

Often, we drummers refer to the dominant hand as our 'strong' hand and our non-dominant as 'weak'. These designations are most likely faulty. As evidence, you need only watch skilled drummers play and, regardless of the grip or stick technique they use, or how they set up their instrument, try to determine their 'strong' and 'weak' hand. Even more illustrative of the difficulty of this task, try asking a non-drummer to make this distinction.

The degree of handedness (dominant vs. non-dominant) as it affects drumming is greatly altered through practice and training, and its neural basis changes over time. This means that how and what we do, and how we practice and play our instruments, produces dynamic changes to the cortex of the brain. Our brains and nervous systems adjust as a result of input (practice). Dr. Gebrian referred to the brain as being 'plastic', and according to neuroscientist Dr. Andrew Huberman neuroplasticity is the brain's ability to modify, change, and adapt both structure and function throughout life and in response to intense experience, learning, and training.

Due to preference and more frequent use of the dominant hand over the non-dominant hand in everyday life, the non-dominant hand may be slightly weaker and less skilled when we first begin to play the drums. However, it catches up very quickly and has the potential to become perfectly coordinated with, and equal to the dominant hand/arm through correct practice. For instance, when we first start to work on alternating singles, our dominant hand has better control and more strength. But, over time, the singles begin to even out. Eventually, and when practiced correctly, there is no discernable difference between the mobility of the hands, evenness of strokes, and the sound produced. Again, our brain and body respond and change according to input and practice.

Here's another example: if we've been playing a certain rhythm with our right hand for a number of years (let's say, the jazz ride cymbal pattern), and then we try to play the same rhythm with our left hand, we notice that it feels uncomfortable. This is not because our right hand has more innate fine motor control; it's because our sensorimotor systems and brains have developed that skill in a nuanced way through lots of playing. In fact, if you watch experienced jazz drummers playing jazz time on the ride with the 'dominant' RH, you'll notice that the 'non-dominant' LH is playing intricate, continuously changing, shaded rhythms on the snare, toms, etc., often executing more difficult and precise work than the 'strong' hand.

Ironically, if we consider handedness as an important issue in how we approach playing, we actually may be able to progress faster by reversing the roles of our hands. In other words, the more dynamic, changing, nuanced rhythmic elements could, perhaps be more quickly learned and played by the dominant RH, while using the non-dominant LH for the less-changing, less-active elements (jazz time, straight 8ths, etc).

Consider this: let's say we're 'right-handed' and playing a funk pattern. The right hand plays 8<sup>th</sup> notes on the high hat or ride cymbal and the left hand plays 2 & 4 along with some ghost notes on the snare. If we try the same pattern but switch the rhythmic roles to the opposite hand, we'll notice that our right hand does not have the same degree of control of those ghost notes as our left hand. In addition, the left (non-dominant) hand feels awkward even though it may be playing straight 8<sup>th</sup> notes. If our dominant hand holds all of the fine motor skills this switch should present no problem. So why does it not sound or feel as good?

Simply, our brain responds to input, and the techniques we've used to play that pattern through years of repetition are deeply ingrained in our sensorimotor systems.

Of course, we could re-learn that pattern by switching hands, but what would be the point of doing that? That neural memory has developed in us through time and practice, so the benefits of changing course are, debatably, slim to none.

The bottom line here is that our hands become very skilled through consistent practice because our brains respond to input. For the most part, we are visual learners. Seeing primes the body for doing, which is one reason so many beginners, and even non-drummers, assume that crossing the RH over the LH to play on the high hat is the correct way. Although we've adapted and made that work, it is neither correct nor incorrect, but rather just one way to play.

We all know that many techniques drummers use and have used over the years have been handed down over many decades. (Look for a future article titled "The Tyranny of Tradition"). Some of these techniques are typically not the result of research into how our bodies actually move and how our brains and nervous systems work. Most of us have learned through observing, or being told, that if we're 'right-handed', that's the hand that should be playing on the high hat by crossing over the left hand playing on the snare. Many of us have done this without question for decades, thereby creating a few unnecessary challenges for ourselves by believing that this cross-handed method of playing is the 'correct way' instead of it being 'one way' to play. If we've been crossing the right hand over the left to play on the high hat we should continue to do that. If we don't encounter problems and if we feel comfortable and uncompromised playing that way, there is no need to change. However, if we want to experiment with some new patterns playing open-handed with the left hand on the high hat (or any sound on the left side of the kit) while moving the right hand freely around the right side of the kit, then we should practice and develop them that way. Whichever technique we decide to use (crossed or open-handed), it should be determined by how and what we want to play and not because we think that we're right or left handed.

A related issue is the unsubstantiated idea that a drum kit should be set up differently for a 'left-handed' person. If you've set up this way for your entire

career, then keep playing that way. However, beginners should not arrange a drum kit differently on the basis of perceived hand dominance. Pianos, vibraphones, timpani, saxophones, violins, etc. are not designed differently for 'righties' and 'lefties' - they don't need to be, nor does a drum kit. Adapting, adjusting, learning, and becoming expert is within everyone's ability regardless of which hand you write your name with. Renowned vibraphonist Tony Micelli states that whether playing with two or four mallets, "our hands assume roles because of the layout of the instrument, it doesn't matter if we think we're right- or left-handed, our hands must be equally skilled."

Eight-time Grammy nominee as a leader, famed Latin and Jazz drummer, percussionist Bobby Sanabria states that "...regardless of which hand might be your dominant hand, to play drums, congas, timbales, bongos, vibes, marimba, timpani, any type of percussion at a high level, you can't have a weak hand. You need to have them both functioning pretty much evenly. And if you're talking specifically about the drumset? That means your feet as well. With that in mind, a good piece of advice, and I'm serious, 'learn how to dance.'"

Don Liuzzi, principal timpanist with the Philadelphia Orchestra, considers the timpani to be a 2-handed instrument that requires both hands to be highly skilled. He is a right-handed person who has trained his left hand to do more work, in part by using the American system with the low drum on left side thereby forcing the left hand to play stronger on the low drum. He also encourages his students to practice at the drumset placing the ride cymbal on left side and practicing "riding" with the left hand, developing better dexterity. Due to an injury, Don had to quickly incorporate an amended technical grip for a few months, likely creating a new neural pathway. It is a grip he still occasionally uses, enabling him to continue to perform at a high level.

Personally, I have 40+ years of playing the high hat mostly with my right hand, and it could take years for me to develop the same feel and comfort by switching. However, I do practice new rhythmic patterns and even some common grooves open-handed if this allows my right hand to move more freely around the drums. There are no physiological or neurological reasons stopping or inhibiting us from trying new techniques. I heard a famous drummer during a clinic say that he tried playing something open-handed but it just didn't feel good. Of course it won't! Suddenly reversing the way you've been playing for years will not feel good.

As I mentioned earlier, the science of neuroplasticity is a fact - the brain is 'plastic' and mutable, and it changes based on what we do, think, intensely experience, learn, study, and practice. Dr. Trisha Stratford, a clinical neuro-psychotherapist, author, and university lecturer, states that it can take, on average, 8 weeks to begin to develop a new neural pathway (a way of playing something new). If you do develop a new neural memory (sometimes called muscle memory), it doesn't negate the other pathways. In fact, learning something new is aided by what you've already learned and will make the new learning quicker. This is sometimes called 'far transfer'. There is also growing evidence that both sides of the brain work hard to learn the rhythms and 'roles' designed and intended for the opposite hand, even if you rarely play it that way. All those years of practicing something with one of your hands has actually inadvertently transferred some, or much, of that 'vocabulary', or skill to the other hand automatically.

The take-away here is that the drumset is neither right or left-handed instrument and the learning, practice, performance, and set-up should reflect that in order to maximize development. A little bit of research, questioning, and fact-finding will help us all separate fact from fiction and enable more informed choices about technique, playing methods, and equipment set-up. Handedness is a complex and intriguing issue, as well as a fascinating area of research which remains ongoing and dynamic. Although the full story continues to unravel, much is already known and we can use that to our advantage as players and teachers as we develop and learn throughout our lifetimes.

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