

# What Musicians Can Learn About Practicing from Current Brain Research

## The Quick and Dirty Cheat Sheet

by Molly Gebrian

Take Away #1: Everything you do reinforces a pathway in your brain.  
Which path am I reinforcing right now?

- DON'T just start at the beginning and play until you make a mistake. This reinforces the mistake!
- DO isolate the mistake, figure out what's causing the problem, reinforce the solution, and then put it in context.

### Practice Strategies:

- Do the trouble spot *at least* 5 times in a row correctly. If you get it wrong after time #3, you have to go back to zero.
  - More fun alternative: roll dice (use 2) and whatever you roll is how many times you have to play it in a row (Anything under 4 is too few. Roll again.).
- For a huge list of ideas, see the Amazing List of Practice Techniques at <http://mollygebrian.com/writing>

Take Away #2: For optimal performance success, use random practicing.

- It's much harder for your brain to reconstruct from scratch how to do something perfectly, but this is exactly what you have to do when you perform.
- When you are getting ready for a performance, practice in such a way that you force yourself to work on playing something perfectly the very first time, not the second time.

### Practice Strategies:

- Once you can do something 5 times in a row, try the following:
  - Pick at least 3 trouble spots (5 is optimal, more than 10 is too many at once) and put a small sticky note in your music at each spot.
  - Play the first spot. If it's correct, put a tic mark on the sticky note. Go through and play each spot, putting a tic mark if you do it correctly.
  - Once you've gone through all of them, go back to spot #1 and play it again. If it's right, give yourself another tic mark. If it has a mistake, erase the tic mark from the first time and start over from 0. Keep going through all the spots, giving yourself tic marks when it's correct, and erasing all the tic marks you've earned for that spot if there's a mistake.
  - The goal is to get 5 tic marks on each one.
- Download an interval timer for your phone (there are many free ones).
  - Set the interval timer to go off every X number of minutes (say, every 5 minutes).
  - Practice in your normal way.
  - Every time the timer goes off, immediately stop whatever you're doing and play your trouble spot just once, no matter how bad it is.
  - Go back to whatever you were working on before the timer went off.
  - Repeat until the end of your practice session.
- At least two weeks prior to an audition or concert, at the end of each day, play your program from start to finish with only the warm up you'll do on the day of the event.

## Take Away #3: Your brain is doing something fundamentally different when the metronome is on than when it's off.

- If you are trying to develop a rock-solid sense of pulse, having the metronome click on every beat is not going to help you after a certain point.

### Practice Strategies:

- Practice with the metronome on offbeats only.
- Practice with the metronome on every other beat.
- Practice with the metronome on downbeats only.
- Practice with the metronome on every other downbeat.
- Practice with the metronome on every third downbeat, etc.
- Use TimeGuru to randomly silence beats.

## Take Away #4: Sleep is vital to learning. Get enough sleep and don't cram.

- When we sleep, our brain consolidates what we've learned during the day and makes changes to make our performance more streamlined.
- The bulk of this benefit comes in the last 2 hours of an 8-hour night of sleep.
- Cramming doesn't work: you don't get the benefit of sleep this way.

### Practice Strategies:

- Spread your practice out over as many days as possible. 10 minutes a day is much more beneficial than 70 minutes once a week.
- On the first day of learning something new, work to get it solid and reliable at a SLOW tempo. The next day you can start making it faster.
- Make getting enough sleep a priority and part of your routine.

## Take Away #5: Mental practice causes actual physical changes in your brain and can be just as effective as physical practice.

- When you mental practice, the same areas of your brain are active as when you physical practice.

### Practice Strategies:

- If you are injured or somewhere you can't practice (traveling, for instance), mental practicing is a great alternative.
- To get the most out of mental practicing, sit still and don't move. Imagine yourself playing as vividly as possible. Feel exactly what your fingers have to do: are they touching or not? what string are they on? which position? Feel exactly what your bow has to do: up bow or down bow? slurs? which string(s)? what part of the bow are you in? bow speed? contact point? What does the bow feel like on the string? What do the pitches sound like? What is the quality of sound you want? Are you holding tension anywhere? Do you tense up or feel anxious right before a big shift? The more vivid your imagining, the bigger the benefit. Once you identify things you want to fix, imagine yourself doing it the right way as vividly as you can.
- If you are physical practicing and are having trouble with a certain spot, stop and imagine yourself doing it correctly. If anything is "fuzzy" (you can't imagine it clearly), take the time to really focus on it in your mind and make it clear. If you can't imagine it clearly, you won't be able to play it accurately.