

The Practice Project

How to be a Bulletproof Recorder Player

By Tina Chancey

Tina Chancey is director of HESPERUS, which performs early music soundtracks for classic silent films. Currently known for her work with early bowed strings, particularly viol and pardessus de viole, she has also played recorders, shawm, krumborn and rauschpfeife with her late husband Scott Reiss in the Folger Consort at the Folger Shakespeare Library in Washington, D.C., as well as in the New York Renaissance Band, New York Ensemble for Early Music, and on tour with rocker Ritchie Blackmore in Blackmore's Night.

A prize-winning composer by the age of 15 at Interlochen National Music Camp, Chancey conducted her own double woodwind quintet at her high school graduation. She subsequently attended Oberlin College and received a Master of Arts in Performance from Queens College; a Master of Arts in Musicology from New York University; and a Ph.D. in Musicology, Music Technology and Women's Studies from the Union Institute. Chancey teaches, performs, improvises, produces recordings, composes and arranges, and directs both the SoundCatcher: Play by Ear and What's That Note: Tune-Up workshops. Her articles on playing by ear and improvisation appear in AR and Early Music America magazines. Her newest CD of Sephardic music is La Yave d'España (The Key from Spain).

Recent artist residencies have taken Chancey to Geneva, Switzerland; Melbourne, Australia; Hamburg and Berlin, Germany; Oberlin College Conservatory; and the Hong Kong Academy of Performing Arts. She also returned in April from a workshop and performance art/early music concert with singer Emily Lau for the Big Mouth Society in Portland, OR.

She has received an Early Music America Special Education Achievement Award, and four Wammies for best classical instrumentalist by the Washington Area Music Association.



This article is the fourth and final article in a series entitled the **American Recorder Practice Project**—adapting How to Practice workshops that I led for classical and traditional musicians in the Washington, D.C., area in 2017. Boy, we've covered a lot of ground!

- First, we explored your surprisingly varied reasons for practicing, proposed a basic problem-solving method, and suggested some practice hacks to speed the process.
- Article 2 introduced **SHMRG** as a way of discussing what happens in music: **START, HARMONY, MELODY, RHYTHM, GROWTH**—an important prelude to planning what and how to practice.
- Article 3 included some techniques that give you more control over your body (Alexander Technique) and your time (read Alexa Raine-Wright's interview)—ideas to consider when practicing just isn't giving you the results you want.

Here, in the fourth article, we meet two experts:

- **Noa Kageyama**, the legendary **Bulletproof Musician**, who makes a strong case for pulling in good ideas from other disciplines to help your recorder playing improve in surprising ways.
- **Serap Bastepe-Gray**, physician and professional musician and one of the founders of the Johns Hopkins Center for Music and Medicine as well as the Peabody Occupational Health and Injury Prevention Program, who tells us how to practice smart.



Finally, recorder professional **Gwyn Roberts**'s epilogue reveals how taking Bastepe-Gray's **Playing Well** course revolutionized her approach to practicing.

AN INTERVIEW WITH NOA KAGEYAMA, PH.D.,

performance psychologist and creator of the online blog
The Bulletproof Musician,
<https://bulletproofmusician.com/blog>

Tina Chancey: Your blog addresses so many topics—from how to practice more effectively, to dealing with performance anxiety, to what qualities make an excellent performer and how to nourish them. What experiences did you have that made it clear to you what people needed?

Noa Kageyama: I started violin lessons when I was 2-1/2, so I remember having to perform from a pretty young age. I have a couple of pretty vivid memories of being nervous, that go back to when I was ~5 or 6, and even though I don't think I knew what that feeling was, I do remember it being pretty uncomfortable at that time! And then, as I got older, I was certainly more aware of nerves and had my fair share of panicky moments backstage, and memory slips, shaky bow, and other I-can't-believe-that-happened types of moments on stage as well.

So when I took a class on performance psychology when I got to Juilliard for grad school, and learned that there was a whole field of research devoted to understanding how one could perform optimally under pressure, I was kind of floored by how practical, useful and effective these skills were.

And when I had a chance to use them in an international competition I did my second year there, and really experienced how much of a difference they made for me, I figured I probably wasn't the only one who would be intrigued by this kind of information.

Where does “the art of practicing” come in?

I really like legendary violin pedagogue **Ivan Galamian's** concept of there being three aspects of practice:

- A conceptual element, which involves figuring out what we want a piece to sound like (this is where our knowledge of theory, history, score study, listening, experimenting comes into play) [*and SHMRG! TC*].
- And then a mechanical element—where we have to figure out how to bring our concept of a piece to life, by working out the various mechanical or technical issues involved.
- And finally, a performance component, where we have to practice getting better at performing the music from the first note to the last, as we'll have to eventually on stage.

I don't know that performance psychology has a ton to say about the conceptual part (other than how important it is to have a clear concept to aim for), but I do think we can con-



tribute to the technical, and especially to the performance aspects of practicing. A lot of the research on motor learning—whether it relates to deliberate practice, or different practice approaches like interleaved [*mixing multiple topics*] and variable practice [*frequent changes of task*—is very much relevant to making practice more effective and efficient. And most of the mental skills that performance psychologists work with athletes on—from building confidence, to visualization, to optimizing focus—fit into the performance practice part of Galamian's model too.

What musicians does your blog target: amateur and pro, student and working musician, young and old? Do they need the same kind of advice?

To be honest, I initially started the blog with myself in mind—as in, what do I wish I had known when I was still playing? I still tend to gravitate to topics that I find personally intriguing, but I also tend to have specific people in mind when I'm writing. For instance, sometimes I'll be thinking of a high school or college-age student I've worked with before. On other weeks, I might write with a particular orchestral musician I'm friends with in mind. Or a private studio teacher I've exchanged e-mails with. So it varies from week to week, but based at least on the variety of e-mails I get from folks, it does seem that musicians at all levels and stages

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of development share a lot of common interests and challenges/frustrations!

I like that you bring advice from other disciplines that work towards excellence, like competitive sports, into the discussion. Others think that it's more effective to get specialized help on their own instrument. How does cross-disciplinary advice benefit students?

This might be a personal bias, but I've always liked learning or "stealing" insights from different domains. For one, it's kind of interesting to learn about what experts in other areas are doing that works for them. But sometimes not knowing what the limitations of an instrument are can lead to some pretty useful tips and insights into how to do something better. Like when I've gotten unusual—but effective—ideas about bowings or fingerings from a pianist, for instance.

Are there any books that will support and nourish our readers as they try to play better?

There are three books that come to mind.

- **Mastery**, by George Leonard
- **Mindset**, by Carol Dweck
- **Make It Stick**, by Peter C. Brown, Henry L. Roediger III, and Mark A. McDaniel.

The first taught me patience, and how there is no "end" at which point you finally reach the pot of gold at the end of the rainbow; the goal is really to be on the path, not to try to get to the non-existent finish line as quickly as possible. The second has to do with focusing relentlessly on growth, and being curious about how to get better—as opposed to being fixated on trying to prove ourselves and demonstrate how good we are. And the third is an enlightening and entertaining exploration of the current research on how to learn in the most effective way.



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Last thoughts?

I heard chef **David Chang** say that one can sometimes forget that the point of food isn't to be exact, but to be delicious. I think the same is very much true of music. And sure, effective practice and mental skills work are essential to help us play better under pressure in performance, but there's actually research that suggests that **audiences (and performers) have more fun when musicians try to play more spontaneously** and aim to be more improvisational in the moment—that this results in not just a more engaging and interesting performance, but paradoxically, often a more accurate one too!

*Performance psychologist **Noa Kageyama** is on the faculty of The Juilliard School and the New World Symphony. Formerly a conservatory-trained violinist with degrees from Oberlin Conservatory and Juilliard, Kageyama specializes in teaching musicians how to demonstrate their full abilities under pressure. His work has been featured in The Wall Street Journal, Musical America and Lifehacker. He maintains a coaching practice and an online mental skills course, and authors The Bulletproof Musician blog, which has 100,000+ monthly readers. <https://bulletproofmusician.com>*

Effective practice and mental skills work

are essential to help us play better under pressure in performance, but there's actually research that suggests that audiences (and performers) have more fun when musicians try to play more spontaneously....

Stay Thirsty Magazine interviewed Dr. Serap Bastepe-Gray in fall 2018 about her various initiatives integrating music and medicine. Read on for an excerpt (used with kind permission of the publication, <https://staythirstymagazine.blogspot.com>) that explores the process of practicing from a neurological point of view.



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Most musicians believe that they are improving during practice. In reality, most of the neurological and physiological processes that lead to adaptation happen after the practice is over... Sleep ... is very important.



Serap Bastepe-Gray

STAY THIRSTY MAGAZINE INTERVIEWS SERAP BASTEPE-GRAY

Stay Thirsty: What are the key neurological and physiological processes that the human body goes through in learning and in performing music?

Serap Bastepe-Gray: Neuroscientists describe mastering a musical instrument as one of the most significant achievements of the human brain, requiring highly sophisticated skills including fast and coordinated auditory, visual, perceptual, emotive and motor processing skills.

Practice provides multi-modal stimuli to the brain. Due to the ability of the brain to reorganize itself, referred to as “**neuroplasticity**,” a distinct multi-modal network of highly connected perceptual-motor pathways develops in musicians’ brains through neurochemical adaptation, circuitry formation and network enhancement processes. The changes in the brain as a result of active engagement in instrument practice and performance over years is so profound that musi-

cians’ brains differ in connectivity even at rest as compared to non-musicians.

Another consequence of practice in a musicians’ mind is the formation of a **multi-modal imagery** of the performance of a given repertoire: musicians, in their minds’ eye, can see, hear and feel themselves playing a particular piece without actually physically performing that piece. This multi-modal imagery not only serves as a basis for mental practice (or visualization as musicians like to call it), but it also happens “online” during performance: musicians, a split second before they actually move to produce a sound on their instruments within the piece they are playing, experience the visual, auditory and perceptual sensations of making that movement. This so-called **online imagery**, which is for the most part unconscious, triggers motor anticipation, thus optimizing and smoothing out the actual motor component of performance.

Practice also provides stimuli to functionally condition and adapt the musculoskeletal system to the demands of playing an instrument by inducing **ultrastructural, biochemical and metabolic changes in muscles and tendons**. Just like a session of exercise, a session of practicing results in disruption of myofibrils and cytoskeleton in muscle cells, increased collagen breakdown in tendons and increased muscle metabolism and metabolic waste production. This initiates an adaptive response in the musculoskeletal system for structural and metabolic remodeling towards a better contractile machinery, efficient neuromuscular junction, increased capillarity and better oxygen utilization.

Most musicians believe that they are improving during practice. In reality, most of the neurological and physiological processes that lead to adaptation happen after the practice is over, beginning during the recovery phase and continuing for several days. Sleep, as we now know, is very important for memory consolidation as well as decreasing muscle breakdown and facilitating remodeling. In a study conducted at the Johns Hopkins Laboratory for Computational Motor Control and published in *Journal of Neurophysiology* in 2015, **Sarah Pekny**

and **Reza Shadmer** showed that practice alone was not sufficient to result in increased efficiency of motor output, but 6 to 24 hours spent away from practice was a required element for optimization of effort. Similarly, studies indicate that after a session of exercise, recovery of muscles and tendons can take as long as 24 to 48 hours, while the remodeling process continues for 7 to 10 days or even longer. In athletics, this improvement that happens 24 to 48 hours after the practice is called “**silent training**.” I believe this is one of the many useful concepts musicians can adapt from sports for training for better practice outcomes.

I wish we could reprint the entire article here, but in summary, Bastepe-Gray touches upon the:

- *importance of rest between practice sessions (five minutes of rest ... every half hour is useful to give brain and musculoskeletal structures time to clear)*
- *value of warming up and cooling down (the bridges that move the mind and body from daily activities to focused practicing and back)*
- *role of mental strategies in a musician's overall physical and performance health (without training the mind, we cannot train the body to command an instrument).*

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<http://www.toot.org> or email info@toot.org

Mark your calendar – 21st Summer Toot, in early June 2020!



Want to learn more? Read the whole interview with **Serap Bastepe-Gray** in **Stay Thirsty Magazine** (Fall 2018, Vol. 102). <https://staythirstymagazine.blogspot.com/p/johns-hopkins-music-medicine.html>

Still curious? Take one of Bastepe-Gray's online courses; she offers a number of eight-session non-credit courses for non-students, as well as a 14-week online for-credit course for Peabody students and faculty. For information visit:

<https://peabody.jhu.edu/explore-peabody/peabody-online>.

A recorder professional and Peabody Conservatory music faculty member (<https://peabody.jhu.edu/academics/instruments-areas-of-study/historical-performance>), **Gwyn Roberts** took Bastepe-Gray's course; read on for what Roberts says.

IT'S NOT MAGIC, IT'S NEUROLOGY: GWYN ROBERTS WEIGHS IN

I am a keen observer of technique, both in my own practice and in my teaching. Among my favorite strategies are a few that seem to work by some sort of magic—like playing in tune by singing along with my recorder, inside my head, or tackling a difficult passage by learning it slowly, starting from the end. In the fall of 2018, Peabody Conservatory offered those of us on faculty the opportunity to take *Playing Well*, a course in functional anatomy, taught entirely online by Dr. Serap Bastepe-Gray, who is herself both a physician and a classical guitarist. Not only did it teach me the science behind those magical techniques I mentioned, it revolutionized how I think about practicing, learning and performing.

Before the class, my focus was on observing which strategies produced the results that I wanted and refining them through experimentation. Knowing more specifically what is going on physically, especially neurologically, as we learn and play has helped me to create even more effective and durable ways of teaching myself and my students.

Here is a small sample of what I learned.

LESSON 1: THERE IS NO SUCH THING AS “MUSCLE MEMORY.” THERE IS ONLY BRAIN MEMORY.

Muscles and tendons do reform and adapt themselves in response to practice, much as they respond by getting “pumped up” when we lift weights, but they don't carry the memory of how you played those particular 16th notes. When learning a difficult passage, it is the brain that encodes it first into short-term memory in chunks, which then get transferred to long-term memory during sleep, so that the brain can instruct your muscles and tendons to play that passage right again tomorrow. The ideal length of each chunk varies with the difficulty and density of content in the passage. It can last one beat, or one measure, or one repetition of a pattern. I try to make my chunks small enough that they feel like a single thought, plus the first note or two of the next thought. It's easiest to retrieve those chunks from long-term memory if each chunk links forward and tees up the correct next chunk. So my strategy of learning a difficult passage in overlapping chunks, starting from the end, has a solid grounding in brain science.

LESSON 2: THE DREADED “DEATH GRIP” OF EXCESS TENSION IN YOUR HANDS IS YOUR BRAIN TRYING TO FIGURE OUT WHAT TO DO.

When confronted with a passage that you don't yet know, your brain responds to the confusion by firing all of the neurons in the general vicinity of what's required. If there's a difficult cross-fingering combo involving the two middle fingers of

your left hand, your brain may fire all of the neurons in those fingers and neighboring fingers simultaneously, causing you to grip the recorder hard. To get rid of the excess tension, you need to teach your brain which neurons to fire, and also which ones not to fire.

LESSON 3: CREATE CLEAN, CONFIDENT MEMORY CHUNKS AND SAVE THEM BEFORE YOU MESS THEM UP.

The chunks of that difficult passage that your brain encodes are like little data files. If you want them to work well, record them to memory as cleanly and richly as possible, and make them easy to retrieve. To record your data file, divide that difficult passage into chunks and practice each one slowly until you can play it easily and calmly, starting with the last. Adding musical shape, thinking analytically from many angles about what you are doing, and connecting forward all give your brain more handles to retrieve the chunk from memory.

If you stop for the day when you get to the point of mastery at your slow tempo, you also add confidence to that chunk of memory. However, if you speed up right away before the file transfers to long-term memory, you can add a lot of garbage to the file instead—like extra neurons firing and feelings of anxiety.

LESSON 4: INTERNAL HEARING IS A POWERFUL PREDICTIVE AND DIAGNOSTIC TOOL.

Our brains and bodies use anticipatory control as a shortcut all the time. If you picture yourself reaching out to touch your music stand and then do it, your brain uses that image to set in motion a complex series of actions by nerves, muscles and tendons. If you hit the stand too hard by accident, your brain records that feedback and uses it to improve results next time.

We can use internal hearing the same way. By singing along with your recorder, inside your head, you engage a complex predictive and feedback system that controls blowing, tonguing, resonance, fingers, and everything else in between. Your brain will then use the feedback it gets from the results to refine the series of actions it takes the next time you picture that pitch or passage. And the chunk that you record to memory will include even more sensory richness. It's not magic, it's neurology.

That's it—keep practicing! You can still visit the [AR Practice Project, https://americanrecorder.org/practice_project.php](https://americanrecorder.org/practice_project.php). Be sure not to miss our final trio of YouTube videos that came out in June (flip the page for descriptions), at www.youtube.com/americanrecordermag.

Have fun and stay in touch!

Tina Chancey,

<http://tinachancey.com>

If you stop for the day

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Tina Chancey (l) and Rachel Isaacson have a video lesson for the Practice Project, posted at www.youtube.com/americanrecordermag. Rachel hears the opening motive of the Alla Breve by Nicolas Chédeville (https://americanrecorder.org/docs/AR1906_Alla_Breve_Nicolas_Chedeville.pdf) as angry. How do you express that and stay in context: keep the music in French Baroque style? And if that's your starting point, where do you go with it as the piece develops? In this Alla Breve, it's also important to remember that it's in cut time—so sometimes it's perky. They decide that the articulations make all the difference—but do little changes really make a big difference? For more on the inside story about recorder articulation, read Scott Reiss's January 2006 AR article, https://americanrecorder.org/docs/ARjano6_ArticulationReiss.pdf.

In another Practice Project video, Tina interrupts Steve Mullany's excellent performance of the Stick Dance (from Béla Bartók's Romanian Folk Dances, 1915, https://americanrecorder.org/docs/AR1906_Stephen_Mullany--_Stick_Dance_by_Bela_Bartok.pdf). She offers a number of pesky interpretive ideas that take him to unexpected places. But does it end up sounding better? More professional, perhaps? Really? How? Do you bend or roll your thumb? When do you blow, as you move your thumb—and how do you coordinate your tongue? Do you practice so that it will sound the same every time? Or do you practice to be ready to listen to and play with the other performers?



In the next video, using a selection of four very different pieces, Tina and Michael Pierce tackle sight-reading. On the page, music doesn't always look like it's supposed to sound. Follow along by downloading your copy of the music at https://americanrecorder.org/docs/AR1909_Practice_Project_Sightreading.pdf. In order to make the notes easier to read, publishers often distort the measure so the beats don't look equal. Some pieces are hard to read because the lines are too close, arbitrary articulations crowd the page, or other helpful editorial additions get in the way. What can you use to make it all come together more easily? Michael wonders if rhythm is the key.



In a video produced at press time, Robin Wilson and Tina take a very basic look at ornamentation, both French Baroque note ornaments and Renaissance line ornaments, and even delve briefly into Irish and folk music: specifically, slurring, articulation and note stress. Until now, Robin has always aimed to play the easy parts (and found that the recorder was her entry to new friendships with people who were willing to play the more complicated parts). It's time to learn where and how to use ornaments.

And in the last video, when Ellen Farrell thinks about playing off the page, she usually thinks of improvising rather than memorizing. But, in fact, she's realizing that improvisation includes a lot of memorizing—learning melodic figures and becoming adept enough to insert them in a piece. But Tina wonders if that's what improv is really all about.

