

# Curing Focal Dystonia, or How To Play The Guitar With Large Muscles

by David Leisner

photography by Lynn Huang



When I cured myself of focal dystonia in 1996, many people were surprised, not least of all me. I had suffered with this debilitating hand condition, in which fingers curl into the palm without control and without pain, for twelve years, and was all too familiar with the accompanying despair. Focal dystonia was generally known to stop musicians' careers and to stump the performing arts medicine community as to a cure. In fact, the reaction of several medical professionals to my recovery was, "He could not have had focal dystonia because true focal dystonia is incurable" (I must say that this medieval logic was hard to believe, coming from scientists). My condition was verified, however, by nearly all the professionals—medical and otherwise—whose help I sought between 1984 and 1991. After a year of searching for the answer inside, rather than outside myself, I had a revelation in 1992 which ultimately led to my self-cure four years later. Sparked by an idea mentioned by my colleague, Neil Anderson, at the New England Conservatory (where I was teaching at the time) I began to explore the concept of large muscles supporting the functions of the right hand. After some early primitive experimentation, which already showed positive results, I refined my ideas and perfected their execution. Progress was slow but steady, and by the summer of 1996 all of the unwanted contractions had disappeared, and my hand was completely back to normal. Since then, my playing has been better than at any time in my career. It recently improved even more with lessons in Alexander Technique, as well as my work in overcoming the performing anxiety that had settled in, due to my twelve-year hiatus.

In addition, I have been helping and curing instrumentalists from around the world who have focal dystonia. It is difficult to communicate my ideas in writing only, without in-person

demonstration and without responding to the specific aspects of an individual's condition. However, since it is impossible to work with everyone in person, and because I expect these ideas will outlive me, I will do my best here to describe my approach to curing focal dystonia. What this description cannot do, for a number of reasons, is to take into account all the possible things that might go wrong as you try out these ideas. At the very least, it may be useful as a starting point for your own explorations. It can also serve as a guide for non-injured instrumentalists to a way of playing that will promote anatomical health and prevent injury.

## The Right Hand

Think of your hand and forearm as two dead weights. When you move them, it is as if they have no life in them and are being transported by something else. These two dead weights are connected by the wrist, which is stabilized. "Stabilized" means that the wrist maintains its stability while being countered by the tension of the string. It does not deviate to the right or the left, and it does not extend (bend backwards) or flex (bend forward), but rather remains in its mid-range and produces just enough tension to overcome the inherent tension of the string.

Think of your forearm (from elbow to fingertip) as one piece—as one big lever. Starting at some distance from the string, move this lever, with its two dead weights that are joined by the stabilized wrist, to and then through the string, diagonally up towards your face [Ex. 1]. You are flexing from the elbow—not pulling back at the shoulder joint. The goal is to pluck the string, free stroke, with your whole arm, not with your finger. In other words, instead of displacing the string by flexing the finger at the

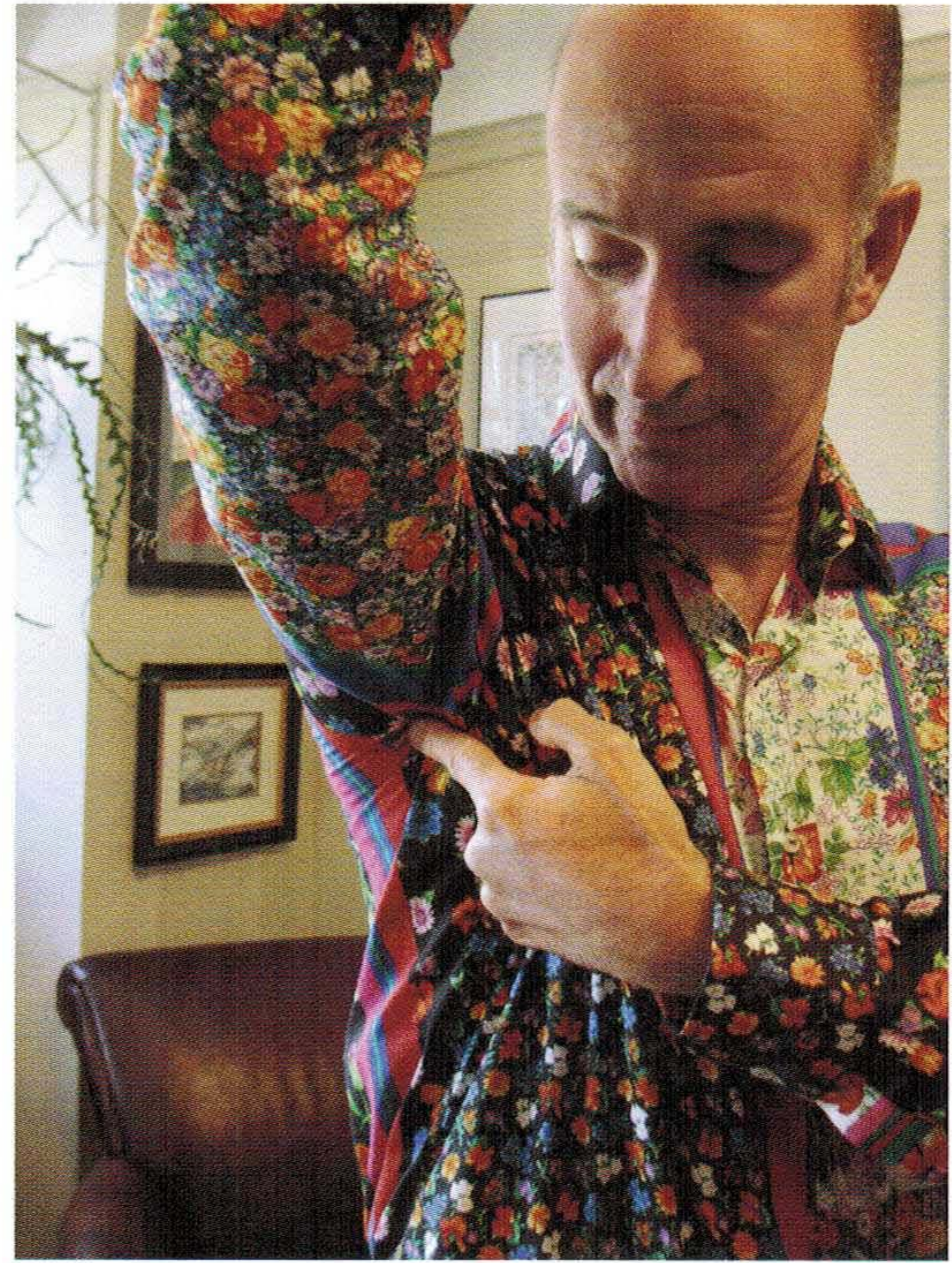


middle or top joints, rather you displace it by flexing your elbow, with the wrist and all the joints of the finger stabilized. When you begin this motion, your fingertip should be slightly flexed (bent toward the palm), as you would begin a normal free stroke. Once you reach the string, the knuckle (metacarpal) joint of the finger you are using should be directly over the string you are playing. Try this a few times, with *i*, *m* or *a*, maintaining the dead-weight feeling in the hand and forearm, trying not to activate the finger.

The large muscles that you want to deliberately engage are deep in your armpit. These are more-or-less the intersection of the Teres Minor and the Latissimus Dorsi muscles [Ex. 2]. You can feel them move when you pull your finger up into the string with your whole arm, hold it for a moment, and then release it. If you need to, poke your left hand finger into the inner edge of your armpit on the side and towards the back, while you pull your right hand finger as described above. When you find the right place and you are pushing deep enough, you will feel the muscles actually move. For reference purposes, let us call them the LMG, the large-muscle group.

Now you are ready to do a stroke with *i*, *m* or *a*, but first divided into two segments. Again, begin with the fingertip slightly flexed and with the knuckle joint directly over the string you are playing. Pull the string diagonally up towards your face, with your whole arm (not with the joints of the finger!), feeling the LMG engaging in the armpit, and hold it for a couple of seconds. Then follow through with the whole arm, making sure that the tension of the string doesn't push your finger back, but rather that the LMG continues to support the stroke all the way through the string.

Once this is repeated enough to feel secure, you can put the two segments together in one continuous, slow stroke. Remember to start with your fingertip slightly flexed and the knuckle joint above the string. Be sure to feel the LMG engaging as you spend a long time in the string before following through with full LMG support. You might make a harsh sound. If so, this is because you are pulling with more force than is necessary. Adjust the amount of force, so that you are making a pleasant sound, making sure that the LMG support is still there. You should now be making a beautiful, round, loud sound with a minimum of muscular effort.



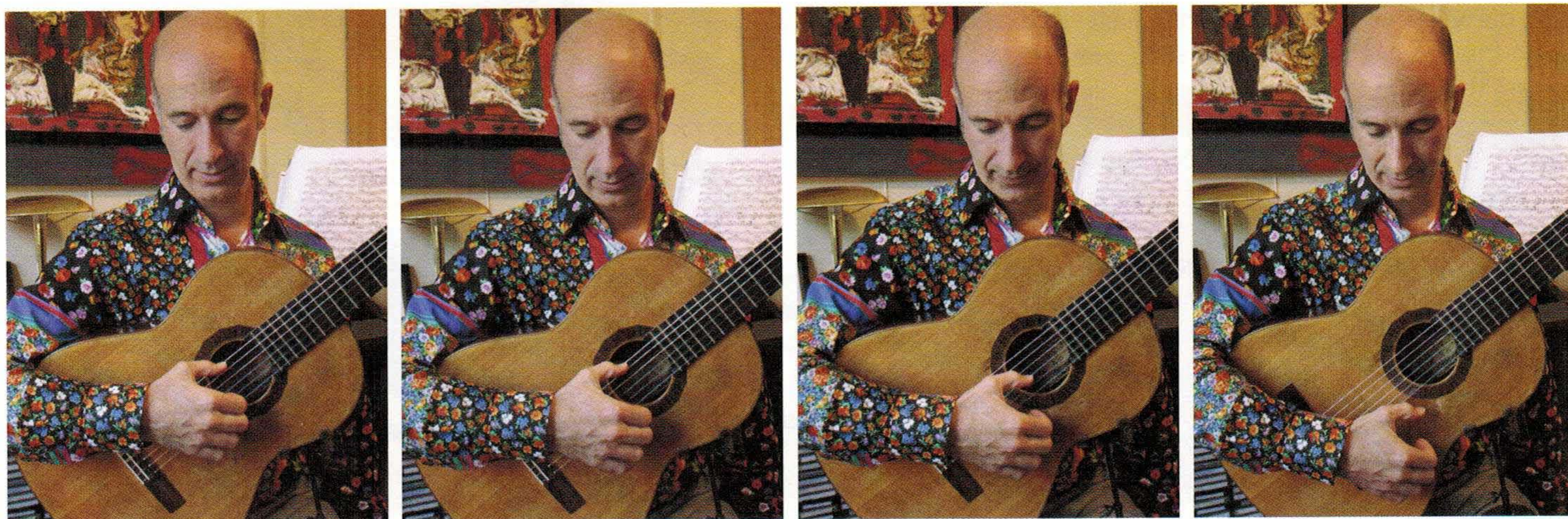
Ex. 2: Leisner points to the area near which the Teres Minor and the Latissimus Dorsi muscles meet deep inside the armpit.

The thumb stroke works on the same basic principle, except that the motion is downward toward the floor, falling with gravity. Rest your thumb on a string, with its full weight resting in the string. Then let it fall with this full weight through the string and down toward the floor, parallel to the soundboard, just missing the top of the strings below it. As one of my students once imaginatively suggested, you might think of it like a raindrop on the edge of a rooftop, falling with increasing weight into the string until the string can no longer bear the weight, and the thumb has no choice but to fall through the string and down toward the floor. Remember to keep the wrist stabilized and to move the whole arm from the elbow, as one big lever. Notice that as you fall with increasing weight into the string, you have a choice of allowing the tip joint to flex (bend forward) or to stiffen in either a neutral



Ex. 1: Leisner demonstrates the forearm's upward motion. Notice the diagonal direction toward the face and that the wrist remains straight during the entire stroke.





Ex. 3: Leisner demonstrates downward thumb stroke. Note in the second picture from the left the increased flexion of the thumb as well as the wider opening between thumb and index as the weight increases in the string.

position or extended back. The latter positions will prevent the full use of your large muscles. So instead, as you increase the weight falling into the string, let the thumb tip flex more and more until the "raindrop" finally falls to the ground [Ex.3].

Let us now reconsider the stroke of the other fingers. Just as the thumb falls downward into the string with increasing weight (like the raindrop on the roof) until the string can no longer bear the weight and the thumb has no choice but to fall downward, the other fingers can have the same sensation of falling. Think of them falling *upward* into the string with increasing weight, continuing to fall until the finger has no choice but to fall *upward*. When you "fall" in this manner—whether downward or upward—with a stabilized wrist and dead weight arm and hand, you are allowing the LMG to engage in the stroke. Stated a bit differently, you are transferring the weight of the arm into the string. By doing this, you are essentially bypassing the small muscles of the forearm, which are the muscles that are working incorrectly in focal dystonia. So remember, don't *push* through the string—*fall* through it. While you are falling, you should spend a long time in the string before clearing it.

Once you have mastered the falling downward of *p* and the falling upward of *i*, *m* and *a*, you can practice alternating them. For example, with *p* playing the fourth string D, *i* playing G, *m* playing B, and *a* playing the first string E, play D-G-D-B-D-E-D-B. Play this extremely slowly, only as fast as you can make each stroke with correct use of the LMG, transferring the weight of the whole arm into the string. Of course, your ultimate goal is to play with even rhythm, but in the beginning this is totally unimportant, so allow the rhythm to be determined only by the presence of the correct feeling before and during each stroke. When you are comfortable with this string pattern, move on to A-G-A-B-A-E-A-B and then to E-G-E-B-E-E-E-B. Another more complex right-hand pattern you might then try is the open-string pattern for the Villa-Lobos *Etude No. 1*:

⑥④⑤③④ ②③①②①③②④③⑤④  
p i p i p m p a m a i m p i p i

At this point, you are now capable of playing single notes and arpeggios with LMG, i.e., everything but chords. Playing a two- or three-note chord with *i*, *m* and/or *a* is relatively easy. You simply do with two or three fingers the very same thing you did with one, with all fingers falling upward. Try this and master it. Now to play the sort of chord which requires both thumb and the other fingers, for example a four-note chord, like the open strings D/G/B/E, you need to decide whether you wish to emphasize the highest note of the chord or the lowest. To bring out the top note, fall upwards through the G/B/E strings with *i*, *m* and *a*, while flexing the thumb from its wrist joint (not the tip or middle joint!). If you have mastered the exaggerated thumb stroke with proper usage of the LMG, then you will still be able to engage the LMG, at least to some extent, when you are flexing only from the wrist joint. So now you can pluck your four-note chord with an exaggerated upward motion of *i*, *m* and *a* from the elbow and a more subtle opposing motion of *p* from its wrist joint. Play around with your newfound ability to control these opposing motions, and master it.

In order to emphasize the bass note of your chord, simply reverse this procedure. Let *p* fall downward through the string, with exaggerated motion from the elbow, while *i*, *m* and *a* flex from their top (metacarpal) joints, still able to engage the LMG, but without the exaggerated motion.

For scale playing, continue to exaggerate the arm motion for each finger, always returning to a place near the string to begin the next stroke. Remember to spend a long time in the string before clearing it.

It should be said that "planting" (placing or preparing the finger on the string before a stroke) is *not* a good idea, particularly at this early stage of learning to engage the LMG. Planting will tend to encourage you to engage the smaller muscles and should be avoided, at least until a time when the LMG are engaged automatically. Even then, planting should rarely be used. One can begin a stroke extremely close to the string without touching it, and this tiny bit of distance affords a greater likelihood of engaging the LMG. Meanwhile, as you learn how to transfer the weight



## The Left Hand

of the arm into the string, exaggerated motion is always best, so when in doubt, exaggerate.

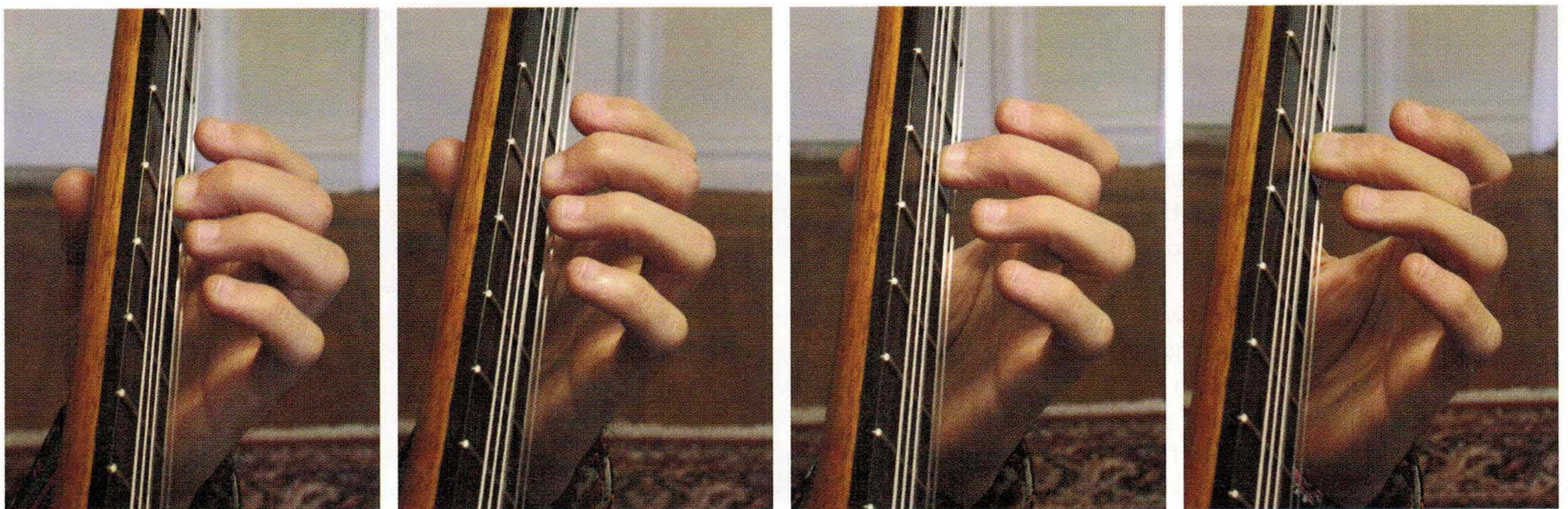
Once you are feeling completely confident of engaging the LMG, then and only then, you are ready to increase the speed and decrease the motion. This procedure, which I call the “refinement process”, is very straightforward. Start by playing the pattern or passage you wish to refine, for example, the right-hand pattern of the Villa-Lobos Etude #1, at the slowest tempo, one at which each stroke perfectly engages the LMG, with the largest motion. Simply observe how much motion this is, in other words, how much distance is covered. Keeping the exact same tempo, play the pattern again, cutting the amount of motion in half. Each time you change the variable of motion or tempo in this process, make sure that you are especially conscious of engaging the LMG, maintaining the dead-weight feeling and stabilizing the wrist. Once the half-motion feels secure, maintain it while increasing the speed—not just a notch up on the metronome, but perhaps several, so that you have made a comfortable leap. (The metronome is just a reference here. *Do not* do the refinement process with a metronome). When this is secure, keep the same tempo and cut the motion in half again. Once this is mastered, keep the same amount of motion and increase the speed a few more notches on the metronome. And so on, alternating between cutting the motion in half (always first!) and increasing the speed. Do not forget, with each change of variable, to be hyper-conscious of the transfer of arm-weight into the string, the dead-weight feeling and the stabilized wrist. You'll be surprised at how many times you can cut the motion in half. At some point, you will reach a comfortable limit as to how fast you can move your arm, and you will then want to find a way of playing more normally, which is to say, very close to the string. After going through the refinement process this far, you will be able to simply lean the weight of your arm into the string in the appropriate direction and transfer the arm's weight into the string with little or no exaggeration. If you do not find this last transition easy to make, then perhaps it is too early for you to try it. But this, in fact, is your ultimate goal.

While the principle is essentially the same, the application of the large-muscle ideas to the left hand is very different than the right hand. This approach to the left hand is also actually quite similar to what I would recommend for curing focal dystonia in pianists, bowed string and wind players.

There are three basic actions required of the guitarist's left hand: getting to the fingerboard, putting pressure into the fingerboard, and moving from finger to finger. You need to use the largest muscles that are the most advantageous for each of these actions.

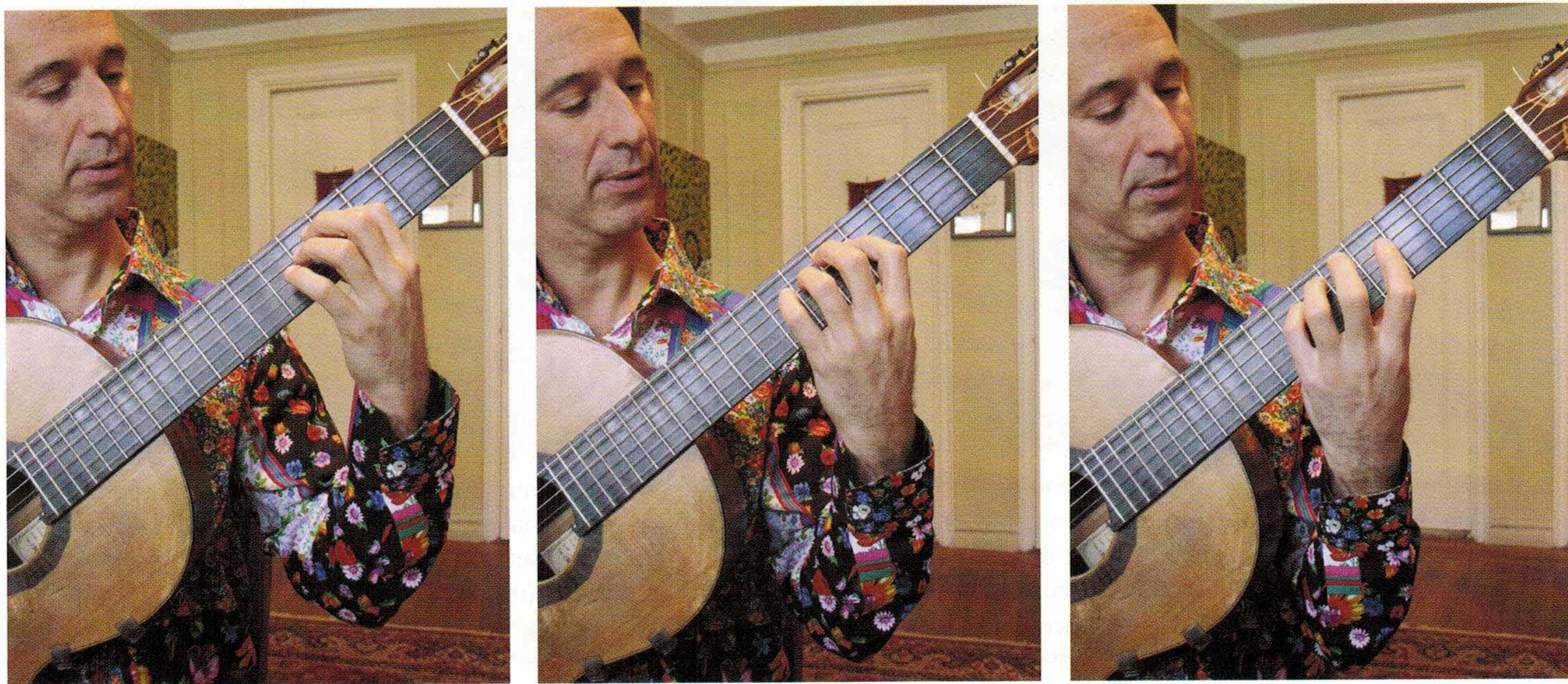
One might expect the largest muscles to be the most advantageous for getting the left hand fingers to the fingerboard. However, when most guitarists move the whole arm to the fingerboard and then apply pressure, they tend to squeeze the fingerboard between the thumb and the other fingers, thus ending up actually using the smallest muscles and causing a good deal of strain. On the other hand, when you drop the finger to the fingerboard from the top (metacarpal) joint, you are approaching the fingerboard with a light, effortless, yet powerful touch. This is using the largest muscles that are the most advantageous. (The same is appropriate for bowed string and wind players as an approach to the fingerboard and the keys, respectively. Pianists, however, should use their largest muscles to simply drop the weight of the entire arm into the key bed).

In order to apply pressure to the fingerboard, most guitarists use the tip or middle joints. Once again, it is more advantageous to work from the top (metacarpal) joint. This is a slightly elusive concept to grasp. The clearest way to demonstrate it is by exaggeration. With your thumb just slightly off the neck, press down into the fingerboard as well as slightly towards you, parallel to the fret, while your finger pushes away from the fingerboard at the same time, making your finger straighten and your hand move away from the fingerboard [Ex. 4]. These two opposing actions can only occur with a very light amount of pressure that begins at the top joint. (The same exact concept can be applied to bowed



Ex. 4: Applying pressure in the left hand: note in the two photos on the left that the thumb is barely touching the neck, so that as the second finger straightens and its pressure in the fingerboard increases, in the two photos on the right, the thumb can move away from the neck.





Ex. 5: Transfer of weight in the left arm: notice how the elbow moves in the same, not the opposite, direction as the fingers when the weight is being fully transferred.

strings, winds and the piano). Focal dystonia sufferers will often notice a tremor and confusion in the fingers as they apply pressure in this way. This is the moment in which the dystonic response wants to engage. If you apply the pressure properly, as just described, the dystonic response will disappear.

Moving from finger to finger requires use of the largest muscles. Consider the weight of the arm while a finger is pressing into the fingerboard, and then throw that weight to the next finger, so that the weight carries it into the fingerboard. When the second finger lands, the first should lift up. Note that when you are freely throwing the weight of the arm, the elbow moves in the same, not the opposite, direction [Ex. 5]. This action can only be understood at first by exaggeration. Throw the weight rapidly and with a gentle forcefulness, but with the dead-weight feeling, so that there is no feeling of exertion in either the forearm or biceps or triceps. You might want to begin the weight-throwing a little further away from your destination, so as to get a clearer, freer feeling of the weight being thrown. For example, if you're moving from first finger to third finger, start with the first finger a little to the left of where you would normally begin the motion—a sort of wind-up, like you would throw a ball. Always practice in both directions, in other words, from 1<sup>st</sup> to 3<sup>rd</sup> finger as well as from 3<sup>rd</sup> to 1<sup>st</sup> finger.

Now you can combine two of these actions at the same time. Practice putting the first and second together, dropping the finger to the fingerboard from the top joint and then, once you've landed and as the pressure increases in the fingerboard, the finger pushes away from the fingerboard, as previously described. First do it in slow motion, taking care to support properly with the larger muscles so as to avoid the dystonic response. Then do it more quickly, merging the two actions into one. Next, practice

putting the third and second actions together, throwing the weight from one finger to the other and then, when the finger lands, applying pressure from the top joint with the exaggerated motion. Again, do it in slow motion, being sure to keep the dead-weight feeling in the arm, allowing the elbow to move in the same direction as the finger being thrown, lifting the previous finger when the new one meets the fingerboard, and applying a light pressure with the exaggerated opposing actions. In this way, you should again be able to control the dystonic response, and once you reach this stage, you can then do it more quickly, combining the two actions into one. It will look like a little dance. Remember to practice in both directions.

The refinement process is only desirable for the second and third actions, and it is simple. When you have acquired the ability to apply pressure and move from finger to finger with larger muscles in faster motions, then all that remains is to decrease the motion, *when it is necessary to do so*. Otherwise, there is nothing wrong with larger motions at slower tempos. So, with faster tempos, try to accomplish the exact same goals with smaller motions. Do not make these motions as small as possible, but rather as large as you can get away with, given the tempo, so that the engagement of the larger muscles is easier and clearer. Little or no refinement process is necessary for the first action of getting to the string. This motion needs to be large enough to clearly feel the initiation from the top joint.

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Once these principles have been mastered in the abstract, then it is your job to apply them to music. When you add the other hand, it is more activity for your brain and hands to control,

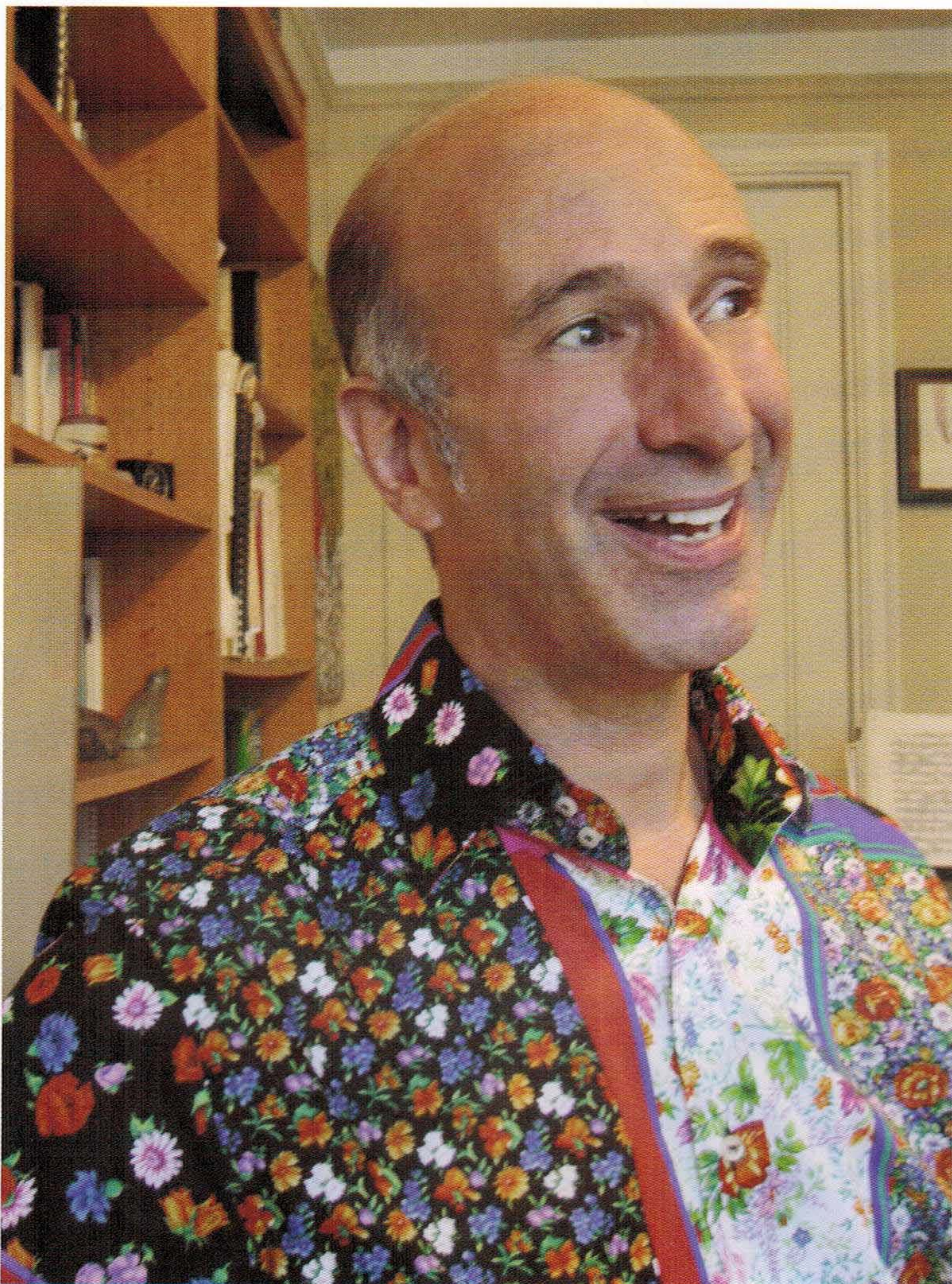


so you must play at an even slower tempo. *Only play as fast as you can do every single right-hand stroke or left-hand motion correctly, that is, with perfect support of the LMG.* Add the refinement process when you are ready. Every correct stroke or motion that you make is a positive reinforcement and advances you one step forward. But every incorrect stroke or motion takes you a step backward into the unhealthy dystonia habit. With perfect concentration, you can achieve the goal of doing 100% correct strokes or motions. In this way, you can slowly but surely eliminate the dystonic response and reinforce the healthy use of your hands and arms.

One final thought: The biggest fear that most guitarists, and instrumentalists in general, have about this approach is the exaggerated motion that I feel is necessary in the beginning for full physical comprehension of the use of larger muscles. They often don't trust the exaggeration and want to move too quickly to a normal amount of motion before they have

mastered the proper support of the LMG. This is because most of us in recent generations have been taught to believe that one of the most important principles of playing an instrument is "Economy of Motion." However, I have observed that this is precisely what can get people into trouble of one sort or another. Economy of motion often turns into excessive tension, probably because it unconsciously encourages the use of smaller muscles and also tends to make one unhealthily obsessed with accuracy. In my strong opinion, the much more basic and important principle is "Freedom of Motion." If the motion is free and lacking in unnecessary tension, not only do speed, power and accuracy increase, but the body steers clear of injury. Economy of motion may be the least important development of technique, a minor refinement late in the process, while freedom of motion, supported by large muscle usage, can both prevent and heal injury, as well as lead to effortless playing, greater volume and beautiful tone. **GR**

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David Leisner's latest solo CD, *Self-Portrait*, is available on Azica Records. His world premiere recording of the Hovhaness *Guitar Concerto, Op. 325*, with Gerard Schwarz and the Berlin Radio Orchestra, is available on Naxos.

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