

“Painless” Hand Problems of String Pluckers¹

BY BRIAN HAYS

As a guitarist whose right hand went completely haywire, I applaud this journal’s efforts to deal with music medicine. Mind you, this is coming from someone who had given up on the medical community. Most of the doctors I have seen (mostly orthopedic surgeons, hand specialists, and neurologists) assumed the attitude: “I know the physiology; there’s nothing wrong with your hand; therefore, your dysfunction must be psychological.” As I’m sure you can imagine, such irrational thoughts coming from “people who should know better” can disillusion and frustrate someone looking for help. Thus my elation at finding rational, responsible discussions of the strange kinds of things happening to malfunctioning hands like mine.

The kernel of my predicament—dysfunction in the absence of pain (now nearly fixed)—has yet to be addressed, so I am writing this to raise questions on the nature of coordination and to offer those with similar problems some ideas on retraining a “hand-gone-wild.”

The Evolution of the Problem

Soon after finishing an MA in music at the University of California, San Diego (in 1983, with a thesis on classical guitar technique), I began inexplicably to miss notes with the right (plucking) hand, particularly the index finger. With increased technical practice over the next few months, things seemed vaguely tight and uncoordinated in a few very specific movements (such as alternating the index and middle fingers with free strokes), but my ability improved markedly in other movements (such as alternating the index and middle fingers with rest strokes).

My problem also puzzled many very good guitarists; my technique seemed “correct” by all accounts. Perhaps the worst part of all is that I never experienced any pain at all—I had no right to claim something like tendinitis or carpal tunnel syndrome, and thereby be absolved of insanity.

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I survived for two years in this condition by re-fingering passages to avoid the problem movements, but by the summer of 1985 the vague malfunctions infiltrated other movements, so I resolved to make it or break it. Four to six hours a day of almost nonstop repetition of a few movements took about a month to “break it” completely. Still no pain, but now I at least had well-defined dysfunctions.

Specific Dysfunctions

- 1) Any attempt to flex the index or middle finger at the MP joint caused the ring finger to flex first, and with more intensity than the finger I wanted to move. I could not flex the index or middle finger and extend the ring finger at the same time. Without flexing the index, however, the ring finger extensors had full strength. (I have since heard this condition referred to as “trigger finger” by guitarists, although this seems to conflict with the definition of that term given by Fry in Vol. 1, No. 1 of this journal.) I now know that this aberration in motor control is relatively common in musicians who pluck strings.
- 2) The ring finger would not flex without abducting. I could not hold the ring finger against the middle finger and flex at the MP joint at the same time.
- 3) Flexing any finger caused uncontrollable abduction in other fingers.
- 4) The tip joints of all four fingers seemed excessively tight, indicating an overactive flexor digitorum profundus. (Another clue pointing to this muscle is that holding the DIP joint of the little finger at full extension provided almost normal use of the other fingers.) Yet an electromyogram was normal.

The Search for a Solution

I stopped playing. Had to. The first issue of *MPPA* addressed the stress of performance; how about the stress of watching seven years of a university education become worthless? Six months later I found help in the New York studio of Pat O’Brien, lutenist, theorbist, guitarist, and probably the only person in the world’s guitar community with a reputation for dealing with haywire hands. From him I learned words such as “abduction” and “digitorum,” as well as techniques for retraining a hand to move in a way that avoids “that which causes problems.” Here is a condensed version of Mr. O’Brien’s conclusions as I under-

stand them, arrived at by his own experience with haywire hands and tendinitis some 16 years ago and refined since by his helping many ailing guitarists, lutenists, harpists, and other musicians:

- 1) Excessive tension (for himself, he defines this as *any* tension) across the distal interphalangeal joint of any finger is problematic. The flexor digitorum profundus, which controls this joint, allows for limited independence between fingers because of the mechanics of this musculo/skeletal/tendonal structure. The limitations are variable in degree according to the individual's anatomy.
- 2) Abduction is problematic, probably because any weight put on a finger that is "leaning over" must be borne to a greater degree by the intrinsic muscles and to a lesser degree by the larger and more mechanically advantaged muscles. The implication is that the lumbricals and flexor digitorum superficialis, in that order, should assume as much responsibility as possible for any flexion.
- 3) Tension in the "opposers" that pull the thumb and little finger together curls the line of MP joints, pulling the base of the little finger in and causing the fingertips to converge, probably also leading to abduction.

Of course this list represents what I picked up from Mr. O'Brien pertaining to my problem, and in no way can I speak for him directly. But on the basis of four days' lessons in January 1986 (and numerous telephone calls since), I have seen definite, though usually minute, progress every two weeks without fail or relapse. As of January 1987, my hand is not yet 100% normal, but the index finger now functions independently from the ring finger (this is what I worked on the most) and most of the unbidden abduction is gone. Flexing the middle finger still flexes the ring finger a bit, although I anticipate this will resolve in a few weeks. Since the movements that I worked on improved while ones I ignored stayed the same (until I focused on them), there is no doubt that the following procedures have resulted in specific alleviation of specific symptoms:

Corrective Measures

- 1) Disconnecting the ring finger from the index finger was achieved by lightly pressing outward with the ring finger against my left

hand, then plucking a string with the index finger. This exercise employs the concept of “reciprocal denervation,” wherein the contraction of extensors tends to relax the corresponding flexors.

2) Abduction can be countered by conscious adduction: holding the fingers together while they flex and extend, and moving them as slowly as required to control the abduction.

3) Turning off the opposers necessitates careful monitoring of the thumb’s movements, which can balance against the muscles pulling on the little-finger side of the hand.

4) Generally, practicing a simple, broad sweep of each finger (moving first and primarily at the MP joint and then at the PIP joint—but never at the DIP) and using this as a model for all right-hand movements helps to loosen up the hand.

A Call for Answers

Now, finally, to the critical issue that I would like to see addressed by an informed medical source. I never “presented with” anything that implied significant trauma to the tissues of the right hand or its supporting nervous system. It seems that my neurologic connections got re-routed to include unwanted signals, e. g., apparently the lumbrical for the ring finger fired when I wanted only to fire the lumbrical for the index. Can this sequence of crossed neurologic signals that are then re-trained be explained physiologically and neurologically? The neurologist I consulted acted like this was science fiction. How can overuse (even in unbalanced or abducted positions) cause the brain to send stray signals to the wrong finger? There must be a definite answer because the dysfunction is reproducible—Pat O’Brien has seen many people whose ring fingers move when the index should. Does this syndrome have a more specific name than “overuse injury”? How close is this to the pianist’s drooping of the fourth and fifth fingers, as my “fifth” isn’t involved? To put it generally, does any of this discussion fit into the paradigm of medical understanding?