

- I. Much of what I am going to say here is an approximation of how muscles work. It's not how I would describe it to a medical professional; rather it is a way of describing simply and close enough how muscles function so that we may apply this knowledge in a simple and practical way when playing guitar. (it's a model like in Economics).
  - i. In retrospect I think this way of thinking was influenced by studying economics in undergrad: the field tries to create the equivalent of lab experiments called models that allow the experimenter to observe one or a narrow list of factors in an economy and glean insights from that observation (patterns). different models and their subsequent insights are combined and considered in relationship to one another to create a more comprehensive picture of the whole.
- II. Basically think of muscles as like an accordion:
  - i. When a muscle is engaged it compresses a bit like an accordion.



A.

- ii. When a muscle engages it pulls a tendon which is like a rope that is attached to the muscle on one of it's ends and a bone on the other end. This is called Muscle Contraction:
  - A. **Muscle Contraction:** "Muscles contract, thus changing their shapes, often from a more elongated to a more spherical one. A muscular contraction is the **tensing** up of muscle fibers produced as a response to a nervous stimulus." (Iznaola 17-18).
  - B. Nervous stimuli is fancy talk for your brain commanding your body to do something.
- iii. As the muscle pulls the tendon the tendon pulls the bone it is connected to on the end opposite the muscle.
- iv. **Your ability to perceive muscle exertion and stretching of muscles is called proprioception.**

A. **Proprioception:** relating to stimuli that are produced and perceived within an organism, esp. those connected with the position and movement of the body.

a. **This sensation is what allows you to feel tension.**

b. If you have ever done an athletic activity and felt your muscles sore or tired that is proprioception.

c. **This ability is what we want to develop and refine using this chapter/book.**

III. The Castle metaphor:

i. Think of your forearm as like a drawbridge in front of a castle.



ii.

iii. The castle has the mechanical stuff for drawing up the bridge (probably aided by human or animal force back in the day as they didn't have electricity or motor power) and is a metaphor for the muscle.

iv. When the draw bridge gets pulled up to the castle that is analogous to the bicep muscles in your upper arm above the elbow compressing like an accordion.

A. **Muscle Contraction:** muscles contract (flex) and pull tendons to move joints and bones.

v. The metal chains that connect the castle to the draw bridge are metaphors for the tendons that connect the bicep muscles in the upper arm to the forearm's bone (below the elbow).

A. **Tendons:** "Fibrous and non-elastic cord-like bundles of tissue that attach muscle to bone and pull bones when muscles contract." (Iznaola, Summa Kitharologica, Page 11).

vi. Your forearm bones and flesh are analogous to the draw bridge being raised up to the castle. This process is analogous to when you lift a dumbbell and do a bicep curl.



vii.

IV. The analogy of the bicep and the castle is almost all we need but there is one more important point:

V. Typically most muscles come in at least pairs (agonists and antagonists).

i. Below is a list of different types of muscle relationship vocabulary: (Iznaola, Summa Kitharologica, Page 11).

A. **Agonists:** are primary movers.

B. **Antagonists:** act in opposition to the **Agonists**.

C. **Synergists:** help by eliminating or re-enforcing the action of the **Agonist**.

D. **Stabilizers:** act by immobilizing other joints that would move in reaction to the movement of the joint we want to move.

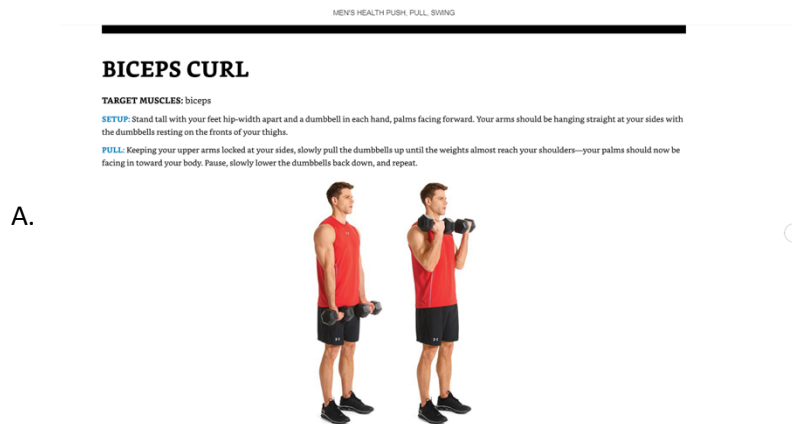
ii. In the case of the bicep curl the bicep (an agonist) is paired with the triceps (antagonist).

iii. When the bicep pulls the forearm as in a dumbbell curl the triceps is engaged to support the motion and keep the forearm stable as it pulls the forearm close to the upper arm.



iv.

- v. When the dumbbell is lowered to the starting position of the exercise the roles reverse and the triceps does the pulling and the bicep is still engaged but now offers support and stability.



VI. The implications of agonist and antagonist relationship:

- i. You might think you are activating one muscle looking at how a part of your body moves using common sense but usually at least two and usually more than two muscles are involved.
- ii. Because multiple muscles are involved in each movement the locations of tension might be in places that are not visually intuitive. This is an important thing to consider before we start to work on developing our ability to perceive tension.
- iii. Any motion of any body part needs to at least consider both muscles in the pair (some joints also have more muscles to consider than a pair and we will discuss this more later).

VII. Joints:

- i. In our castle analogy the point where the drawbridge remains in contact with the castle side of the moat while it is raised, as opposed to contact with the side of the moat opposite the castle when it is lowered, is a type of lever called a joint.

A. **Joints:** Connections between bones that allow movement as a result of the pull of muscles (Iznaola, Summa Kitharologica, Page 11).



B.

VIII. Why does the Castle analogy and its details matter?

- i. It provides an easy to digest visual explanation that is good enough to get where we need to be mentally and conceptually to start visualizing, understanding, and using joints to find tension.
- ii. It provides us with a framework we need to understand what tension is, where it is located, and why it is occurring.
- iii. If we know where the joints are located that we are using to play different guitar techniques and where the most important muscles or groups of muscles causing the joints motion are located or where the muscles effected by the joints motion are located it will help us observe, find, and control tension when we practice.
- iv. Typically the muscles that cause or are effected by the joint's motion will be *around* the joint: In front and behind it.
  - A. In the case of the elbow for example the muscles that move the joint are above it in the upper arm (biceps and triceps).
  - B. The muscles and bone effected (potentially) by the motions of the elbow joint are those in the forearm.
- v. For the wrist joint the muscles that move the wrist are in the forearm and the muscles effected by movement of the wrist joint are in the palm/hand, and fingers.
- vi. Any rotation (pronation or supination) of the forearm is also going to impact the wrist which will in turn effect the fingers which will in turn effect your ability to perform with your fingers.

IX. The process of identifying tension flows from joint location:

- i. First you look at the motion you are doing when you play something.

- ii. Then you look at the joints involved to narrow what you focus on.
  - iii. Then you feel around the joint(s) you are using to look for tension as you play your music or exercise.
- X. Before you do all this in exercises, etudes, and pieces, I want you to learn how to body map using chapter two and use that map to develop your perception of tension using the example I am giving in this chapter.
- i. This chapter is intended to both illustrate the broader principal of using joints to find tension and to illustrate it's most important application in the example and process that follows:
    - A. Use the joint map in chapter two to identify the joints most important to the right arm in guitar performance.
    - B. Identify the joint's possible range(s) of motion using the joint map in chapter 2.
    - C. Identify the approximate location of the muscles around the joint causing or effected by the motion you are doing.
    - D. Use that information and order of reasoning to develop your ability to perceive the tension around the joints *prior* to playing music.
    - E. Then use that developed sense of tension in the context of executing guitar techniques.
    - F. This is my version of body mapping.
- XI. My goal is to break technique down into its components and alternate attention between components to eliminate the "Where is Waldo Effect."
- i. Identifying Waldo is not hard.
  - ii. Rather It is all the excess visual stimulus in the image around Waldo that makes Waldo hard to find.
  - iii. The same thing is happening in music and I think alternating your attention is a part of the solution.
  - iv. I am trying to strip out the excess stimulus so we can just focus on perceiving tension.
  - v. My theory is good teachers break things apart for students and rotate their attention for them and/or great players do this themselves but it is often intuitive and subconscious.

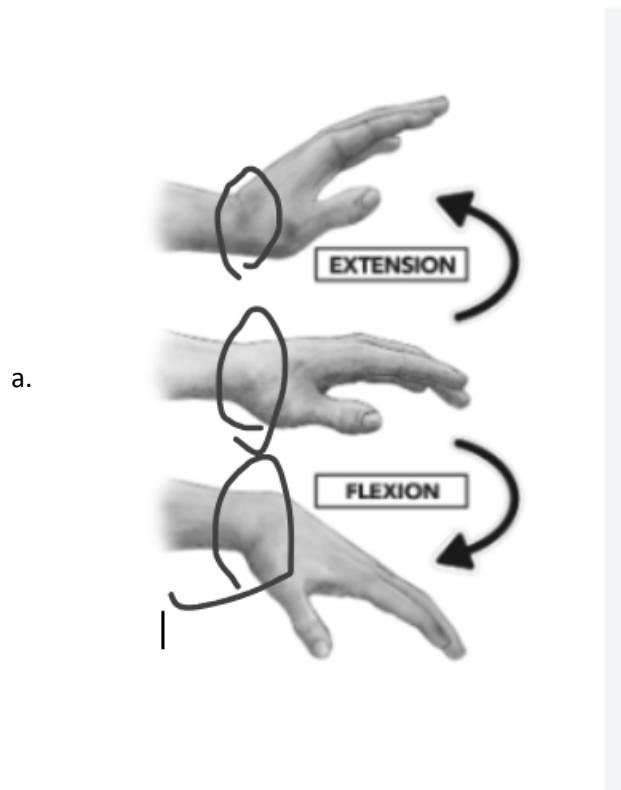
- A. 2024/04/25 I had a discussion with Kevin Loh and he agreed that this alternating attention principle is important. Kevin also said "I have never heard it articulated that way before but that is what you do."
  - vi. The goal of this method is to present a system to make keeping track of everything, organizing it, presenting it, and using it easier to do and be more conscious to break things down to their components to get rid of the excess aural stimulus and find Waldo.
  - vii. Rene, if you ever read this, think of the times when I first moved to Milwaukee and you would knock my arm to make sure it was relaxed and feel my shoulder and back for tension. I am hoping, as you read, that I solved this problem through awareness and communicating about it through joints.
  - viii. Having reread this I want to emphasize to anyone teaching that they should consider this deeply: is your student talentless and incapable of hearing what you are getting at or is there too much going on at once and you need to find a way to reduce the number of potential points of attention that, in fact, cause distraction from your point of focus. Really focus on truly one concept at a time.
- XII. What Tension Is: The 3 types.
- i. **Definition of Tension:** Most basically it is muscle exertion and is experienced through proprioception.
    - A. All joints have a range or ranges of motion.
  - ii. **Definition of Relaxation:** There is a point in the middle of their range of motion where all a joint's muscles are relaxed.
  - iii. **Tension Type 1: Dynamic Tension:** Comes from muscular exertion that does cause a joint and bone to move.
    - A. **Isotonic Contraction:** When muscle contraction does lead to joint motion. (Iznaola 17).
    - B. **Dynamic Work:** The work of muscles caused by moving from position to position. (Iznaola 51)
    - C. This type of motion pulls on tendons which pulls bone and the bone is able to move based the joint and bone (think of the elbow joint in the castle example).
  - iv. **Tension Type 1: Static Tension:** Tension from muscular exertion that stabilizes but does not move a body part:
    - A. **Isometric (Static) Contraction:** Muscle exertion that does not result in a joint and bone motion. (Iznaola 17).
    - B. **Static Work:** The work of the muscles caused by holding a position. (Iznaola 51)

- C. Think of flexing your bicep without moving the elbow joint so show off your bicep muscle size.
  - D. This type of tension holds things in place.
- v. **Tension Type 3: Passive tension (basically stretching):** tension that is caused by a combination of gravity and/or the movement/positioning of the joint in question by other joints/muscles.
  - A. **This is one of the most important concepts that I have not found explicitly in most methods although it is sometimes implied.**
  - B. Iznola's method Summa Kitharologica might describe this but I think the explanation here is in plain English and his is buried in a pretty dense scientific text.
- vi. You will need to reference the chapter "Joints and Body Mapping" moving forward. I suggest you have it open somewhere to alternate between this chapter "Joints and Body Mapping." I use that vocabulary to describe how your body moves.
- vii. The way to experience passive tension first requires experiencing active tension.
  - A. Stand straight with you arms hanging at your sides (adducted) as in the image below as if you where standing at attention but relaxed (don't literally tense up and stand at attention):
    - a. Make sure your shoulder to arm joint has no rotation.
    - b. Make sure your forearm has no rotation (supination or pronation).
    - c. Make sure your wrist has no flexion, extension, or deviation.





- B. In this position look at your wrist joint where the forearm meets the hand.
- C. First I want you to learn how to use the wrist joint's muscles and experience some basic body mapping and the resulting experience of tension.
- D. Without moving any other part of your body and maintaining the set up previously described one of the motions of the wrist joint I want you to experience can be demonstrated as follows. **Remember to do these steps slowly so you don't hurt yourself (There is no risk if you move slowly).**
- E. Flex the wrist:



F. Once fully flexed (within reason, don't hurt yourself), try to perceive the feelings that occur in:

- a. The hand's palm.
- b. The top of the hand.
- c. Underneath the wrist.
- d. On top of the wrist.
- e. In the forearm on the bottom, top, and sides.
- f. **IMPORTANT:** These feelings are your proprioception.

viii. In the previous exercise you just experienced my body mapping method:

- A. The location of a specific joint used to play guitar.
- B. An approximate description of where the muscles are that are impacted or are effected by the movement of that joint.
- C. The feeling of **active tension** that results from engaging the bottom muscles of the forearm to flex (pull) the wrist towards the bottom of your forearm (these muscles are the agonist).
- D. The feeling of **passive tension** that comes from the other muscles around the wrist that play a supporting role OR are being stretched by the flexing of the wrist.

XIII. **Now let's explore passive tension further:**

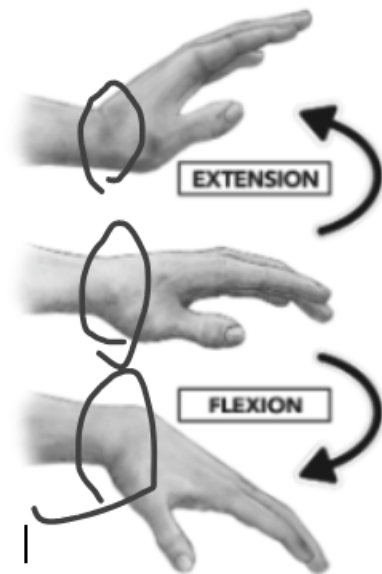
- i. Stand straight with arms hanging at your sides relaxed (adducted) as in image:



A.

- ii. Look at your wrist joint where the forearm meets the hand.

A.



- iii. Without moving any other part of your body and maintaining the set up previously described one of the motions of the wrist joint I want you to experience can be demonstrated as follows:
- iv. Raise your right arm up until it is straight in the air over your head (or just high, exact height not important) but do not prevent the wrist from flexing, extending, or deviating. Let gravity push the wrist downwards (flexing it passively through gravity rather than muscle exertion).
- v. Note: do these steps slowly so you won't hurt yourself. There no risk so long as you do this slowly.
- vi. As you raise your right arm straight up in the air and over your head by abducting the shoulder to arm joint that connects the shoulder to the upper arm to the right of your head you should see that your wrist joint passively falls/flexes towards the ground, probably with some amount of wrist deviation.

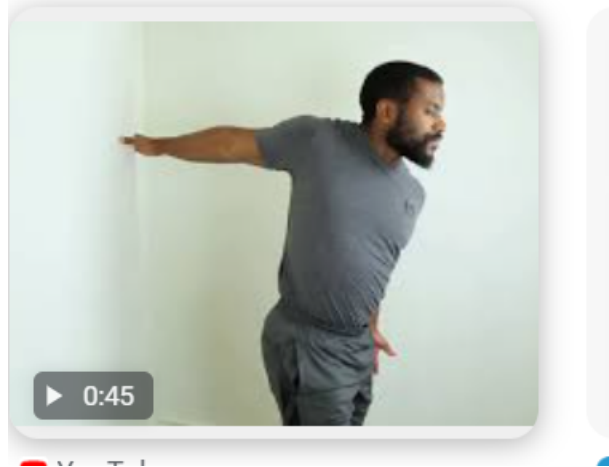


- vii. The flexion and deviation of the wrist in this example with your arm holding your hand in the air is a result of the arm and its relevant joints and muscles raising the wrist in the air AND gravity forcing the wrist down (absent any of the wrist joint's muscles holding the wrist joint straight up in the air and in alignment with the forearm).
- viii. The fingers should also be splayed out (abducted). This is because the muscles that flex the fingers towards the palm are in the forearm and the tendon's run through the wrist joint's carpal tunnel. Thus while the muscles of the forearm that move the fingers are not engage the movement of the wrist joint impacts the fingers.



- ix. In this position you should feel tension on top of or underneath your wrist joint and in the palm and forearm and the cause of this feeling is now much less a product of the wrist muscles' exertion and more of a passive tension that results from the stretching of the wrist joints' relevant muscles in the forearm that occur as a result of gravity pushing down on the wrist. Gravity is having this effect because of the way the wrist is positioned by the arm to shoulder joint.
  
- x. Another example of passive tension is when you perform a stretch (say of the bicep or triceps thinking back to the castle analogy).
  - A. You typically assist the stretch of the bicep and triceps with other larger parts of your body.
  
  - B. In the image below the person grabs the wall and then uses their legs and spine to pull their body such that it stretches the biceps by pulling and extending it to its most extreme range of motion. Try it gently yourself.
  
  - C. The larger muscles of the body (spine and legs) are being applied to this motion rather than relying on the triceps or bicep or even the shoulder to arm joint to get to the position seen below and to stretch the bicep muscle.

a.



D. For those of you reading this familiar with Carlevaro I want to plant a seed now:

- a. I think this passive tension I am describing is part of what Carlevaro is intuiting but can't articulately describe when he talks about **Fijacion** and the **hand arm complex**.
  - b. I think what Carlevaro is getting at can be represented by this stretch:
  - c. The idea that larger muscles like the ones that act on the legs and spine in the stretch above can be used to move smaller joints and bones "further down-stream (away from the center of the body)" so to speak such as those of the arm in a way that *looks* like the smaller muscles (arm to shoulder joint, elbow joint, forearm, wrist, hand, fingers, etc.) are doing all or some of the work when really all or most of the muscle work is being done by the larger muscles of the legs and spine to achieve the motion.
- xi. Below are the relevant passages from Carlevaro that I believe hint at the concepts I am presenting in this chapter.

*From each movement is born every other:* without complete knowledge and mastery of the motor complex, the total acquisition of these movements is not possible, and it would be useless to pretend otherwise. Each activity of the fingers is made up of a number of different movements that work together in association and converge in order to culminate in one precise action. In other words, a simple activity as such does not exist; rather it should be thought of as a complex from which the mind intelligently selects the combinations which will be used.

Total mastery is the result of controlling individual elements, and making correct use of it depends on the choice of the different combinations. This means then that technique must be responsive to conscious work that is thoroughly effected, and that other concepts relating to natural aptitude or, worse yet, to chance should be rejected.

Analysis in itself, along with the aid of a developed and defined logic with respect to the movements to be made, must not in any way be construed as an attack upon our intuitive impulses. In fact, the Emotional and the Subjective come fully alive, just as they should, when analysis is allowed to serve as a firm platform for the free expression of emotion.

Let us bear in mind that real work is done only when isolated exercises are prepared in advance and that the outcome is positive and effective when these are properly put together. Speed and freedom of movements, or professional ease and dexterity, are engendered in all that has been said. The combination, the correct interrelationship between different actions, will give us in the end the perfection and precision we seek.

In the first phase, in order to overcome a given difficulty, it is important to divide and isolate the different components and to work on them separately. Once this stage has been assimilated, a correct execution would consist of the sum total of every simple and partial movement submissively responding to the stimuli sent out by the brain.

Upon reaching a higher stage of development, simple movements as such no longer exist. It should be added, however, that these movements may appear at first sight to be simple, but that in reality EACH APPARENTLY SIMPLE MOVEMENT IS THE RESULT OF THE INTELLIGENT COMBINATION OF SEVERAL PARTIAL MOVEMENTS OF ITS COMPONENTS.

From this we can conclude that the mechanism employed and the mental representation of what is to be effected have a direct bearing on the precision of each movement.

Intelligent use of the different elements of the motor complex (arm-hand-fingers), and the active (direct) or passive (indirect) participation of these elements through exact *fijación* (see below) at a determined moment and place, lead to precision in instrumental execution. As such, PRECISION IS DIRECTLY RELATED TO THE LOGICAL AND REASONED BASIS FOR EVERY MOVEMENT AND FIJACIÓN PERFORMED.

### C. MUSCULAR FATIGUE

### D. FIJACIÓN

*Fijación* (a Spanish term literally meaning *fixation*) will be defined as the VOLUNTARY AND MOMENTARY NULLIFICATION OR IMMOBILITY of one or more articulations for the purpose of allowing stronger and more capable elements to perform in a particular way. *Fijación* is, therefore, a voluntary act which controls a specific articulation and temporarily cancels it in order to permit a movement or a force to be transmitted through it. In this way, the articulation can function as a bond or a bridge.

Depending on the dynamic level, timbre, speed requirements, or any other performing nuance, it is through *fijación* that stronger muscles that are called upon will be of service. The work of the fingers could thus be taken over by the hand, the wrist or the arm; this mechanism applies, of course, to the activity of both hands.

a.

B.



C. It must be pointed out that nullifying an articulation *never implies a state of rigidity*. Furthermore, *fijación* must not only begin just when necessary, but must stop immediately when its need has terminated, with the articulation in question resuming its flexibility and readiness for any other mechanical demands.

### E. LOGICAL SOLUTIONS AND HARD WORK: MUTUALLY EXCLUSIVE? THE NOTION OF RELAXATION

For his complete development, the guitarist must have a *concrete and conscious attitude towards his instrument* (THEORY) and a *correct digito-mechanical formation* (TECHNIQUE). Theory is a premeditated mental attitude based on reasoning while technique is the application of that theory. Correct playing is the result of appropriately combining these two over a period of time.

Tiredness or muscular fatigue cannot be reduced, and even less made to disappear, by working daily and repeatedly on an exercise *when the real cause of this fatigue lies in the defective use of technique, and if what is lacking is the awareness of the various movements and their associations that can be made through fijación*.

One of the precious faculties of a true performer is *knowing how to select his movements*. SELECTION IS THE MARK OF THE CREATOR, a faculty that *belongs to the mind*, and the hands are those external elements at the disposal of the guitarist.

D. Fatigue is most efficiently avoided by knowing how to employ stronger, fitter elements for each determined goal. That is to say, that when a finger cannot perform a certain movement or movements naturally and with ease, *fijación* must be voluntarily called upon in order to delegate a component of the hand-arm complex to do it. This is why it is indispensable for all the parts of the motor complex to be completely trained. TRAINING OF THE FINGERS CANNOT BE CONSIDERED COMPLETE WITHOUT THAT OF THE HAND, WRIST AND ARM.

Although every action culminates at the fingertips, very often it does not have its origin in the finger itself; rather, the impulse is momentarily allowed to come from somewhere else. It is in these moments that the fingers execute a function similar to that of the nails: they act *passively* and are directed by other elements.

GENUINE STUDY TAKES PLACE DURING SHORT INTERVALS AND IN MOMENTS OF GREAT MENTAL CONCENTRATION. Its value should be measured by the level of concentration that correct playing requires and never by the number of hours employed. Not only might fatigue and exhaustion serve as a good indication that cramming is unsuitable, but it is clear that a reservoir of energy is necessary for much of the technical work to be done.

This is how to avoid the unconscious and automated development of skills, and to do away with the absurdity of repeating, with inappropriate means, the same parts or passages of a piece. The choice of the

correct movement has to be made intelligently so that the various skills could be performed without unnecessary muscular contractions.

*The intelligent use of fijación permits those muscles which are not working to relax.* By way of example, consider the lifting of a pencil with the hand. The hand, being capable of raising a considerably heavier weight than that of the pencil, can do this while completely relaxed, because here the potential (hand) is much greater than the resistance (pencil). What would happen, however, if now we were to lift the heaviest weight the hand could manage, i.e., if the potential and the resistance were equalized? The state of relaxation would be eliminated because we would be thus exerting the maximum tension on the muscles and thereby inviting fatigue. Just the same, we could recover that state if, through the necessary *fijación*, we were to add the strength of the arm to that of the hand.

It seems, therefore, that relaxation is linked to *stimulating work* in which the muscles put into play *only a part* of their potential for any given task. Every muscle can be said to own a "capital" that must be carefully safeguarded so that what is used is solely the "interest" from it. It is here that lies the importance of *fijación*—the concept by which fitter muscles can be used to avoid excessive labor.

As useless muscular contractions must be considered unsound and energy-wasting, it is indispensable to eliminate them from all exercises and skills. It is then prudent first to meditate on and select the various movements and *fijaciones* to be employed. Each repetition of false and mistaken movements hinders all freedom and eloquence, exacts a worthless increase in one's work, and greatly decreases the likelihood of acquiring mastery. One should, therefore, work towards MAXIMUM EFFICIENCY THROUGH MINIMUM EFFORT, the elimination of hypertrofied automatism, and the assembling and converting of Technique into what can be labelled PROFESSIONAL MEMORY.

The repeating of a particular movement will generate in time a *muscular memory analogous to this movement*. Repetition develops into habit which in turn induces and coordinates the functioning of the same task. Little by little, it retreats from the direct and constant act of intelligence, of the conscious, in order to become a reflex conditioned by a memory impulse (engram) that conducts forthcoming tasks. This impulse can be *either negative or positive* depending on whether the movements that were originally performed in a mentally conscious form, and that were later repeated until their total assimilation, were erroneous or not.

It is when the correct approach is used that constructive logic serves as an aid. Each movement is related to the one before and to the one after in a way that is coherent and that is directly dominated by the thought process, which is actually the coordinator of the motor mechanism. The freedom in one's movements, and even speed, are then forthrightly obtainable through the understanding and application of the preceding notions; the interrelationship between movements proceeds naturally and logically.

If the whole mechanical part of technique consists of the sum of each isolated movement, and if each attitude of the fingers also corresponds to some parallel mental image, it can therefore be stated that TECHNIQUE IS, IN THE FINAL ANALYSIS, A SERIES OF MENTAL ASSOCIATIONS, a training of the mind that will rule all the impulses and movements of the fingers, as well as a total coordination and identification

that can respond to the voluntary process as a direct propellant and principle motor element.

The sense of security gained from the education of the mind, this voluntary struggle towards mastery of technique, leads to a state of *mental relaxation*. The guitarist who is aware that his knowledge level is below that exacted by the music he wishes to play must put himself in a state of excessive mental strain in order to compensate for what he cannot understand and assimilate. In this particular case mental relaxation could not exist. If it is to emerge naturally, his mental command must be greater than the demands of the musical work.

We can now affirm that relaxation has to function on two parallel levels, one physical, the other mental, and that both of these develop, in the end, through a process of understanding and over a period of time.

It is convenient to pause at this point and consider the fact that both types of relaxation, the easing of both muscular and mental tension, are effected *voluntarily*. A passive state of relaxation, such as exists in sleep, is inconceivable, for what is needed is a state of vigilance in which mental activity is constant.

Relaxation can be said to be a state at one and the same time *permanent and intermittent*. The permanency comes from the fact that there will always be muscles that are in repose, for it is primordial that those that are not needed be relaxing. It is intermittent because, depending on the requirements during playing, the relaxing muscles will be in permutation. What is being dealt with here is *partial* relaxation—complete loosening of muscles would imply inactivity—during which a muscle can be isolated and slackened while others are being activated. It is a guided repose that would last for as long as the mechanical requirements allow; and regardless of its brevity, whatever relaxation could be gained would be of utmost importance. The muscles that do not participate actively in the attack of notes must be isolated from the others, inasmuch as that is possible, so as to maintain them in a state of rest.

There is, therefore, the vast possibility of always working with fresh and relaxed muscles that are not molested by permanent tension; in any other way, the constant effort would invariably lead to a state of rigidity. Incidentally, if we were to add up all those intermittent and tiny moments of rest in every active part of the motor complex, the total would appear rather awesome and, if viewed from outside their musical context; even peculiar and almost inconceivable. These brief moments, however, are unnoticeable because they are below our auditory and visual thresholds.

It is to be understood that only through time does the gradual acquisition of muscular control offer the possibility of momentarily inhibiting the activity of certain sections of the motor complex, while the remainder continues to be at work. So it is that in the learning process the first step involves knowing how to *perform* a given task; it is on a later and more professional level that one should be capable of *suppressing* the functioning of certain muscles for the purpose of relaxing them during short intervals.

## F. SOME SITUATIONS THAT REQUIRE FIJACIÓN

Without biasing the indispensable analysis to be treated later, here follows a short and simple, though by no means exhaustive, list of some of the situations which require the use of *fijación*:

- (1) Right hand strokes (*toques*) related to dynamics. (*Fijación* of one or more phalanges.)
- (2) *ff* strokes with the thumb. (Action from the wrist via thumb in *Fijación*.)
- (3) Right hand strokes for bright tonal coloring. (Angular *fijación* of the last phalange.)
- (4) Right hand: fast repeated chords. (Action from the wrist via fingers in *fijación*.)
- (5) Fast and repeated thumb strokes. (*Fijación* of the thumb.)
- (6) Effects of color. (Certain pizzicatos, *tambora*, hissing effects, etc.)
- (7) Presentation changes of the left hand. (Movements of the arm transmitted directly to the hand via *fijación* of the wrist.)
- (8) Longitudinal and transversal displacement of the left hand. (*Fijación* of the wrist to allow the arm to perform.)
- (9) Some slurs and trills.
- (10) Restful attitude of the fingers (when removed from the fingerboard.)
- (11) Contractions and distentions.

and any instance that requires the participation of other more appropriate elements for a given task.

G.

xii. **STOP and think about this. Soak it In. This is so important and there is so much information here that I want you to pause and reflect.**

- A. Just casually imagine changing the position of your right hand, say for changing tone color on classical guitar, and just try to imagine for a moment all the joints and muscles that could be involved in that movement based on my description above from the upper back to the upper arm to the forearm and the wrist.
- B. Then imagine you, entirely self-aware, prior to playing, lined all those joints and muscles up so that they are relaxed with no muscular exertion in the neutral point in their range of motion in order to play effectively only to realize that as you did your setup and as you moved to change tone color you didn't account for these other joints and muscles of the body OR of the effect of gravity on the joints and now your wrist is flexing or deviating when you try to change tone color, at times maybe almost imperceptibly, especially if you are not used to perceiving and finding tension.

xiii. **IMPORTANT: The relationship between gravity and tension is one of the things that I believe is most important in this book.**

- A. I think Iznola explained this a bit in his method Summa Kitharologica but I have not seen it elsewhere and I find, relative to my own description, Iznola's to be buried in a lot of scientific language, under emphasized, and not easy to process in day to day observation, learning, or teaching.
- B. I want to pause here for a moment and make a broader point.
- C. I think this comparison between my description and Iznola's is less a criticism and more an observation that the part of his book and my book that overlap are not better or worse than each other but instead are geared toward slightly different and distinct communication goals.
- D. I would like to offer for consideration that my explanation, in plain English with metaphors and with only the required and practical scientific vocabulary, might help bridge the gap between the knowledge in Iznola's book and the practical problem of day to day applying these ideas to teaching and practicing and developing an awareness of tension.
- E. Think of how many times you might have played paying attention only to the fingers and giving minimal observation to the rest of the body and its potential effects on the hand and fingers.
- F. Think of how many times you might have played guitar paying attention only to the fingers, their contact with the string, their movement, etc, and giving minimal observation to the rest of the body and its potential effects.
- G. Over time, as your perception and control over your body and tension increases, you might also start to experience something I experienced: you start to understand (or maybe empathize is an approximate word) with how great players experienced/observed/felt intuitively in their bodies this tension I am analytically describing and spelling out as they were developing their technique. It suddenly becomes unsurprising that someone would intuit this. As Elina Chekan once said to me "you will wonder why you ever played any other way." You will also begin to see what Alexander Technique and Feldenkreis are trying to get to

XIV. **What is relaxation:**

- i. You may want to review some of the prior material in this chapter like the castle and definitions of tension.
- ii. Simple Relaxation Example:
  - A. When we stand straight with our arms at our sides as if we are in the military "attention" pose but relaxed probably there is some tension in the upper arm

because the elbow joint and forearm are fully extended which probably creates a bit of tension (muscle exertion and stretching).

- B. BUT, the wrist, in this pose, is neither flexed nor extended or deviated to the left and the right. If gravity is moving the wrist joint, this movement is small in this position and is a good starting point for us: This pose puts the wrist in the center of its range of motion and thus relaxed.
- C. Note that what I am describing about how to relax the arm and wrist is very similar to what Scott Tennant discusses regarding the left arm at the beginning of the companion video for pumping Nylon.

- iii. **One of the Key Concepts of This Book:** In this position the wrist is truly at rest and it is a result of the way the arm has positioned the wrist *such that its interaction with gravity leaves it in relaxed alignment with the forearm and arm and at the center of its range of motion with none of its relevant muscles exerting to hold it in place or move it.*

XV. The big question is how can we get to a state of at rest in a normal guitar posture.

- i. Relaxation example 2: the castle analogy and the elbow joint again:



- ii.
- iii. When the draw bridge (forearm and elbow joint) is fully down such that one could walk across the draw bridge to the castle it is relaxed for two reasons:
- iv. Reason 1:
  - A. None of the muscles involved in moving the draw bridge (remember the drawbridge is the forearm and the muscles in the upper arm that pull it up are the parts in the castle that pull the drawbridge up) are engaged in supporting the bridge as they would need to be when it is moving up or down and the muscles are not engaged as they would need to be if the drawbridge was being held up in the middle of its range of motion; meaning you can't walk across the draw bridge nor is it fully shut. See vocabulary reminder below:

- B. **Isometric (Static) Contraction:** When muscle contraction does not result in joint motion. (Iznaola 17).
  - C. **Isotonic Contraction:** When muscle contraction does lead to joint motion. (Iznaola 17).
- v. Reason 2: Gravity
- A. When the draw bridge is at rest, meaning it comes into contact with the other side of the moat and you can walk across it, gravity is still applying force to the drawbridge but because the bridge has contact with the earth on both sides it is being "held up" by the earth and as a result *none of the draw bridge's muscles (located in the castle and connected to the bridge via the metal chains) are engaged in supporting it.*
  - B. It is truly at rest; meaning neither active or passive tension.
  - C. If you are picking up on some of the gaps in this analogy at this point do remember that it is a model like in economics.

XVI. **ONE OF THE BOOKS MOST IMPORTANT CONCEPTS:**

- i. The end goal of this example and another example to follow is to illustrate the point about gravity and relaxation and to understand that once your forearm makes contact with the top bout of the guitar as in standard classical guitar position it offers you an opportunity to let the joint that connects the arm to your shoulder to the right of your head and the muscles that act on that joint in the upper back and shoulder to relax because they are not holding up the arm anymore.
- ii. Once the forearm makes contact with the guitar you now have an opportunity to relax any muscles that act on the shoulder to arm joint (upper back and shoulder muscles) and you can (as I will explain) proceed to relax any other muscles that move the joints in the elbow, forearm, wrist, hand, and fingers in whatever position you choose (flamenco, folk, traditional classical, etc) once you have made this contact with the upper bout of the guitar.
- iii. You can combine your contact point with the guitar, alignment of the forearm and the wrist, and gravity together to bring your fingers to the guitar in a way that allows them to execute your technique while keeping the wrist, forearm, upper arm, and back relaxed as they were relaxed when they were hanging at your side as in the earlier part of this document and as Scott Tennant describes for the left arm at the beginning of the companion video for Pumping Nylon.
- iv. You also now have a lever with a fulcrum at the point of contact with the top of the guitar. (Iznaola, Summa Kitharologica, Page 49).

**Type I: The Axis or fulcrum is in between the Effort and the Resistance (E-A-R).**

A.  $\begin{array}{c} \text{E} \qquad \qquad \qquad \text{R} \\ \hline \qquad \qquad \qquad \text{A} \end{array}$  **First-class lever**

Example: the see-saw, scissors, elbow extension.

- v. Think of every part of your body past the point of contact with the top of the guitar (forearm, wrist, hand) as a fulcrum like the drawbridge has at the point where it meets with the castle.
- vi. This analogy is a modification of the castle analogy: now your arm to shoulder joint and it's relevant muscles are the mechanical equipment and people or animals raising the draw bridge inside the castle.
- vii. As you use your fulcrum (the right forearm contact point with the guitar) and the shoulder to arm joint to the right of your head (and its relevant muscles in the upper back) to lower your forearm, hand, and fingers to make finger contact with the strings your goal is to lower your forearm, wrist, and fingers such that their joints are at full at rest; meaning at the center of their potential ranges of motion.
  - A. This paragraph is critical to understanding the videos in which Rene Izquierdo talks about right forearm engagement.
- viii. You will always need some passive movement of the elbow joint as it is carried (along with the forearm, wrist, hand, and fingers) by the joint connecting the shoulder to the arm.
- ix. But what you want to arrive at is a point of finger contact with the strings of the guitar for any technique you do to result from carrying the arm with your shoulder to arm joint and no forearm pronation/supination and no wrist flexion, extension, or deviation. In other words, leaving the forearm, wrist, hand, and fingers, truly relaxed as a result of their positioning by the shoulder to arm joint and the interaction between that positioning and gravity.
- x. If you do not maintain a relaxed state of the forearm, it will change the position of the wrist. Because the tendons that operate the fingers run through the wrist, your finger's ability to move will be hampered by this lack of relaxation.
- xi. Be mindful this is not the only setup where you can and need to maintain relaxation of the forearm and wrist and that any other pose you take will require this.
  - A. Rasgueado are a perfect example as the whole hand must hang in the air without the fingers making contact with the strings and so the exact contact point and the dynamics of the lever created by the right forearm contact point with the guitar change.
  - B. In other words, there is not one relaxed position. Rather, it is possible to maintain forearm and wrist relaxation and alignment in multiple sitting and guitar holding



positions ranging from folk/flamenco to classical to what Paul Galbraith does in his cello guitar set up.

xii. A couple of final points:

- A. I think when many players discuss the feeling as though the hand is hanging my description in this chapter is what they are getting at. It's a feeling of being in contact with the strings but with the fingers, wrist, forearm, and upper arm relaxed.
- B. A performer need not stay perfectly relaxed 100% of the time. Rather, relaxation is an equilibrium you move within, around, and in and out of when you perform.
- C. I am not arguing for one final position that your body should look like. Rather, I am showing you how to feel your right arm, relax your right arm, and one example of getting it to the strings relaxed and I am showing you a way of using basic language from anatomy regarding joints to think more critically about how you move and to be able to describe your movements or observe other's movements more articulately.
- D. If you think about it for awhile you can start to picture how someone could place their right forearm and wrist and fingers in an aligned and relaxed position in every position from the way flamenco guitarists hold their guitar's all the way to Paul Galbraith's positioning the guitar neck vertically as though playing a cello.
- E. IMPORTANT: I also think when great players discuss the feeling of being grounded or secure on the guitar they are talking at least in part about the feeling of relaxation that occurs when you bring the hand in contact with the strings and, like the lowered drawbridge in the castle analogy, the "earth" holds up the hand through the guitar and your upper arm and upper back can relax as they are no longer holding up the hand.
- F. The other analogy I was given is that being grounded is like walking. When you walk 1 foot is always in contact with the ground and so you do not have to hold your body up in the air. Similarly, you want to finger in the right hand such that whether through playing notes or preparation you are always in contact with the strings of the guitar.
  - a. My experience of this was on Barrios Waltz (Op. 8 Waltz 1). If this book gets a positive review or I have extra time I am going to use it as an example of how to finger a piece of music so that you maintain as much contact as possible. As I write in 04/2024 my plan is to spend the next year working on a short recital and documenting all my lessons with Rene.
  - b. But what I want to get at now is that when you start to think in terms of always being in contact with the guitar the fingerings come more intuitively.

1. But there is also a proprioceptive component: as you think more and more this way your mind is going to *feel your hand being held up in the air*. You will crave not having that feeling and reduce it through fingerings that leave you grounded (in constant contact with the guitar).
  2. The fingerings in the right hand will thus flow from this feeling.
- c. Try watching any good players. I just watched John Williams and you can see how he is in constant contact with the strings.
  - d. Also watch all the movements of the shoulder joint, elbow joint, forearm, and wrist. Notice how they are each used individually and also how they flow as a whole unit (Carlevaro's Hand Arm Complex).
    1. Look of this in Juan Martin's playing in the companion videos to his Flamenco method book. You can see all the subtle movements of the whole hand arm complex.
  - e. Again I watch John Williams and I see the way he adjusts with the shoulder to arm joint to assist the thumb hitting the bass strings, to switch between rest and free stroke, etc.
  - f. Try to imagine as you watch how the player's shoulder to arm joint moves and how they move in and out of relaxed. You can almost feel it in a weird intuitive way; imagining yourself in their shoes. As Elina Chekan once said to me, you will wonder why you ever played any other way. Elina also once said "as you start to get better at observing players you will find that certain movements/techniques/setup start to make sense after you observe them for awhile."

G. Another exercise:

- a. Hold your arm out abducted, rotated, and flexed, and wrist flexed as in image. Try to feel the muscles that act on the shoulder to arm joint in the upper back and shoulder. Also try to feel your wrist pushed down by gravity and thus flexed and stretched.

b.



- c. Then use your shoulder to arm joint and it's muscles to set a finger on a counter at about waist height. Feel your muscles in your upper arm, shoulder, and upper back relax at least a bit.

1.

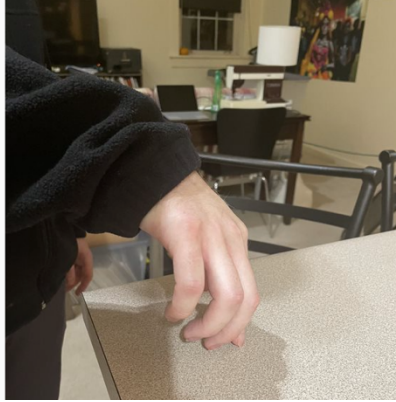


- d. Feel how the muscles in the forearm and upper arm and upper back can relax now that the shoulder joint and arm are not holding up the hand.
- e. Now imitate walking with your index and middle finger. This feeling of the arm not having to hold the hand up and the relaxation of the upper arm and back muscles is what you want to feel from your fingering on guitar. Constant contact with the earth through the guitar so your upper arm and upper back are not holding the arm up.

1.



1.



2.



3.



f. **It's like walking**, and this is how you want to move on the strings.

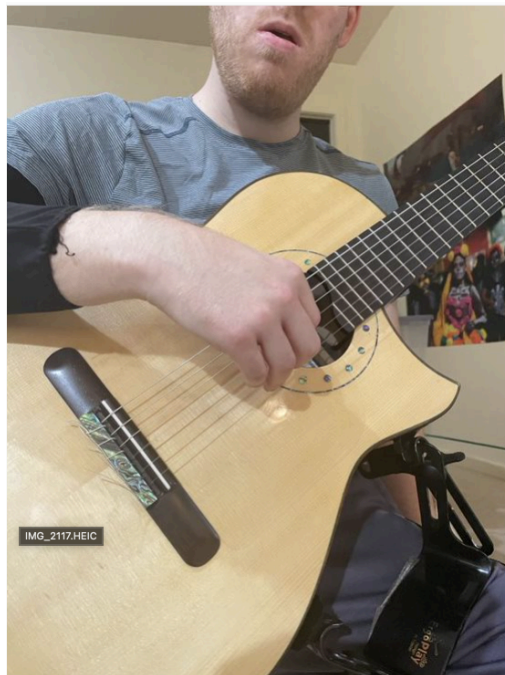
H. Another Exercise:

- a. Hold your left forearm up and under your right forearm as in imitation of the side of the guitar and place your right forearm on your left forearm as in imitation of putting the right forearm on the top of the guitar.
- b. I tried this and I could feel the forearm and upper arm tense as they held the forearm, wrist, and hand up and still in the air.
- c. When I set my hand on my left forearm I felt the relaxation of the forearm and upper arm just like in the drawbridge example where it is "held up by the earth."
- d. This exercise is helpful because at the same time you can feel the right shoulder to arm joint's muscles relax while the left shoulder to arm joint is tense because it is holding up both arms.

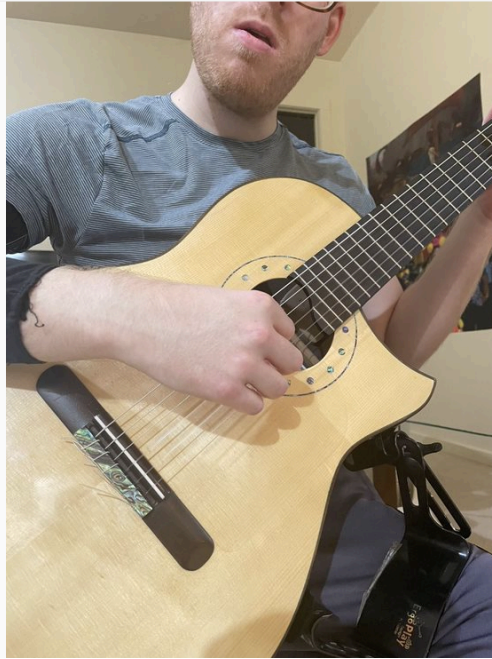
I. Another Exercise:

- a. With your right forearm in contact with the guitar and fingers on the strings as if to play a 4 note chord use your shoulder to arm joint to move the hand around so that the wrist flexes, extends, deviates, or to put it another way do circumduction but drive that motion with the shoulder to arm joint; letting the wrist joint move passively with and from the shoulder to arm joint.

1.



1.



- b. Just like the biceps stretch discussed earlier we want to move the wrist joint but not with the wrist's muscles.
- c. Instead we want to move the wrist joint with the shoulder to arm joint and it's muscles.
- d. Using the shoulder to arm joint and muscles lets the muscles that cause the elbow joint, forearm rotation, and wrist to move but not by using their own muscles but instead being moved passively by the shoulder to arm joint, shoulder to arm joint muscles, and gravity acting on the joints as they are repositioned.
- e. In other words, large muscles close to the center of the body move the whole arm including the hand and fingers while the smaller muscles that are further out from the body in the forearm and wrist can stay relaxed (Carlevaro's Hand Arm Complex, or Fijacion).
- f. I think the reason that the old Segovia wrist angle worked is because a certain amount of wrist deviation doesn't impact the ability of the fingers to move rather quickly and so the old deviated hand of Segovia and Parkening worked but when I look at modern players like Rene, Grisha, Bianco, they don't always maintain one position of the wrist but they usually do not play with a deviated wrist.



1. 6:56
  2. In other words, as stated earlier, the center of a joints range of motion is more like an equilibrium that you can move within, around, and go in and out of as you play. Playing is thus not a static state of alignment but one of dynamic tension and relaxation in response to the music.
- xiii. This is the reason we want to think from the center of the body out. Aside from the fact it gives this method structure, I hope it is clear that you can't start with the finger and hand, you need to consider how the spine, shoulder to arm joint, forearm, and wrist, are positioning the fingers.
- XVII. Rene, sometime to me in the past: "look at you becoming more observant."
- XVIII. The last piece of the puzzle: finding small amounts of tension.**
- i. Let's review our process again with one last step added:
    - A. First we identified the location of joints used to play guitar in a specific context; in our case this was the point of contact with the guitar and getting the fingers to the string.
    - B. Then we identified approximately where the muscles that are directly impacted by our movement (actively tense) or are effected passively by our movement (passively tense) of the joint being observed.

- C. We then observed the feeling of muscular exertion (**Active and Passive Tension**) that results from engaging the joint and its muscles.
- ii. The last step:
- A. The concept that I think is still missing is that when analyzing a joint, its relevant muscles, and learning to perceive the tension that results from moving that joint and using its muscles you need to start with big motions of the joint and get a lot of obvious tension so you develop an understanding and perception of the tension that comes from muscular exertion and the stretching of the nearby/relevant muscles along with the impact of gravity and how all of this causes the proprioceptive sense of tension.
  - B. You then practice going from a tense state to a relaxed neutral state for the joint you are observing.
  - C. You then practice the same motions of the joint(s) you are observing using an incrementally smaller range of motion to develop and refine your sense of tension for each joint you are working with to achieve your musical goal.
  - D. This is why we need to map the body and it's joints in order to do this with more precision and rigor.
  - E. The reason for this is that the big motions of any joint create so much tension that it is hard to miss. This is the starting point of teaching someone to feel.
  - F. But playing guitar and probably most instruments involve smaller amounts of motion and tension.
  - G. You need to start big and then work on the harder part of feeling small amounts of tension that actually occur in playing guitar.
  - H. The byproduct of this process will first be awareness of tension and eventually you will find it leads to control of tension.
  - I. I think what I am getting at here is a more articulate version of Alexander Technique or Feldenkreis although I will admit my knowledge of either is shallow.

XIX. An important point about analysis vs intuition:

- i. I am trying to meet the relationship between analysis and intuition in the middle.
- ii. For years one of Rene's objections to my work is that there is not one way of being a guitarist or solving problems.
- iii. My argument has been that there are some "one ways" for doing some of the things we do when playing classical guitar and that this information are worth gathering in one spot. I



have also argued that if I teach you how to feel and observe other player's motions and solutions to problems you will then learn to teach yourself.

- iv. Iznola's Summa Kitharologica has a bunch of useful technique information that is buried in a lot of scientific text. It would be nice to have a more concise list with definitions somewhere and citations so that if one wants more detail they can refer back to Iznola's method but for teaching and learning I want to strip out the more scientifically dense parts of his book. I think the same could be said for Carlevaro except the issue with his method in my opinion is more one of succinctness and clarity than the amount of information or its technical vocabulary.
- v. A lot of this information is just spread out in too many texts or in player's heads. Two examples of concepts that I think are buried in texts or in people's heads and could be gathered in one spot are:
  - A. The list of ways one can mute a string:
    - a. Using a free left hand finger.
    - b. Using a free right hand finger.
    - c. Using the back of thumb.
    - d. Using the thumb pad if not in use playing another note.
    - e. Muting the note with the thumb and leaving it there to prepare it for the next bass note coming up on that same string.
    - f. Relaxing a left hand finger on the string/fret/note it is depressing until the string loses contact with the fret but is still muted by the finger.
    - g. Note: I have not actually added this particular list in its entirety to the documentation yet but it is such a good example and I am using it here to illustrate the point.
  - B. Another example is the list of different types of Barre chords in Iznola's method Summa Kitharologica.
    - a. If you skim through my list of Anatomy and Technique vocabulary all these barre types can be found there.
    - b. My inclusion of this list below is to demonstrate that one does not need the whole of his text to be informed of all the Barre chord options and that having a list of the different types and definitions using the weight lifting style format I describe in "Applying What Is In This Book" might have some pedagogical benefits.

- c. **Barre Chord:** when the first finger is placed on a single fret on 2 or more strings, essentially acting as a capo. This also utilizes shoulder extension to aid fingers in pushing the strings into the soundboard (dumbbell row). 60/40 split between shoulder extension and finger flexion to press strings into fingerboard. The angle of the forearm, wrist, and fingers in relation to the neck is affected by how the shoulder presents the arm and hand. Care should be taken to factor in the shoulder when experimenting with passages that have barres (Iznaola 129-133)
- d. **Full Barre:** The knuckle joint (metacarpalphalangeal joint) of the index flexes and the interphalangeal joints of the fingers extend. This barre may be used to cover any number of contiguous strings, from three to six, but is not used to cover just a few intermediate strings. This (Iznaola 129).
- e. **Hanging Barre:** a barre that, though full, only covers three, four, or five strings (Iznaola 129-133).
- f. **Partial Barre:** There are several variations of the partial barre, but they share the use of a flexed medial joint and an extended tip joint. Generally, partial barres are used when no more than four contiguous strings are to be covered (Iznaola 129-133).
- g. **Nested Barre:** knuckle joint and wrist extend, bringing the palm closer to the neck and making the angle of presentation of the fingers more diagonal thanks to the unavoidable forearm pronation. This allows access of fingers 2 and 3 to some lower strings (Iznaola 129-133).
- h. **Unnested Barre:** The base joint and the wrist may adopt various degrees of flexion or extension, but the alignment of the fingers is more perpendicular, and the hand is supinated (Iznaola 129-133).
- i. **Hinge Barre:** A barre in which the finger, though extended, contacts and depresses only the high E string with knuckle joint and wrist flexion. Hinge barres can be used to prepare for an upcoming barre chord or as a way of depressing a string while the index finger is extended (there are passages in which flexing the index finger to hit a note on the high E string creates too much tension due to the way the other three fingers are being used) (Iznaola 129-133).
- j. **Reverse Hinge Barre:** When the index plays only the low E string in preparation for a full barre. An inner string barre may also function as a reverse hinge barre (Iznaola 129-133).
- k. **Arche Barre:** When the 1st finger depresses a single note on the low A or E strings and a note on the high E or B string but none of the other strings in between. A perfect use case for this is the major barre chord with the root on the A string. By not pressing down the strings in between the root on the



- iii. Much of the tension went away and Elina noticed and commented.
- iv. I happened to have a mirror in front of me. I saw what she saw.
- v. I later went back and body mapped. I have not solved all of my problems or all guitar problems. And I have not even internalized what Elina and I observed. But in my heart, I knew I had something.
- vi. The next step is to sell this the way of thinking illustrated in this chapter and the map of the most important joints I think are relevant in chapter two to continue this process.
- vii. I have mapped out somewhat clearly how to relax the wrist, but we have not discussed the fingers.
- viii. But I believe here we have at least a good example of the theory, the structure and approach, the application, and the results.
- ix. 2023/12/01:
  - A. This is no longer theory. I am doing things on the guitar with a freedom and ease I couldn't do two weeks ago.