

Parts of the body most relevant to class discussions

Muscle: Contract (flex) and pull tendons to move joints and bones.

Tendons: Fibrous and non-elastic cord-like bundles of tissue attached to muscles which pull bones when muscles contract.

Joints: Connections between bones that allow movement. Joints can only move through the external pull of muscles (unless an external force is present, like gravity).

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.

Tension: Anytime you are contracting muscles you do not want to be contracting often (though not always) causing a joint to move out of its relaxed state. This can be static (like elevating the shoulders, holding the pinky up, keeping the wrist flexed or deviated, holding the forearm in supination or pronation) or dynamic (such as overusing the knuckle joint in plucking the string).

Muscular Fatigue (Tension): The decline in the ability of a muscle to generate force. In a nut shell, your muscles get tired, and you feel them tensed or tired.

Relaxation/Neutral: the absence or minimal existence of the different types of tension.

Limb Supported Strokes: This when action of the finger joints to displace (pluck) the string is replaced by wrist (deviation or flexion/extension), forearm (rotation), elbow (flexion/extension), or shoulder motion (horizontal flexion/extension). An example of this is when the a finger plucks the string not with finger flexion but elbow flexion.

Passive Flexion/Extension: Just like the wrist can flex to create a plucking of a string with the a finger, the same applies to the wrist motions that result from motions from the shoulder, elbow, and forearm.

An example of this is when flexion of the shoulder joint causes elbow to extend and forearm to pronate passively while the muscles that act upon the elbow and forearm are engaged minimally or not at all.

Ultimately, Passive Flexion/Extension is mainly a result of gravity acting on the joint as a result of how it has been positioned by the larger joint. As the shoulder flexes and raises the wrist, gravity causes the wrist to passively flex.

Joints or Movements Relevant to Guitar Technique

The Spine: Flexed (crunch), Extended (tummy stretch), lean left, lean right, rotate left or right.

Shoulder Joint: Flexion/Extension (dumbbell row, elbow forward/elbow back), Abduction/Adduction (elbow out, elbow in), Horizontal Flexion and Extension, Lateral and Medial Rotation.

The Elbow Joint: Flexion and Extension (dumbbell curl, tricep extension).

The Forearm: Pronation (palm down) and Supination (palm up).

The Wrist: Flexion and Extension (wrist down/up). Radial and Ulnar Deviation (wrist left/right).

Carpal-metacarpal Joint (Wrist Joint): Joint between wrist and hand. The thumb's Carpal-metacarpal (wrist) joint is the primary mover of the thumb.

Metacarpophalangeal Joint (Knuckle Joint): Joint between hand and fingers.

-Interphalangeal Joints (Finger Joints): We refer to the middle finger joint as finger joint 1 and the distal joint as finger joint 2.

Technique Vocabulary for MUS 118

THE BODY

Relaxed Spine and Spine Movements: When the spine is neither flexed/extended, leaning left or right, or rotated left or right. The spine can and should move a bit while playing so that the work of holding the spine is shifted between the various core and back muscles involved in keeping the spine relaxed. Bring the guitar to the relaxed spine/body, not the spine/body to the guitar.

Poised Arm (Both Arms and Spine): This describes an arm that is ready to act, but has the least amount (or zero) tension. It is impossible to have absolutely no tension at all times. Poise is the minimal amount of muscular tension needed for readiness. The poised spine is the same, but also implies a bit of motion. This eliminates muscle contraction from holding the spine in place, passing the tension around the muscles of the torso. We can think of pose as the mid-point between total relaxation and maximum tension. Our goal is to have relaxed hands and wrists and forearms with poised elbow and shoulder joints.

Slant of Fingerboard: Finger board/guitar body should be slightly slanted back so that gravity helps you push the strings down and to aid the right hand in getting over the rim of the guitar. THIS SHOULD BE VERY SLIGHT. Many beginners tip the guitar body/neck too far backwards in an effort to see what their left hand is doing which creates problems in overall posture and ease of execution.

Right forearm contact points with guitar: Long Arm is where 3/4 or more of the forearm is beyond the rim of the guitar. **Short arm** is when the 2/3 to 1/2 of the forearm is in front of the rim of the guitar, creating a see-saw like lever. The elbow should not be beyond the rim. If the contact point is too long arm (or the elbow is beyond the rim), it will be difficult to get in Anatomical Position with the thumb in front of the index finger. If the contact point is too much to the right of the guitar body, it will cause the spine to lean to the right creating tension in your back, core, and sympathetic tension in your shoulders and arm.

3(4) Displacement Types (moving the right hand/string crossing):

- 1) Elbow flexion/extension (dumbbell curl).
- 2) Shoulder rotation with abduction/adduction + wrist flexion/extension, creating a lever system with the fulcrum being the point where the right forearm comes into contact with the guitar.
- 3) Forearm horizontal flexion and extension. This is the only one where the contact point shifts significantly. The right hand moves almost perpendicular to the strings without wrist flexion/extension or deviation. The elbow and forearm move passively in response to the shoulder.

Setting the Wrist (Relaxed/Neutral Wrist): bring the wrist into relaxed (no passive or active flexion, extension, or deviation). This can be experienced by holding the hand in front of you so that it is palm down and passively flexed and then rotating the forearm until you feel a sensation in the wrist when it goes into the relaxed position. When actually playing the guitar, this is not achieved with forearm rotation. Instead, this is achieved by finding the proper spine alignment, bringing the guitar to the body, finding the right forearm contact point, and then using the shoulder to bring the right hand to the strings. The wrist is correctly aligned when you feel it “set” to its neutral position from the motions of the shoulder.

Setting the Forearm: similar to the wrist, the forearm can also be “set” into its neutral position by the shoulder.

Passive movement of the elbow, forearm, and wrist are driven by the shoulder. In many cases the elbow, forearm, and wrist move but their muscles are not acting, they are just responding to shoulder motions. The reason this occurs is because gravity is acting on the joints as an external force that causes them to flex/extend/rotate/deviate without their corresponding muscles exerting any effort. While little or no effort is being exerted, some tension may be caused by slight muscular effort, stretching, or simply the bringing of the joint out of neutral/relaxed position/alignment (even if no wrist or finger muscles are engaged, if the shoulder motion brings the wrist out of neutral position tension in the fingers and can result as the wrist change in attitude pulls the forearm tendons that manipulate the fingers).

Playing off Left Side of Finger Tips: Your goal when setting the forearm and wrist is to achieve neutral for both while at the same time positioning the fingers so that joint one (the medial joint) is positioned correctly for whatever stroke you are doing (rest or free stroke) and you are playing off the left side of the finger tips with the thumb slightly ahead of the pointer finger. If your thumb is unusually short, don't deviate/flex/extend the wrist or rotate the forearm to bring the thumb in front of the pointer finger. Better to sacrifice thumb position than to distort the whole hand by having static tension in the forearm or wrist.

Bigger Joint/Muscle Principle: Try to achieve any action utilizing the larger joints and stronger muscles before utilizing the smaller joints and muscles of the fingers and wrist. In the right hand this means using the shoulder to move the hand for string crossings. In the left hand this means using abduction/adduction to aid the fingers in intrapositional shifts and shoulder flexion/extension for interpositional shifts.

RIGHT HAND

Plucking with a Plectrum (Pick): Done with forearm rotation, elbow flexion/extension, or a combination of both. When crossing strings, the elbow brings the pick from one string to the next and achieves the initial stroke, almost making the act of crossing the string and the first pluck one fluid motion. Tremelo picking relies primarily on elbow flexion/extension. The fleshy part below the pinky (hypothenar eminence) or the pinky side of the wrist may be placed on the strings when plucking the string with a pick.

Strumming with a Plectrum (Pick): Forearm rotation and elbow flexion/extension.

Basic Rosgados: Strumming: p i, and p ima. Driven by forearm rotation.

Anatomical Position (AP)(s): Thumb on G string, index on B string, middle and ring finger on high E string. Anatomical position is about the arrangement of the fingers, not the strings they are placed on. This arrangement could be done on the D G and B string. AP has 6 positions determined by where the thumb is placed with the high B string being the 2nd position and the low E string being sixth position.

Note that AP changes between rest stroke and free. In rest stroke, a and m are not planted on the higher strings and the thumb location still determines the position number, but now the thumb is going to be several more strings behind the string being plucked by the fingers (often it stays on the low E or A string). Also, in free stroke the first joint (medial joint) of i and m and a is below the string being plucked, whereas in rest stroke it is above the string being plucked.

Arpeggio Position(s): Starting in AP and shifting the middle finger to the B string, index to the G string, thumb to the D string. There are again 6 positions (only 3 of them are actually practical) all determined by which string the thumb is placed on, with low E being 6th position and high E being first position.

Pulgar (thumb) rest and free stroke and scales: Use wrist (carpal/metacarpal joint) to execute thumb strokes. Use of forearm rotation and elbow flexion to aid thumb strokes in arpeggios and scales for greater speed and volume. To do the limb supported strokes effectively, the right forearm must shift to long arm position to facilitate the elbow driven stroke (this makes thumb more parallel to strings). Circumduction (rotation motion of the thumb's wrist joint) is used for free stroke. When doing isolated thumb work on the bass strings such as scales where no finger is involved, the middle finger or all three fingers in arpeggios position may be used as anchor fingers. The middle finger can also be placed on the top of the guitar right below the strings when executing the G type scale

Right hand finger symbols:

p: thumb

i: Index

m: middle

a: ring

c: pinky

Right Hand Groups (p, i, mac): These three groups can move independently of one another. What is more important about this grouping is to note that movement in any individual finger in mac causes sympathetic tension in the other fingers of the group. Often it is useful to flex/extend mac as one single unit to avoid unnecessary tension caused by holding fingers that are not being used. Your goal is to alternate between groups, not within (pi, im, ia, etc).

Main right hand finger combinations: pami (pi, im, ia and ami, ima).

Anchor Fingers: In both hands they help you travel vertically up the strings (from highest Low E to high E or back. In the right hand you place your thumb and/or ring finger on the strings. In some instances it is acceptable to place the pinky or ring finger on the top of the guitar, usually when finger work is limited to pim. Free stroke scales use both planting of p individually and p+a.

Rest stroke scales only uses P. In free stroke the thumb follows mi on the next lower string below the string being plucked as i and m ascend strings. In rest stroke the thumb either stays planted on the low E or A string or it moves along with im but two or three strings back. You can also rest the bottom side of the thumb (palm down portion) against the string when doing free and rest stroke scales in some limited instances where you can't place the thumb anywhere consistently.

The fleshy part below the pinky (hypothenar eminence) or the pinky side of the wrist may be placed on the strings when plucking the string with a pick.

Guide Fingers: In both hands they help you travel on the strings/neck horizontally (more towards the bridge or more towards the nut. Again this is typically p or a in the right hand. This is usually done to change tone color by placing the right hand fingers over the sound hole or closer to the bridge.

Constant Contact: using right hand guide and anchor fingers to always remain in contact with the strings/guitar.

Touch, Push, Pull, Release, Relax: **Touch** the string with knuckle flexion and finger joint extension, **Push** the string with the same knuckle joint flexion and finger joint extension, **Pull** the string to the adjacent lower pitched string by flexing the two finger joints, **Release** the string by continuing the flexion of the fingers first joint, **Relax** the knuckle and finger joints after the stroke is completed.

Rest Stroke (apoyando or push stroke): After the release of the string being plucked the finger tip comes into contact with the lower adjacent string. Push with the finger that is resting on the lower adjacent string to aid the plucking finger in an ascending string crossings. Use the shoulder to pull the finger during descending strings crossings to bring the plucking finger to the lower string. The first joint of the finger must be above the string being plucked.

Free Stroke (tirando or pull stroke): Finger does not come into contact with the next adjacent string. Angle must be oblique to the string to avoid hitting the next string. Play off left side of finger tip/nail. The first joint of the finger must be below the string being plucked. Playing off the left side of finger tip/nail and finger angle are determined by shoulder horizontal flexion and extension (essentially the fingers are positioned by the shoulder). This gets the proper angle of attack without tension from forearm rotation.

Playing from the string (touch pressure release): a phrase describing contact with the string before displacing it. A less complete version of Touch, Pressure, Pull, Release, Relax.

Preparation: The action of preparing a finger to pluck a string. This can be done either through contact with the string or by closely hovering over it. Be aware that the act of relaxing the fingers and other joints often creates preparation because the point of relaxation is the beginning of any technique. Relaxation must be considered a part of preparation.

Hovering: preparation that does not involve contact with the strings.

Planting: placing the right hand finger tips on the strings they are to play before they are going to be used. Planting is one form of preparation. Guide and Anchor fingers are also examples of planting, although in this case the goal is both preparation and the release of muscular activity, because planting the anchor finger in the right hand relieves the right arm from holding the hand up.

Sequential Planting: Used in right hand arpeggio technique: when one finger is planted, then that same finger plucks the string, and as that finger plucks the next finger is planted on the next string to be plucked.

Sequential Group Planting: same as sequential planting, but now this occurs between the three groups of the right (p, i, mac)

Full Plant: Usually used in ascending arpeggios. This is when all fingers are planted in preparation for what is to be played.

Full Sequential Plant: You are fully planting every finger for the arpeggio, but the next finger does not play until the finger that plucked the previous string has returned to the string that it plucked.

Plucking Chords: (Opening The Jar (radial wrist deviation), Elbow flexion). pim and pima. A type of limb supported stroke for plucking multiple strings/chords.

Arpeggios: 4 and three finger. Use of forearm rotation to aid planting. Forearm rotation is sometimes an active part of the process, meaning that the forearm is consciously rotated to aid the thumb and fingers. In other instances, the forearm simply remains relaxed and moves passively as a result of the activities of the fingers. In effect, the forearm in this second case becomes a shock absorber, preventing tension from building up in the forearm as result of trying to hold it place by moving with the fingers pluck when they pluck.

Opposition: When you supinate (palm up) the forearm, you can see your thumb move. A horse shoe shape is created between the different fingers as you do this. The ability for the thumb to “line up” with each finger and touch their tips is called opposition. When actually playing guitar this is achieved not with the forearm but with the shoulder passively moving the elbow, forearm, and thumb.

Left Hand

Shoulder abduction/adduction (elbow in, elbow out): Used to aid left hand finger placement. As the elbow goes out away from the body, the pinky moves more to the high E string and the index moves more towards the low E string. As the elbow moves toward the body, the pinky moves towards the bass strings and the index moves towards the treble strings. Old technique methods advocate for the elbow/arm to always remain close to the body, but this limits the amount of motion capable by the whole shoulder, forcing weaker muscles of the shoulder rotators and weaker muscles of the forearm rotators to exert more in order to place the fingers on the neck and shift from one position to another.

Shoulder Extension (dumbbell row): to aid fingers in pushing the strings into the soundboard. 70/30 split between shoulder extension and finger flexion to press strings into fingerboard.

Placement on Fingertips: left hand fingers should be placed on finger tips.

Thumb: Thumb should not squeeze 95% of the time. Any flexion of the thumb joints that creates creases in the palm of the hand or noticeable movement in the thenar eminence should be eliminated whenever possible. The thumb tip should not be placed in the center of the neck. Instead, it should simply move with the hand passively, with its location most of the time being such that the bottom of the neck touches flesh between the bass of the thumb and pointer finger. Only a slight gap should occur between this location and the neck as you ascend to the high E string.

Forearm Relaxed: unless you are trying to depress a string with the pinky or execute a slur, the forearm should not be supinated (palm up). It is commonly said that the forearm should be maintain a supinated (palm up) position so the fingers have a uniform (perpendicular) angle of attack. This creates static tension in the forearm as one holds it in a supinated (palm up) position that impedes left hand finger action. When the forearm/arm is relaxed, the finger knuckle joints will be slightly diagonal to the strings, with the pointer finger knuckle being closest to the fretboard and the pinky knuckle being furthest.

Positions: in the left hand, these are any 4 finger/fret span. The position is determined by what fret the 1st finger is on and there are as many positions as there are frets. A scale or pattern that is positional does not require the left hand to shift, it all falls within one four finger/fret span. Each finger is assigned to each fret in the position. So in 5th position, 1st finger plays the 5th fret, 2nd finger plays the 6th fret, 3rd finger plays the 7th fret, 4th finger plays the 8th fret.

Left hand finger patterns: 1234, and 124 (1 2 and 4 can stretch the most. It is difficult to spread finger 3 from either finger 2 or 4. If you wanted to make a 5 or 6 fret stretch it is best to use fingers 1 and 4).

Constant Contact: the use of anchor and guide fingers to remain constantly in contact with the neck. This is used in scales in the left hand in multiple contexts. First, when ascending a string in a scale, such as a G type major scale, when finger 3 is placed after finger one, finger one releases its contraction and is pushed up by the string so that it is no longer pressing the string down but still in contact with the instrument (the string). This prevents an opposing motion that would occur if finger one were lifted off the string while also allowing finger 1 to relax.

Second, As one continues in the scale crossing from the G string to the B string, finger 3 does not lift off the string until finger one has come into contact with and depressed the B string. This ensures that even during a string crossing, the left hand is always in contact with the guitar.

Try not to let the fingers fly off the fret (this is similar to not letting the fingers fly too far off on other instruments like the saxophone). Also try not to lift the preceding finger while ascending thus creating contrary motion. So don't lift 1 as you bring finger 2 down and the same for finger 2 to finger 3. In general you want to try to limit lifting other fingers or the hand as a whole while depressing strings with a left hand finger. This of course is often not possible.

Left Hand Neck Contact: The radial side of the pointer finger or the fleshy part on the palm beneath the index should usually be in contact with the neck. This acts as another point of stability. The guitar neck should essentially fall in between the horse shoe of the index finger and thumb. The thumb should not be kept in the center of the back of the neck as older methods propose. This middle of the neck positioning of the thumb forces the wrist to flex and fingers to extend more to reach the bass strings, creating unnecessary tension.

Anchor Fingers: In both hands, anchor finger help you travel vertically. In the left hand, an anchor finger is any finger that you keep placed on the neck/fret or strings/frets as you move the other fingers within a position.

Guide Fingers: Help you travel horizontally from bridge to nut in both hands. In the left hand these can be any of the fingers that stay in contact with the fret board or string while changing positions.

BELOW CONTENT IS FINAL EXAM VOCABULARY

Extensions: When the fingers spread apart from each other (abduct). This occurs when you play the first fret with finger 1 and then stretch 4th finger to reach the 5th or 6th fret.

Contractions: When you bring bring the fingers close together (adduct). An example of this is when you play in first position but use finger 1 for the first fret, finger 2 for the second fret, and finger 4 for the third fret (in strict first position finger 3 would play fret 3 and finger 4 would play fret 4).

Interpositional Shifts: When the hand moves from one fret position to another, parallel to the strings

Intrapositional Shifts: when the hand changes attitudes within a given fret position, transversally across the strings

Compound Shift: where both types are present.

Barre Chord: 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). 70/30 split between shoulder extension and finger flexion to press strings into fingerboard.

-Full Barre: All six strings are barred

-Partial Barre: Only a portion of the strings (1/2, 2/3, etc) are barred

-Hinge Barre: When the first finger is extended but only depresses the high E string. usually used to prepare the hand for another type of full or partial barre to follow. This can also be done with the first finger extended but only pressing the low E or A string.

-Arche Barre: When the 1st finger depresses a single note on the low A or E strings and a note on the high E string but none of the other strings in between. A perfect use case for this is the A type major barre chord. By not pressing down the strings in between the bass and high E string the index finger exerts less to hold the chord shape.

-Barre with fingers other than 1: uses fingers 2, 3, or 4. Often for D type chords.

-Cross Fret Barre: when the index finger is aligned so that it barres two different frets (like the tip of the finger is on the third fret and the base of the finger (near the knuckle) is on the 2nd fret).

-Inner String Barre: when the finger only barres inner strings but not the high or low e strings. An example of this is the flamenco version of the open A major chord where the index barres the second fret of the D and G strings, the middle finger is placed on the second fret of the B string, and the low A and high E strings remain open.

Slurs:

- 1) Hammer ons: left hand finger “smacks” into the soundboard without a corresponding pluck in the right hand.
- 2) Pull Off: left hand finger pulls the string, like a left hand rest stroke, then releases the string without a corresponding pluck.
- 3) Both slurs are aided by forearm rotation.

Vibrato

- 1) String bending (vertical vibrato, elbow flexion/extension)
- 2) Horizontal vibrato (shoulder rotation)