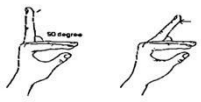
<u>Physicality of Playing the Piano</u>
<u>TAT Presentation by David Kosutic</u>

We try to develop a natural technique in our students so they can play with ease, a sense of control, and communicate musical subtlety. But each student has a different hand, physiology, musculature, reflexes, and as they grow the proportions of their body mechanics changes. By fostering a heightened body awareness, we can help our students gain greater strength, speed, and flexibility.

<u>Sumiko Mikimoto</u> – Japanese Piano Teacher of many prize winning students for over 40 years.

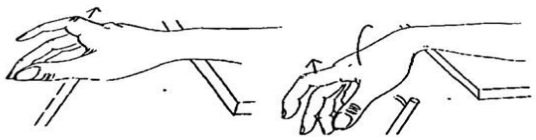
- Aim is to create awareness of the complete mechanism - all the joints and muscles, and how they move together – first by isolating them, then connecting them together.
- Uses proprioceptive sense. PROPRIOCEPTIVE or KINAESTHESIA is awareness of your own body, sense of position and self movement, from general sense of limbs down to individual muscles. Proprioceptors are neurons located within muscles, tendons, and joints. They operate as your body's own feedback loop – communicating with the brain and nervous system connecting your brain to the muscles.
- Two different "hand types" that have distinctive strengths and weaknesses. patented fingerboard, she created exercises that train the body to move, and train the nervous system to react differently.
- Fingerboard is patented in 1980, and the purpose is to stretch tendons and train the small muscles of the hand and fingers. Approach is to isolate specific joints, muscles, fingers with exercises – she believes isolating creates a better kinesthetic sense in the pianist.
- Attributes problems to uneven muscle development, and failure to understand physical weaknesses (weak joints, or tight tendons). She notes the need to develop wrist, forearm, upper arm, and even chest and back muscles.
- 3 basic elements: 1) Development of finger independence 2) Stabilization of finger joints 3) Understanding of nervous system that controls muscles and joints

Anatomic Differences between hands – thicker fingers versus thin fingers
UNSTABLE JOINT creates most problems in the development of technique
Students with less than a 90 degree stretch between the fingers would likely have problems with wrist tension when they play

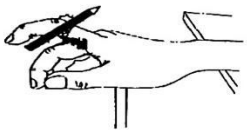


GOAL is to develop kinesthetic sensation of finger independence (how to move individual fingers without excess tension)
Mikimoto's exercises are designed to make student aware of the MINIMUM contraction required to shift weight – don't make too big motion, or move too quickly; focus on sensation as you do them – small and light movements are better starting out to develop your sensation.

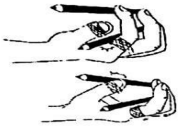
Exercises can be adapted to help sensation develop, and can be sped up using the metronome
Finger Independence exercises:
Exercise 1 - Hanging hand with raised finger



Exercise 2 – Increasing speed of Finger Movement with a pencil (metronome up to 170 – 190 two per tick, but start at speed where you control tension, like 80 – 120)) BE SURE TO CHECK FOR WRIST TENSION with previous exercise.

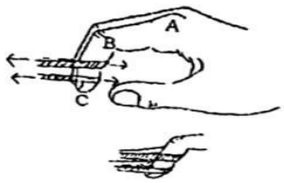


Exercise 3 – Downward motion – important for tone production – Arm on table with palm up, hanging over the edge, with a vertical stick holding the hand up in place. The FEELING of independence musty be mastered, then the speed (No Picture)
Exercise 4 – 2 rings and 2 pencils

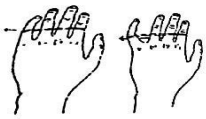


Joint Stabilizing Exercises:
Exercise 1 – Place relaxed hand of table – gently push and release each finger joint.
Exercise 2 – Stabilize joint by gently pressing into it, use your other hand or finger to push against it from different angles – resist gently with equal force in knuckle so it doesn't buckle.

Exercise 3 – for the flexor muscles of the 2nd joint – two rubber bands between tip and 2nd joint. When you stop pulling it should not pull back or you were pulling too hard and have tension. You can also just two fingers to gently pull instead.

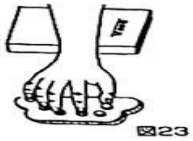


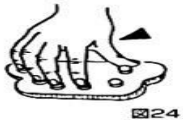
Stabilizing the 5th finger: Exercise 8 – Wrap rubber band around hand – stretch pinky



Two common hand shapes: p. 77 – thick rounded fingers tend to have stable joints, and thin fingertips tend to have weak joints

Exercises with Fingerboard – two sides: low peg side and two peg side which allows for pegs to be screwed into different distances from each other.
Fingerboard Low Peg Side:

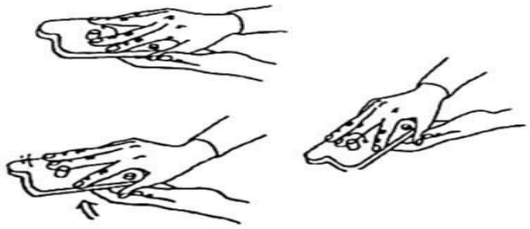




Use a scratch motion resulting in a light knocking sound. Move from big knuckle and bring entire finger down as one unit. Start with 1 finger in 4 sixteenth quarter note rhythm – use metronome to speed up (up to 120 – 180). Then TRILL - 1-2 combination, 2-3, 3-4, and 4-5 finger combos. use two sixteenths one eighth note rhythm with a slight accent on last note – then LENGTHEN pattern to 4 sixteenth notes. Speed should develop up to 180 or 190. Then expand to 3 finger patterns: 2-3-4, 3-4-5, and 4 note patterns 2-3-4-5, and 5 note 1-2-3-4-5. Then DOUBLE FINGER patterns: 1-3, 2-4, 3-5, 1-4, 2-5. – just as important to feel the lift of finger without tension.

To Develop bigger variety of soft sounds and colors – use tiny scratching motion about 5 millimeters from bottom of the small peg without touching the board – increases control of small muscles. The smaller the movement, the more active the *lumbrical* and *intersosseous* muscles become. Make the motion smaller 6 to 4 to 2 millimeters. Students can tense up with smaller motions – if you note the big knuckle lowering, then tightness is occurring.

Fingerboard 2 peg side – one low, the other higher, for stretching and hopping motion.



Hand can hold fingerboard for stretching exercise as well – on the screwed two peg side. One high peg and one low peg – can be moved into the high or low position. High and Low pegs- stretch with 2 – 3, 3 – 4, 4 – 5 – OR stretch fingers around bottom side of board.
Exercise 1 – jump over with flat finger – NOTE if other fingers move- other fingers should REST on board. WRIST TENSION may be checked by other hand moving the board around. Try slower, smaller motions. And keep doing the stretch exercises.
Exercise 2 – Gently pull up on each finger with the other hand and let it stretch upwards on its own. The other fingers should rest in the down position – hold this position for 6 – 8 seconds. Once you can execute the jump-over exercise without any tension in wrist or other fingers, then use metronome. COUNT finger speed using eighth notes so that finger on left side of peg is "one" and when finger is on right side, it counts as "and," For 2nd and 3rd fingers, a sufficient speed would be faster than 160 equals a quarter note. If initial speeds are slower than 100, students need to improve the more basic skills. She found that after several weeks of exercises, most students can develop their velocity, as far up as 180 after the training. For 4th finger, movement is slower
Exercise 3 – additional Stretch – Curl one finger under the hand and into the palm while hand is resting on table.

Mikimoto recommends avoiding Extreme Positions - Low wrist or high wrist, High Bridge knuckle or low bridge knuckle
Mikimoto also recommends fast repetitive figures for developing speed – which involve holding one finger down - play in tempo without any mistakes 10 consecutive times.
Strongest hand position is gently curved fingers – playing from big knuckle
Chord exercise – use pencil between thumb and 5th finger – move wrist.

Sampling of Arm Exercises
Exercise 1 – Raising forearm without Tension- p. 110 Rest forearm on a table and use minimum effort of *biceps brachi* muscle to raise forearm 3 or 4 cm AS FAST AS POSSIBLE. Then relax and drop down as shown. Wait 2 secs. And repeat movement.
Exercise 2 – this exercise develops awareness of forearm using the *triceps brachi* – which helps with fast octaves passages. Let Arm hang – and twitch it up with tricepts.
Exercise for WRIST – Place forearm on table so that wrist hangs over the edge. Twitch up the hand and relax.

Mikimoto asserts that the best way for children to develop their technique is to play fast pieces in a softer dynamic level (with a lighter touch, avoiding excessive force) and to wait for the growth of their hands and arms; only then should they gradually expand into louder and larger pieces. From her experience – her own students will [lay Liszt Feux Follets and Chopin's Etudes Op. 10, No. 2 and Op. 25, No. 6.
For additional information: Performing Arts Medicine Association – includes health professionals, performers, educators, and administrators). Yoshi Hosaka's 2009 dissertation *Sumiko Mikimoto's Piano Method: A Modern Physiological Approach to Piano Technique in Historic Context* (University of Maryland), and Clavier Magazine 1978 – by Malcolm Frager, and Mikimoto's book *Correct Piano Technique* (2004).

Taubman Technique – Created by Dorothy Taubman – an "underground" teacher who helped many pianists and Juilliard students overcome their technical struggles, and especially helped injured pianists regain facility. Technique aspires to establish Natural Alignment of the Hand, Arm, and Finger IN ONE PIECE/unit. GOAL is to find ways to navigate the keyboard to keep the natural alignment of Arm, Hand, and Fingers – based on the premise that a Natural Motion rids the body of tension. Problems and tension occur from 1. ISOLATION of finger from hand and arm (Pischna-like exercises) and Curled fingers. 2. TWISTING of wrist, hand left or right 3. STRETCHING of fingers 4. FORCING (going to bottom of key) or any motion that is too strenuous can collapse the wrist or hand) – ANYTHING THAT BREAKS THE UNITY OF THE ARM HAND FINGER UNIT is to be avoided.

1. BASIC POSITION AT PIANO– Level elbow with keys – resting down without holding up sense of contact between tips and keys. Length of upper arm affects position: a short upper arm requires a higher seated position, a longer upper arm can have a lower seated position ADVOCATE SITTING SO FOREARM IS PARALLEL TO KEYBOARD. NEED TO FEEL THE UNITY OF THIS – Main knuckle is slightly higher than the 2nd knuckle. DROP ON EACH FINGER AND FEEL THE unity of the unit.

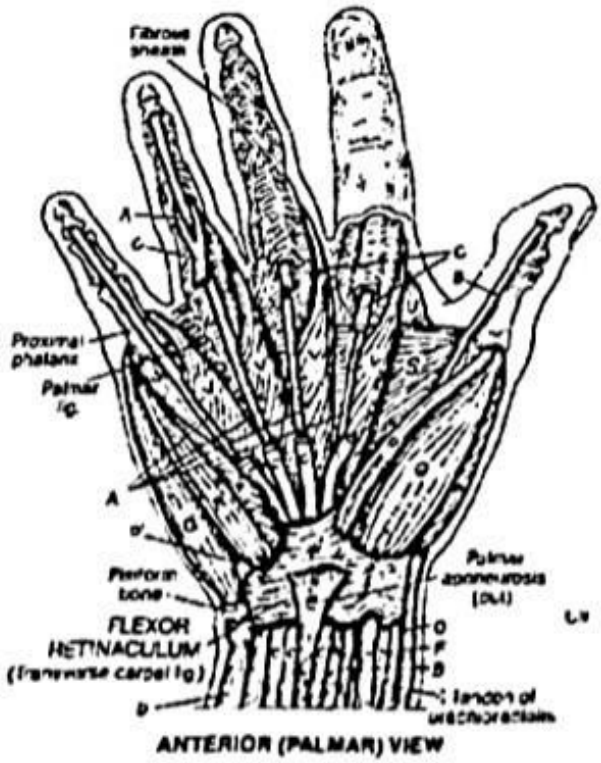
2. FOREARM ROTATION CONNECTED TO HAND MAINTAINS THE BALANCE OF WEIGHT. – THUMB IS LEFT SINGLE ROTATION, PINKY IS RIGHT SINGLE ROTATION. DOUBLE ROTATIONS: RIGHT TO LEFT 5 – 4, 4 – 3, 3 – 2, 2 – 1. NEXT, is a DESCENDING 5-FINGER SCALE 5(RIGHT) LEFT TO 4, R-L TO 3, R-L TO 2, R-L TO 1. Then, ASCENDING 5-FINGER SCALE: 1 (L) – R TO 2, L-R TO 3, L-R TO 4, L-R TO 5.

3. IN AND OUT MOTION ON KEYBOARD BASED ON FINGER SIZE- Goal is to find ways to navigate the keyboard that will allow the natural alignment of arm, hand, arm to remain undisturbed: Taubman famously put lipstick on her fingertips and then played, and was astounded to find that she had moved all over the keys, and had not stayed in a linear position. In and out motion based on finger size – longer fingers are out, shorter fingers (1 and 5) are more in. Full Scale example: DESCENDING: Start with sitting 5, then out for 4, out for 3, in for 2, in for 1, forearm adjusts to fingers, with a cross-over rotation gets over the distance, out for 3, in for 2, in for 1. ASCENDING: Sitting thumb (Left leaning) out for 2, out for 3, cross-under with rotation for the "in for 1" out for2, out for 3, in for 4, in for 5. These are the underlying motions that get subsumed when playing.

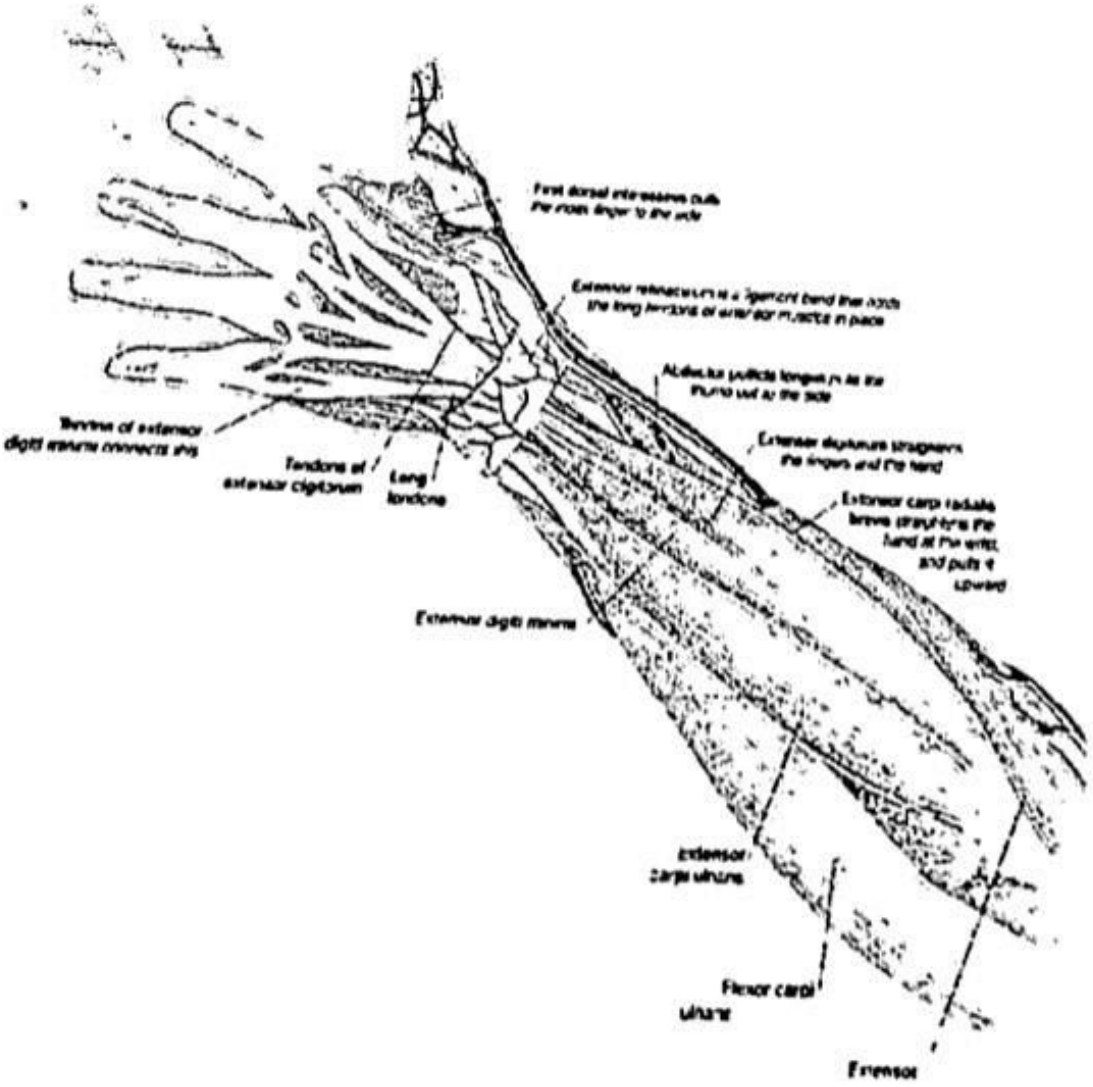
Walking Hand assisted by lateral arm movements – creates this diagonal movement with elbow angled. Helps hand change positions and avoid twisting wrist. Also, fast shifting results in no twisting or turning, but is non-legato.

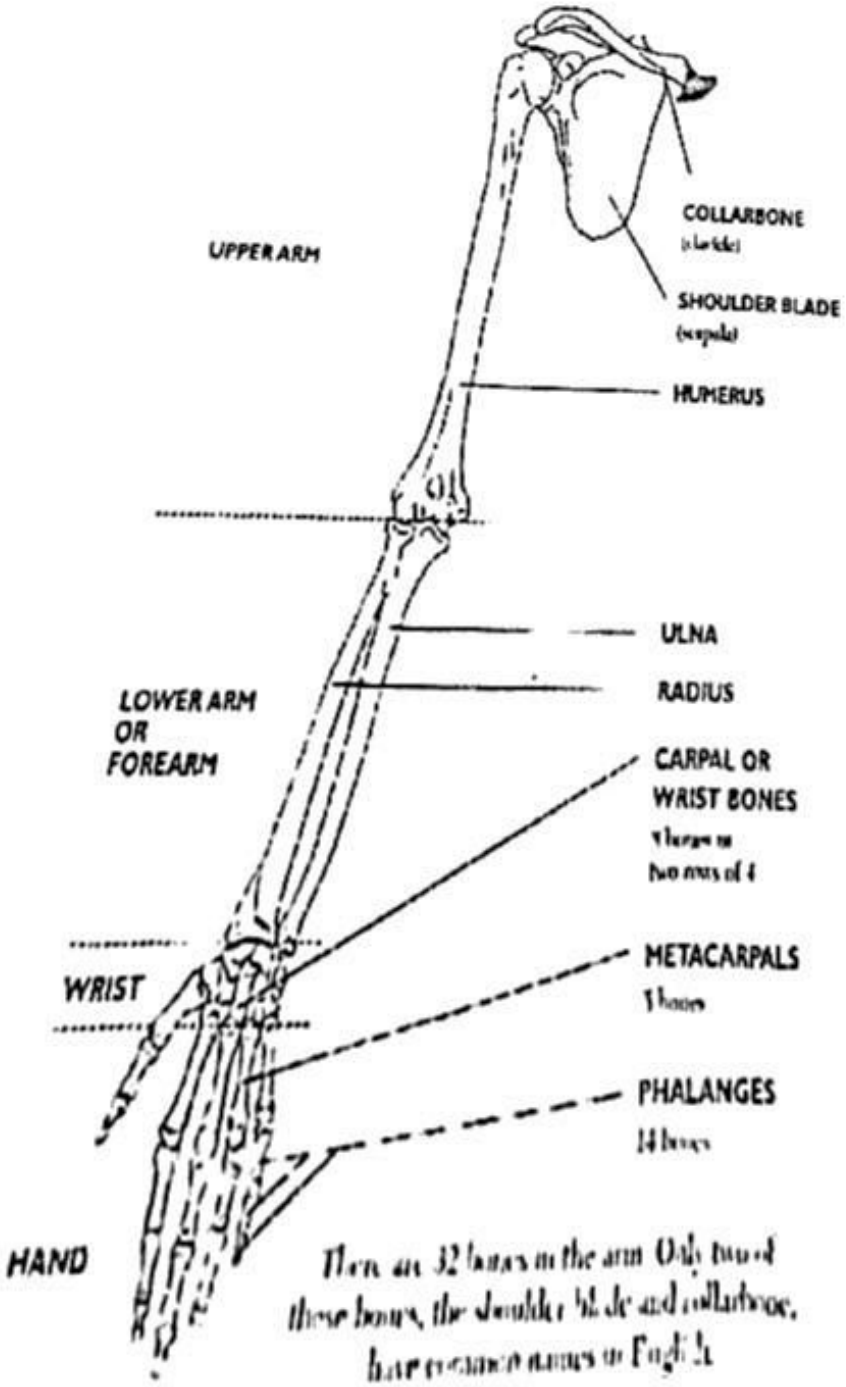
4. PHYSICAL SHAPING– Resulting motion which occurs when you play – unifies everything – over-arching motion that occurs when you do everything else right. – This is often what teachers teach when going over technical motions.

***Taubman Techinique avoids extremes of motion or range to maintain the unity of arm, hand, fingers. Staying in mid-range of motion can limit expressive capability in terms of dynamic range, colors. Playing is not always as legato for a good singing tone, reliance on pedal to smooth out the sound and cover up gaps. But it is very helpful especially for treatment of injury.



Source: Wynn Kapit and Lawrence M. Elson, *The Anatomy Coloring Book*, 3rd ed. (San Francisco: Benjamin Cummings, 2002), 59.


Tendons of extensor digitorum
Long tendons
Extensor digiti minimi
Extensor carpi ulnaris
Flexor carpi ulnaris
Extensor


COLLARBONE
UPPER ARM
SHOULDER BLADE
HUMERUS
ULNA
RADIUS
LOWER ARM
OR
FOREARM
CARPAL OR
WRIST BONES
METACARPALS
WRIST
PHALANGES
HAND