



YogaAnatomy.org

Leslie Kaminoff's
esutra blog, teaching
and touring schedules

Pure Yoga, Hong Kong – October 16-19, 2025:

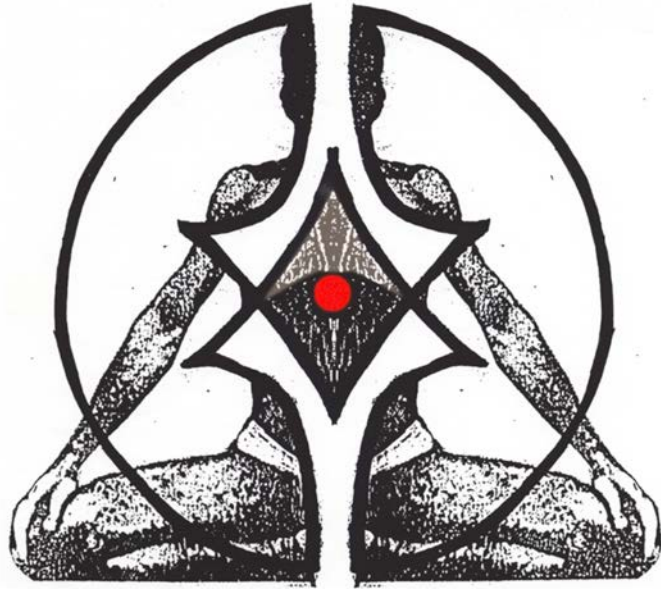
Leslie Kaminoff

4-Day 24-Hour Yoga Anatomy CET

Prana apana samayogah pranayamah iti iritah.

Pranayama is the balanced joining of the in-breath and the out-breath.

YOGA YAJNAVALKYA 6:2



Prana logo by Leslie Kaminoff based on the photo of
T. Krishnamacharya from "The Heart of Yoga"

PRANA AND APANA NYASA

Om namo pranaya

Pranaya nama om

Pranaya swahä

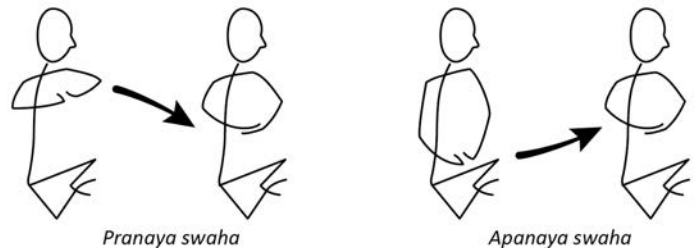
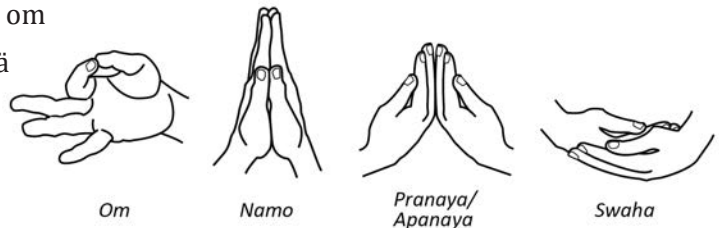
Om namo apanaya

Apanaya nama om

Apanaya swahä

Om swahä

Haríh om



Still photos may be posted to social media if you tag lkaminoff (Facebook)/leslie.kaminoff (Instagram).

- leslie@yogaanatomy.org
- facebook.com/KaminoffYogaAnatomy
- workshop page:
yogaanatomy.org/hongkong-25



- survey: <http://y-an.org/student>
- breathingproject.com

Print on-demand selections from
Lydia Mann's anatomy art collection
available at bit.ly/anatomy-art

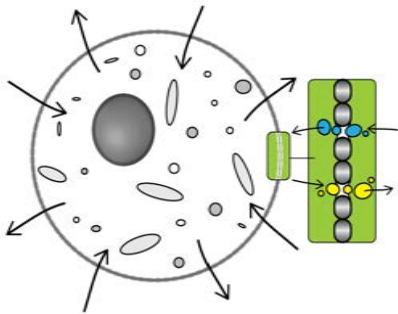
Day 1: Breathing as Shape Change

BASIC CELLULAR ACTIVITY

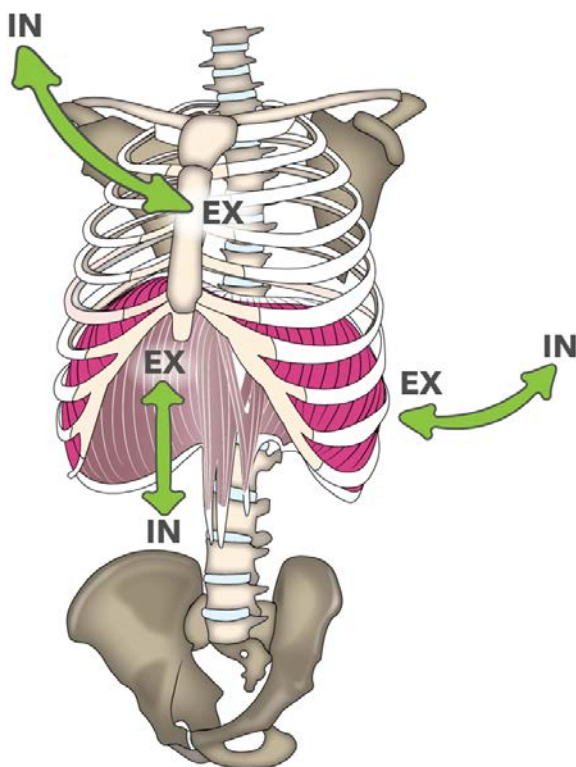
- ▶ Nutrition in = prana
- ▶ Waste out = apana

THE SEMI-PERMEABLE MEMBRANE

- ▶ Stability = sthira
- ▶ Permeability = sukha

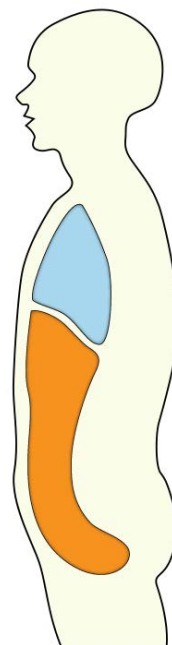
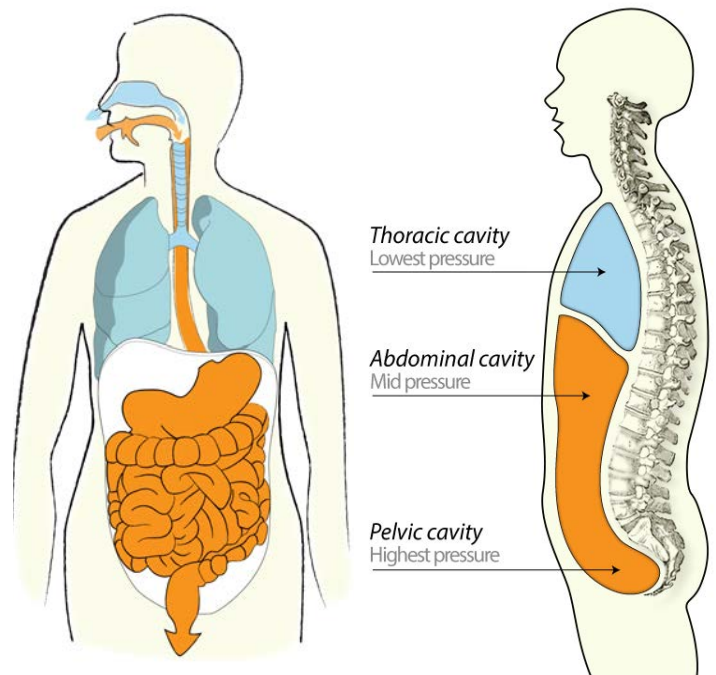


THE SHAPE, LOCATION AND ATTACHMENTS OF THE DIAPHRAGM:

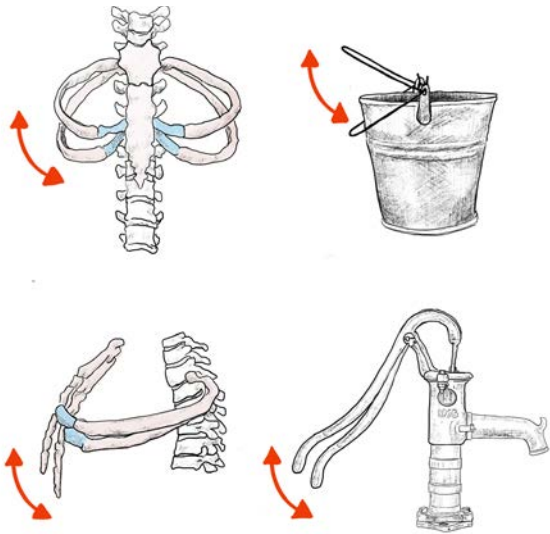


PRANA AND APANA

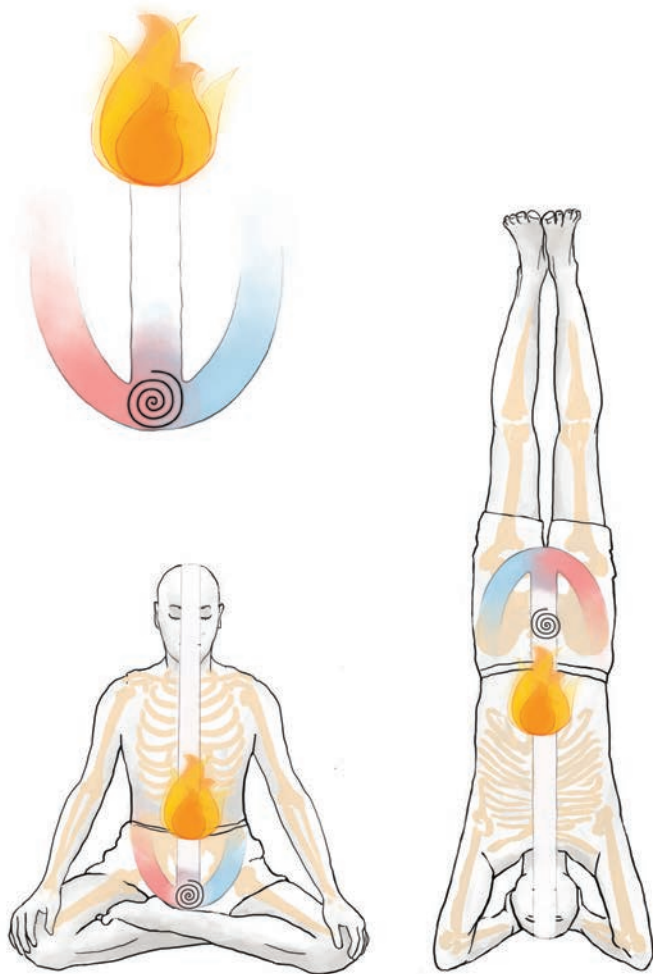
- ▶ Air enters and exits at the top. Solid and liquid enter at the top, exit at the bottom.
- ▶ Breathing is the shape change of the abdominal and thoracic cavities
- ▶ The spine is the back of the cavities



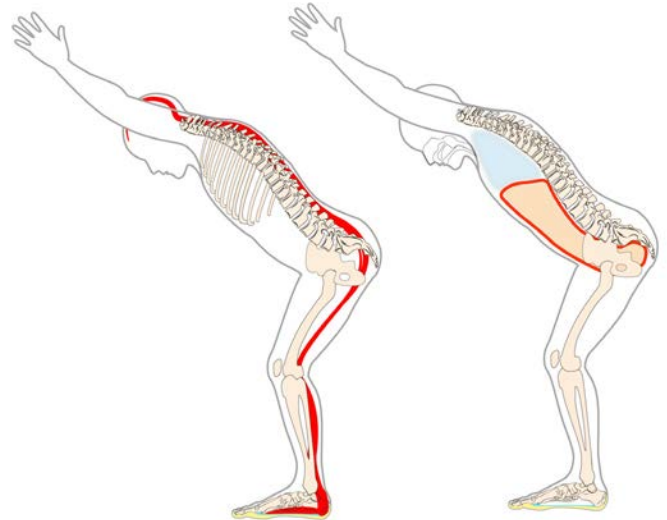
RIB MOVEMENTS CREATED BY THE DIAPHRAGM



KUNDALINI, SHUSHUMNA, AGNI



THE DIFFERENCE THAT BREATH SUPPORT MAKES FOR THE SPINE:

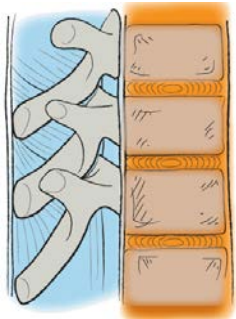


Day 2: The Spine – Nature’s Masterpiece of Sthira and Sukha

Sthira: Protection for the central nervous system

Sukha: Range of motion for freedom of movement

THE TWO COLUMNS OF THE SPINE:

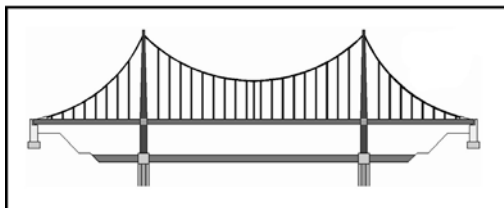
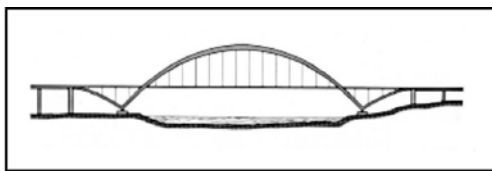


Sthira: Anterior (Red)
vertebral bodies and discs

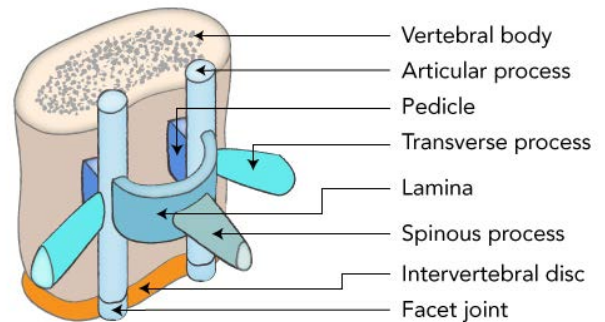
Sukha: Posterior (Blue)
arches, processes,
ligaments

TENSION AND COMPRESSION

Columns, arches, and cables

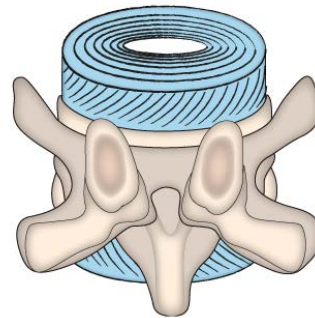


SCHEMATIC DIAGRAM OF VERTEBRAL COMPONENTS:



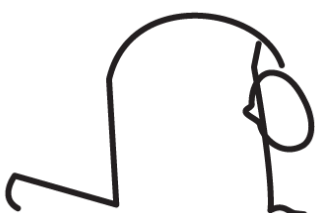
INTERVERTEBRAL DISC STRUCTURE:

Concentric rings of the annulus fibrosus surround the nucleus pulposus



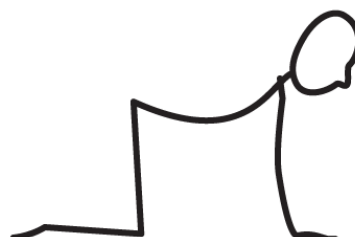
FLEXION = SHAPE OF THE PRIMARY CURVE

- increase of primary curves, decrease of secondary curves)
- Anterior part of spine is more concave, posterior part of spine is more convex
- ex: shape of “Cat”



EXTENSION = SHAPE OF THE SECONDARY CURVE

- increase in secondary curves, decrease in primary curves
- Anterior part of spine is more convex, posterior part of spine is more concave
- ex: shape of “Cow”



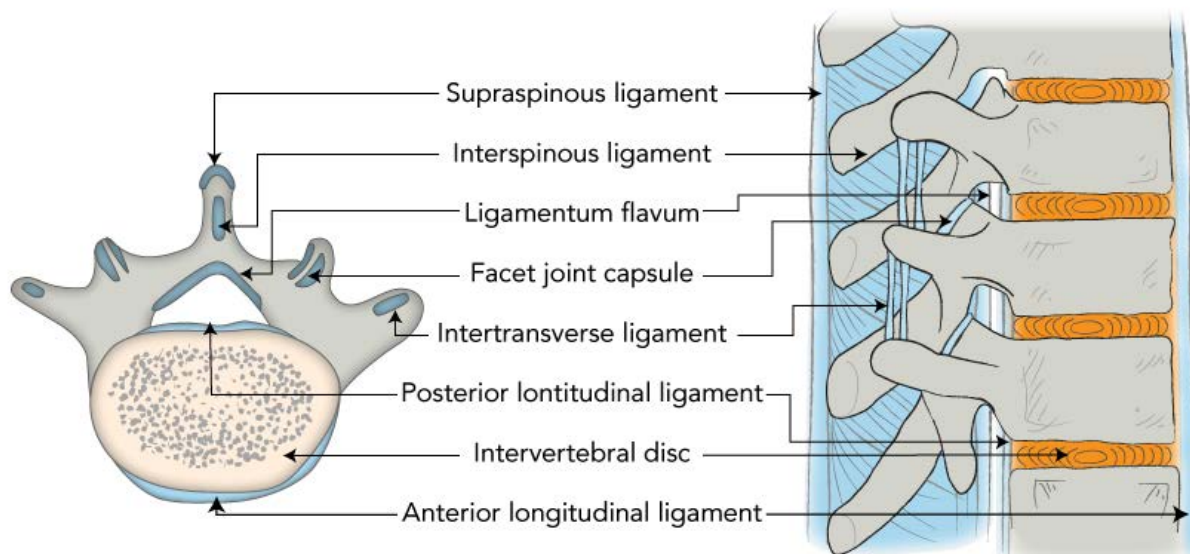
THE LIGAMENTS OF THE SPINE

Posterior column : Sukha

Range of motion for freedom of movement; the posterior arches, processes, ligaments

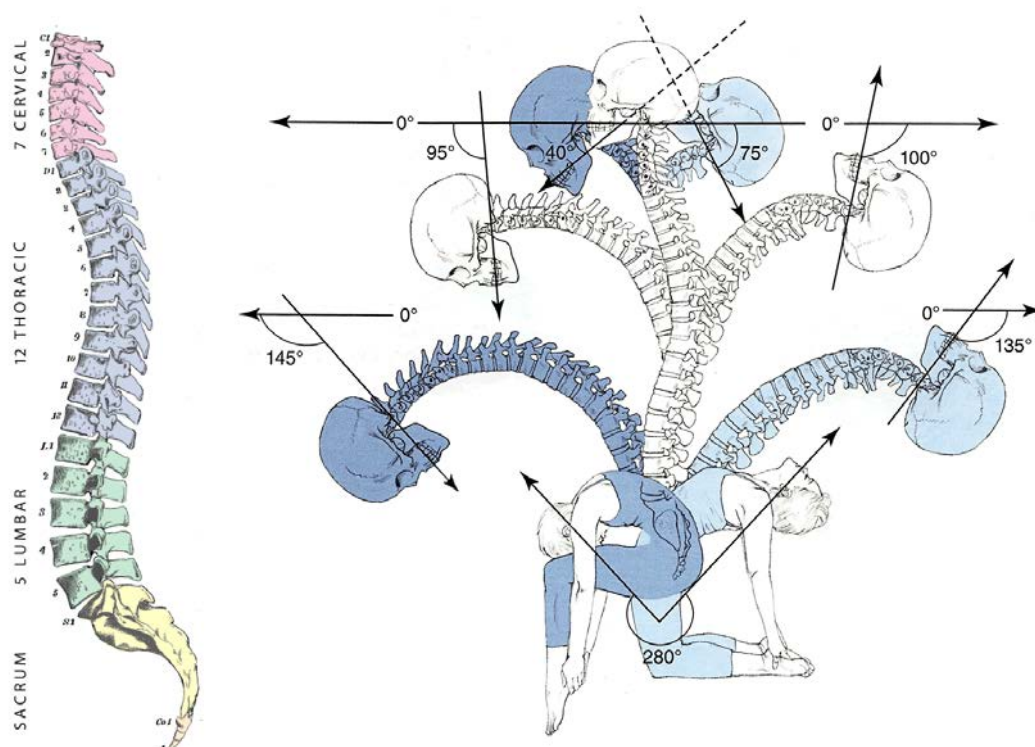
Anterior column : Sthira

Protection for the central nervous system; the anterior vertebral bodies and discs



FIVE MOVEMENTS OF THE SPINE:

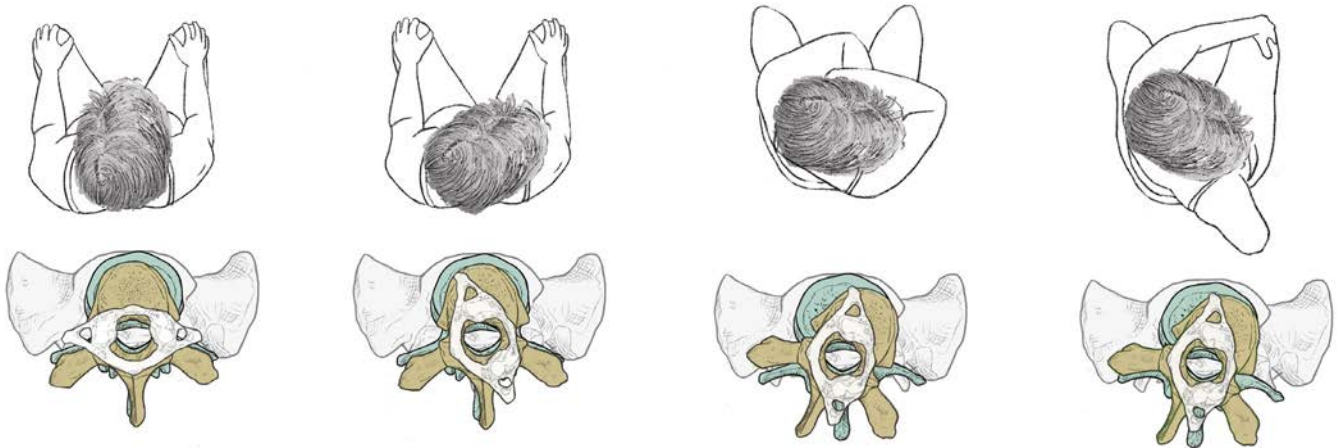
- Flexion
- Extension
- Lateral Flexion
- Axial Rotation
- Axial Extension



	FLEXION		EXTENSION		COMBINED	LATERAL FLEXION		AXIAL ROTATION	
		avg/vert		avg/vert			avg/vert		avg/vert
C1-C7	40°	5.7	75°	10.7	115°	35°	5.0	50°	7.1
T1-T12	45°	3.8	25°	2.0	70°	20°	1.7	35°	2.9
L1-L5	60°	12.0	35°	7.0	95°	20°	4.0	5°	1.0
TOTAL	145°		135°		280°	75°		90°	

AXIAL ROTATION = OFTEN CALLED “SPINAL TWISTING”

- Articulation between vertebrae that results in a twist, with one end of the articulating vertebrae moving in one direction and the other end in the other direction



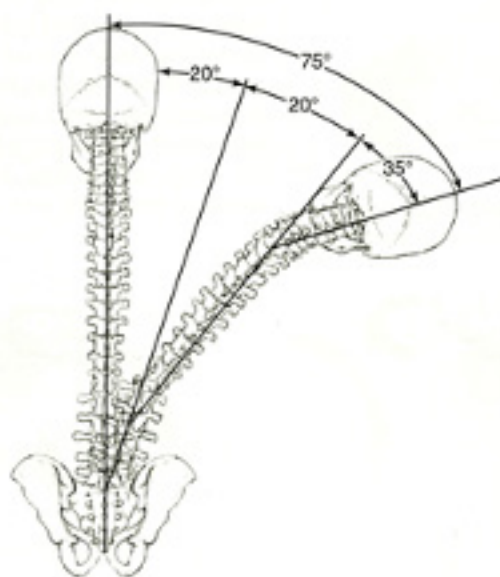
LATERAL FLEXION = OFTEN CALLED “SIDE-BENDING”

- Articulation between vertebrae that results in some or all of the spine moving to one side and creating the shape of a ‘c-curve’
- In order to keep side bending in the side-to-side plane, a combination of lateral flexion and axial rotation might be involved to accommodate the three-dimensional shapes of the facet joints along the spine.

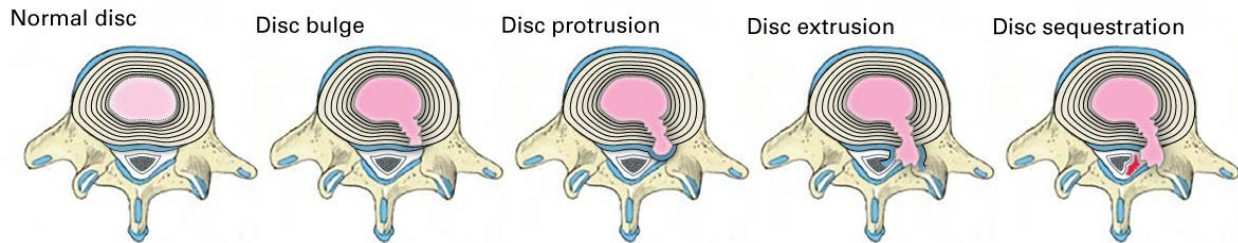
AXIAL EXTENSION = DECREASE (OR FLATTENING) OF PRIMARY AND SECONDARY CURVES

- Cues such as “flat-back,” “stand up straight,” and “lengthen your spine”* are calling for axial extension.

*Note that axial extension doesn’t actually lengthen the spine. It moves the head and tail away from each as the curves flatten, but the length doesn’t change.



BASICS OF INTERVERTEBRAL DISCS:



The chart below shows what happened when six teams of researchers gathered groups of middle-age folks (45 average age) who have NEVER had back pain before and performed MRI scans on them all

FALSE POSITIVE RATES FOR LUMBAR MRI					
INVESTIGATION:	DISC PATHOLOGY:				Root Deviation or Compression
	Bulge	Protrusion	Extrusion	Combined: bulge, protrusion, extrusion, sequestration	
Borden et al.	–	20%	–	NA	–
Jensen et al.	52%	27%	1%	84%	–
Boos et al.*	–	–	13%	–	4%
Greenberg et al.	39%	18%		57%	–
Weishaupt et al.	24%	40%	18%	–	4%
Wood et al (11)*	53%	37%	–	63%	–
AVERAGES	38%	29%	9.5%	60.5%	4%

* Because these investigations used a 'high risk' asymptomatic group of people, i.e., people whose occupation required frequent heavy lifting, twisting, and bending; frequent exposure to vibration; and sedentary occupations, I have EXCLUDED the results from the averaging above.

COURTESY OF CHIROGEEK.COM © 2002-2006 DR. DOUGLAS M. GILLARD DC

- 38% had disc bulges
- 29% had disc protrusions (aka: contained herniations)
- 10% had disc extrusions (aka: non-contained herniations)
- 4% had nerve root compression by the disc herniation
- 0% had disc sequestrations (aka: free fragments, which hurt)

THE BOTTOM LINE:

Upon MRI, 60.5% of asymptomatic middle-aged people would have findings of degenerative disc disease (bulge, protrusion, extrusion).

Day 3: Our Articular Selves – Limbs of Locomotion and Evolution

PRINCIPLES OF BREATH, MOVEMENT, AND ALIGNMENT

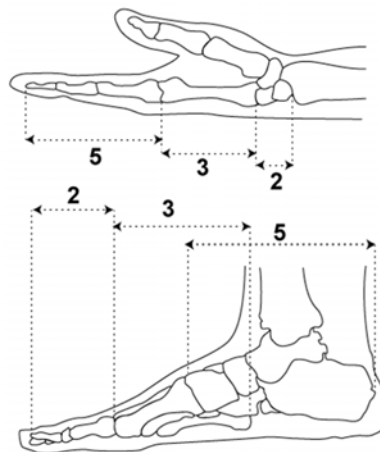
- ▶ **The pelvic half** is part of the leg
- ▶ **The clavicle and scapula** are part of the arm
- ▶ **Weight-bearing support** passes through the front of the spine
- ▶ **Sthira** = strength and stability without rigidity, alertness without tension
- ▶ **Sukha** = flexibility and mobility without instability, relaxation without dullness
- ▶ **Asanas** don't have alignment – people do.
- ▶ **An Asana** only exists when an individual places their body into a shape.
- ▶ **Healthy movement** is well-distributed - a little bit of movement coming from a lot of places.*
- ▶ **Unhealthy movement** is too much movement coming from too few places repeated too many times (repetitive stress).
- ▶ **Skeletal Alignment** is a clear pathway of weight passing through balanced joint space.*
- ▶ **Muscle Action** in asana is effective when it positions the bones to produce functional skeletal alignment.*

**These definitions were formulated by Amy Matthews as inspired by her work with Bonnie Bainbridge Cohen*

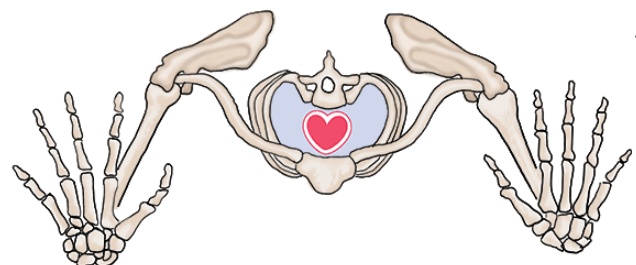
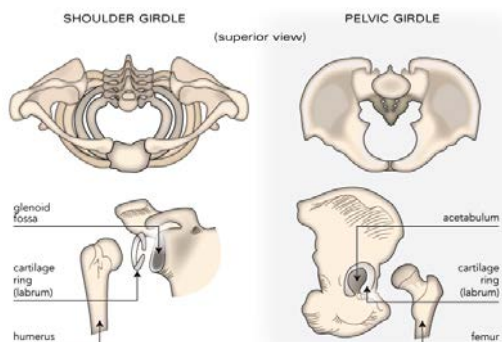
ALIGNMENT CUES TO RE-IMAGINE:

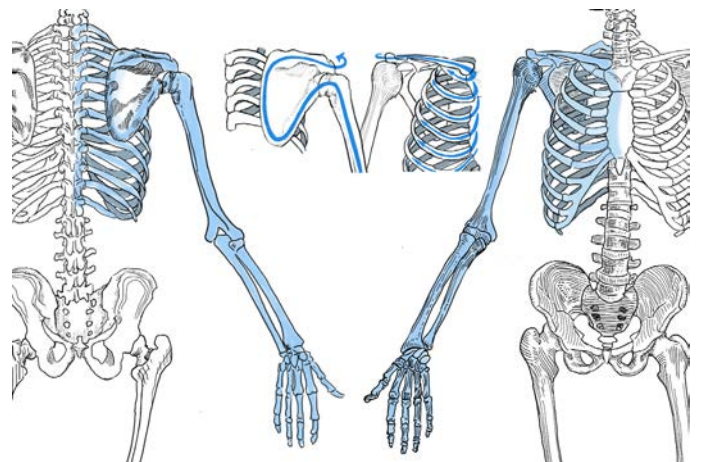
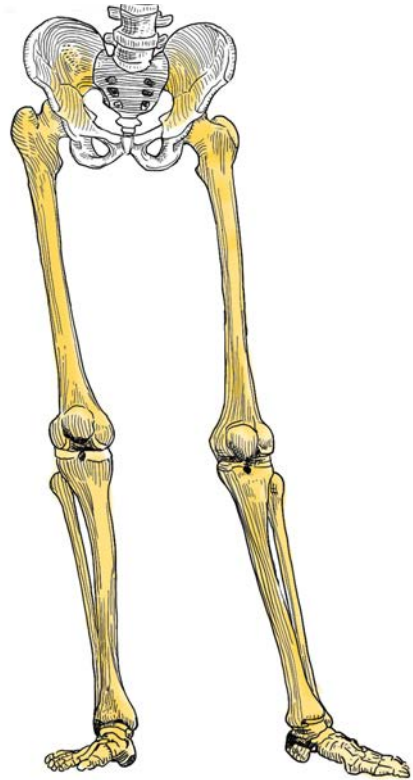
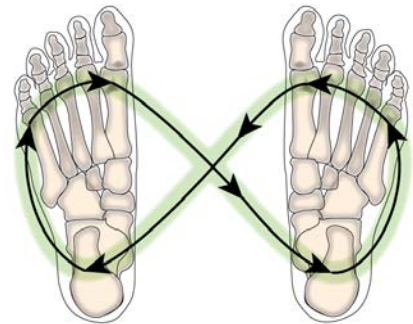
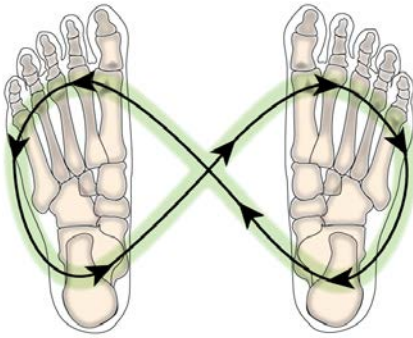
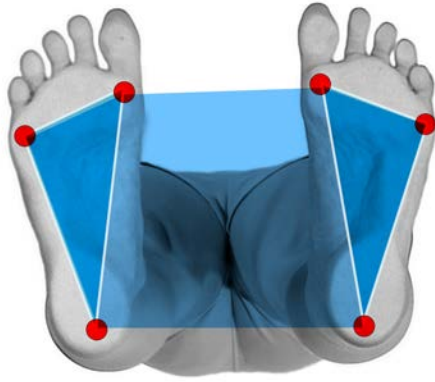
- ▶ Stand with the feet parallel
- ▶ Square the pelvis
- ▶ Tuck the tail
- ▶ Always lengthen the spine
- ▶ Draw the shoulder blades down the back
- ▶ Always place the bent knee over the ankle
- ▶ “Open” the hips
- ▶ Heart opening
- ▶ “Knit” the ribs together

HAND/FOOT PROPORTIONS



PATHWAY OF WEIGHT FROM ARM TO SPINE





Day 4: Hands-on Assisting Lab

BREATH AND SPINE IN RELATIONSHIP: PARTNER EXCHANGES AND HANDS-ON LAB

Base of Support (BoS): Grounding Exercises

ROLL DOWN/ROLL UP

(GROUP AND ASSISTED EXPERIENCE)

- ▶ Rolling down, the focus and cueing is on the release of the superficial back line of the body, and the un-stacking of the posterior column of the spine.
 - Rolling up, the focus and the cueing is on the lift through the deep front line of the body, and the re-stacking of the anterior column of the spine.
- ▶ Assists:
 - Watch your partner's spine to look for areas that move as sections, rather than segments.
 - Watch for attempts to use the articular anatomy (shoulder girdle) to mobilize the axial anatomy (ribcage and thoracic spine).
 - Watch for shifting of weight on feet, curling or gripping of toes.
 - Watch for holding of breath.

FALLBACKS

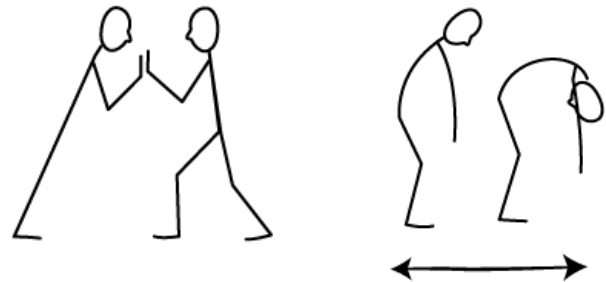
- ▶ Tip, catch, support.
- ▶ Release partner's knees, and give weight back to their feet, legs and pelvis.
- ▶ Re-stack spine.



Center of Gravity (COG)

CORE EXERCISE: STANDING STICK FALL

- ▶ Organize breath and arm spirals
- ▶ Falling and catching, breathing



Range of Motion (ROM)

DRISHTI-DRIVEN MOVEMENT EXERCISE

- ▶ Assisted finger gazing with partner
- ▶ Keep eyeballs relaxed in the center of eye sockets
- ▶ "Look" with tip of nose.
- ▶ Shift to self-driven movement



Cueing Breath-Centered Alignment Adjustments

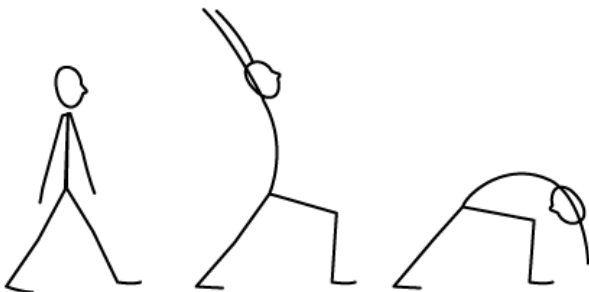
“For every action there is an equal and opposite reaction.”

— Sir Isaac Newton the Yogi

“For every direction of mobilization, there is an opposing direction of stabilization.”

—Leslie Kaminoff

- ▶ Organizing the direction of breath can clarify an opposing direction of stabilization.
- ▶ Lifting the lower belly upward on the exhale depends upon a downward reach of the feet into the earth.
- ▶ Starting the exhale before the movement allows us to stabilize in one direction before we mobilize in the other.



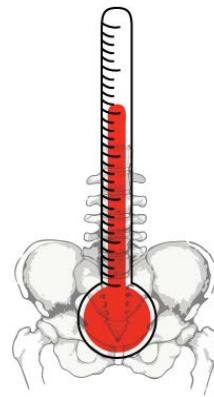
Technique For Breath Release/Bandhas

Dwipada Pitham exploration of all three bandhas.

Breath sequence:

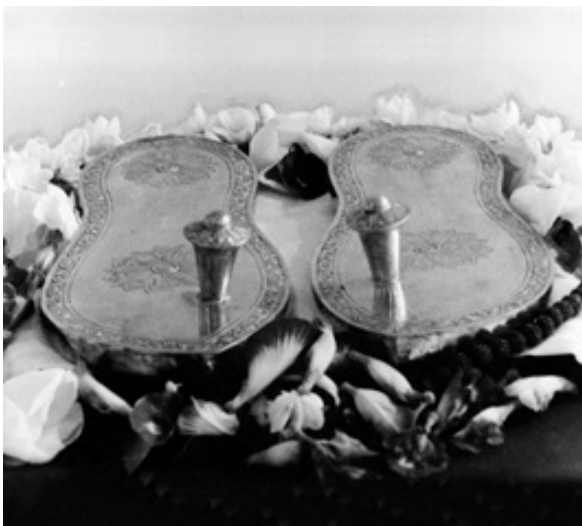


- ▶ Lift on exhale
- ▶ Stay lifted to inhale and feel sternum rise towards chin
- ▶ Exhale without letting sternum drop away from chin
- ▶ Roll down thru spine on external retention (bhaya kumbhaka)
- ▶ “Thermometer” breath on final inhale



Thoughts on bodies:

- ▶ The body and mind don't affect each other – they ARE each other.
- ▶ You've never been this old before, and you'll never be this young again.
- ▶ There are no straight lines in the body. All movement exists as three dimensional spirals moving thru three-dimensional space.
- ▶ There are no parts in the body; everything is connected to everything else; we can potentially find those pathways of connection in an infinite variety of ways.
- ▶ For every force in the body, there is an opposing force that travels in the opposite direction.
- ▶ In order to get something unusual to move, you need to get some of the usual movements to be still.
- ▶ We cannot fix people; no one is broken. Healing arises from removing obstructions to change (YS IV:3).



Thoughts on teaching and learning:

- ▶ Engaging a student in an inquiry is far more empowering than administering a correction.
- ▶ Techniques and approaches are embedded in the context they arise in – no technique will apply to every person.
- ▶ When you learn a new way of breathing and moving, by definition, you are unlearning your old way of breathing and moving.
- ▶ It can be really hard work to not work so hard.
- ▶ Surrender is an act of will.
- ▶ A master is someone who is capable of creating another master.
- ▶ Giving honor and respect to our teachers is not the same as gaining authenticity from our association with them. Authenticity can only arise from our unique, genuine experiences.
- ▶ There is no such thing as spiritual cloning. Each generation of teachers should put their unique stamp on the teachings they have received