

Basic Neurological Patterns and the Archetypes of Experience

The Basic Neurological Patterns are the potential “hard-wiring” in the nervous system from both an evolutionary (phylogenetic) and developmental (ontogenetic) point of view. All creatures that move about on the earth utilize one or more of these patterns to get around and satisfy their needs. The patterns are hierarchical in that each next consecutive one relies on the one or ones taking place naturally before it. Inefficient movements and misalignments due to faulty use may often be traced to these patterns and those that underlie them. A pattern may become dominant and prevent other patterns from effectively emerging. Patterns may for other reasons be skipped or underutilized. Yoga asana and vinyasa practice with an attention to these patterns, can allow overly dominant patterns to recede and underused patterns to emerge thereby integrating into the total neurological and experiential matrix for clarity of the body’s use and greater ease due to efficient organization.

PREVERTEBRATE PATTERNS

1. Cellular Breathing

A single-celled water dwelling animal breathes through its cell wall. It can move as well as gain nourishment and expel waste *in all directions* in space. Each cell has a sense of self identity and communicates to other cells through *touch*.

Bonnie Bainbridge Cohen 1994 Engaging the Whole Child, p. 4

Cellular Breathing forms the building blocks of our “life process”. Where it is not taking place, the cells are dead; where there is difficulty, the cells are struggling; and where it is occurring freely the cells are alive and healthy. In nature, cells resonate in relation to each other. Cells that have poor sensory feedback have more difficulty coordinating their rhythms with other cells. Cells that are aware of themselves are better able to communicate with their neighboring cells. As more of the cells within us become aware of themselves, there is a fuller resonance between cells and inner balance and self knowing.

Cellular breathing is an imperative condition in all healing. Many yoga practices emphasize cellular breathing to a greater or lesser degree depending on the purpose of the practice. Some practices are fully devoted to this essential life process.

Self Study: Relax in Corpse or Crocodile or Flapping Fish Pose. Yield into gravity and feel the support of the earth beneath you. Allow your awareness to travel through your entire body. Take your time to go through the body carefully. Imagine/feel/sense/suggest to each and every part that each cell is breathing. If you like, bring your attention and intention to any parts that take your awareness more fully. Feel the subtle expansion and contraction of the external actual breath. Feel the internal breath as each cell breathes as well. Be patient with the development of your own perceptual ability without judgment.

What did you notice? Were some areas more accessible? What was your state of being during this exploration?

2. Navel Radiation

In the animal kingdom, the starfish (an echinoderm) living in water demonstrate the pattern of radial symmetry with the control center in the middle of its many limbs. In our human development we experience this stage as a fluid-surrounded fetus connected to the source of sustenance through the umbilical cord at our navel center. This navel region functions as a primitive control center in us as well (second brain/enteric nervous system). All six limbs of head, tail, two arms and two legs are directly connected to our navel center in fetal life having equal perceptual and motor importance. This is true for the star fish as well.

Bonnie Bainbridge Cohen, p.8:

In this stage, there is a process by which all of the extremities are differentiated and then integrated with each other to establish a baseline for the more specific vertebrate patterns that develop later on. If there is a block in an area in the body where cellular breathing is inhibited, the integration of that limb into the navel will be blocked. If any of the extremities fail to integrate at this stage, mouthing and the future vertebrate patterns will be weakened or absent.

The starfish has sensory receptors on the ends of its extremities. In our development, we as well have increased tactile sensation on the ends of our limbs.

Self Study: Explore each connection of your “six limbs” to and from your navel center. Explore connections of limbs crossing your navel center, for example the connection from your right arm through to your left leg. Explore combinations of three limbs, then combinations of four, five and six limbs, connecting through the navel region. Generally, are there areas you feel more free? Are there areas you feel more blocked? Are there ones for which you experience a line of energy or felt connectivity from center to periphery? Are there ones for which you experience less energy or felt connectivity from center to periphery? Are there lines in which you feel less connectivity or perhaps none at all?

Explore various standing and balancing yoga poses. Which ones rely on the navel radiation pattern?

3. Mouthing

The mouthing pattern is most apparent in the newborn whose body control and movements may seem quite unorganized except for when nursing, when the mouthing pattern organizes the whole body. In the animal kingdom, the tunicates of which a sea squirt is one example live in water attaching their base to a surface with the mouth as an extremity. The Mouthing pattern is an outgrowth of the navel radiation pattern. (After

the myelination of the vestibular nerves, the cranial nerves that operate the mouth are next.) The movements of the mouth and the *turning and searching actions* of it underlie patterns of development in all the other limbs.

Sensation leads to motor activity. Motor activity leads to sensory awareness. This is true in all the parts of the body, but can most readily be explored here.

In the uterus, the fetus first develops a withdrawal pattern if stimulated around the mouth area. This serves to begin to integrate the head to the tail. After this withdrawal, you will see movement toward the stimulant, as when an infant turns to the breast to nurse.

Bonnie Bainbridge Cohen, p.18:

In humans, Mouthing underlies the process of one's perception of the outer world via the special senses of the head, the efficiency of one's movement initiated from the head, and the relationship between the two. If difficulties with the Mouthing pattern persist beyond infancy they can lead to excessive tension in one's mouth and throat, which is a major cause of facial and neck tension. These restrictions can also lead to coordination problems, speech difficulties, and inhibition in expressing one's feelings and reaching for what one desires.

Self Study: Find something to suck on like a lollipop or your clean thumb. Find a comfortable position. Explore sucking and swallowing with your head in different positions.

Stroke the side of your mouth (inside as well if you like) see if this stimulates a rooting or withdrawal action to turn your head to either side (towards or away from the stimulus.)

Explore initiating turning your head from your mouth and specifically from your tongue. Next explore turning your head from your forehead bones, or other aspects of your skull. Then turn from your neck and/or facial muscles. What differences do you notice?

4. Pre-spinal

The pre-spinal pattern is the outgrowth of the Mouthing pattern as it integrated the digestive tract from the mouth to the anus. Its motions are soft and fluid and linear along the vertical axis of the body and involve the autonomic nerves in the spinal cord and brain stem that control the movements of the digestive organs. This pattern is primarily concerned with the parasympathetic functions of the autonomic nervous system which serve the organs, glands and blood vessels of the digestive functions.

Simple fish-like ocean dwelling creatures with only mouths and breathing apparatus embody this pattern in the animal kingdom (The Lancelet *Amphioxus* is an example.)

Infants display this pattern in their soft serpentine whole body actions. Adults in their supple flexible spinal movements.

Bonnie Bainbridge Cohen, p. 23.

Poor development of this pattern leads to tightness and blocking of areas of the spine, depending upon where in the digestive tract and its controlling autonomic innervation the awareness and integration is inhibited. If this condition already exists, whether in an infant or older adult, establishing the Prespinal Pattern can significantly alleviate this problem. Yoga and other sensory-motor disciplines, when approached with a gentle, non-aggressive manner, facilitate the development of this pattern.

Self Study: The Prespinal Pattern is the interface between the Central Nervous System and the digestive tract. Find a comfortable position sitting or lying down. Relax and breathe, go inward. Then begin to initiate small movements from your digestive tract. See if it is possible and of interest to make them bigger. Rest. Next, begin to initiate movement from the soft tissue of your spinal cord. You may want to look at some anatomical pictures before you do so. Locate in your own experience, the interface between these two systems. Imagine a soft, fluid flowing river of energy at the center of your body. Explore moving as if you could initiate movement from that river. Play with fluid centrally initiated movements. It is this interface that comprises the primitive notochord, the initiator of the prespinal pattern.

VERTEBRATE PATTERNS

For these patterns, the five basic actions of yielding, pushing, reaching, grasping and pulling will direct the way the pattern is initiated and the sequencing through the body. When you explore these patterns on your own, you may want to spend time yielding to push and reaching to pull through the different limbs (including the head and tail) involved. For our purposes, we will simple focus on the four larger patterns.

5. Spinal

A strong central support characterizes this pattern. Many yoga poses utilize the spinal pattern as a baseline. This pattern is very important in all the meditative poses and in proper pranayama practice. This is the pattern of the fishes that swim with awareness of the lateral line on the sides of their bodies as they move in schools, i.e. in spatial relation to other fish.

We as humans can both push from our head and tail and reach from our head and tail. The push patterns take us into an experience of compression while the reach patterns into elongation. Therefore the push patterns are the precursors for strength and the reach patterns are the precursors for lightness and effortlessness.

Self Study: Explore pushing from the head. Explore reaching from the head. Explore pushing from the tail. Explore reaching from the tail. Explore yielding into gravity and then pushing from the head. Explore yielding into space and reaching from the head,

Explore yielding into gravity and pushing from the tail. Explore yielding into space and reaching from the tail.

The spinal reach patterns are important for *vinyasa* sequences that change levels. Explore the Sun Salutation using both spinal push and reach from each end of your spine. What do you notice? Is there a more effective way of using this pattern in the sequence?

6. Homologous

The movements of flexion and extension in the sagittal plane characterize the Homologous Pattern. Amphibians such as the frog are associated with this pattern. Their limbs tend to be out to the sides of their bodies with the spine moving toward to back of the torso. The limbs can be placed perpendicular to the body and can thus bear weight while the ventral side (the belly) remains on the ground. In utero, the fetus begins this pattern by pushing with its lower limbs, the legs, against the uterine wall.

This is the first symmetrical pattern in that both arms and both legs move simultaneously. This pattern establishes lateral stability throughout the body and differentiates the upper from the lower.

Bonnie Bainbridge Cohen, p. 46.

When this pattern fails to develop, an asymmetrical base is established, one of the underlying factors in scoliosis. Poor development of this homologous pattern can also manifest as an inability to feel fully grounded in one's personal intent. When an infant is born breech with its feet coming first, the Homologous Pattern from the lower may be poorly developed Often this is a factor in hyper-extended knees and hip problems later in life.

Self Study:

Sit cross-legged. Move from this position to hands and knees. Explore pushing and reaching from both the upper and the lower. If you can use a physioball, roll face down over it and explore the Homologous Pattern as you roll forward and backward on the ball.

What did you notice? What state of mind was involved through this pattern? Did the movement remind you of anything? When would this pattern be useful?

Which yoga postures and vinyasa movements rely heavily on this pattern. In which ones would it be most efficient to utilize the homologous pattern? What other sports, dance, or fitness activities would it be useful?

7. Homolateral

This pattern is demonstrated by reptiles such as lizards and human infants belly crawling. It differentiates the two sides (right and left) of the body through the vertical axis. Due to

this, it allows for weight to shift from side to side asymmetrically. This brings in lateral flexion of the torso as well as adduction and abduction.

In the human infant, it is important that the pattern is present on both sides. This is important for spinal symmetry and organ and brain development. Scoliosis and reading and learning problems are often the result of this pattern's lack of presence on both sides of the body.

Self Study:

Lying prone, come onto your elbows with palms down. Tuck your toes under (dorsal flexion). Explore pushing from each foot. Allow the force of the push to travel through to the same side hand. If your floor surface is slippery you may slide a bit along the floor. See if you can explore pushing from each hand. Allow the force of the push to travel through your body to the same side foot. You may slide as well. See if the push causes your torso to flex laterally.

Now flex one leg and tuck the first three (medial) toes of your flexed leg under so you can push with that foot. Flex that arm as well and turn your head to that side. Push with the foot and reach with the same side hand. Repeat on the opposite side. You may feel like you are belly crawling like a reptile! Belly crawl forward and back. Try turning! ☺

What did you notice? What state of mind was involved through this pattern? Did the movement remind you of anything? When would this pattern be useful? What yoga asanas and vinyasas rely on this pattern? What actions in fitness, sports and in daily life use this pattern?

8. Contralateral

This pattern differentiates the four quadrants of the body, the right and left upper limbs and the right and left lower limbs. It is the pattern relied upon by mammals so they can lift each foot independently allowing them to stop quickly. It can be seen in human infants creeping on hands and knees. Three-dimensional and spiraled movement utilizes this Contralateral or Cross-lateral pattern. Mammals as well use all the patterns leading up to this one.

Humans pass through all the former patterns as they develop to bipedal standing locomotion. Even when moving on two feet, the organization and sequencing of the limbs determine the pattern used:

- homologous as in jumping,
- homolateral as in hopping on one foot,
- and contralateral as in leaping from one foot to the other.

Self Study:

Beginning in the quadruped position on hands and knees. Focus on an object in front of you. Reach for it with one hand. Notice your weight transferring forward as you reach

and allow the opposite leg (from the hand that is reaching) to come forward. Alternate sides so that you “creep” forward. Do on the other side. What do you notice?

Now bring your attention behind you. Imagine someone from behind has called your name. Turn to face them by reaching with the foot of the side you are facing. Notice how the opposite hand from the foot you are turning toward is pulled in that direction. Try the other side.

Play with reaching from each extremity. Let it take you into movement.

What did you notice? What state of mind was involved through this pattern? Did the movement remind you of anything? When would this pattern be useful?

Summary

The various yoga poses and vinyasa movements call upon various organizations of these basic patterns. Explore the poses and vinyasas you practice regularly. Discern which patterns you employ to accomplish them. If you can, observe others in their practice. What patterns do you see? Ask, “is the pattern used efficiently? Does it support them in the pose or movement?” If not, what pattern might be more useful?

Enjoy your exploration time! ☺