PATTERNED DYSEVOLUTION

By Ron Hruska

Three of the most threatening over used cultural or technological patterns of intervention, that challenge human environmental adaptation, and therefore biologic evolution, that ultimately leads to unhealthy or undesirable outcomes, are underused calcaneus activity, posterior molar activity and intrinsically photosensitive peripheral retinal ganglion cells (ipRGCs).

These three interventions provide input for our navigation, upright balance, broad and comprehensive environmental awareness, and processing of perceptual sense.

Predominance of right molar, right peripheral rod cells, and right calcaneal (heel) interaction, as identified by PRI® clinicians, usually results in the application:

1) of an oral orthotic or orthodontist treatment for left posterior oral open occlusion,
2) of a visual orthotic or optometrist treatment for left posterior retinal placement to the lens focus image that, therefore, falls in front of the retina. (This open distance between the focus image from the eye's lens, and the retina, is referred to as myopia, or nearsightedness),
3) and of a podal orthotic or podiatrist treatment for left posterior foot open occlusion.

[The peripheral retina provides side vision, detects movement, and helps with low-light vision due to its high concentration of light-sensitive rod cells. While it is responsible for detecting gross shapes and motion, it is less sensitive to detail and color compared to the central retina. This function is crucial for tasks like navigating, maintaining balance, and being aware of your surroundings, even when something isn't in your direct line of sight.

It fills in the edges of your visual field, allowing you to see things out of the corner of your eye.

Its high concentration of rod cells makes it highly sensitive to movement, which helps alert you to objects or changes in your environment.

Rod cells are responsible for vision in dim light and at night, which is a primary function of the peripheral retina.

It contributes to spatial awareness and mobility by providing a broad view of your surroundings, which is vital for tasks like driving and walking.
It is the area of the retina outside of the central macula.

It contains a much higher number of rod cells than cone cells.

These rod cells are specialized to detect light and motion, sending signals to the brain via the optic nerve to form an image.

While the peripheral retina is excellent at detecting movement, objects in this area appear less clear and have less detail than those viewed directly by the central retina, which is rich in cones responsible for sharp, color vision.

This bracketed discussion was AI generated and accepted by Ron Hruska, through review of supporting scientific standards and existing evidence-based research.]

Patterned dysevolution PRI® considerations:

1) Provide standing oral orthotic intervention so that the right canine sensory function (left posterior occlusion trajectory) is at least equal to the left canine sensory function (right posterior occlusion trajectory).

2) Provide standing visual orthotic intervention so that the right eye focal, distant visual acuity is at least equal to the left eye focal, distant visual acuity.

3) Provide standing podal orthotic intervention so that the right outside fifth metatarsal guidance and navicular (longitudinal arch) sense is at least equal to the left outside fifth metatarsal guidance and navicular (longitudinal arch) sense.

The following standing bilateral integrative intervention recommendations that may help reduce patterning of dysevolution as defined here, and by Daniel Leiberman *(Lieberman D. The Story of The Human Body, Pantheon Books, 2013, page236-237. See * below.)* These recommendations are appropriate for those who either are, or are not, using a prescribed orthotic, such as eye wear, mouth appliance/orthotic/guard, or foot orthotic/insert.

- Outdoor sunlight, as much as possible. Use sunglasses only if need to reduce squinting.
- Perform outdoor activities surrounded by peripheral irregularity, inconsistencies, variable structures, shapes and sizes, and moving objects. (Forest walking)
- Chew food with both sides of the molar and premolar regions prior to swallowing.
- Move arms to music. (Arms regulate mandibular temporal function and thus posterior occlusion and temporal mandibular joint compression-decompression.
  Weinberg M, et al. Shoulder girdle muscle activity at rest and during jaw and shoulder movements in participants with and without temporomandibular disorders: A cross-sectional observation study, Bodywork and Movement Therapies, Vol. 42, June 2025.
  Pontzer H., et al. Control and function of arm swing in human walking and running. J of Experimental Biology 212: 523-34, 2009.)
- Read with intermittent phases of looking beyond the book, screen, etc. to focus on distant and peripheral surroundings, before returning to near focus.
- Walk up-stairs backwards with appropriate arm and head freedom to rotate.
- Walk on uneven outdoor surfaces, such as pasture ground, lawns, gravel, rocks, fallen trees, etc.
- Talk with exaggerated facial gesturing, expression and volume while walking in figure eight patterns.
- Tap one side of the teeth together for a few seconds, and then the other, throughout the day, when standing. Eat meals or food while standing.
- Climb trees, playground ladders, walls, etc. while looking up and around you. Avoid looking at the ground.
- Observe objects moving by or past you, as you softly focus on distant objects moving toward you, while race walking (one foot is always on the ground).
- Play pickle ball, racquet ball or tennis.
- Fly a kite.
- Downhill ski or cross-country ski.
- Stand on a boat while casting a fishing line.
- Walk barefoot on sand.

- Paddle on a paddle board standing.
- Go birding.
- Hike with walking poles.
- Play ‘retrieve’ with a dog.
- Roller skate.
- Play golf frisbee.
- Kick a soccer ball that remains on the ground, as distance and direction of ball remains in the peri personal space of kicker.

These above activities, and others like them, have been, and are discussed, and related to both PRI® non-manual and manual techniques and material outlined and presented in courses written and approved by Ron Hruska and the Postural Restoration Institute®.

It is important to recognize that neural research predicts that unsupervised learning, in these above recommended environments, may accelerate subsequent desired or appropriate task learning, behaviorally, when environmental constraint exists. (Zhong L, et al, Unsupervised pretraining in biological neural networks. Nature, Vol, 644, Aug 2025.)

**Lieberman*

> *“The high prevalence of nearsightedness, combined with the way we use eyeglasses to treat the problem’s symptoms rather than its causes, raises several hypotheses about how we promote dysevolution of this disease. One controversial idea, based on the theory that close work causes myopia, is that eyeglasses actually exacerbate the problem If contractions of the eye’s muscles cause myopia in the first place, then giving corrective glasses, which cause all distant objects to appear is if they were close, sets up a positive feedback loop by causing everything to appear close.” (Lieberman D. The Story of The Human Body, Pantheon Books, 2013, page 236-237.)*