Zink's Common Compensatory Pattern

While it has long been known that virtually all people have musculoskeletal asymmetry in one way or another; J. Gordon Zink was the first to document the preferences of fascia. Many osteopathic medical students become confused during this unit, but it is important to remember that this Picmonic refers to fascia only and that the rotations discussed here refer to translation of fascia and not vertebral rotation. There are four compensatory curves in the spine at the locations as follows: the occipitoatlantal junction, cervicothoracic junction, thoracolumbar junction, and the lumbosacral junction. Fascial asymmetry most commonly manifests in healthy people with a pattern referred to as Zink's Common Compensatory Pattern. The Common Compensatory Pattern is rotated left at the occipitoatlantal zone, rotated right at the cervicothoracic zone, rotated left at the thoracolumbar zone, and rotated right at the lumbosacral zone. 80% of healthy individuals have the Common Compensatory Pattern, and 20% of healthy individuals have the Uncommon Compensatory Pattern. The Uncommon Compensatory Pattern is rotated right at the occipitoatlantal zone, rotated left at the cervicothoracic zone, rotated right at the thoracolumbar zone, and rotated left at the lumbosacral zone. Notice how the compensated patterns that are prominent in healthy people alter back and forth at the transitional zones. Patients who are hospitalized, or had recently experienced some trauma often do not have fascial patterns that alternate back and forth. This type of fascial pattern in which the fascia's preference does not alternate while going through transitional zones is termed uncompensated.



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Transitional Zones

Occipito-Atlantal
Octopus-Atlas
There are various transitional zones along the spine in which fascial preferences can shift one way or another. The most superior transitional zone is where the head meets the neck, also known as the occipito-atlantal junction (OA). The OA is most commonly shifted left in healthy individuals (80% of the time), and uncommonly can be shifted right (20%). The associated diaphragm is the tentorium cerebelli.

Cervico-Thoracic
Cervical-cat-Thor
The second most superior transitional zone is where the neck meets the thorax, also known as the cervicothoracic junction. This junction is most commonly shifted right in healthy individuals (80%), and shifted left uncommonly (20%). The associated diaphragm is Sibson's fascia, which covers the thoracic inlet.

Thoraco-Lumbar
Thor-lumber
The second most inferior transitional zone is where the thorax turns into the lumbar spine, also known as the thoracolumbar junction. This junction is most commonly shifted left in healthy individuals (80%), and shifted right less commonly (20%). The associated diaphragm is the respiratory diaphragm.

Lumbo-Sacral
Lumber-sack-rum
The most inferior transitional zone is where the lumbar spine meets the sacrum. This is usually referred to as the lumbo-sacral junction, and in healthy people its fascia is most commonly shifted right and less commonly shifted left. The associated diaphragm is the pelvic diaphragm or pelvic floor.

Fascial Patterns

Common Compensated
Commoner Compensation
This fascial pattern is the most common in the healthy populace; 80% of healthy individuals have the common compensatory pattern. In the common compensatory pattern, the fascia is rotated left at the occipitoatlantal zone, rotated right at the cervicothoracic zone, rotated left at the thoracolumbar zone, and rotated right at the lumbosacral zone.

Uncommon Compensated
Uncommoner Compensated
20% of healthy individuals have the uncommon compensatory pattern. The uncommon compensatory pattern is the opposite of the common compensatory pattern. It is characterized as rotated right at the occipitoatlantal zone, rotated left at the cervicothoracic zone, rotated right at the thoracolumbar zone, and rotated left at the lumbosacral zone.

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Uncompensated

Uncompensated

Unhealthy individuals typically have uncompensated fascial patterns. Uncompensated generally means that each fascial zone does not alternate, rotated left or right from superior to inferior. An example of this would be if a patient’s fascia was rotated right in all four transitional zones. Uncompensated fascial patterns are common in hospitalized patients and trauma patients.

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