

Meridians: Understanding the Science (Pt. 2)

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Another TCM concept associated with *qi* circulation in the meridians is the direction of *qi* flow in the individual meridians. For example, the stomach channel is said to normally flow from the stomach down to the foot. When you have nausea or vomiting, it is said that you probably have "rebellious stomach *qi*" or *qi* flowing in the wrong direction. So, it is understandable that for channels like the stomach or lung (ex.: coughing), the normal flow of *qi* could mistakenly be thought of as flowing from center to periphery based on those conditions.

In addition, there is the TCM thought of the circulation of *qi* through all the meridians in a 24-hour cycle with periods of energetic maximum and minimum. This has been established by careful observation and should be more correctly thought of as related to the diurnal (day-night) cycle of the autonomic nervous system, not of the *qi* flow in the meridians. It should more properly be thought of as the strength of the flow and not its direction.

Here, we have a TCM concept that is largely correct, but misinterpreted. This diurnal cycle does exist and can be measured as an ebb and flow of conductivity of key acupuncture points over the course of the day.

Another phenomenon observed with this technique [French research on radioactive dye tracing along acupuncture points by Drs. Darras and DeVernejoul, introduced in [part 1 of this article](#)] is the occasional "jump" of the dye from one channel to an adjacent channel. This correlates with the idea in TCM of a "blockage" in the channel interfering with normal *qi* flow. In TCM, it is thought that stagnant or blocked *qi* can cause pain. This pain usually manifests as an achy pain in clinical practice. With our new understanding of the nature of the acupuncture meridians (channels or pathways), this makes perfect sense.

Interfering with the circulation of extracellular fluid will cause a buildup of the waste products of metabolism inside the cells and a lack of new nutrients for the affected cells. Much like overusing muscles causes a buildup of lactic acid inside the cells and makes your muscles ache, stagnant or blocked channels can also cause achy pain.

Yet another interesting phenomenon observed by Drs. Darras and DeVernejoul was the change in the rate of dye migration when the associated organ suffered from an inflammatory or degenerative condition. It was observed that if the associated organ was suffering from an inflammatory condition, the rate of dye migration was faster than normal. Alternatively, when the associated organ was suffering from a degenerative condition, the rate of dye migration slowed down or stopped completely.

They also observed that needling or laser stimulation of another point on the same channel also affected the rate of migration in both the channel that was needled and the same channel on the opposite side of the body to a somewhat lesser extent. In TCM, it is widely recognized that needling one side of the body can affect both sides of the body. So, here we have an observed phenomenon that may explain in part how treating one side can affect both sides.

But what causes the change in dye migration or even the migration itself? It certainly isn't residual pressure from the vascular bed, since then the rate of migration in the acupuncture meridians and the lymphatic ducts should be about the same (but they're not).

There is one possible mechanism that most people, even MDs, aren't familiar with. It's called *electro-osmosis*. It was discovered by the renowned Swedish radiologist Bjorn Nordenstrom.² It reveals that an electric field in a tissue matrix (not in a bucket of water) will cause water to migrate to the negative pole of the field. He also ascertained that inflammatory conditions have an accumulation of negative charge (and Robert Becker showed that regenerative processes are also electro-negative⁵) compared to surrounding tissues and degenerative conditions are electro-positive compared to surrounding tissues.³⁻⁵ This correlates quite well with the change in migration rate with inflammatory and degenerative conditions.

In addition, sticking a needle through the skin causes free electrons on the surface of the skin to be conducted through the needle (and even through the break in the skin after the needle is removed), and causes an accumulation of negative charge under the skin. This accumulation of negative charge can then influence the flow of extracellular fluid in the acupuncture meridians when the needle is placed along the channel.

When placed more proximally, it would tend to increase the flow rate toward the needle and thus toward the center of the body, and when placed more distally, it would tend to reduce the flow rate toward the center of the body (again, the water flows toward the needle). This is precisely what the French research showed: If you needled proximal to the injection site, the observed flow rate increased; and if you needled distal to the injection site, you decreased the flow rate.

It is interesting to note that in TCM, points on the trunk are said to be more tonifying, and points on the arms and legs (especially the most distal points) are said to be more sedating. In fact, when you look at the charge distribution on the body, the closer you get to the fingers and toes, the more electrically negative you get (on the surface of the skin). That means the electro-osmosis would be strongest the farther you needle down the arms or legs.

All of this strongly suggests electro-osmosis is likely playing an important role as one of the underlying mechanisms of acupuncture.

Editor's Note: All three parts of this article are excerpted from Mark's book, *Electro-Acupuncture for Practitioners*. They have been formatted to meet our style and publication guidelines. Part 1 appeared in the [March issue](#); the article will conclude in the May issue.

References

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