Western Explanations of Acupuncture

Why It Works

The Point of this Lecture:

- This lecture will present the scientific explanations of acupuncture. There are numerous mechanisms that are at work and multiple systems that are affected with the insertion of an acupuncture needle. The more tissue and physiologic changes that are shown scientifically, the more accepted acupuncture becomes in the Western world. It is exciting and actually helps explain what the Chinese paradigm tried to convey.

National Institute of Health says:

- There is low electrical resistance and high electrical conductance at AP.
- Important points are near larger peripheral nerves so the signal travels faster.
- Most points are along superficial nerve trunks-more sensitive to stimulation.
- ie. AP on forearm and lower leg occupy larger areas in sensory gyrus of the cerebral cortex
- AP are usually in areas where the nerve trunk passes through the deep fascia and emerges to the surface.

NIH continued:

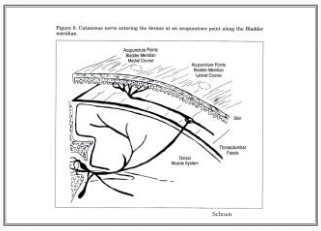
- Some AP are located at bony foramina where nerve trunks emerge and are distributed in the cutaneous tissue.
- AP are often located where nerve trunks enter muscles. These nerves have afferent (sensory) and efferent (motor) sympathetic fibers.
- Important AP are near neurovascular bundles containing veins, arteries, and nerves.
- At some AP, large nerve trunks branch into 2 or more smaller trunks.

NIH continued:

- There are AP in and around thick fascial sheets, tendons, ligaments, collateral ligaments, retinaculum, and joint capsules.
- Important AP are also in and near suture lines of the skull, which is highly innervated tissue.

Propagation of Sensation Along Channels

- Afferent (sensory) nerve fibers are related to De Qi sensation
- ..Type II- numbness- proprioceptive fibers
- ..Type III-heaviness, distention, pressure, compression, aching-A delta nociceptive fibers
- ..Type IV-soreness, tingling, pain-unmyelinated fibers



Schoen

Acupuncture Point on Bladder Channel

Schematic of a point on the Bladder Channel

FASCIA

- Considered an organ system
- Arises from mesoderm in the embryo
- …mesoderm becomes mesenchymal cells becomes blood stem cells, myoblasts, fibrocytes, osteocytes, chondrocytes, mast cells, fat cells, reticulum and endothelial cells.
- Forms.. different connective tissue-adipose and soft interstitial tissue
- .. dense connective tissue-fascia, tendons, ligaments
- .. muscle, bone, cartilage

FASCIA

- Composed of collagen, elastin, lattice fibers, ground substance, fibroblasts, myofibroblasts
- Surrounds muscle groups, organs, vessels
- Signaling network for the body
- Has elastic and contractile properties
- Controls movement and allows muscle function

Connective Tissue

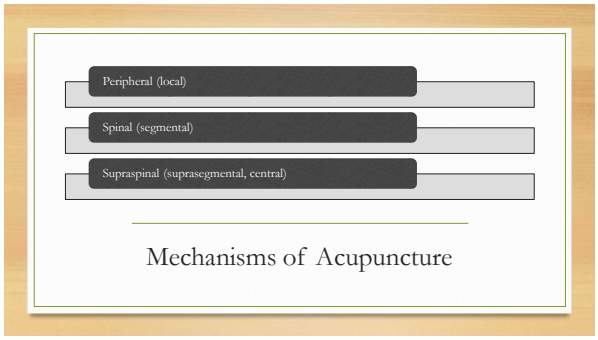
- Fibrocytes and fibroblasts in an extracellular matrix containing collagen, elastin, and reticulin fibers
- Interfibrillar proteins such as glycosaminoglycans and proteoglycans
- Interwoven collagen fibers are a major component
- The different connective tissues are a large web woven into all body tissues

SO:

- Areas with more connective tissue have a stronger grasp of the needle.
- De Qi is a function of fascial stimulation eliciting brain activity
- Channels closely relate to fascial planes
- Strong correlation between fascia and dysfunction/disease

Acupuncture and Immune Function

- Regulates macrophage activity
- Regulates leukocyte phagocytosis
- Supports immune function of RBCs
- Humeral immune function regulated via specific immunoglobulins
- Non-specific immunity regulated via serum complements
- ***Regulatory effects are partly determined by the condition of the patient!!!



Peripheral

- Locally activates a complex neurovascular immune regulatory response
- ..cutaneous vasodilation and inflammation
- ..nociceptive (tissue) excitation and pain relief
- ..immune stimulating mechanisms, attracting immune cells
- ..solubility, activating complement and inhibiting thrombin, clears damaged cells
- ..wound healing and tissue repair and inactivation of inflammatory response

Spinal

- Anatomical tissues in any given segment are functionally related
- Must needle appropriate spinal cord level to affect tissues that it innervates
- Inhibits painful inputs to dorsal horn sensory neurons
- Sympathetic, parasympathetic, autonomous nervous system efferent fibers regulated
- Changes alpha motor neurons in ventral horn of spinal cord, decreasing pain in the muscles supplied by that segment

Supraspinal

- Regulates the autonomic nervous system
- ..activates the brain in different regions helping balance between sympathetic and parasympathetic activities
- ..efficacious for multiple nerve related disorders
- Causes central Humeral response
- ..affects neurotransmitters and centrally mediated modulators
- **AP stimulation causes activation or deactivation of specific brain regions!

Tips

- Precise location of AP is a must for best results!
- Chronic conditions require local points, can use more needles
- Acute conditions need less local points and fewer needles
- Use points to stimulate peripheral nerves, distal points, all conditions
- Must combine local and distal points in treatment

Things to Remember

- -AP palpation allows for a more efficient and beneficial treatment- skin is flat, depressed and may be sensitive
- -80% of AP coincide with intramuscular septa and connective tissue planes
- -96% AP are in tissues with abundant small blood vessels and capillaries
- -45.5% AP are near large blood vessels
- -There can be a large variation in point location
- -AP near anatomical landmarks have less variation

Also:

Summary of Effects

- Multi-system and multi-mechanism effects
- Helps restore homeostasis and promotes self-healing
- Provides pain relief, anti-inflammatory response, changes blood and nutrient circulation
- Affects cardiovascular and circulatory system, endocrine and humeral system, immune system, whole nervous system
- Allows for tissue repair, decreases stress response, deactivates trigger points, reduces oxidative stress, helps acute and chronic conditions

References

- May, K: Introduction to Acupuncture, Dallas Convention Center, Dallas, October 5, 2008.
- May, K: Western Basis of Acupuncture, 79th Western Veterinary Conference, Las Vegas, February 18, 2007.
- Neary, S: Acupuncture Points Explained with Both TCVM and Scientific Definitions, Proceedings for the AAVA/IVAS Joint Congress, Washington, 2016, pg 77-86.
- Schultz, R: Fascial Planes Along the Bladder Meridian and Governing Vessel as Well as Other Selected Acupuncture Points, Proceedings for the AAVA/IVAS Joint congress, Nova Scotia, 2015, pg 165-172.
- Veterinary Acupuncture Course Notes, Chapter 14, 27th Edition, International Veterinary Acupuncture Society, 2017-2018.