



Perspective

A Curious Oversight in Acupuncture Research



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Abstract

Common phenomena central to acupuncture have been overlooked by previous hypotheses on how acupuncture works, with the result that the hypotheses are unable to account for acupuncture's effects. This article describes the main features overlooked and suggests how these might be investigated in future acupuncture research.

1. Introduction

In recent decades, academics from different disciplines have produced hypotheses on how acupuncture works. But curiously, none of the hypotheses can account for the basic phenomena related to acupuncture. One crucial factor that appears to have been overlooked is the speed of acupuncture's effect on each organ's function. The following simple experiment demonstrates the point.

2. The speed of acupuncture's effect

When an organ is stressed, this causes one or more of its related acupuncture points (acupoints) to feel tender when pressed. This relationship is so reliable that it is routinely used as a diagnostic aid. If one of an organ's main acupoints

is tender, then the organ needs treating; and stimulating that (or one of the organ's other tender acupoints) rectifies the organ's function, which then immediately clears the tenderness at all its related acupoints. This phenomenon is central to acupuncture.

For example, in a clinical session, I pressed the acupoint Gallbladder-41 (*Zulingqi*) on the patient's *left* foot, and she said it was extremely tender. I then pressed the acupoint Gallbladder-34 (*Yanglingquan*) below her *right* knee, and she said this was also tender but not as much. I needled Gallbladder-34 below her *right* knee, and a few seconds later, I again pressed Gallbladder-41 on her *left* foot. Even though I had not needled that acupoint, she said, "That's amazing; it doesn't feel tender at all now."

In Chinese medicine, it is recognised that these acupoints become tender when either the liver or gallbladder (or both) are stressed, and once this stress is cleared in the liver or gallbladder, this would then account for the tenderness clearing on all acupoints related to those organs.

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Since noticing this phenomenon, I have tested it many times on different patients, in relation to different organs and acupoints, and noted the same outcome. When an organ's function is corrected by acupuncture, this causes tenderness at that organ's related acupoints to immediately clear, even when those acupoints have not been needed.

In Chinese medicine, the "pulses" at the patient's wrist indicate whether the main organs are functioning normally or are stressed in some way. This also provides a diagnostic aid that is routinely used in each treatment. But importantly, this can provide an indication of the speed of acupuncture's effects on an organ. During a treatment, I routinely take the pulse of an organ, then needle an acupoint to treat that organ, then immediately retake the pulse again. Usually, the pulse indicates that the organ's function has corrected, but when this does not happen, then I chose a different acupoint to treat the organ. Using this technique, I have noted that acupuncture tends to correct an organ's function in around 1 second or so. Of course, using this technique, it would not be possible to detect a quicker correction time, because the practitioner needs to move from the needle to the patient's wrist to retake the pulse, so that the speed of acupuncture's effect on an organ's function could well be very much faster than this. The experiment is informal and subjective, but it does provide evidence that the speed of acupuncture's effect on an organ is in the region of 1 second, or possibly faster.

An average distance between a distal acupoint and its related organ could be taken to be around 1 m, assuming that any "signal" is transmitted along the meridian, directly to the organ. Therefore, the speed that any such signal travels along a meridian could be taken to be around 1 m/s or faster. And the same would be true for the "signal" from an organ, out to its distal acupoints. It is clear that an organ communicates its state to its related acupoints, because the tissue at those acupoints becomes tender when the organ is stressed; and further, this tenderness rapidly clears once the organ's function has been corrected by acupuncture.

Informally, the above common acupuncture phenomena provide a basic schema of acupuncture's effect, which is that communication between an organ and its related acupoints takes place in both directions, and any "signal" travels at the rate of around 1 m/s, or faster.

3. This rules out mediation via nerves, hormones, or the primo vascular system

This basic information, although the figures are only ballpark and informally gathered, is sufficient to disprove all acupuncture hypotheses that rely on the effect being mediated by the nervous system, by any blood-borne factors such as hormones, or even by the primo vascular system (PVS).

Longhurst [1] champions the neural hypothesis, which holds that "the clinical influence of acupuncture is transmitted primarily through stimulation of sensory nerves that provide signals to the brain, which processes this information and then causes clinical changes associated with the treatment". But, the main reasons why this cannot be true are that

- there is no direct neuronal input from the brain or spinal cord to the abdominal organs, which are largely self-governing [2,3], so that the brain could not affect organ function via nerves;
- blood is said to circulate the body at the rate of around 12 cm/s [4], which means that any hormones originating from the brain could not possibly affect an organ's function in around 1 second;
- there are no nerves travelling from the abdominal organs out to each distal acupoint (which would be motor nerves, rather than sensory nerves), so that the hypothesis cannot account for how stress in an organ produces tenderness in the local tissue at its related acupoints, which tenderness rapidly clears when the organ's function is corrected; and
- this outward communication from an organ to its acupoints takes place too quickly for it to be achievable via any blood-borne factor.

According to Kim, the superficial primo vessels correspond to the meridians, and the purpose of the PVS is to mature cells from the related organ. But, the flow rate of the fluid within the primo vessels is about 0.3 mm/s [5], which equates to 1.08 m/h. This means that nothing in the contents of this fluid would be capable of accounting for acupuncture's effect of correcting organ malfunction in around 1 second, because the communication rate is far too slow. Indeed, such malfunctions could not be produced by cellular problems within the organ, because if they were, they could not possibly be corrected so quickly by acupuncture.

It is clear that the rapid rate of communication between distal acupoints and the related organ (in both directions) rules out the involvement of the nervous system, any blood-borne factor such as hormones, or the PVS in mediating acupuncture's effect. The communication must take place over some other medium.

Other hypotheses also fail this same simple test. In 2002, Langevin and Yandow [6,7] proposed an hypothesis that focused heavily on the concept of "needle grasp", which is a phenomenon that sometimes happens (some acupuncturists produce this more than others; and when pressure or heat is used to stimulate an acupoint, this also immediately affects the organ function, yet could not possibly involve "needle grasp"). It was proposed that when an acupuncture needle is turned, this may cause distortion of the collagen fibres in the connective tissue, which may then set up a mechanical wave that spreads through the connective tissue, which could act as a signal. The hypothesis also cites the phenomenon of "meridian sensation". During an acupuncture treatment, some patients sometimes experience a sensation slowly propagating along a short section of a meridian after a nearby acupoint has been stimulated. And the hypothesis equated this with the speed that a mechanical wave would travel through connective tissue. But, in both cases, this speed is far too slow for it to be able to account for acupuncture's effect on the organs. The speed of sensation propagation along meridians is around 18 cm/min [8], whereas the communication between an acupoint and its associated organ travels at around 1 m/s, or faster. The researchers were clearly unaware of how fast this communication takes place, and wrongly assumed that the occasional

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