



Miraculous Results

Using Intradermals, Biophysics, and the Current of Injury

A Five Hour CEU/PDA Course © By Dr. Harvey Kaltsas, A.P., Dipl. Ac. (NCCAOM)

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*“If you don't know history, then you don't know anything.
You are a leaf that doesn't know it is part of a tree.”*

Michael Crichton

Let us ramp up our effectiveness as acupuncturists by asking ourselves a few simple questions.

What is it that we do in clinical practice, really? Aside from herbs, moxa, massage, e-stim, diagnosing, counseling, and recommending exercises, we are basically inserting pieces of metal into the body with the hope and understanding that we'll achieve a desired therapeutic effect.

How does this work? We pretty much all base our efforts on a perspective that there are channels flowing through an energy body demarcated by key points that produce specific responses when stimulated - alone or in combination - by metal needles.

Traditional Chinese Medical theories do much to explain how acupuncture works, and recently Western scientists have developed notions about endorphins and other neurotransmitters that also contribute to our understanding of modes of action.

One area of inquiry that has been largely overlooked - except by Robert Becker, M.D., Yoshio Manaka, M.D., and James Oschman, Ph.D. - is the electrical effect of metal piercing the body. Obviously the American culture as a whole has not a clue about the electrical implications of metal piercing the body, given the latest bizarre fashion statements prevalent amongst our youth; but to our detriment, we acupuncturists know little of these electrical effects as well, even though our yin/yang theory preceded Western understandings of electrical polarities by millennia. We know yin to be feminine and negative, yang to be masculine and positive. In terms of electricity, a negative charge can be considered an excess of electrons, whereas a positive charge can be thought of as a lack of electrons.

By examining in this course the research and musings of Becker, Manaka, Oschman, Physicist Fritz Albert Popp, Zoologist John Bleibtreu, and to a lesser degree Wilhelm Reich, M.D., we will learn to implement new, practical, and surprisingly effective ways of treating our patients, especially with tiny intradermal needles. In addition, we will develop a vocabulary and way of conversing about acupuncture that will garner for us respect and hopefully referrals from those in the Western medical community at large.

In the process we will become familiar with four different bodies of thought:

1. The human body's electrical characteristics
2. The body as a biological information system

3. The mechanisms of the current of injury and the role acupuncture needles play in its creation

4. Vector theory

All these will be useful when implementing clinical pearls on a practical basis, and along the way we'll learn what cattle ticks, salamanders, and the use of aluminum foil to treat WW2 burn victims on Okinawa have to do with caring for patients using intradermal acupuncture needles.

Before we ponder these topics directly, please bear with the philosophical and historical musings of this course as we journey from the theoretical to the practical, for technique without understanding is dangerous. Moreover, I remember reading long ago that the most important determinant in the success of a therapy is not the patient's belief in its efficacy, but the doctor's! Thus, the more you understand about the mechanisms of intradermal therapy the more success you will have using this modality.

First off, let's acknowledge that those who consider acupuncture to be based on magical thinking with no basis in science are simply ignorant of what we do, of its foundations, and of recent scientific research which affirms traditional Chinese medicine's (TCM) understandings of how the body functions. What Spinoza wrote nearly four hundred years ago holds true today:

“...nobody has known as yet the frame of the body so thoroughly as to explain all its operations.”

- Baruch Spinoza, 1632-1677

However, TCM has long had a pretty good grip on what biophysicists are just starting to discover about how the body works. More on this soon.

The Implications of Cellular Memory

John Bleibtreu's **Parable of the Beast** is a good place to start dispelling the snickering of skeptics. In it he considers the life story of the deaf, eyeless, impregnated female cattle tick. She is born, somehow mates, is guided by her photosensitive skin to crawl up the body of a plant, and comes to rest on the end of a branch, where she then lays dormant for 18 years. That time for the cattle tick passes as if in the blink of an eye, for when the proper number of full moons and thus years have gone by and upon chance encounter she catches a whiff of butyric acid (a chemical common in the sweat of all mammals), the cattle tick then rouses from its slumber and leaps of the end of its branch to attach itself to the mammal for a meal of warm blood. So infused and satiated, the tick then drops off to the ground where she gives birth to many baby ticks whose

vampire-like embryos needed but the nourishment of blood to come to life. The cycle is then repeated as the ticks climb plants out to the tips of their skinny branches and go to sleep for another 18 long/short years.

The environment in which the tick perceives its being, its *umwelt*, does not include sight or sound. As such it is limited. Humans too have a particular *umwelt* specific to our species, one that includes sight, sound, taste, smell, and touch – but not all sensations of sights, sounds, tastes, smells, and touch. We do not see in infrared. We cannot hear the sound of a dog whistle nor smell as a blood hound can. Few of us can taste the subtle nuances that a master vintner perceives to discern the year and region in which a particular wine was created. Very few of us can feel with the sensitivity of the blind acupuncturists of Japan who direct their own *qi* to redress the oh-so-subtle imbalances they palpate in their patients.

My own master, Dr. John Ho Fen Shen, would never read a person's chart upon initial intake but instead would first feel the Chinese pulses. One time a 50+ year old woman sat down; Dr. Shen placed three fingers on the radial aspect of her wrist; and he then pronounced:

“When you were 12 years old, you fell down the stairs, hit the back of your head, and have been suffering from headaches ever since.”

The woman broke into tears and asked “How did you know? That's exactly what happened to me, and no one has been able to cure me since.” With this correct diagnosis, treatment was simple after that, and the patient got better. Imagine the *umwelt*, the world he perceived, in which Dr. Shen lived.

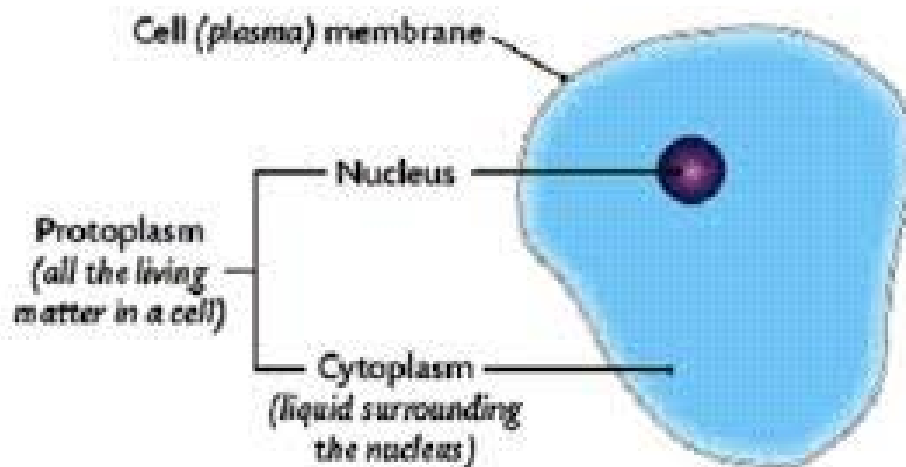
On some level, if we expand our sense of who we are, our own *umwelt* is not much different from that of the cattle tick. For example, whether we are aware of it or not, we and the cattle tick share a sense of time and biological responses dependent upon celestial cycles. Women of our human species menstruate according to the cycle of the moon. The females of the cattle tick species are also attuned to lunar cycles, although over a much longer span of time. In fact, who we are as humans is not merely the individuated, personality based conscious self we perceive ourselves to be. Like the cattle tick, we are the sum total of awareness and memories of **all** the cells of our body, and much of the autonomic functioning which underpins our very survival depends upon this subconscious level of awareness and memory.

Looking at the etymology of the word “memory” is an instructive exercise. It comes from the Greek *mermeros* and originally meant “baneful, warlike, crafty, mischievous.” Think of memory as a wily Odysseus leading the individual cells, helping them to survive in any way possible, finding ways for them to adapt to threats, finding ways to cooperate for mutual self-defense.

Don't for a minute think that cells cannot possess memory. In the 1940's zoologist Tracy Sonneborn worked with single celled paramecia, a species of protozoa (from the Greek word *protozoa* for "first life") and found they could be trained to respond to chemical changes, light, and temperature with simple reward/punishment techniques. He established that single cell creatures could remember. More importantly, he found that these memories, once embedded in their cytoplasm, could be transferred to their offspring! Two generations of zoologists after Sonneborn expanded on his discoveries, including Ruth Sager at Columbia University who found molecular memory was not just passive:

"The memory molecule itself responds actively to new experience! And this new response is then coded into the molecule for the information and preservation of future generations."

"So what?" you ask. Here's what. There are two types of memory in cells, that found in chromosomal genes and that found in non-chromosomal or cytoplasmic genes. Both are embedded in RNA molecules, and become part of the blueprint of life passed on to future cells.



A cell is not just protoplasm or matter. It also has an innate intelligence and memory, and these are energetic phenomena, not biochemical. There are no chemicals that contain memory. Think of your computer. What stores the memory? It's not chemicals. It's the [electric charge](#) inside the computer chip that stores the data. Thus a living cell is part physical – protoplasm – and part energetic – intelligence/memory. Be careful when

you share this knowledge with other medical professionals, because it represents an uncomfortable, almost heretical paradigm shift for many.

The M.D. Priesthood Versus Heretics Like Us

Unlike in China, in the West centuries ago, the Christian Church was charged with the Ministry of Healing; and as part of shouldering that responsibility, the priesthood at various times would pass judgment on who was fit and proper to practice medicine. As recently as the 18th century, there was a concerted effort underway in Europe and the American colonies to restrict the practice of medicine to men. This was apparently logical since men were purportedly the only ones ordained by Christ to carry out His work.

Their use of opiates, mercury, bloodletting by the bucket, and barbershop surgery was carried out with the full approval of established theological and secular authorities. However, the dangerous methods of women healers (herbal remedies, nutrition, poultices, and massage) were branded as heresy; and such women were hunted down, then burned at the stake as witches. Greg Laden observes that from 1300 to 1700 there were at a minimum 61,561 women killed as witches. Here's the link:

<http://scienceblogs.com/gregladen/2012/12/02/how-many-people-were-killed-as-witches-in-europe-from-1200-to-the-present/>

It did not matter that such feminine approaches worked in restoring health. Indeed, success was considered proof positive of practicing witchcraft – for if only men were blessed with God's healing grace, then women must have been drawing upon the power of the devil to produce results.

By the turn of the 20th century, the male practice of medicine had become so firmly entrenched that women's roles were essentially limited to custodial work, emptying bed pans, and the like. Although the Church was no longer supervising healers, in keeping with the times a new secular religion had emerged along with a new secular priesthood, one which carried on in the spirit of the early Inquisitors. Only now medical heretics were no longer identified by gender.

Perhaps more than coincidentally, the new priests followed in the old tradition of favoring drugs and surgery over gentler, more feminine approaches to health care. Throughout the 20th century, the new medical priesthood violently opposed (by means of surrogate police forces) alternative methods of therapy – particularly those which considered the human body and disease to be more energetic than physical in nature.

In 1910, at the behest of Rockefeller pharmaceutical interests, the new Medical inquisitors issued the Flexner report that summoned the power of the U.S. government

via the F.D.A. and Boards of Medical Examiners to oppose almost all forms of medicine of an energetic or nutritional bent. The rallying cry of medical orthodoxy expressed in the Flexner Report was “There is no disease without an anatomical lesion.” Very shortly thereafter over half of the medical schools in the U.S.A. were closed permanently, marking the demise of such venerable healing traditions as homeopathy and the Hygienic System. Acupuncture, which had gained some recognition from such notables as Sir William Osler, was similarly banished, relegated back to the most remote corners of Chinatown.

It appeared at first that the new medical priesthood did indeed have God on its side. The development of biochemistry in the ensuing decades gave rise to an antibiotic and immunological revolution which has been credited with the virtual elimination of such scourges as typhoid, cholera, smallpox, tuberculosis, and polio. That tremendous advances in public sanitation systems occurred during this same time period goes largely unheralded.

With the emergence of the biochemist as the high priest in this new medical theocracy, there was no longer much of a contest between established medical doctors and the heretical energetic healers. Biochemically oriented professionals easily held sway over the masses by dint of their miraculous success in treating plagues. In addition, there was an enormous body of scientific knowledge on hand to support the biochemical view of medical reality – namely that changes occurring within the body were the result of biochemical stimuli and processes. In essence, the body itself became popularly considered to be a biochemical phenomenon.

Energetic healers were at best able to refer only anecdotally to individual cases which had responded to their forms of treatment. Although there were vast libraries of literature documenting the effectiveness of such therapies as homeopathy and acupuncture, this research was published principally in Chinese, German, Japanese, and Russian. As a result, this work was overlooked by the American academic/medical community, the mass media, and hence the general public.

To make matters worse, energetic healers described the mechanisms of their treatment with a vocabulary which had no currency in the popular imagination – referring to energy bodies, acupuncture points, meridians, qi, homeopathic nosodes, similum, and so on. Although the few individual patients who had run the legal gauntlet to obtain treatment may have developed trust in their alternative therapists, the language of energetic medicine with its distinctly foreign influences could only instill confusion rather than inspire confidence in the masses.

For want of a legal standing and a comprehensive scientific model to explain the modus operandi of their therapies, energetic healers were not able to pose a serious challenge

to medical orthodoxy; and like the healing witches of old, claims of success raised by energetic healers only confirmed their heresy – for many of their reported cures defied rational explanation in terms of the conventional biochemical modal of causality. Accordingly, the cures were dismissed as being improperly reported – attributable to improper diagnosis, sloppy scientific research methods, or outright sham. Even worse, the notoriety garnered by successful energetic healers landed them in jail for practicing medicine without a license!

Ultimately, energetic healers would not have had an opportunity to pose any challenge to the structure of modern medicine if biochemistry alone had been sufficient to maintain the public's health. But the biochemical mortar which held the structure in place started to crack much sooner than most had anticipated – with an epidemic onslaught of cardiovascular and other degenerative diseases such as cancer, arthritis, and diabetes. Ironically, it was biochemical medicine's ignorance of energetics that brought about much of the mortality from heart disease and cancer. From 1896 onwards doctors started playing indiscriminately with a new diagnostic toy – X-Rays, with no concept of how this enormous energy would have a mutagenic effect on the genetic codes of millions of patients.

During World War II, Dr. John Gofman, M.D., Ph.D. (Physics) was a key scientist in the Manhattan Project and personally invented the process of how to produce uranium-235 and plutonium in quantities sufficient to make the A-Bombs used on Japan. Later he became a medical doctor who discovered cholesterol and its impact on cardiovascular health. The U.S. Congress considered Gofman to be an expert in both nuclear physics and human health, and in 1963 it commissioned him to do the first comprehensive study on the effects of ionizing radiation (such as from nuclear waste, nuclear fallout, and X-Rays) on human health. He spent the next 40 years warning the public about these dangers and concluded that fully half of our deaths from cancer and heart disease were probably precipitated by exposure to medical radiation. (Those of you more interested in this topic are welcome to take my course *Medical Imaging – Ionizing Radiation and Human Health* which covers the matter in depth).

It was through this breach in the wall of orthodox medical success (the rise in degenerative diseases) that alternative healers began pouring, offering their services to a public demanding relief from ailments that obviously were not otherwise being cured. In American society we are now witnessing an increased willingness by the public to experiment with energetic forms of healing - from acupuncture and massage to homeopathy and herbalism. In step with the re-emergence of energetic medicine has been an explosion in hard scientific research which has supplanted the biochemist as the high priest in the realm of science. The nuclear physicist now reigns supreme in explaining the nature of physical reality – and biophysics has developed as a newly

respected model for understanding biological processes, especially when considering the body as a biological information system.

Dr. Fritz Albert Popp - The Physics of How Cells Communicate

Dr. Fritz Albert Popp of Germany, a world leading biophysicist, is currently an acknowledged expert in the study of cellular communication – and I don't mean cell phones. He studies how living cells pass on information to each other to initiate and sustain biological processes. We are talking here about the mystery of life itself. His research confirms the hypothesis that cellular communication occurs by means of the radiation of photons – which have both electrical and electro-magnetic properties. The electro-magnetic nature of photons, for example, accounts for the possibility of memory within biological systems, a phenomenon totally unexplainable by a biochemical model.

To clarify before proceeding further, here is the definition of a photon:

1. a particle representing a quantum of light or other electromagnetic radiation. A photon carries energy proportional to the radiation frequency but has zero rest mass.

Dr. Popp built upon the 1930's work of Russian researcher Alexander Gurvich and the photon multiplier research of the 1950's which showed that all biological systems emit photonic radiations. Gurvich discovered that when onion seedlings were germinated in glass test tubes by themselves they grew at a certain rate, but when they were placed next to other onion seedlings in separate glass test tubes, they all grew at a faster rate. This led Gurvich to hypothesize that the onion seedlings were emitting something, and that these radiations had an effect on their growth. Since the onion seedlings were in separate glass test tubes, their interaction was obviously not biochemical but instead was in the realm of biophysics. Then in the 1950's a new instrument was invented - photon multipliers – which could count the number of photons being emitted by a particular substance, be it organic or inorganic. Following up on the work of Gurvich, subsequent researchers used photon multipliers to detect the amount of photonic radiation being emitted from onion seedlings and other substances when alone, when near each other, or when subjected to certain influences.

Basically, according to Dr. Popp, our external world is an electro-magnetic (e-m) field pattern, and we as living beings are awash in a sea of electro-magnetic influences. Using photon multipliers, Dr. Popp was able to confirm the pervasive nature of these e-m influences and that such photonic radiation has the important responsibility of controlling biological reactions and functions. Furthermore, photonic radiations organize

into very low intensity, very high coherence bio-lasers which (by means of testing with ethidium-bromide dye) have been shown to work directly upon the DNA, which itself acts as a storehouse for and transmitter of photons.

It is by means of these photon emissions between chains of DNA amino acid molecules (picture them as DNA transmission/reception towers associated with each individual cell broadcasting from cell to cell to cell) that cells communicate with each other. Each cell then sends e-m photonic messages down its own DNA strands of amino acids to produce the specific biochemical reactions specified in the e-m photonic transmission.

Furthermore, it is only by using this model of photon emissions from DNA to DNA that scientists can explain such heretofore unfathomable biological mysteries as the following:

1. Enzymatic reactions – which ones are switched on and off, how and when
2. Why physiological functions are temperature dependent
3. How active transport occurs within cell membranes
4. The pattern of recognition in immunological responses – why the recognition of different molecules?

When I interviewed him in 1985, Dr. Popp pointed out that scientists understood the function of only 3% of the structure of the DNA molecule. He counseled that there is too much about the nature of physiological reality that we don't understand to be anything but humble and open-minded. With his own open-mindedness and the use of a sophisticated photon multiplier he was able to chart the increase in the photon emissions of cells exposed to homeopathic tinctures, which can be demonstrated to be 100% water only, purely energetic in nature, and thus incapable of producing a biochemical response without first having an electro-magnetic effect on the DNA. Dr. Popp asserts that acupuncture works on a similar basis, affecting the foci of electro-magnetism in the body's energy pattern located in the connective tissue (fascia), producing resonances within the DNA which transmit e-m messages to the cells and provoke subsequent alterations of physiological processes.

Dr. Yoshio Manaka and the Biological Information Network

By an entirely different route, Dr. Yoshio Manaka reached a similar conclusion to that of Dr. Popp - that there is a biological information network in the human body which enables acupuncture to work.

Manaka was a doctor serving with the Japanese army on Okinawa in 1945. American troops were using flame throwers to root Japanese troops out of caves, and these Japanese soldiers suffered from terrible burns. Manaka was charged with treating these troops, but his medical supplies were extremely limited. They say necessity is the mother of invention, and so it was with Dr. Manaka. He pondered the nature of the burn victims in terms of yin and yang. The burned skin was clearly too yang, the yin having been exhausted. Why not try to drain away the excess yang in hopes of relieving some of the pain and to promote healing? In terms of physics, Manaka considered the excess yang to be too many positively charged potassium ions in the area of the burn caused by damage to the cell membranes. These potassium ions - how to drain them?

He decided to wrap the burned skin in an electrically conductive material – metal foil - and attach the negative lead of an alligator clip to the foil. This clip was attached to a wire, at the other end of which was a diode hooked to the positive lead of an alligator clip. “In [electronics](#), a **diode** is a two-[terminal electronic component](#) with asymmetric [conductance](#); it has low (ideally zero) [resistance](#) to [current](#) in one direction, and high (ideally [infinite](#)) resistance in the other.” This allowed excess positively charged potassium ions to flow in one direction only through the wire towards the positive lead.

Manaka then inserted an acupuncture needle into a point most distant from the burn on the other side of the patient’s body, and he attached the other alligator clip to it. In time he came to call this device an “ion pumping cord,” and the results were truly miraculous. Patients’ pain reduced dramatically, and the wounds healed much more rapidly. (I’ve had the very same results treating my own patients who suffered from otherwise intractable pain). This experience informed Manaka to look at the body in a different way, not as a biochemist M.D. but more as a biophysicist. He came to understand the body as an energetic and electrical phenomenon much as did Fritz Albert Popp and Robert O. Becker, M.D., of whom we will read later.

Manaka considered the beginnings of human life in the womb, that we all start off as one celled creatures, an egg fertilized by a sperm. This one cell divides by mitosis into two cells which divide into four cells, then eight, then sixteen, 32, 64, 128, 256, 512, 1024, and so on. This early clump of cells assumes its own primitive system of organization, one that predates the creation of the nervous, circulatory, digestive, skeletal, reproductive, or muscular systems, and this clump is defined by the lines of cleavage between individual cells. We may think of these early lines of cleavage as

being the original extraordinary vessels of the acupuncture channel system. They provided modes of electrical communication between the cells, a primitive biological information network as it were.

This biological information network certainly predated the other systems of the body, and although it may have been primitive, that does not mean it disappeared altogether and no longer plays an important role in organizing and controlling biological functions. Think back to the discoveries of zoologists Tracy Sonneborn and Ruth Sager – **cells have memories and pass these memories on to subsequent generations.**

Memories of the initial pattern of cellular organization of each human being persist to this day. They may be forgotten to our conscious human minds, but they are not lost to the body's awareness. In his book **Anti-Chance**, Ernest Schoffeniels reinforces this view that people retain the biological information that was present in earlier stages of evolution:

“The content of a biological system increases in the course of development since it represents an integration of all the modifications which it has undergone and which it has imposed on the environment.”

With appropriate stimuli we therapists can access this information pattern to bring the body back into harmony.

In his remarkable book, **Chasing the Dragon's Tail**, Manaka puts it like this: The human body has a basic octahedral shape defined by the eight extraordinary vessels – the ren mai/du mai, the yin qiao mai/yang qiao mai, the yin wei mai/yang wei mai, the chong mai, and the dai mai. These extraordinary vessels form the inter-network through which biological information traverses the body. Importantly, they serve to balance the dynamic tension of our connective tissue, the fascia which envelops us from head to toe and which binds together all the other subsequently developed systems– among them the circulatory, nervous, respiratory, digestive, reproductive, and integumentary (skin) systems.

Each extraordinary vessel has a master point, and these master points control and instruct the extraordinary vessels to tighten or loosen the connective tissue in disparate regions of the body, which affects organ function among many other things. **In the biological information network, form does not follow function. Form controls function.** Think of these master points as function keys on a computer keyboard. Press on a point (key) or combination of points (keys) and all sorts of messages go whizzing around the biological information network - provoking what would otherwise be mysterious, miraculous healing responses.

Manaka called this biological information network the X-Signal System, and he considered it to be the basis of how acupuncture and moxibustion work. Here are his words:

“There is a primitive signal (information) system in the body that has embryological roots, but it is masked by the more advanced and complex control (regulation) systems. Thus, the original signal system is hard to find or see. This primitive system is able to detect and discriminate internal and external changes and plays a role in regulating the body by transmitting information. This system serves as the modus operandi of acupuncture.”

Manaka also observed:

*“We cannot explain it with neurophysiology because it manifests and is manipulated clinically **with minute stimuli** [emphasis added] or influences that cannot be clearly said to affect the nervous system....It manifests in and through certain acupoints that are topographically related, structurally, functionally, and biorhythmically.”*

Through years of trial and error clinical observations Manaka came to realize he could assess the balance of the extraordinary vessels as manifested in the connective tissue by palpating the abdomen, gastrocnemii, and select front mu and back shu points. For example, tenderness along the anterior sacro-iliac spine (ASIS) - especially on the left - indicates a dai mai imbalance. Subcostal tension - usually on the right - along with tenderness at CV17, PC1, SP21, and GB26 indicates a yin wei-chong mai imbalance.

Moreover, Manaka discovered that to communicate with the biological information system via the master points one had to whisper rather than shout. Deep needling which accessed the nervous system was ineffective. Strong stimulation didn't work. Anything that roused the nervous system into action drowned out the minute signals of the biological information network. The biological information system - which predates all the other systems of the body - apparently responds to very gentle, superficial stimuli. More aggressive stimulation overwhelms the fine, delicate pathways through which the biological information system operates.

Consider for a moment the function of trim tabs on huge ocean going ships such as aircraft carriers. These behemoths of the sea weigh more than 100,000 tons and require huge rudders to turn. However, running along the length of these huge rudders are relatively tiny trim tabs, micro rudders as it were, that turn the rudders which turn the ships. For the ship to turn, the trim tabs must first turn. The same holds true for the human body. By sending tiny signals through the extraordinary vessels and other points on the skin to the connective tissue (fascia) of the body, one can affect the entire structure and function of the body. That's the basis of Manaka's work.

It is beyond the scope of this course to explain fully Manaka's approach. One can gain a much fuller insight by reading **Hara Diagnosis: Reflections on the Sea** by Stephen Birch and Kiiko Matsumoto and **Chasing the Dragon's Tail** by Yoshio Manaka MD with Kazuko Itaya and Stephen Birch. That said, here is a simple summary.

There are four steps in Manaka's treatments.

- First is to employ abdominal and gastrocnemius palpation to diagnose and determine the imbalances present, and then one treats either the extraordinary vessel points of organ pair points with fine needles (36 gauge or finer) very shallowly inserted (3 mm. or less).
- Second step is to do moxa to the back shu points associated with the extraordinary vessel points of organ pair points used in Step One.
- Third step is to do *Sotai* exercises associated with the imbalances determined by palpation in Step One.
- Fourth Step is symptomatic treatment, and much of the Fourth Step involves the placement of intradermal needles.

The Fourth step will be the focus of our clinical discussion, but first we'll consider three other scientific observations that underpin clinical practice - from Reich, Oschman, and Becker.

Dr. Wilhelm Reich, M.D. and the Orgone

Dr. Wilhelm Reich, M.D. was a clinical psychiatrist, researcher, and contemporary of Sigmund Freud who was not content to simply accept Freud's notion of the id or sexual energy as some abstract concept. He wanted to find out what the actual energy was, and he set off on a lifelong quest to discover and study it. Reich called this life energy the orgone, and it is quite analogous to qi, ki, or prana. [For those interested in exploring Reich's work in greater depth, I recommend Ola Raknes' book **Wilhelm Reich and Orgonomy**]. Reich demonstrated scientifically that the orgone has several distinct properties, among them, these:

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- It is omnipresent, and it flows through the human body.
 - It is attracted to and stored in organic matter.
 - It is attracted to and then dispersed by inorganic matter.
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What is the import of Reich's observations of the orgone for the use of acupuncture needles? When we insert metal needles into the organic tissues of the human body where energy is stored, orgone energy or qi is attracted to the inorganic needle and then dispersed. Quite simply, this gets stuck energy moving. Since the Chinese character for pain depicts blood and energy stuck deep inside, it is thus easy to

understand why acupuncture works so well at relieving pain. It gets stuck energy moving. There are many other explanations for the pain relief in acupuncture - creation of endorphins, boosting of adenosine levels among others - but the simplest is perhaps the best. Acupuncture gets energy moving.

Another benefit of needling is that it reduces inflammation by employing/invoking the 2nd Law of Thermodynamics which states that energy in chaotic, isolated systems always evolves toward thermodynamic equilibrium, that is, the temperatures balance out. Energy in human cells is in an organized system, but when that energy reaches the stainless steel needle it enters a chaotic or disorganized system. It thus tends to equilibrate with the exterior environment, resulting in a decrease in temperature in the body, **unless** the needle is heated by moxibustion, in which instance the opposite occurs and heat goes from the needle to be dispersed into the body.

Without moxibustion, if the body is inflamed in a certain area, some of that excess heat will be drawn to the metal acupuncture needle and then dispersed into the atmosphere through the needle. For sure, the needle, which was room temperature before insertion, say 78* F, will become closer to the body's 98.6*+, and the needle will then tend to disperse that heat outside the body. Think of the acupuncture needles as heat sinks, which in electronic systems are passive heat exchangers that cool a device by dissipating heat into the surrounding medium.

James Oschman, Ph. D.'s Biophysical Basis of Acupuncture

James Oschman, Ph. D. observes in **Energy Medicine, the Scientific Basis** that the physical body is a liquid crystalline system, that movement strengthens this system, and that the physical liquid crystal interacts with and is the basis for the energetic system. For anyone interested in a really deep understanding of the mechanisms underlying the effectiveness of acupuncture, body work, and spiritual healing, please do read this landmark book and also another worthy text by him, **A Biophysical Basis for Acupuncture**. Oschman reveals how the yang qi flows through the fascia, and that the meridians or channels which traverse the fascia are actually semiconductor systems, a model which helps explain these hitherto unsolved regulatory problems:

- Growth, development, and maintenance of form
 - Circulation
 - Wound Healing
 - Regeneration
 - Whole systems disorders
-

He makes it clear in **A Biophysical Basis** that

“meridians are low resistance pathways to the flow of electricity”

and that this is but the tip of the iceberg when it comes to the important properties of the meridians. They really are electronic and photonic microprocessors which serve as

“distributed communication and energetic networks...The meridians may be channels for long distance physiological communications, and the acupuncture points may represent nodes in the system that are responsible for local distribution of signals arriving from other parts of the body, for inserting local news into the global network, for maintaining the strength and clarity of signals, for processing signals into decisions, and for powering those decisions into certain kinds of actions. Hence we might find at the acupoints switches, amplifiers, couplers, filters, gates, and even memory elements.”

Oschman goes on in his works to identify the very physical structures of the human body which comprise the meridian system and which do in fact contain the aforementioned electrical components. The connective tissue - as its name implies - connects every aspect of the human body, from the bottom of the feet to the top of the head in one continuous interwoven sheet. It is also interwoven with the cytoskeletons (perineural sheaths) that surround the entire nervous system. Just as the spine surrounds the spinal cord, each nerve is surrounded by a perineural [*peri* from the Greek word for around] cytoskeleton. In fact if one were somehow to remove every nerve from the human body, one could still see the entire shape of the nervous system in the structure of the perineural cytoskeletons.

This cytoskeleton is composed of microtubules and microfilaments which are key components. The following description of microfilaments and microtubules is from the following link to Diffen:

http://www.diffen.com/difference/Microfilaments_vs_Microtubules

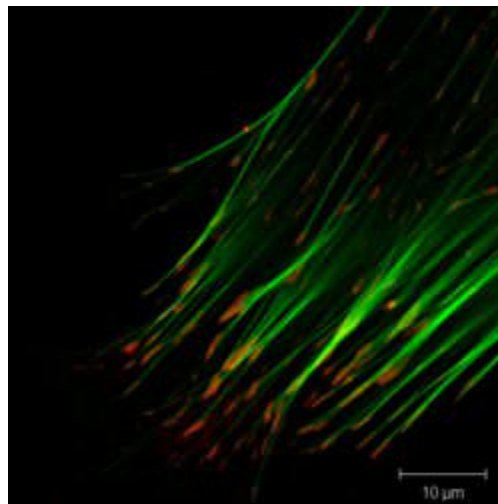
Yes, I know, it may be TMI (Too Much Information), but it will give you a clearer sense of what makes up the meridian system. Feel free to skip this and the following two pages if it's too much for you.

Microfilaments and **microtubules** are key components of the [cytoskeleton](#) in [eukaryotic cells](#). A cytoskeleton provides structure to the cell and connects to every part of the cell membrane and every organelle. Microtubules and microfilaments together allow the cell to hold its shape, and move itself and its organelles.

Comparison chart:

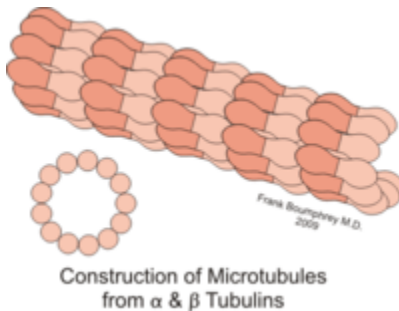
| | Microfilaments | Microtubules |
|--------------------|--|--|
| Structure | Double Helix | Helical lattice |
| Size | 7 nm in diameter | 20-25 nm in diameter |
| Composition | Predominantly composed of contractile protein called actin. | Composed of subunits of protein tubulin. These subunits are termed as alpha and beta. |
| Strength | Flexible and relatively strong. Resist buckling due to compressive forces and filament fracture by tensile forces. | Stiff and resist bending forces. |
| Function | Micro-filaments are smaller and thinner and mostly help cells move | Microtubules are shaped similarly but are larger, and help with cell functions such as mitosis and various cell transport functions. |

Contents: Microfilaments vs Microtubules



Fluorescence double staining of a fibroblast. Red: Vinculin; and Green: Actin, the individual subunit of microfilament.

Formation and Structure



Microtubules constructed from alpha and beta tubulin

Structure of Microtubules



Actin, the individual subunit of Microfilament

Microtubules are composed of globular proteins called tubulin. Tubulin molecules are bead like structures. They form heterodimers of alpha and beta tubulin. A protofilament is a linear row of tubulin dimers. 12-17 protofilaments associate laterally to form a regular helical lattice.

Formation of Microfilaments

Individual subunits of microfilaments are known as globular actin (G-actin). G-actin subunits assemble into long filamentous polymers called F-actin. Two parallel F-actin strands must rotate 166 degrees to layer correctly on top of each other to form the double helix structure of microfilaments. Microfilaments measure approximately 7 nm in diameter with a loop of the helix repeating every 37 nm.

Biological Role of Microtubules and Microfilaments

Functions of Microfilaments

- Microfilaments form the dynamic cytoskeleton, which gives structural support to cells and links the interior of the cell with the surroundings to convey information about the external environment.
- Microfilaments provide cell motility. e.g., Filopodia, Lamellipodia.

- During [mitosis](#), intracellular organelles are transported by motor proteins to the daughter cells along actin cables.
- In muscle cells, actin filaments are aligned and myosin proteins generate forces on the filaments to support muscle contraction.
- In non-muscle cells, actin filaments form a track system for cargo transport that is [powered](#) by non-conventional myosins such as myosin V and VI. Non-conventional myosins use the energy from ATP hydrolysis to transport cargo (such as vesicles and organelles) at rates much faster than [diffusion](#).

Functions of Microtubules

- Microtubules determine the cell structure.
- Microtubules form the spindle apparatus to divide the chromosome directly during cell division ([mitosis](#)).
- Microtubules provide transport mechanism for vesicles containing essential materials to the rest of the cell.
- They form a rigid internal core that is used by microtubule-associated motor proteins (MAPs) such as Kinesin and Dyenin to generate force and movement in motile structures such as [cilia and flagella](#). A core of microtubules in the neural growth cone and axon also imparts stability and drives neural navigation and guidance.

References

- [wikipedia:Microtubule](#)
- [wikipedia:Microfilament](#)
- http://www.biology.arizona.edu/cell_bio/tutorials/cytoskeleton/page1.html

Another important aspect of microtubules is that all the cells in the body can store information in them [Hameroff]. This helps explain why when therapists work on the soft tissues of the body they can release emotional memories and even odor emitting toxic materials that are stored in the microtubules.

Oschman describes the interconnected continuum of connective tissue and cytoskeleton matrices as

“simultaneously a mechanical and a vibrational and an informational network...[and that] the “energies” flowing through the living matrix are coherent acoustic, electrical, and electromagnetic in nature.”

Robert O.Becker, M.D. and the Body Electric

Like Oschman, Robert O.Becker, M.D. also considered acupuncture points to be “booster amplifiers” for communicating signals through the meridian system as well as microprocessors in the semiconductor or biological information network; but before we begin exploring Becker’s work, here's an obligatory rant about the travails of energetic medicine in the 20th century.

Robert Becker, M.D. was an orthopedic surgeon concerned about what led to bone healing after working with fractures that wouldn’t heal. He eventually invented to a prototype bone growth stimulator, variations of which are now in widespread use. Becker became interested in the phenomenon of limb regeneration in the salamander, a species almost unique in its ability to regrow limbs. Prior to his research, it was almost totally accepted dogma in medicine and biology that life was a predominantly - if not exclusively - biochemical process in which electricity or other forms of energy played little or no part. This dogma had been solidified in 1910 with the issuance of the Flexner Report, a U.S. Senate committee's pronouncement that life was biochemical and all forms of energetic and nutritional healing were charlatanism at best. Understandably, it was produced at the behest of the Carnegie Foundation and the Rockefeller petroleum and pharmaceutical interests.

This dogmatic aversion to contemplating the energetics of life persisted in 1963 as Dr. Robert Becker, M.D. attempted to gain funding and intellectual collaborators to launch his research. He writes in **The Body Electric**:

"The basic scientists at the State University of New York Upstate Medical Center, the medical school associated with the VA Hospital, were not only uninterested, they were horrified at what I was doing and wouldn't risk their reputations by associating with me in any way. So I walked across the street to the physics department of Syracuse University..."

What did Becker discover that was so unnerving to his medical colleagues? His experiments

"demonstrated unequivocally that there was a real electric current flowing along the salamander's foreleg, and it virtually proved that the current was semiconducting."

So what? - you ask. Here's what. Prior to 1941 it was thought that there were only two methods of conducting electric current. One was metallic, as in a cloud of electrons moving along a metal wire. This is how cities were powered, and everyone understood that. Since there were no metal wires within humans, doctors couldn't understand how electric currents could flow through humans.

The other method was ionic, in which electrical ions move in solutions. An example is how sodium chloride (NaCl) molecules dissolve when placed in water with an anode at one end of the tub and a cathode at the other. The positively charged sodium ions go to the negative pole and the negatively charged chloride ions move to the positive pole. Since ions are much larger than electrons, such ionic transfers are slow and can only transfer over short distances. No light bulb lighting there. Ions can transfer across a nerve fiber but certainly not down the whole length of a nerve. So despite the work of Galvani in the late 1700's showing that direct current indeed moved through the sciatic nerve of a frog to make its leg contract, doctors in the latter third of the twentieth century still could not accept the notion that electrons flowed in the human body precipitating biological responses!

From the 1930's to the 1960's Nobel Laureate Dr. Albert Szent-Gyorgi pioneered work in semi-conduction and its role in conducting small electrical currents efficiently and economically over long distances in the human body. Semi-conductors provide the basis for modern day solid state electronics which permit such marvels as the computer, satellite communication, and cell phones to exist; but what is a semi-conductor? Here I must borrow again from Dr. Becker and hope you'll comprehend his explanation:

Semi-conduction occurs only in materials having an orderly molecular structure, such as crystals, in which electrons can move easily from the electron cloud around one atomic nucleus to the cloud around another. The atoms in a crystal are arranged in near geometrical lattices, rather than the frozen jumble of ordinary solids. Some crystalline materials have spaces in the lattice where other atoms can fit. The atoms of these impurities may have more or fewer electrons than the atoms of the lattice material. Since the forces of the latticework structure hold the same number of electrons in place around each atom, the "extra" electrons of the impurity atoms are free to move through the lattice without being bound to any particular atom. If the impurity atoms have fewer electrons than the others, the "holes" in their electron clouds can be filled by electrons from other atoms, leaving holes elsewhere. A negative current, or N-type semi-conduction, amounts to the movement of excess electrons; a positive current, or P-type semi-conduction, is the movement of these holes, which can be thought of as positive charges."

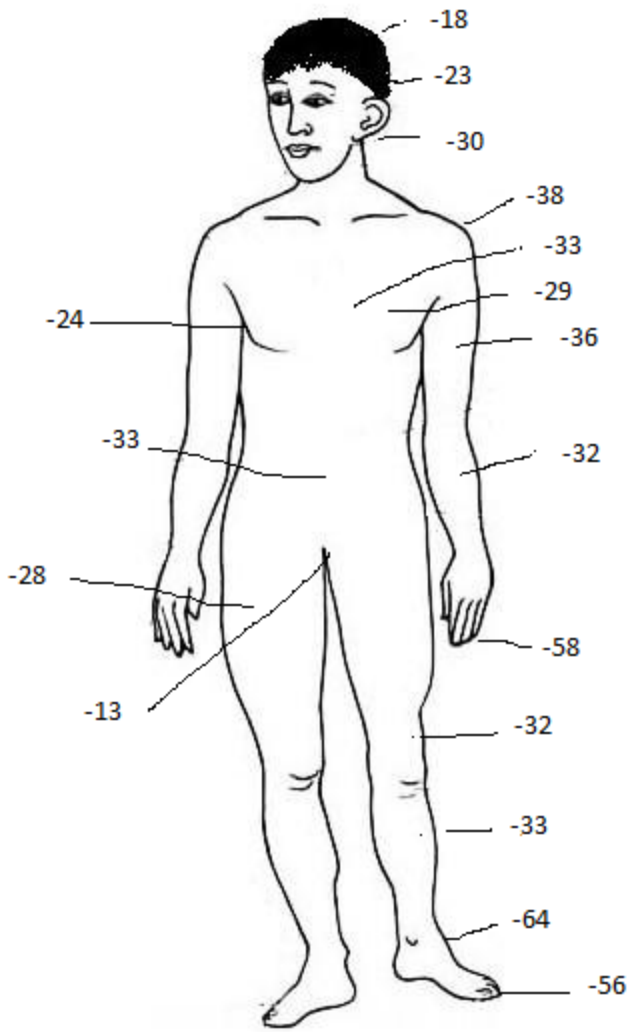
I crudely and somewhat inaccurately think of semi-conduction like this. Picture the ramp where balls return at a bowling alley. One ball rolls up, bumps the first ball in a line, and the last ball moves a bit. The energy from the first ball is transferred to the last. All the balls didn't have to move. In semi-conduction, electron A doesn't have to move along the entire length of a nerve. It just displaces electron B in a lattice which then displaces electron C until eventually electron Z reaches the end of the nerve. Szent-Gyorgi considered the molecules in living cells well organized enough to permit semi-

conduction, and Becker's experiments proved this to be so. Becker measured electron flows along salamander nerves, voltage drops and such, and concluded definitively that electrons did flow in living tissue by means of semi-conduction. This conclusion explains how acupuncture stimuli can travel so quickly in the human body, something not explainable by ionic or metallic mechanisms of conduction.

How are electrical charges distributed in animals? Salamanders have large positive potentials over each lobe of the brain and smaller positive potentials over the lumbar and brachial nerve plexuses between each pair of limbs. Potentials became increasingly negative the further away from the head and spine, and they became most negative at the tip of the tail, feet, and hands. Becker's performed electrical measurements on many creatures, from salamanders, frogs, and fish to humans and found similar distributions of electrical potentials - positive at the brain and lumbar and brachial plexuses, negative at the extremities.

Becker's work led me to create (inartfully) the following chart detailing the varying electrical potentials of the human body, a phenomenon which accounts in part for the effectiveness of ion pumping cords used in Manaka's biological information system treatments. Curiously, the California Board of Acupuncture (CAB) doesn't approve of ion pumping cords, saying there is no scientific proof of their efficacy. If only the CAB would read Becker's book - **the Body Electric** - or Manaka's tome - **Chasing the Dragon's Tail**. Both are replete with scientific evidence as to the efficacy of ion pumping cords.

Please note how the voltages are gradually positive toward the head, spinal cord, and center of the body and more negative toward the fingers and toes.



Transcutaneous
Voltages in a calm, conscious
human

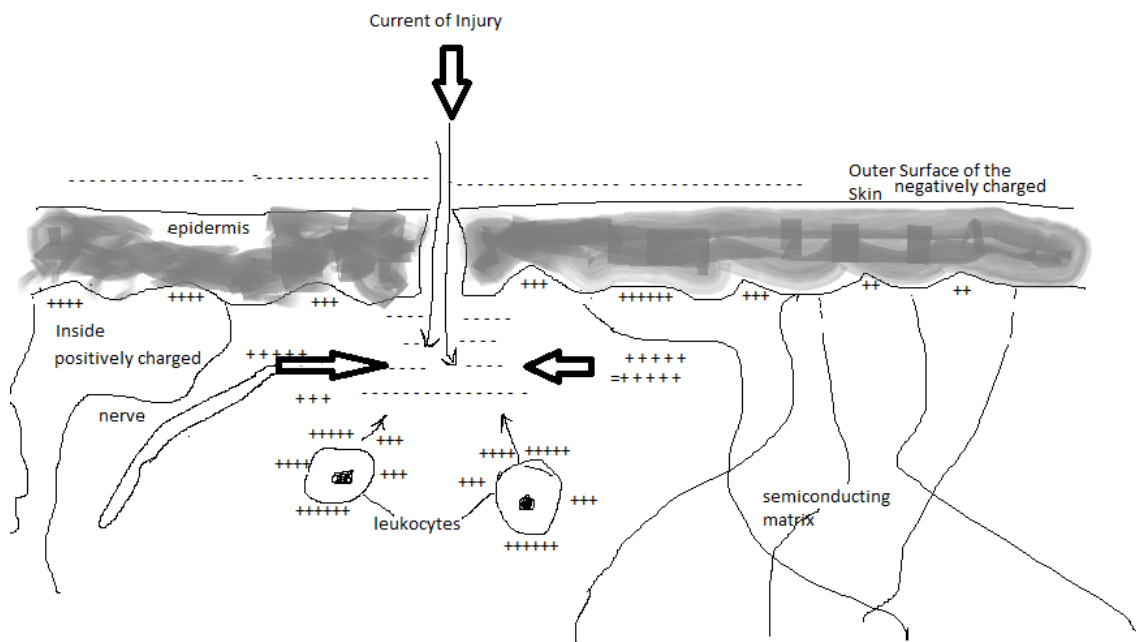
Becker also observed that the body is extremely sensitive to minute electrical fields - minute as in the order of half a billionth of an ampere (A).:

[That] "infinitesimal tickle of electricity, far less than anything a human could feel on the most sensitive tissue, such as the tongue...was enough to goose the cell into unlocking the genes for potential use."

Consider that most electric acupuncture stimulators operate at intensities in the milliamp range (or $1/1000^{\text{th}}$ of an ampere), and even microamp stimulators operate in the $1/1,000,000^{\text{th}}$ of an ampere range - which is still 5000 times stronger than the electrical

stimulus needed to promote a genetic response, such as in the salamander, to regrow limbs. One milliamp (mA) is barely perceptible to humans; 16 mA is the maximum current an average person can grasp of a live circuit and “let go”; 20 mA causes paralysis, especially of the respiratory muscles; 100 mA is the threshold for ventricular fibrillation; 2 A brings cardiac standstill and internal organ damage; and 15/20 A is the common amount needed to trip fuses and open circuit breakers in your home’s electrical system.

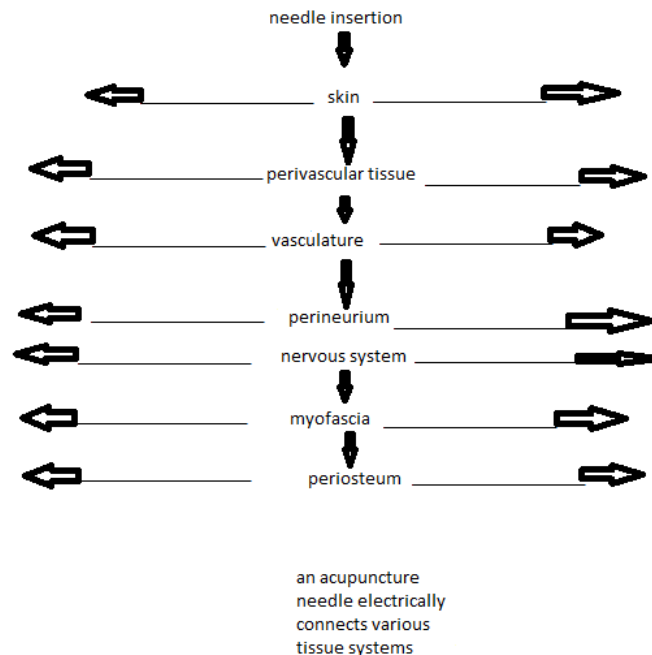
Consider also the following diagram of what happens electrically when the skin is pierced by a needle. Again, a negative charge exists when a body has a surplus of electrons. A positive charge exists where there is a deficiency of electrons. The surface of the skin has a negative (anionic) charge. Deeper under the skin the body tissues have a positive (cationic) charge. When a needle pierces the skin, negative ions flow into the underlying tissue which is populated by positive cations, creating a battery like effect. Electrons flow into the punctured area. Even a very tiny needle can produce this effect, creating what is called a current of injury, as depicted below:



Depending upon how deeply the needle is inserted, this current of injury can penetrate into many levels of the body, as illustrated in the next image. The current of injury can help promote healing at any level. However, one cannot access the body’s biological information network when one stimulates tissue below the skin level. Doing so involves the circulatory, nervous, myofascial, or skeletal systems and overwhelms the tiny currents which signal the biological information network. Remember, when using

intra-dermal needles, we intend to gain access to the body's biological information network.

Tissues affected by varying depths of needle insertion:



In 1972 Becker received a grant from the NIH to study acupuncture. He determined that acupuncture meridians were indeed electrical conductors flowing along perineural pathways, that is the cytoskeletons around nerves, and that the electricity conducted was a DC current measured in nanoamperes and microvolts with amplifiers (the acupuncture points) no more than a few inches apart. He envisioned:

“hundreds of little DC generators like stars sending their electricity along the meridians, an interior galaxy that the Chinese had somehow found and explored by trial and error..”

Along the meridians he found resistance to be less and electrical conductivity to be correspondingly more on all human subjects tested. Furthermore he found:

“Each point was positive compared to its environs, and each one had a field [of electrical conductivity] surrounding it with its own characteristic shape. [Ponder the implications of that!] We even found a fifteen-minute rhythm in the current strength at the points, superimposed on the circadian (“about a day”) rhythm we’d found a decade earlier in the overall DC system.” It was obvious by then that at least the major parts of the acupuncture charts had, as the jargon goes, “an objective basis to reality.” P.236

In his research Becker found that the direction in which a DC current flows over the body can be enormously important. From many experiments he determined that in salamanders as in humans there is a constant voltage gradient along the nerves of about 4 millivolts per centimeter,

“always gradually positive towards the spinal cord and negative towards the toes.”

However, in deep anaesthesia the voltage drop was very small or none at all. Becker came to learn that nerves were uniformly polarized, positive at the dendrite and negative at the axon (probably the reason why nerve impulses go in one direction only) and - again - that the electrical current in the nerves was semi-conducting in nature, not ionic or metallic.

In addition to discovering that direct current could stimulate wound healing and was especially effective healing broken bones, Becker learned that direct current had a dramatic effect on consciousness. Through direct measurements, he knew that when a salamander was awake there was a flow of electrons from the back of its head to the front, along what we acupuncturists understand to be the governing vessel. He then tried an experiment running a tiny amount of current from the front of the salamander's head to back. This cancelled out the forward flow of current and rendered the reptile unconscious and anaesthetized!

Subsequently Becker realized that chemical anaesthesia produced the same effect, rendering the flow of current from back to front near zero. This was the mechanism of action for chemical anaesthesia. It stopped the forward flow of electrons in the brain. (No wonder acupuncturists in the 1960's were able to create dramatic analgesic effects, using acupuncture to affect the flow of qi through the channels). Becker then tried running 1 cycle per second (1 Hz) current from back to front on a chemically anaesthetized salamander to revive it. That worked, but only partly, as the salamander was still groggy and unable to scamper off.

Becker achieved the most dramatic and promising anaesthetic effect by placing the midline of a salamander's brain in a high magnetic field - 3,000 gauss - which harnessed the Hall effect to create an electric current perpendicular to the magnetic field. The direction of current induced by the magnetic field was opposite to the normal flow of electrons along the governing vessel, and the salamander became deeply anaesthetized. electroencephalogram (EEG) testing revealed that this reversed current created a brain wave pattern consisting entirely of Delta waves, those brain waves that are found in states of deep rest and/or near death. By decreasing the magnetic field, Becker thereafter fully revived the salamander in seconds, with none of the groggy side

effects that accompanied chemical anaesthesia, and the reptile's brain wave patterns returned to those of normal Beta waves.

Becker followed up with experiments on humans and confirmed that direction of energy flow does have a profound effect on consciousness. When humans were mentally or physically most active, the variation in electrical current flowing forward from Governing Vessel 16 to Governing Vessel 24 was most pronounced. When at rest, the variation decreased, and

“...it reversed direction in both normal sleep and anaesthesia. This knowledge...taught us much about how hypnosis and pain perception work.”

From Becker's work we now know that changes in the direction of electrical flow are accompanied by changes in brain wave activity. The following chart is instructive as to the states of consciousness associated with different brain waves:

<http://www.transparentcorp.com/products/np/brainwaves.php>

| Wave | Frequency | Associated Mental State |
|-------|--------------|---|
| Gamma | 27 Hz and up | Gamma is associated with the formation of ideas, language and memory processing, and various types of learning. ^{2 3 4} Gamma waves have been shown to disappear during deep sleep induced by anesthesia, but return with the transition back to a wakeful state. ^{5 6} |
| Beta | 12hz - 27hz | Wide awake. This is generally the mental state most people are in during the day and most of their waking lives. Usually, this state in itself is uneventful, but don't underestimate its importance. Many people lack sufficient beta activity, which can cause mental or emotional disorders such as depression and ADD. ^{7 8} and insomnia. And low SMR production (a sub-range of beta at 12-15hz) may be related to insomnia. ⁹ Stimulating beta activity can improve emotional stability, energy levels, attentiveness and concentration. ^{10 11 12} |
| Alpha | 8hz - 12hz | Awake but relaxed and not processing much information. When you get up in the morning and just before sleep, you are naturally in this state. When you close your eyes your brain automatically starts producing more alpha waves. Many studies monitoring the EEG activity of experienced meditators have revealed strong increases in alpha activity. ¹³ Alpha activity has also been connected to the ability to recall memories, lessened discomfort and pain, and reductions in stress and anxiety. ^{14 15 16 17} |
| Theta | 3hz - 8hz | Light sleep or extreme relaxation. |

Take the Test

| | | |
|-------|-------------|---|
| | | Theta is also a very receptive mental state that has proven useful for hypnotherapy, as well as self-hypnosis using recorded affirmations and suggestions. ^{18 19} |
| Delta | 0.2hz - 3hz | Deep, dreamless sleep. Delta is the slowest band of brainwaves. When your dominant brainwave is delta, your body is healing itself and "resetting" its internal clocks. ²⁰ You do not dream in this state and are completely unconscious |

The following link discusses the dramatic effectiveness in treating those suffering from drug addiction and alcoholism by providing biofeedback to alter brain wave patterns.

http://www.eeginfo.com/research/addiction_main.php

Becker's research prompts the question, "What is the most profound effect of psychoactive or psychotropic drugs?" Most likely they affect the flow of electrical energy along the governing vessel and others to modify brain wave patterns. I'd bet that given their obvious effects on wakefulness drugs like caffeine spur the flow of electrons forward on the GV channel, whereas opiates probably stem or reverse that flow. Biofeedback can correct the resultant distortions in brainwave patterns. Surely acupuncture can too, which explains the remarkable effectiveness of the electro-auricular therapies described in Terry Oleson's **Auriculartherapy Manual** and Deke Kendall's **Dao of Chinese Medicine**, the latter explained in my course **How to Use E-Stim with Acupuncture & Why it Works**.

Becker and Manaka emphasized that very small amounts of electricity - minute - were needed to produce profound effects on human consciousness and health. These amounts of electricity are in the order of magnitude present in the current of injury provoked by inserting tiny acupuncture needles such as intradermals. We also have the tools to conduct our own experiments using DC stimulators at 1 and 3 Hz on the Governing Vessel of patients, placing the negative pole and positive pole appropriately. Note well that most acupuncture stimulators operate as alternating current devices and thus do not allow for current to be sent in one direction only.

Vectors and Direction of Intradermal Placement

Without electrical stimulators, we can produce profound results using those tiny currents of injury produced by intradermals placed in proper directions. Becker showed us that direction of current has significant effects. Manaka concurred, emphatically. His empirical studies determined that besides needle gauge (36 mm or finer is preferable) and depth of insertion (3 mm or less is preferable), direction of placement - or vectoring

- of the needle is another important criteria involved in proper use of intradermals.
Manaka says that for intradermal use, direction of needling is essential.

The attributes of a vector are power and direction. Indeed, the vector of the acupuncture needle is so important that one can achieve clinical effects without even inserting the needle but just by placing it over the body in the correct direction **AND** by exerting proper intention. This may sound to be quite woo woo, but Makaka conducted numerous experiments to quantify and ascertain this effect. The blind Toyohari practitioners of Japan have taken this precept of healing with proper direction and intention to a whole new level and get extraordinary clinical results. Instead of piercing the skin with needles, they channel their healing intention and the flow of their qi through needles with which they the skin with 1 to 5 mm and merely aim at the acupuncture points in the intended direction of energy flow. These Toyohari masters need not actually insert needles to get positive results with their patients.

Understanding the simple mathematics and physics of vectors is quite important when using intradermals. From his years of work Manaka concluded the following:

1. "One of the functions in acupuncture is vector related."
2. "Acupuncture needles can interfere with each other."
3. "The combined function of two needles follows the rules of vector analysis. This is especially clear when the two needles are applied to the same point on the body surface, where a vector product is established."

What are the simple mathematics and physics of vector analysis? Again, Manaka made the following observation related to needles - intradermal or larger - placed close to each other (3 mm or so apart)::

1. "In general vector analysis, two parallel vectors lose power." Thus, placing needles like this attenuates their effect:

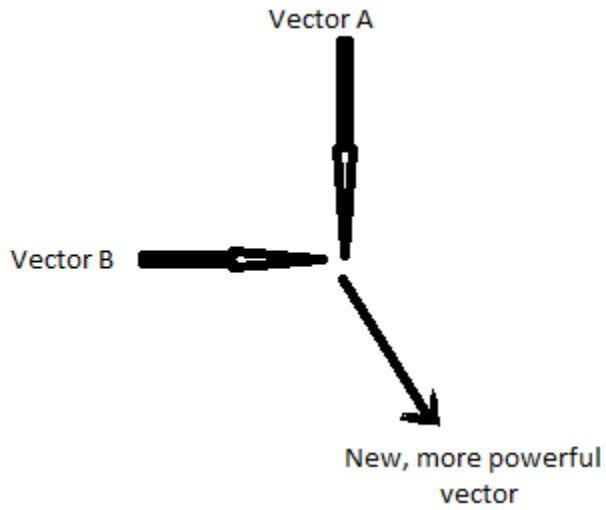
Why do this in clinical practice? Avoid doing this.



2 parallel vectors lose
power

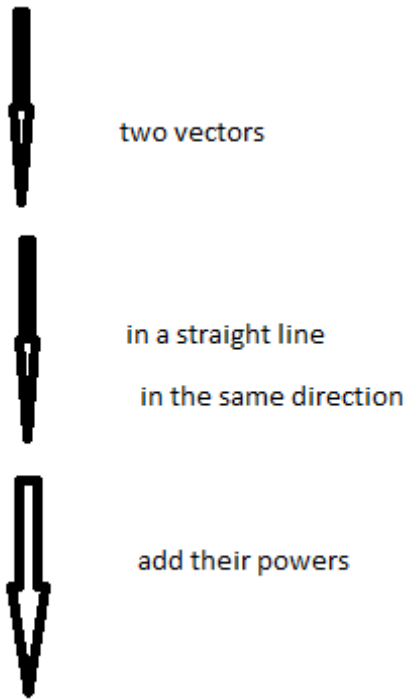
Take the Test

2. "Two incident vectors gain power at an angle to the original vectors."



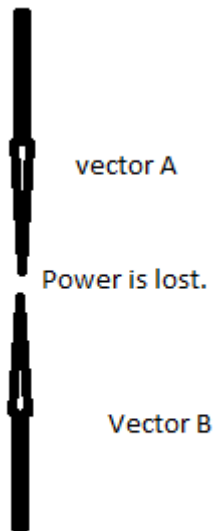
Thus, one can direct and empower the effect of the needles with proper angling.

3. "Two vectors on a straight line in the same direction add their powers."



This simple law of vector math/physics can be employed to great clinical effect.

4. "Two vectors arranged against each other on a line lose power."



Don't do this!

Take the Test

Wound Healing - a Summary

When we stick needles (large or small) in patients, we create wounds. The body has elaborate mechanisms for healing wounds, not the least of which are electrical and semi-conductor electrical stimuli of embryological origin that predate the nervous and circulatory systems. These electrical stimuli initiate other responses, such as moving cells to close the wound and inflaming tissue to block off blood flow and conserve blood loss. This current of injury can prompt growth of new nerves and blood vessels and activate migration of various types of cells such as fibroblasts, leukocytes, and epidermals.

Moreover, since the cytoskeletons of all the body's cells are linked via their microtubules and microfilaments by tonofilaments to the body's entire connective tissue network, the effects of wounds, minor and major, can be felt through the entire body, especially since the acupuncture energetic system works through the connective tissue or fascia, whose pathways of reduced electrical resistance correspond precisely with channels.

Oschman relates that researcher Lyken said in 1971 that the electrical properties around the wound stay much the same for 3-4 days after injury and may not return to pre-injury state for 1-2 weeks. These facts allow us to understand the long lasting effect of our simple acupuncture treatments. If the stimuli we provide are small enough, the body's biological information network can come into play, mobilizing all the synergistic resources of the acupuncture energetic system to inform the body how to heal itself.

Practical Considerations

“The shaft of the Go Shin (filiform needle) is extremely thin like that of a mosquito's proboscis. It is inserted gently, with calmness of spirit. It should be inserted shallowly and retained in the skin for some time to nourish Zhen Qi. It is used to treat painful Bi Syndrome.”

- Chi Bo in the Huangdi Neijing

The most well known uses for intradermal needles are with ear acupuncture and Korean hand acupuncture. Both work well with 3 mm needles, and proper taping allows the needles to stay in place for up to a week, acting as continuous sources of currents of injury and thus treatment. These topics are covered adequately by many other CEU courses and won't be covered here. Less known is the use of intradermals on the body, which can magnify the efficacy of intradermals used on the ear and/or hand. Body intradermals also have good results when simply used on their own.

Regardless of which approach one uses - ear, hand, or body or in combination, there are common taping guidelines to follow. I greatly prefer the Japanese style Seirin

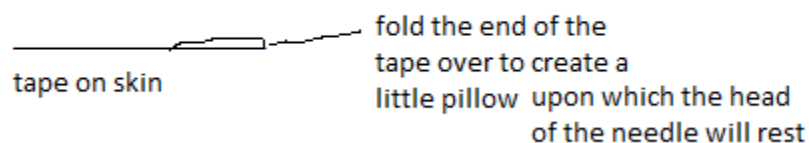
Spinex 3 mm, 4 mm, and 6 mm needles. They are long, straight, and easy to tape over and under. The round press needles made in China and Japan are problematic in a few ways.

- They can pierce deeper than the straight Seirin needles and touch the nerves, causing pain and interfering with access to the biological information network..
- It is virtually impossible to tape underneath them in a hygienic manner. Thus the only option is to tape over them. Sometimes this outer layer of tape comes off, leaving the needle in place. This leads to the third problem:
- When placed on the ear, round press needles without any tape or adequate tape on them CAN FALL INTO THE EAR CANAL. This happened to one of my patients in 1989 and could have been a catastrophe, both for her and for me. Fortunately she was a surgical nurse in the local hospital, and her physician found the press needle with an otoscope and removed it. Don't ask me how.

The round press needles are less problematic when used on the body. Their use depends on whether or not you want to access the biological information network or directly provoke a healing response via the other, more recently developed systems of the body such as the nervous, circulatory, and hormonal systems.

Before inserting straight intradermals, whether they are 3, 4, or 6 mm in length,

1. first wipe well with alcohol the area to be needled. This makes it easier for the paper tape to stick and stay on. I prefer Curad tape. The Johnson & Johnson tape just doesn't adhere properly.
2. lay down a small strip of water resistant paper tape that ends just before the spot where you want to insert the needle. Fold it over at the end. This will act as a pillow for the head of the needle.



3. Then insert the needle obliquely, just slightly pointed under the skin, almost parallel with it, with the head of the intradermal resting on the pillow.
4. Thereafter place another piece of tape over both the entire needle and the original piece of tape. This will keep the needle safely in place, immobile, and allow for its swift and painless extraction by pulling the tape from its base toward the round head of the needle.

Taping below and above the intradermal needle also greatly minimizes the chance that it will fall into the ear canal, something every practitioner wants to avoid. Trust me.

Further Considerations on Needling the Body with Intradermals

A. Besides needle gauge, depth of insertion, direction of insertion, vector and taping considerations, one must also pay respect to body mechanics, avoiding muscle tissue so that the patient's movements do not put the needle in positions to jab him/her. Take for example Lung 5. It can be useful to treat this point when a patient suffers from symptoms of lung excess, and one might think to point the needle toward the wrist with the flow of the channel - or even up the arm against the flow of the channel to dissipate energy. However, upon flexion either way could result in the needle going deeper into muscle at the inner crease of the elbow, something to avoid. In general, at the joints, insert the intradermal parallel with the crease. Use shorter 3 mm needles in areas where there is likely to be more movement. One can use longer 6 mm needles in body areas where there is much less chance of movement.

B. The fewer intradermals used the better.

C. Ask your patients to remove other metal piercings while doing the intradermal treatment. They confuse the biological information network by sending conflicting signals.

D. Don't place intradermals on patients who are

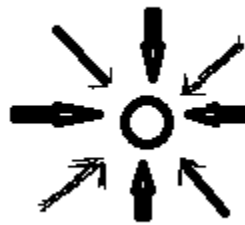
- suffering from infectious diseases such as Hepatitis C or HIV/AIDS
- overly sensitive to needles
- unwilling to or unable to follow directions about when to remove the intradermal needles. That said, I once treated a dentist's wife who had suffered for a long time from severe migraines. I'd found pronounced tenderness at left-sided GB 21, GB 20, and UB11 and needled those points with intradermals. She and her husband then went to North Carolina for an extended stay. Upon her return half a year later, she was thrilled to report that her headaches had been long gone. However, I was more than dismayed to find the 3 mm's still in place! Her husband had been taping over them as the tape got frayed. They'd worked so well, she was afraid to take them out for fear her migraines would return. Fortunately, there were no infections.

Case Studies and Clinical Pearls

Acute Myopia - Palpate extra point *yu yao* in the middle of the eyebrow and GB-14. Insert intradermals at the most tender of these points as well as UB 32.

After Stroke or for Depressive Tendencies - This is a special auricular intradermal treatment used by Japan's Dr. Itaya: *shen men* on the right and brain point on the left - which is just closer to the head on the ear than the brain stem point.

Boosting Energy - One of my favorite uses of regular sized 1/2" or 1" 36 gauge needles is when a patient has low energy and is in need of a boost. By inserting eight needles at 45 degree angles pointing at the umbilicus and an inch or less away, I create a funnel for qi to enter the body. Afterwards I can also tape 3 mm needles in place in a similar pattern, although with a more oblique angle of insertion, with good results.



Needle placements

Please note: To avoid cancelling out their effects, the needles are far enough away and pointed slightly downward

This treatment makes me seriously wonder what navel piercings do to the energetics of a person.

Bursitis, Shoulder - You can ascertain the location of an inflamed shoulder bursa by palpating the area usually along the upper large intestine channel. It'll be a hard nodule, and the patient will wince when you find it. Insert an intradermal there, with the flow of the channel. Also palpate UB 27. If the area is puffy there or if the skin feels irregular, place intradermals bilaterally. Intradermals definitely help with bursitis.

Bursitis, Trochanteric - Like a shoulder bursitis, you can ascertain the location of an inflamed trochanteric or hip bursa by palpating the area lateral to the hip. Again, it'll be a hard nodule, and the patient will wince when you find it. Insert an intradermal there,

most likely along the gall bladder channel near BB 29, pointed down the leg. Intradermals definitely help with bursitis.

Carpal Tunnel Syndrome - Intradermal needles inserted at Pericardium 6 pointed distally or at Pericardium 7 parallel with the wrist crease can be somewhat helpful. Danny Hom's treatment with neodymium alloy magnets and ion pumping cords works especially well for carpal tunnel. You can reach him at 58 Stamford St, Fall River, MA 02720; **Phone:**(508) 672-7129. Margaret Naeser's success treating carpal tunnel with laser therapy is also extraordinary. This link explains more: <http://www.acupuncture.com/education/theory/laseracu.htm>

Contusions - These represent local blood stagnation subsequent to a trauma, and if not resolved they can lead to liver problems. Palpate the periphery of the bruise and find the most tender spots. Place intradermals toward the bruise. Several may be needed for a large bruise. The intradermals will help clear the contusion. It can also be helpful to recommend laxatives to get both bowels moving and subsequently blood moving through the liver. Manaka reports that the laxatives increase

“hepatic portal vein pressure, which flushes out the liver.”

Dupuytren's Contractures - Trigger Fingers - The palm is a sensitive place to insert a 3 mm needle, and it is difficult to tape it in place there. I've had better results advising patients to take quercetin and bromelain instead. This reduces the scar tissue that builds up around the tendon sheath which grabs onto the tendon, causing the trigger finger. Also, statin drugs have been implicated in the formation of dupuytren's contractures. There are many reasons to avoid them. One is that statins block production of Co-enzyme Q-10 in the body, an enzyme vital for transporting oxygen into muscle tissue. If your patients are taking statins, advise them also to take Co-Q-10.

Headaches - Do gua sha massage on the neck and shoulders. On a subsequent visit, place intradermals at ah si points of the neck and shoulders

Insomnia - Becker's observed that electric current flows from GV 16 to GBV 24 when awake and not so much when sleepy. This recommends the use of intradermals along the GV line pointed toward GV 16 for insomnia. However, unless the patient is bald, taping is a problem. Of course, you'd want to do this towards the end of the day and advise patients to remove the needles come morning. You can also mimic Becker's treatment by using a DC microcurrent stimulator set at low microamperage levels with the negative pad at GV 25 and the positive at GV 16. Another approach is to have your patient stroke the scalp from GV24 to GV16 for a couple of minutes before bed.

Liver Problems - Palpate one inch below the middle of the popliteal crease. If tender, insert an intradermal there.

Lower Back Pain - Between the fifth lumbar vertebra and the first sacral vertebra is an extra point, *josen*. Placing an intradermal here often helps. Conversely, needling GV 26 helps get any stuck energy in the Du channel moving as well; however most patients don't/won't want to wear an intradermal taped to the philtrum under their nose. You can increase efficacy of intradermal treatment for back pain by also treating the corresponding back points on the ear and hand with intradermals.

More Lower Back Pain - Besides using the protocol mentioned above, I've had eye opening results using a variation of Manaka's pumping cord technique. A 75 year old woman, Patient A, presented to me with severe lower back pain. Her husband had been President of a very elite Fortune 500 company, and she could afford any type of therapy. She'd been to everybody before turning to acupuncture, and frankly I was intimidated by her x-rays. I'd never before seen as much disc degeneration, spurring, and subluxation on a patient. I did my standard acupuncture treatments on her with no results. Acupuncture alone. Acupuncture with e-stim. Gua sha massage. Ear acupuncture. Ear acupuncture with e-stim. Plasters locally. Nothing helped, and after three visits with no improvement she was quite surly and in no mood for further treatment failures. I did persuade her to return for one more visit, at which time - at wit's end - I did the following. Thinking that her blood and energy were stuck along the Governing Vessel and Urinary Bladder channels, I needled very superficially (3 mm insertion) UB 23 and UB 60 bilaterally and GV 3 and GV 14. I then attached the black ends of ion pumping cords to UB 23 and GV3 and the red ends to UB 60 and GV 14 respectively and left them in place for 20 minutes. I was trying to promote energetic flow along these channels in hopes something miraculous would happen. It did. At the end of the session she was totally free of pain. Her subluxations were still there as were her disc herniations and spine spurs, but the pain was gone. I put some intradermals in place for good measure. Now almost 90, she still visits me occasionally for a tuneup, though mostly just to treat arthritic knee pain.

I had a similar experience with a woman in her fifties, Patient B, who had suffered from a severe auto accident years before. She presented wearing a hard plastic brace from her hips to her neck encasing her front and back. Her spine had been so damaged that she couldn't tolerate moving around without the brace. My conventional acupuncture treatments did not bring her any relief, although gua sha massage did help somewhat. Thinking back to Patient A, I did the same treatment to Patient B, and it worked again, miraculously. The lesson to be learned from these cases is that very superficial needling which only accesses the biological information network, coupled with ion pumping

cords, can have profound therapeutic effects. Because of her brace, I didn't use intradermals on her.

Muscle soreness - In her article on intradermals in the July, 2012 issue of *Acupuncture Today*, Hideko Palmer cites a study done at the Tokyo Therapeutic Institute to treat 149 triathlon athletes for muscle soreness. Needles and sham needles were inserted before the race and removed right after. Both groups - those treated with real needles and those treated with placebos - reported less muscle soreness after the race by the next day, but those treated with the real needles had less post-race soreness. The physicians conducting the study hypothesized that the real needles had speeded up the elimination of lactic acid from the athletes.

In another study cited by Palmer, press tacks were used on ah si points to treat shoulder stiffness on 28 patients. Four needles maximum were used on patients for three days. Twenty-five patients were treated with sham needles. The results? 57% of the patients treated with real press needles felt no shoulder stiffness after 3 days versus only 8% from the sham needle group. Those who did not respond to the real needles were found to have more serious issues such as osteoarthritis.

Dr. Furuya who conducted the study then proposed another clinical protocol for those more seriously afflicted. He treated 11 patients first with conventional acupuncture and moxibustion and then with the three press needle technique: one was suffering from cervical spondylosis, one had thoracic outlet syndrome, and one had a herniated cervical disc. The conventional acu-moxa therapy reduced their shoulder stiffness by 60%. The follow-up 3 press needle technique reduced their stiffness another 15%.

Neck pain - A few intradermals placed along the upper UB channel on the neck or at Triple Warmer 15, Gall Bladder 20 or GB 21 can help a lot. However, neck pain is often associated with sha, and I usually do gua sha massage as a first approach to relieving neck pain. This precludes using intradermals since the skin is often too oily thereafter for the tape to stick. I'll wait to insert the intradermals on a visit when I've not done gua sha.

Pimples, Cysts, and Benign Tumors - Palpate around the edges; find the most tender spots; insert intradermal pointed toward the pimple, cyst, or benign tumor; and then heat the intradermal with a stick of indirect moxa. I prefer the Hand Power -1 tiger warmer moxa sticks. They're dry and won't explode onto the patient as some smokeless varieties can. And do!

Psychic Abilities - In their 1968 book **Psychic Discoveries Behind the Iron Curtain**, authors Lynn Schroeder and Sheila Ostrander reported that Russian researchers said they could enhance psychic abilities by stimulating a point near or at Large Intestine 14. This might be an interesting experiment to try with an intradermal.

Scars - Palpate them and needle along the edges at the most reactive points.

Sciatica - You first need to diagnose if the sciatic pain is coming from a disc pressing against a nerve alongside the spine or if it is just from the gluteus maximus or piriformis being in spasm. Palpation in these three areas usually reveals one or more tender, painful spots. Treat these with 3 mm intradermals or longer, pointed in the direction of the channel.

Scoliosis - I've treated one 16 year old girl who had mild but significant scoliosis on the right side, especially by Thoracic 15, Lumbar 1 and Lumbar 2. She was a championship swimmer who swam a couple of miles a day. The fascia along the right side was tighter than the left, and I surmised that doing gua sha would reveal some stuck blood. It did. After assiduously cleaning the area with alcohol so that tape would stick, I inserted a string of 3 mm's along her Urinary Bladder channel pointing upward, in a counterflow direction, with this principle in mind: "Two vectors on a straight line in the same direction add their powers." My thinking was such needling would weaken the flow of qi in that channel and hence relax the connective tissue. It worked, and her scoliosis disappeared almost totally.

Shingles/Herpes Zoster Outbreaks - Placing intradermals right on the lesions has a marked palliative effect for the pain of herpes zoster outbreaks. However, a more fundamental approach is also to do indirect moxa at the associated nerve root by the spine. The virus lives there and goes dormant when exposed to the heat of moxa. You can dramatically mitigate shingles outbreaks on both the back and face by treating the appropriate hua tou jia ji points alongside the spine with indirect moxa. One patient for whom this worked exceedingly well (within 12 hours!) had given \$326 million away to charities, including tens of millions to hospitals. Unfortunately he did not think to give me other than my normal fee.

Shoulder Pain - Find the most afflicted channel on the shoulder and then find the most sensitive point on that channel. Insert an intradermal there.

Speech Difficulties Following Trauma - Place intradermals at PC6 and ST 40

Urinary Incontinence - Older women seem to get this problem a great deal. Customarily I get excellent results just by doing indirect moxa to UB 67, UB 23, and ming men (GV 4). Placing an intradermal at GV 4 also helps, as does recommending Bei Xie Fen Qing Yin which is for deficiency cold kidney patterns (but not damp heat or infections). It warms the kidneys and dispels turbidity and damp. Recently I had an 18 year old woman present for care with interstitial cystitis and a severe deficiency cold kidney pattern. She reacted badly to the Bei Xie Feng Qing Yin but responded very well to the indirect moxa therapy and a 3mm placed horizontally at GV 4. Manaka also found that taping a 4 mm ball of moxa on a point can have an effect similar to burning moxa. I'll be trying this someday when the opportunity presents.

Weight Loss - In a subsequent course I'll be citing peer reviewed research which affirms the efficacy of needling Stomach 36 and Spleen 6 to lose weight, eliminate damp, and lower cholesterol levels. It makes sense to place intradermals here in the direction of the channel's flow.

Wind Cold Invasion - When patients suffer from aversion to wind/cold with symptoms of stiff neck and shoulders, place an intradermal needle at UB 13.