



Complementary
Medicine

Practice of Acupuncture

Point Location—Treatment Options—TCM Basics

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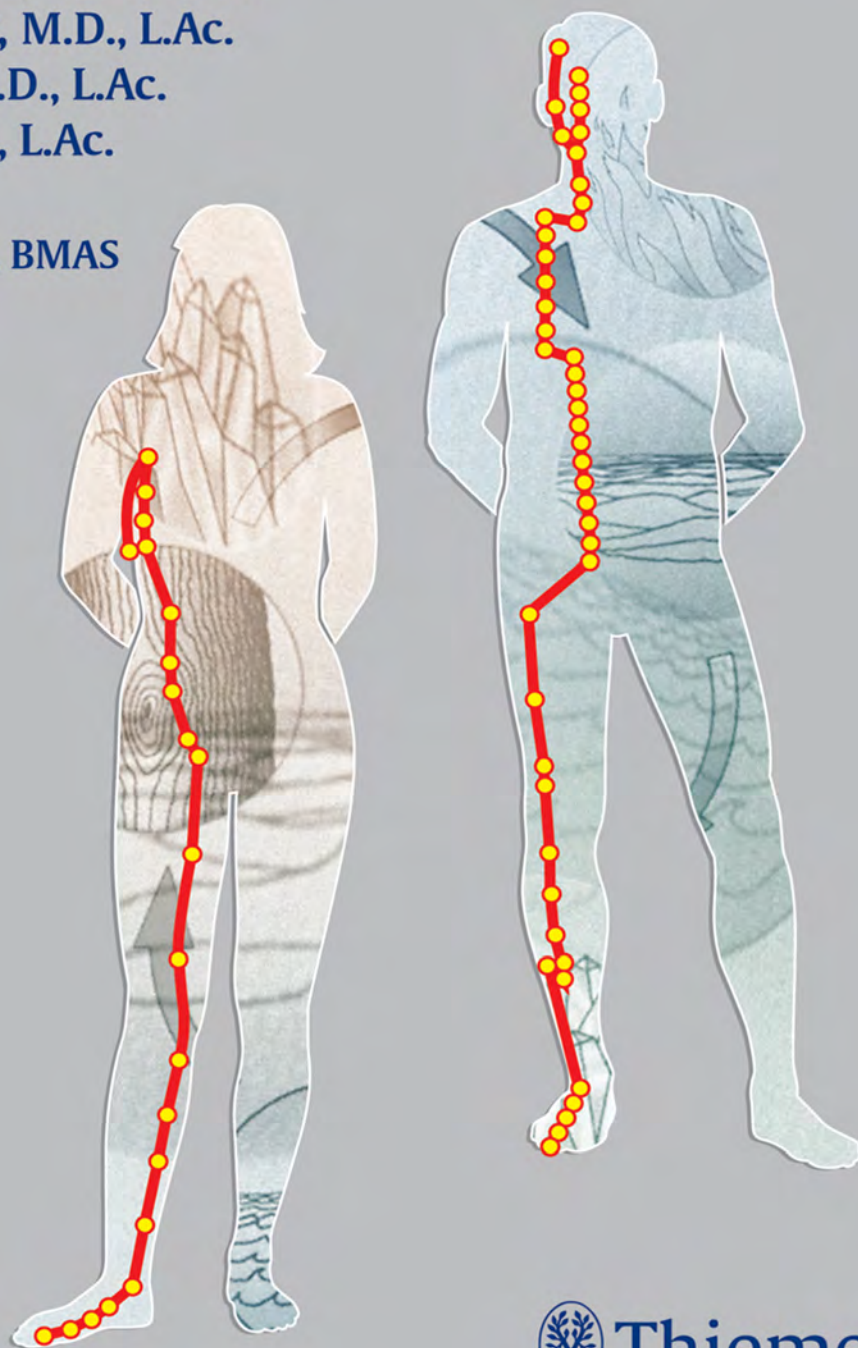
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Practice of Acupuncture

Point Location – Techniques – Treatment Options

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To our children:

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Foreword

The safe and competent practice of acupuncture requires of practitioners that they follow several principles. First and foremost, they should either make, or seek from a suitably qualified practitioner, an orthodox medical diagnosis prior to the application of acupuncture since symptomatic relief from acupuncture may delay the diagnosis of serious disease. Secondly, an appropriate risk–benefit assessment regarding the use of acupuncture should be made in partnership with the individual consenting to treatment. This text includes a comprehensive section on the potential adverse events related to acupuncture, including comments on indirect risk.

Thirdly, the practitioner should use appropriate procedures to minimize the risk of transmission of infections that may result from the application of acupuncture and related techniques. Finally, the practitioner should apply acupuncture, and its related techniques, with due care of anatomy so as to minimize the potential for traumatic adverse events. This text includes anatomical details for all the channel and extra points, and describes where necessary potential adverse events related to individual points. Surprisingly, this is one of the few texts that specifically comments on anatomical hazards, and for that reason alone it can be highly commended.

As well as following these principles, competent practice requires the practitioner to follow a consistent and evidence-based model, so that audit and research of practice can inform application of, and modifications to, the model. Across the globe there are numerous different models or styles of practice within the field of acupuncture. Most styles include, to a greater or lesser extent, elements of Traditional Chinese Medicine (TCM). In several Western countries these elements of traditional acupuncture have been selected and modified to fit a cultural niche and a perceived need. In the UK, the majority of health professionals use a Western approach that retains only the most useful clas-

sical points (although some have even dispensed with the notion of points) and principally selects sites for treatment based on segmental innervation or the presence of myofascial trigger points. This may be because of science, iconoclasm, or the time pressures of the National Health System. But whatever one's particular approach to therapy, it is often useful to have a reference text that illuminates some of the rather esoteric links made between the soma and bodily functions in TCM. This text includes a considerable element of such links, both within the main section on specific acupuncture point location and anatomy as well as in a separate section. There are many books describing TCM theory, and they are often rather impenetrable to the uninitiated reader. The relevant section in this text is remarkably easy to dip into by virtue of the many graphical illustrations, diagrams, and charts. It is so visually appealing that it may even encourage strictly orthodox characters like myself to occasionally browse through some traditional concepts.

The authors are to be congratulated on producing a very comprehensive text that will be useful to the vast majority of acupuncture practitioners, whatever their particular models of practice.

Fall 2004, London

Mike Cummings

Preface

This practical tutorial is a multi-functional book.

The authors, who have been involved in acupuncture training for many years and who are aware of the difficulties of conveying the material, have put their international teaching experience into practice here.

Besides detailed representation of all the body acupuncture points, the reader will find a tutorial for the most important points that, for the first time, provides universal point localization on an appropriate anatomical structure. This is not an end in itself but serves as a fast and reliable aid to orientation for the beginner as well as the advanced student.

This localization of acupuncture points is more reliable and precise than localization according to the relative Cun measures. Investigatory methods taken from chiropractic therapy, which facilitate the search for acupuncture points, have been taken into consideration and supplement the descriptions.

A further innovative aspect is the introduction of a color-coded index. This provides effective access to the necessary information, in line with daily practice. For the reader this means no more annoying and time-consuming consultation of the list of contents. The search for specific acupuncture points can be carried out accurately according to various search criteria.

The authors have put special emphasis on conveying seemingly difficult teaching content. Thus, the basic principles of Chinese Medicine are presented here according to a system developed by the authors.

The frequently unstructured listing of individual symptoms used in previous books has been eliminated. Instead major symptoms are defined and learning is facilitated considerably by highlighting the differences and comparing, for example, individual syndromes. Meanwhile, in Germany the visual didactic processing system (VISDAC) defined by the authors has become an accepted seal of quality and guarantee of learning success.

A special, detailed chapter deals with the contraindications and side effects of acupuncture. The latest scientific studies have been taken into consideration and surely represent a new phenomenon in this form. We consider this essential within the framework of quality development and taking into account forensic points of view.

Our aim, which we would also like to bring across in this book, is to create quality standards in acupuncture.

We hope that our multi-functional book helps our readers to get to the point quickly, reliably, and efficiently when learning about acupuncture and the basic principles of Chinese Medicine.

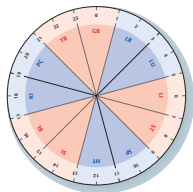
We should like to thank all those who have been involved in the production of this book. Mr. Rüdiger Bremert for his excellent anatomical drawings, Mr. Axel Nikolaus for the photography, and Mr. Martin Wunderlich for the professional graphic design.

Our special thanks go to Ms. Angelika-Marie Findgott whose great personal commitment and specialist knowledge made possible the translation of this standard tutorial and its international distribution.

Kiel, Essen, Münster, Weßling

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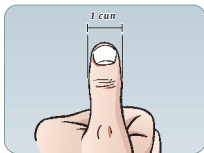


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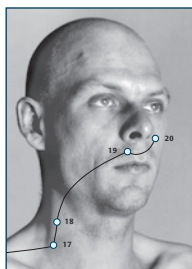
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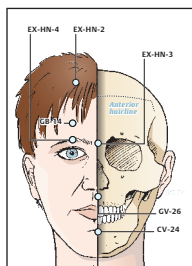


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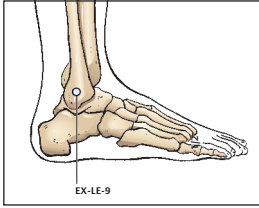
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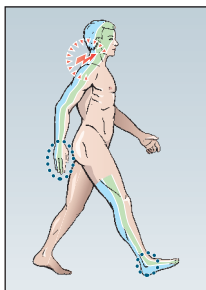


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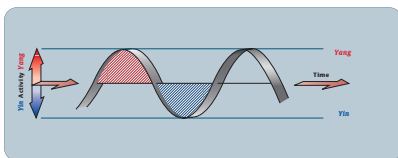


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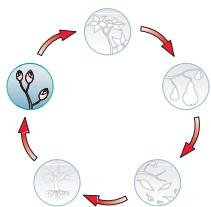
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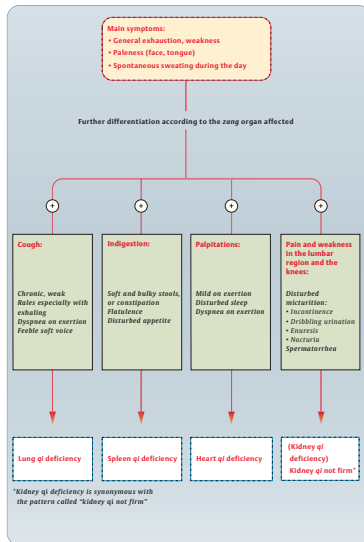
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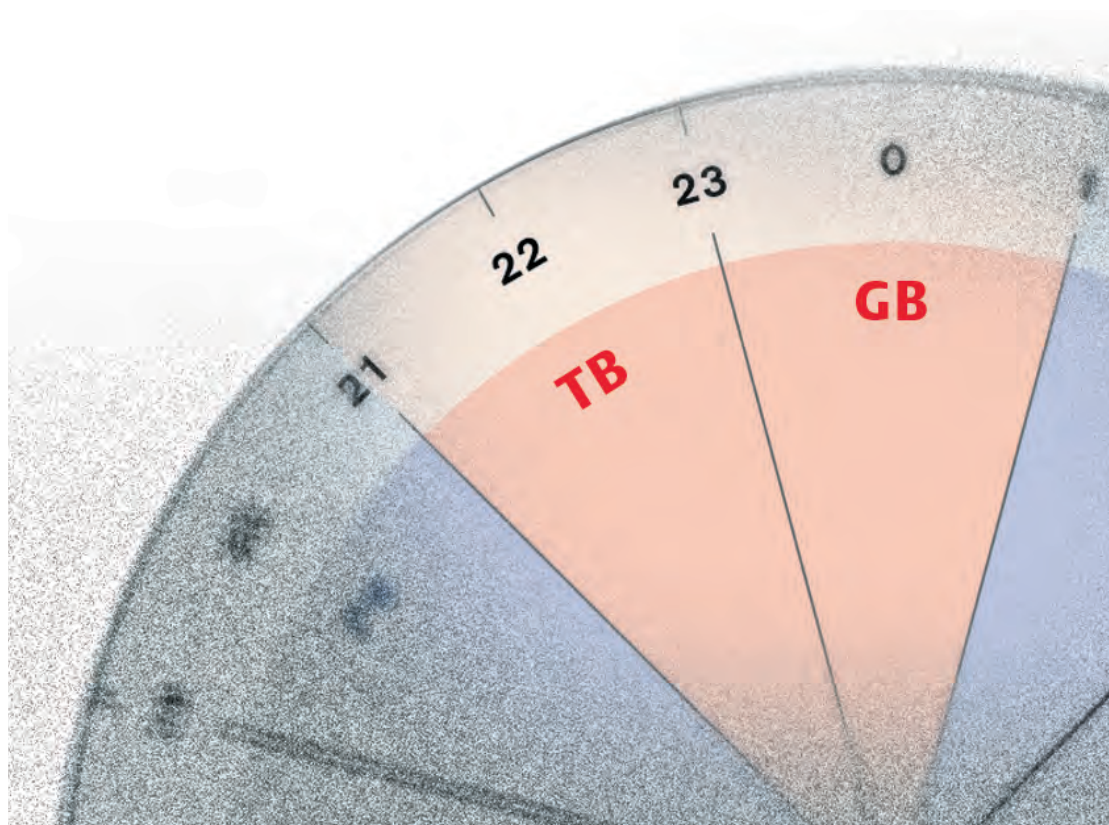
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Scientific Aspects of Acupuncture

The following sections mainly deal with four topics. The first sections provide some background information and then describe the requirements for scientific studies in acupuncture. The remaining sections deal with pain and with anatomical correlates of acupuncture points.

Background

Western and Eastern (traditional Chinese) medicine are the only systems of medicine that have become global in the 20th century and have established themselves intensely in other culture areas. This has created some tensions, primarily in the West, prompting more and more scientists oriented toward Western methods to attempt a resolution. Acupuncture (Latin: *acus*, needle) was mentioned for the first time in 90 BC in the twin biography of the traveling physician *Bian Que* and the *Han* physician *Chunyu Yi* in the classic *Shi Ji* (The Historical Records) [Unschuld, 1997].

Gold, silver, or steel needles are inserted into empirically defined points where they penetrate the patient's skin to various depths, in order to achieve a therapeutic effect in different organs and functional systems. According to the underlying Eastern philosophy, the needle treatment can be used to influence the movement of life force or energy (*qi*) in channels (or meridians).

Traditionally, acupuncture was combined with the burning of dried mugwort (moxibustion or moxa)—which is expressed in the originally term, *zhen jiu* (puncture and burning). Today, other methods of needle stimulation are used in addition to moxibustion, for example, electrostimulation and cupping.

Pain relief through acupuncture was developed in modern China after 1945 under the initial influence of Western medicine. At the end of the 1950s, the French physician *Paul Nogier* developed the method of auriculother-

apy, or ear acupuncture, which is used for both therapy and analgesia.

The cultural background of a therapy may create a fundamental conflict. This problem not only exists for patients (and their expectations) but also for therapists (and their ability to immerse themselves in other cultures and their ways of thinking). Depending on the culture, the approach to both diagnosis and therapeutic procedure may differ considerably due to different schools of thought and previous knowledge, and also due to a therapist's individual way of dealing with patients—which again is influenced by the particular environment. On the other hand, the patient's expectations play a major role. This not only refers to the full spectrum of rejection–doubt–endorsement–conviction, but also to ideas of how the therapist should behave in the eyes of the patient. Furthermore, the patient may have heterogeneous wishes that he or she normally does not communicate. The patient may want to have a Western diagnosis and an Eastern therapy, or an Eastern diagnosis but only an adjuvant therapy. Many different scenarios can be envisioned here. Thus, it is not without problems to transfer a therapeutic method from one culture to another without adapting it. Once it has been transferred, it begins to undergo its own evolution.

Placebo Effect

In 1976, the Western world received its first important impulse for genuine basic research in the field of acupuncture through the hypothesis that the acupuncture effect is mediated by the endorphinergic system [Stux and Pomeranz, 1987]. This system consists of neurons located mainly in the mesencephalon (raphe nuclei and central gray substance). Its analgesic effect is mediated by the release of endorphins (neurotransmitters with a morphine-like action) via the reticulospinal tract. Up until this point, the general view in science had been that placebo effects were the main basis of this therapy [Beecher, 1955]. In other words, the method

would only be effective because the persons treated (and their therapists) would firmly believe in it. Furthermore, the effects achieved were partly regarded as nonspecific. However, this view ignored the results of studies involving either animal experiments or acupuncture effects in children, which could not be explained by the classic placebo mechanism. In adults, psychological studies investigating the suggestibility of patients also seemed to indicate that specific effects played an important role.

Rather than making the general assumption that we are dealing with a placebo effect, it is more meaningful to search for an effect in connection with the disease so that the modality can be applied more specifically and, if possible, without acupuncture. For example, there are numerous speculations on better recovery from stroke under the influence of acupuncture. It is not clear, however, whether or not this should be attributed to the fact that the patient receives additional interest and far more attention [Park et al., 2001; Vickers et al., 2002]. Acupuncturists typically spend more time with their patients than conventional physicians. It is important to differentiate between this effect, the aura of Eastern mystique, and the substantial influence of the needle treatment itself. In doing so, it is helpful to distinguish between short-term and long-term treatment, because the success of acupuncture is not always so impressive for long-term treatment.

For a long time, published records of studies on the positive effect of acupuncture were only of illustrative character. The case-study character is quite acceptable when reporting undesired effects. Despite the remarkably extensive database of case studies, however, skepticism towards such material—compared with controlled clinical studies—is valid if the study is supposed to demonstrate the therapeutic effects. While “serious” scientists have regarded the involvement with this subject as obsolete and as an interference with one’s career, many practitioners have shown only half-hearted

ambition to separate reality from mystique. Meanwhile—at least since there has been noticeable public support—there is a certain stimulus to tackle the subject scientifically and to raise the standards of the basic scientific data. There are only a few Western specialists today who reject acupuncture completely, and this is largely due to the successful alleviation of pain. Only the underlying mechanism of the effect remains a bone of contention. As a consequence of this process, demands that acupuncture should be included in the curriculum of medical students are increasing, and plans have already been put to action at some locations [Rampes et al., 1997]. For the time being, however, this dynamic development carries the considerable risk of self-declared “experts” getting involved in the uncritical and unqualified transfer of knowledge.

Scientific Studies

“Despite intense research nobody has provided any convincing scientific evidence that the channels or the ‘flow of energy’ do exist” [White, 1998]. So far, research findings of Western standards make it very unlikely that acupuncture acts by treating diseased organs directly. Rather, the influence is indirect, with the brain obviously intervening by means of neuronal and chemical (hormonal) activities. It is especially the connection between brain function and acupuncture that has been ignored by classic Eastern medicine. More recent studies have prepared the ground for a far-reaching conceptual understanding. There is a constant relationship between disease-related acupuncture points and the corresponding brain areas (instead of, or supplementing, the relationships between the indication for acupuncture points and more or less abstract causes). This comes much closer to the Western sense of plausibility than do any Eastern ideas [Cho et al., 1998]. It should be noted in this connection that the results of studies on the effectiveness of a method are often culturally tinted. Interestingly,

an increasing number of meta-analyses on the comparability of studies or their scientific quality can be found in the literature, especially for acupuncture. This must be understood as an expression of the attempt to clarify why the Western and Eastern models of explanation are partly incompatible. For example, in 1998, a comparison of studies on the effectiveness of acupuncture in treating nausea and pain showed that the effectiveness is up to 100% in Far-Eastern studies, about 50% in US studies, and less than 20% in European studies.

Apart from extensive case descriptions, there are numerous studies with seemingly sensational results that, in scientific circles, sometimes bring discredit upon the procedure rather than promote it. In these cases, it is worth having a look at the size of patient groups or at the method and its reproducibility prior to accepting the results. Time and again, general statements are spread by certain media only because they have been published—and this has not necessarily been the intention of the authors.

Requirements

Typical weaknesses and errors in the approach of previous studies have been that:

1. The number of patients was too small
2. The selection criteria were not sufficiently diversified
3. The group assignments were not randomized
4. The study was not double blind
5. There was no standardized protocol of investigation
6. The study was not prospective
7. There were insufficient statistical methods, or none at all
8. There were inaccurate or insufficient details, or none at all, on the parameters for measuring the results or for demonstrating the

therapeutic success, or evaluation of the findings was purely subjective

9. The study used untrained acupuncturists (no qualification and certification of the therapists)
10. There was no follow-up and investigation of long-term effects versus short-term effects.

These limitations prevent targeted, effective, structured, and well-designed processing of the available data and further development of the acupuncture method. Therefore, the sometimes spectacular applications, such as open-heart surgery under acupuncture analgesia [Hollinger et al., 1979], cannot be evaluated and repeated reliably, although one can suspect that there is a remarkable, not yet exhausted, potential in the application of acupuncture, and that this potential could be developed.

For a clean study, therefore, some preconditions must be met. These include:

- A large enough number of patients
- A control group
- Randomized assignment to the groups of the study
- Double-blind study design (neither therapist nor patient know the group assignment)
- Prospective study design
- Placebo needles.

Control groups usually create a problem. Different procedures are used for obtaining such groups of comparison for a study:

1. Acupuncture versus no treatment: This approach is not always ethical, or does not apply to all treatments. Furthermore, the treatment group is subjected to at least two influences (acupuncture and therapist) so that the effects obtained cannot be unambiguously assigned in comparison with the

control group. These are not double-blind studies

2. Acupuncture versus mock acupuncture (by needling nonacupuncture points): It has not been demonstrated that the prerequisite for this procedure (the needling of nonacupuncture points) has no effect. In some such studies, points are used as nonacupuncture points even though they may have a specific effect on the disease being investigated [Linde et al., 2000]. In addition, the patient may be able to recognize his/her assignment to a particular group. Thus, this is not a double-blind study either
3. Specific acupuncture versus acupuncture for a different disease: Uncontrollable cross-effects may be possible. Again, there is no way of performing a double-blind study
4. A combination of the previously mentioned procedures: This type of study becomes more confusing, is prone to errors, and falsely suggests that systematic errors, such as the previously mentioned ones, are minimized or neutralized
5. Acupuncture with placebo needles: The essential advantage here is that the patient doesn't know whether or not he/she has been needled. Blind studies are possible.

In 1998, *Konrad Streitberger* and colleagues at the University of Heidelberg, Germany, developed a placebo needle that allows for better control groups [Streitberger and Kleinhenz, 1998]. This needle is pressed onto the skin like a true needle, but then slides back into its case rather than underneath the skin. The patient perceives a puncture without the needle having penetrated the skin. In this way, psychological effects that might cause faster healing can be minimized. Initial investigations have demonstrated that acupuncture does have specific effects [Kleinhenz et al., 1999]. Critics such as *Ted Kaptchuk* of Harvard Medical School believe that this method of investigation still doesn't go

far enough, because double-blind studies are not quite possible. In case of the Streitberger needle, the therapist knows whether he/she uses a true needle or a placebo needle. *Park et al.* [2001] and *Peuker et al.* [2002] developed similar needles with the objective, among other things, to blind the therapist as well.

Another important prerequisite, apart from adequate control groups, is that effects can be measured objectively. The following criteria are important:

1. Measuring the blood flow in areas of the brain by means of functional magnetic resonance imaging (MRI) or transcranial Doppler (TCD) ultrasound
2. Comparisons of the durations of events (e.g., uterine involution, speed of cervical dilation). Important differences in studies on acupuncture concern aspects of time:
 - Do the results show short-term or long-term effects?
 - How often should needling be performed?
 - How quickly do effects occur?
3. Number of events
4. Quantifiable parameters (e.g., amount of milk produced)
5. Visual analog scale (e.g., subjective evaluation of pain)
6. Electrophysiological recording of the neuronal activity in peripheral nerves or the spinal cord, possibly under the influence of well-known substances that have a modulating influence on neuronal activity.

One argument that is often put forward states that the Western system of assigning or classifying diseases does not correspond to the Eastern system; as a result, therapies are applied that would not have been suggested by Eastern diagnosis. For studies, however, this Western assignment is established precisely for reasons of comparability so that the key demand of every scientific study—reproducibility—can be met.

Critics of such studies vehemently point to the strong individuality and patient-specificity of acupuncture, which would not be possible if the procedure were standardized. Standardization would ignore too many symptoms of diseases, thus yielding false group affiliations. On the one hand, there is no convincing evidence for the Eastern working hypotheses, that is, what should be investigated would be already introduced into the study as a prerequisite. On the other hand, it is true that the Western approach does not cover many symptoms that can be used for differentiation. This escalation of conditions is partly based on ideology and can quickly block any conceptualization of a study protocol that is supposed to make the results verifiable and reproducible. Neither total individualization nor (partial or complete) disregard of the theoretical concepts of acupuncture make it possible to establish more reliable results, which would lead to a better recognition of acupuncture as an equivalent therapeutic procedure. But without supplementing individual case studies with studies according to scientific standards, no improvement is possible. The way out of this dilemma is to increase the number of patients. In order to achieve high comparability and usability of the data, centralized and controlled multicenter studies are a possibility. Popular research areas in acupuncture from the Western point of view are currently:

- Pain management
- Psychiatry, drug and medication abuse, quitting smoking (these aspects of treatment options have received attention increasingly since about 1980)
- Anatomy and imaging procedures
- Cardiology
- Gynecology
- Ear acupuncture
- Dentistry.

So far, however, none of the available theories sufficiently explains what happens during acupuncture. For that reason, acupuncture still is a purely empirical method that cannot fully meet the growing scientific demands of medicine. One should investigate not only its effects, but also the hypotheses for its mechanism of action. Some studies suggest that there are functional points that act in every person. These studies show that standardized point combinations yield results in many patients. This would put into perspective the individual selection of points for each patient as demanded by the Chinese approach. In fact, treatment plans are used fairly often in practice.

Pain

Meanwhile, there are plenty of useful publications on the modulation of pain with acupuncture [Pomeranz and Strux, 1989; Ernst and White, 1999; Vickers et al., 2002]. For example, various ideas have been developed in animal models about the possible neuronal mechanisms of action. However, these explanations are really of limited value because the understanding of such systems is still incomplete. This is particularly true as today's basic research is above all focused on molecular and cellular mechanisms, which are easier to find out, whereas interactions on the level of tissues or organs find less attention due to the lack of suitable tools. The following aspects of pain management with acupuncture are currently being investigated:

- Effects on central neurotransmitter systems (serotonergic system, catecholaminergic system, endorphinergic system, enkephalinergic system, substance P system, and their interactions), i.e., mainly systems that inhibit pain
- Effects on nerve regeneration
- Effects on local blood flow, which has a decisive influence on the production and local elimination (washout) of pain-inducing substances at the site of injury.

Gate Control Theory, Trigger Points, and Neuromatrix of Pain

An earlier neurophysiological attempt of explaining the effect of acupuncture on pain was the Gate Control Theory [Melzack and Wall, 1965]. It described pain modulation of sensory impulses by inhibitory mechanisms in the central nervous system (CNS). According to this theory, the acupuncture prick is thought to excite the rapidly conducting sensory nerve fibers of the affected skin or muscle regions, whereby the impulses of these fibers overtake in the spinal cord the impulses of more slowly conducting fibers from the diseased organs. In this process, inhibitory interneurons are activated that have an effect on the slower conducting pathways. The therapeutic use of counter-irritation has been “discovered” by scientists more than once. This concerns those paradox, pain-reducing effects that alleviate pain by means of pain through heterotropic stimulation of body areas. This often interrupts a vicious circle and achieves a lasting effect, thus providing the opportunity for regeneration as long as the injury has not yet become irreversible.

One of the oldest methods of reducing pain is the stimulation of myofascial trigger points, either by acupuncture, or by cold, heat, or chemical irritation of the skin. The principle here is: “intense over moderate” sensory perception, a kind of analgesia based on overstimulation. It is applied over the affected site or sometimes also at a distance from it. A brief, painful stimulus can cover up chronic pain for a long time or even permanently. According to our understanding of central nervous processes today, an unconscious autonomous reaction occurs in the pain-processing centers of the brain stem, on the one hand, and a modification of the conscious perception in the cortical fields of the cerebrum, on the other [Melzack, 1981]. In addition to the ascending impulses, the pathways that descend from the cerebral cortex to the spinal cord also activate inhibitory interneurons. The responsible transmitters in the brain and spinal cord are often pain-inhibiting

endogenous opiates. Furthermore, recurrent neuronal activities induced by chronic pain are possibly interrupted. Local injection of anesthetics, overstimulation, or surgical interruption of pain conduction are comparable methods.

The explanations above stem from early attempts to understand the complex central connections—and acupuncture's effects on them—mainly in the context of a cybernetic interpretation of how the brain functions. Among other things, these attempts have overlooked the possibility of plastic reactions [Wiener, 1972; Takeshige, 1985]. Whereas acute pain has been painstakingly investigated, chronic (so-called serious) pain syndromes—which may not be associated with any injury or pathology—remain mysterious. Furthermore, the frequently observed relationship of these syndromes to emotional or physical stress is not yet sufficiently understood.

More recent theories assume that the sensation of pain is a multidimensional experience that has its origin in the fact that nerve impulses create identifiable patterns, or neurosignatures, by means of an extensive neuronal network, the neuromatrix. The neuronal network thus forms an image of the body. The neurosignatures for the sensation of pain are typically induced by sensory input, but they can also be activated without this trigger. The neuromatrix theory represents a conceptional framework for the investigation of problems associated particularly with chronic pain syndromes. It assumes that the respective neuronal image of the body activates programs that influence perception, self-perception, behavior, and homeostasis with all its mechanisms. This applies to every pathology, inflammation, injury, or type of chronic stress. Pain therefore results not so much from a direct sensory event but more from the activity of an extensive neuronal network. As the primary instrument for creating a neurosignature of pain, the neuromatrix might be genetically determined and then modified by sensory experience. Again, the impact on consciousness or on the body depends on numerous factors, and the

influence on pain conduction is only part of it [Melzack, 2001].

Only in recent years has it become possible to observe the brain directly during activity—although still without much detail—for example, by means of functional magnetic resonance imaging (MRI), single photon emission computed tomography (SPECT), or transcranial Doppler (TCD) ultrasonography [Yoshida et al., 1995; Jellinger, 2000]. Extensive studies are still missing. First results strictly point to a modulation of the activity of subcortical structures, mainly of the limbic system [Hui et al., 2000]. Obviously, the basic principle of the nervous system's functional structure, the somatotopic organization, is utilized here [Chiu et al., 2001]. Since acupuncture seems to act by means of a mediator—most likely, the nervous system—this aspect should be discussed in more detail.

Somatotopic Organization

Somatotopic organization is the assignment of body regions and functional units to a locally connected group of neurons in the nervous system. In the case of pain, this has been described above in great detail as a neuromatrix. Both topography (Greek: *topos*, place) and functional anatomy are therefore essential organizing principles for the brain and spinal cord. If the body is to be projected onto the CNS, the CNS itself may give very little instruction for endogenous organization. On the other hand, this allows the CNS to learn new ways of organization and to permit new applications; in other words, the response is plastic. These endogenous organizing principles, through which the CNS can have a molding effect on the organism, include the developmental milestones of evolution that are primarily found in the live-saving control units, namely, the endocrine and autonomic portions of the brain. These are the phylogenetically older parts of the brain. It should be emphasized here that the often-heard assumption that the CNS is segmentally structured like the skele-

tal system is wrong. Evidence for this is found, for example, in the secondary bundling of the completely nonsegmental nerve rootlets (fila radicularia) into intersegmental spinal nerves by the somites. Likewise, the opinion that acupuncture is based on a mutual influence of internal organs and zones of hyperalgesia (Head zones) is rarely held anymore. According to this view, acupuncture would act only on the periphery through body segments or chains of myoskeletal function.

The procedures mentioned earlier—MRI, SPECT, or TCD ultrasonography—have shown that the needling of acupuncture points speeds up the blood flow in certain brain regions, leading to regionally increased oxygen supply to the brain tissue [Litscher et al., 1998, 1999a]. This is often the expression of increased neuronal activity in the affected cell population. An increase in blood flow can also be demonstrated in the more accessible arteries of the eye during needling of acupuncture points that are traditionally used to support vision (whereby the retina is understood as an extension of the brain) [Litscher et al., 1999b]. It was shown that the blood flow did not change when the test persons were needled at other points. Although these methods do not explain acupuncture's mechanism of action, they allow one to measure the effects of the treatment objectively; they are reproducible, and they facilitate a better control of acupuncture therapy. The acupuncture-induced change in oxygen supply in the CNS can also be demonstrated after the treatment. Up to now, interest in central nervous effects has focused mainly on the release of endorphins. With the new aspect of blood flow, one can now explain far more than only pain-relieving effects. On the one hand, the altered oxygen supply in the brain may modify the conscious perception of dealing with and reacting to diseases (which might include the inhibition of pain). On the other hand, these brain areas may have an effect on the assigned body regions and body functions.

Anatomical Correlates

There are numerous reasons why the results of studies in the field of acupuncture research have been misinterpreted. First of all, the phenomena observed cannot be brought in line with the available knowledge on physiology. Second, during the 1930s, numerous acupuncture schools became established in Europe. Terms already in use can therefore be misleading. For example, what is understood as a point in the Western culture is called a hole (*xue*) in ancient Mandarin Chinese. Accordingly, totally different morphological correlates may be accepted, such as the point-like structure of a nerve ending, or a hole in the subcutaneous fascia of the body (superficial fascia).

The often-quoted discovery of fine structures at acupuncture points by the anatomist *Hartmut Heine* in 1987 provided the basis and the start of numerous studies [*Heine*, 1988]. Recently, his findings have been used for surgical therapy of chronic soft tissue pain. The lure of his preparative analyses is the alleged demonstration of anatomical equivalents to acupuncture points. Heine stated that acupuncture points coincide locally with neurovascular bundles. According to his findings, nerves and blood vessels run in bundles through defined openings in the superficial fascia. These bundles are 2–8 mm in diameter and of various configurations. They are kept embedded in the subcutaneous fat tissue by the superficial fascia. In fact, similar findings had been published much earlier, for example by *Bossy et al.* [1975] and *Plummer* [1980]. Neurovascular bundles have also been used to explain the alleged higher electrical conductivity at an acupuncture point compared with that of the surrounding area. However, this aspect in particular can be approached in different ways. On the one hand, the neurovascular bundle may increase the conductivity of the point compared with that of the surrounding area. On the other hand, the temperature is considerably higher in this area due to the increased blood flow [*Ovechkin et al.*, 2001], and conductivity is decreased accordingly. However, no tempera-

ture-compensated measurements of bioimpedance at acupuncture points are available, and the corresponding point localizations should thus be viewed with caution. In any case, secondary effects (by clothing, electrode material, surrounding nerve supply, inter- and intra-individual differences in skin thickness, skin secretion, or pressure during electrode application) are not recorded by commercially available devices [*Comunetti*, 1995; *Kwok et al.*, 1998; *Sher*, 2000]. Only the variation in electrode pressure, which is not perceived subjectively, lets the examiner find the point exactly where he/she subconsciously assumes it to be—*quod erat demonstrandum* (which was the thing to be proved). Generally, the special electrical conductivity of a skin area means that we are not dealing here with a morphological unit but rather with a functional one.

It is not at all unusual that blood vessels and nerves join to form bundles. During development of the body, they are forced by tissue movements to come together at relatively inactive locations. Nerves, arteries, and veins gather here naturally, even though this may in no way be caused by their developmental origin. For example, almost all large vessels and nerves run along the flexed side of a joint. Furthermore, the shift of layers against each other (subcutis against superficial fascia) can cause kinks or constrictions when vessels and nerves pass from one tissue layer to another. The location of such gathering points for vessels and nerves thus follows a pattern that does not necessarily lead to acupuncture points, and this applies also to areas where there is no fascia to penetrate, as in the face.

Thus, many more perforations with passing neurovascular bundles can be demonstrated than there are acupuncture points. It is said that 301 out of the 361 points that Chinese acupuncture regards as especially valuable for therapy coincide with such sites of passage through the superficial fascia. On the one hand, the selection of 361 points does seem arbitrary (the number is said to correspond to the number of steps to

the Emperor's palace); on the other hand, there is no reliable control. Not every acupuncture point is associated with a neurovascular bundle, but there are many more neurovascular bundles passing through the fascia than there are acupuncture points. There exists a certain correspondence between the described channels (and the points located on them) and the nerves and vessels supplying the subcutis and skin. However, the available studies—which do not mention the number of anatomically identifiable points—failed to determine in a verifiable manner to what extent, if at all, channels and neurovascular structures actually occur together. Thus, the correlation may be a purely statistical one. No causal connection can be determined from a mere correlation. Up to now, no anatomical structural correlates have been found for the channels. There are also no convincing indications of anatomical assignments for the presumed somatotopic organization underlying ear acupuncture [Peuker and Filler, 2002].

Connective Tissue

One study involved 103 patients with chronic shoulder–arm and shoulder–neck pain in which previous therapeutic measures had been unsuccessful. Particular sites where neurovascular bundles pass through the fascia were surgically exposed and dilated. The underlying idea was that the nerves and vessels found by *Heine* can become constricted where they pass through the fascia, and the irritated nerves then indirectly influence the rest of the body through the nervous system. The improvement with respect to pain, strength, and mobility that resulted from dilation was excellent in 41 patients, good in 29, and satisfactory in 28. There was no satisfactory improvement in five patients.

Whereas needle therapy leads to secondary scarring and therefore narrows down the passage sites, the opposite was achieved in the above study. Both acupuncture and dilation have an effect on the neurovascular bundle, but the

above study resulted in a release from restraint, while acupuncture results in secondary constriction. What the two procedures have in common is the manipulation and stimulation of connective tissue [Langevin et al., 2001b]. They both cause a temporary transfer of negative charges in the connective tissue surrounding the nerves, and this also changes the excitability of nerve fibers, which depends on the surrounding charge (with collagen acting as a biosensor). Thus, instead of the neurovascular bundles or their locations, the affected connective tissue and fascia-like structures might also have an effect, perhaps by means of their innervation.

The extracellular matrix of the loose connective tissue surrounding the neurovascular bundles at classic acupuncture points consists mainly of highly polymeric sugars (proteoglycans and glycosaminoglycans) with embedded fine collagen fibers. This extracellular matrix typically also contains all types of immune defense cells. The matrix undergoes changes in numerous chronic diseases that affect the whole body. One of the theories explaining the pain occurring in peripheral neuropathies of diabetics or alcoholics, or in certain muscle or muscle–skin disorders, states that changes in the extracellular matrix irritate the neurovascular bundles.

In addition, the turning of the acupuncture needle after insertion has a measurable biomechanical effect, which can be explained by the fact that the connective tissue attaches to the needle and gets wrapped around it. Up to 170% more energy must be applied to remove such a needle. This effect is particularly prominent at the traditional acupuncture points [Langevin, 2001a].

The theory that neurovascular bundles are the morphological correlates of acupuncture points also ignores other details. The deep acupuncture points shall not be considered at the moment. But for body areas in which perforation of the superficial fascia is not at all possible, other explanations must be found to support this theory.

One such area is the facial region, which is rich in acupuncture points. Unlike the rest of the body, there is no subcutaneous fascia—it would prevent facial expressions, which are so important for human beings. Instead, the neurovascular bundles here supposedly exit from openings in the bones and enter directly into the facial skin. However, only four such sites can be found on the human face. Other nerve passages through bones are located far away from the facial skin, and the respective nerves supply organs other than the skin, i.e., they cannot be compared to the neurovascular bundles. In other regions of the skull, there are emissaries exiting from the bones. These sites rarely lie near acupuncture points and should be avoided because they are potential entry points for introducing microorganisms into the brain capsule.

Furthermore, no perforated fascial structures are found on the anterior and posterior median lines underlying the two channels called the conception vessel and the governor vessel. On the one hand, the skin in these areas receives its supply of neurovascular bundles from both body sides. On the other hand, 3-mm-thick conglomerates of terminal branches of nerves and vessels form frequently in these areas, the significance of which is unknown. Such conglomerates are also found in internal regions of the body, where they are thought to play an endocrine or paracrine role. In the region of the sternum, these formations lie within the periosteum, and—considering the common formation of a sternal foramen—one should not attempt to needle the periosteum. (Note: The term “point” would be more appropriate in this connection than the term “hole”.)

Ear Points

In the projection zones of the ear, there are receptive bodies of about 100 μm in diameter, which consist of a conglomerate of collagenous and elastic fibers infiltrated by terminal nerve fibers and blood vessels [Heine, 1993]. Their classification as typical encapsulated nerve endings (end bulbs) of the skin is still pending because their connective tissue composition differs from that of the classic structures. The very high number of these sensory organs per surface area of the ear is remarkable, and it is matched by an intense nerve supply that is strikingly dense even for the facial region [Peucker and Filler, 2002]. This phenomenon calls for a functional explanation. One may speculate that highly sensitive thermoreceptors are located here for the protection of the outer ear. It is not clear how this relates to ear acupuncture.

When considering these heterogeneous findings and their various possible explanations with respect to acupuncture points, the suspicion arises that the desire to find a single causal explanation in the form of a morphological correlate represents a logical trap. In view of the very different possible actions and the difficulty of understanding the empirical concept of classic acupuncture, it seems more plausible that there are many mechanisms of action and, hence, different morphological correlates at different acupuncture points.

Indication and Direction of Action of Acupuncture

Acupuncture cannot heal destroyed structures. However, structural damage is almost always associated with dysfunction—and acupuncture can influence the accompanying disturbed functions.

NOTE: *Acupuncture has an impact on disturbed functions.*

Since acupuncture influences disturbed functions, it is recommended that one speaks of the direction of action rather than of a specific indication.

Directions of action of acupuncture

- Alleviation of pain
- Regulation of muscular tone: relaxing or tonifying
- Regulation of psycho-autonomic disorders: relaxing or tonifying
- Immunomodulation
- Decongestion
- Stimulation of circulation.

Relative Contraindications

There are no absolute contraindications, but relative contraindications do exist. In these situations, acupuncture should be performed only by experienced practitioners after careful consideration of the benefit-to-risk ratio.

Relative contraindications

- Coagulation defects
- Acute psychoses
- Acute life-threatening conditions of weakness

Coagulation Defects

These include severe forms of hemophilia with an INR above 4.0. One should at least avoid deep needle acupuncture. Laser treatment is possible, or superficial needling with very fine needles (0.16–0.2 mm in diameter).

Acute Life-threatening Conditions of Weakness

Needle acupuncture regulates the distribution of *qi*. It is not possible to supply *qi* by needling alone (only by tonifying moxibustion or phytotherapy). In cases of pronounced *qi* deficiency, redistribution of *qi* can no longer occur.

Excessive Reactions, Undesired Effects, and Complications

It is possible that excessive reactions may occur during acupuncture treatment.

Excessive reactions

- Excessive relaxation and tiredness
- Excessive autonomic reactions
- Sleep disorders
- Worsening of the condition under treatment.

Excessive Relaxation and Tiredness

This may lead to circulatory disturbances. Excessive autonomic reactions lead to vertigo, sweating, and changes in skin color.

Worsening of the Condition Under Treatment

This relates mainly to a temporary increase in pain.

There are two possible explanations for excessive reactions:

- Selecting the wrong strength of stimulation (usually too much stimulation for that particular patient)
- Initial worsening in response to a stimulus (excessive reactions may occur during any regulatory therapy).

Undesired effects and complications are classified according to the frequency of their occurrence:

Undesired effects/complications

Sometimes:	Formation of a hematoma Breakdown
Rarely:	Pain and impaired sensibility in the region of needle insertion Burns Blistering of the skin
Very rarely:	Infections Organ injury

Pain and Impaired Sensibility

Pain and impaired sensibility in the region of needle insertion occur when nerves are irritated, but this is of no importance in the long term.

Burns

Burns during tonifying moxibustion are regarded as complications. However, they are a desired type of stimulation in the case of sedating moxibustion.

Blister Formation

Blistering of the skin may occur during cupping. This, too, is a temporary complication that might be desired in the case of sedating acupuncture.

Infections

Infections occur as the result of needling in infected regions or of using nonsterile techniques.

Organ Injury

Organ damage (especially pneumothorax) can be avoided by accurate needling and knowledge of the anatomy.

Yin and Yang

The monad (Latin: *monas*, unit) symbolizes the indivisible unit of the two opposite poles, *yin* and *yang*.

The monad

- is probably the best known symbol in the world
- symbolizes holistic harmony through opposite poles
- includes aspects of dynamics and interaction that are essential for the existence of a healthy whole.



Yin and *yang* are terms for two poles that are always present in all things; they must always be understood in relation to each other.

In Chinese culture, *yin* and *yang* have never been associated with moral values, such as good and bad. What is good is not *yin* or *yang* but the dynamic equilibrium between the two; any imbalance is bad or harmful.

<i>Yin</i>	<i>Yang</i>
Night	Day
Moon	Sun
Earth	Heaven
Dark	Light
Cold	Warm
Matter	Energy
Rest	Activity

Qi

Qi is often translated as “life force” or “vital energy.” *Qi* is contained in everything that lives—it is directly connected with all life processes and signs of life.

Qi moves the spirit and the body, warms the body to its normal temperature, keeps the organs in place (e.g., uterus, urinary bladder) and maintains normal organ and body functions, defends against pathogenic factors, and transforms food and air, which have been taken up through normal organ functions, into special forms of *qi* and blood (*xue*).

Functions of *qi*

- *Qi* moves
- *Qi* warms
- *Qi* maintains
- *Qi* defends
- *Qi* transforms.

The Five Main Functions of Qi

Qi moves (promoting function)

- Each *zang fu* organ qi (*qi* of an organ network) performs its functions in certain directions: lung *qi* descends (it moves the inhaled air down into the chest); stomach *qi* also descends (it moves food down to the intestines)
- Lung *qi* moves moisture to the skin (it moisturizes)
- Qi moves blood (blood flows together with *qi* in the blood vessels and is moved by *qi*).

Qi warms (warming function)

- Defensive *qi* (*wei qi*) flows through skin and muscles and warms the body, especially the outer layer (exterior)
- Kidney *qi* (original *qi*) is the source of heat in the human body (according to traditional Chinese medicine [TCM], the kidney is the residence of fire)
- Spleen *qi* warms and thereby ensures sufficient transformation of food into food *qi* (*gu qi*).

Qi contains (containing function)

- Spleen *qi* keeps the organs in place (it prevents descent or prolapse)
- Spleen *qi* keeps the blood (*xue*) in the blood vessels (it prevents bleeding)
- Kidney *qi* (original *qi*) and bladder *qi* keep the urine in the bladder.

Qi defends (defending function)

- Defensive *qi* (*wei qi*) protects the body against external pathogenic factors.

Qi transforms (nourishing function)

- Spleen *qi* transforms pure food essence into food *qi*
- Kidney *qi* (original *qi*) transforms body fluids (see also “TCM Refresher,” p. 577).

Qi Production and Transformation

The total amount of *qi* available to the body consists of prenatal *qi* and postnatal *qi*.

The **prenatal *qi*** (also called congenital *qi*, pre-heaven *qi*, earlier heaven *qi*) is inherited from the parents. It is an essential part of the original *qi* (*yuan qi*) or kidney essence (*jing*). Kidney essence is stored in the kidney, and original *qi* (also called source *qi*, primary *qi*) represents dynamically activated essence (according to *Maciocia*). The prenatal portion of kidney essence or original *qi* is constantly replenished by a postnatal portion of *qi*: nutritive *qi* (*ying qi*).

The prenatal *qi* cannot be renewed—it is slowly consumed during life. The rate of consumption can be influenced through acupuncture, *qi gong* exercises, healthy lifestyle, and so on.

The **postnatal *qi*** (also called acquired *qi*, post-heaven *qi*, later heaven *qi*) is renewed throughout life. This is achieved by three *zang fu* organs: the spleen, stomach, and lung. The spleen and stomach provide food *qi* (*gu qi*) from solid and liquid food. Food *qi* cannot be utilized directly. Under the influence of the lung, it combines with air *qi* (*qing qi*) in the thorax to form gathering *qi* (*zong qi*). Gathering *qi* is also called thoracic *qi* or essential *qi*; it is stored in the chest and represents the first form of postnatal *qi* that can be directly used by the body—it regulates the respiratory function, provides for a loud and melodious voice, and supports the heart in providing an harmonic flow of blood to the periphery of the limbs.

Further transformation and refinement of gathering *qi* finally lead to the formation of true *qi* (*zhen qi*). This is the final stage of refinement and transformation of *qi*; it circulates in the channels and assumes two different forms: nutritive *qi* (*ying qi*; also called construction *qi*) and defensive *qi* (*wei qi*). These forms of postnatal *qi* can be utilized everywhere in the body. They support the functions of the *zang fu* organs and protect the body from external pathogenic

factors. Original *qi* is required for the transformation of gathering *qi* into nutritive *qi* and defensive *qi*. Nutritive *qi* replenishes the prenatal portion of original *qi* or kidney essence.

The total amount of *qi* available to the body comprises:

- Prenatal *qi*: portions of original *qi* (which is composed of prenatal and postnatal *qi*)
- Postnatal *qi*: gathering *qi*, nutritive *qi*, and defensive *qi* (see also “TCM Refresher,” p. 573).

Production of <i>qi</i>		
Name of <i>qi</i>	Organs of <i>qi</i> formation	Source of <i>qi</i> formation
Prenatal <i>qi</i> : Portions of original <i>qi</i> and kidney essence	Kidney	Genes
Postnatal <i>qi</i> : Gathering <i>qi</i> Nutritive <i>qi</i> Defensive <i>qi</i>	Spleen, stomach, lung	Food (solid and liquid) Breath Supported by original <i>qi</i>

Pathology of Qi

Stagnation of qi

According to Chinese perception, *qi* flows in the channels and blood vessels. Pathogenic factors may cause stagnation of *qi*. This manifests itself as pain and tension. Stagnation of *qi* may occur locally in muscles (as obstructions of nerves and vessels) or as a disturbance of *zang fu* organs (as an internal pattern).

Pathology of qi

- Stagnation of *qi*
- Rebellious *qi*
- *Qi* deficiency.

Rebellious qi

Each organ has a physiological direction in which *qi* flows. For example, the lung moves *qi* mainly downward. Rebellious *qi* moves in the opposite direction, thus producing cough as a symptom.

Qi deficiency

This may concern the whole body or individual organ functions. *Qi* deficiency in individual organs means that their physiological functions can no longer be met. For example, deficiency of lung *qi* leads to shortness of breath after mild exertion and to weakening of the defense system.

NOTE: There is no excess of *qi*.

The System of Channels

We distinguish between the following channels:

- 12 regular channels: *jing mai*
- 8 extraordinary channels: *qi jing ba mai*
- 15 connecting vessels: *luo mai*
- 12 channel sinews: *jing jin*
- 12 channel divergences: *jing bie*.

The Twelve Regular Channels

There are six *yin* channels and six *yang* channels. The three ***yin* channels of the hand**—lung, pericardium, and heart—are located on the inside of the upper extremity. They run from the thorax to the fingertips, with the first point (point 1) always being located in the thoracic region and the last point on the fingertips (for example, point LU-11 is located on the thumb).

The three ***yang* channels of the hand**—large intestine, triple burner, and small intestine—are located at the outside of the upper extremity. They run from the fingertips (where the channel begins with point 1) across the side of the extensor of the arm to the back of the neck and to the face. The longest *yang* channel of the hand is the triple burner. It ends with point TB-23 on the lateral eyebrow.

The three ***yin* channels of the foot**—spleen, liver, and kidney—are located on the inside of the lower extremity. They run from the tips of the toes (from the sole of the foot in the case of point KI-1) across the inside of the leg to the pelvis and abdomen, and they end on the thorax.

The three ***yang* channels of the foot**—stomach, gallbladder, and bladder—run from the head (starting with point 1 on the face) across the back of the body (bladder channel), the lateral side of the body (gallbladder channel), or the front of the body (stomach channel) to the leg. Here they continue on the posterior side (bladder channel), lateral side (gallbladder channel), or anterior side of the leg (stomach channel) and end distally at the tips of the toes. The longest *yang* channel of the foot is the bladder channel. It ends with point BL-67 on the little toe.

The individual channels are illustrated in the respective chapters dealing with point localizations.

To understand the functional relationships between the regular channels, the following coupling relationships are important:

- **Channel axes**
- **Channel pairs**
- **Channel cycles.**

The Channel Axes

Schematic transverse sections through the extremities—in the region of the forearm and in the region of the lower leg—help to understand which channels belong to each other. In these regions, the three *yang* channels are found on the lateral side and the three *yin* channels on the medial side of the extremity. In case of the upper extremity, the exact localization of the channels corresponds to this simplified scheme. In the case of the lower extremity, the same scheme has been adapted for didactic reasons. In reality, the *yang* channels occupy about two-thirds of the lateral surface of the lower extremity.

The didactic arrangement of channels in transverse sections of the extremities reveals that one *yang* channel lies in the upper front (towards the thumb) and another one in the lower front (towards the toes) of the *yang* region (lateral side of the extremity). This coupling of hand *yang* and foot *yang* in the same third (in our example, the front) of the schematic transverse sections of the extremities is called the channel axis.

The terms front, middle, and back with respect to the arrangement of the axes refer to the man shown in the scheme. The front is located in the area directed toward the thumb of the upper extremity and in the area directed toward the toes of the lower extremity, while the back lies on the arm in the direction of the little finger and on the leg in the direction of the heel.

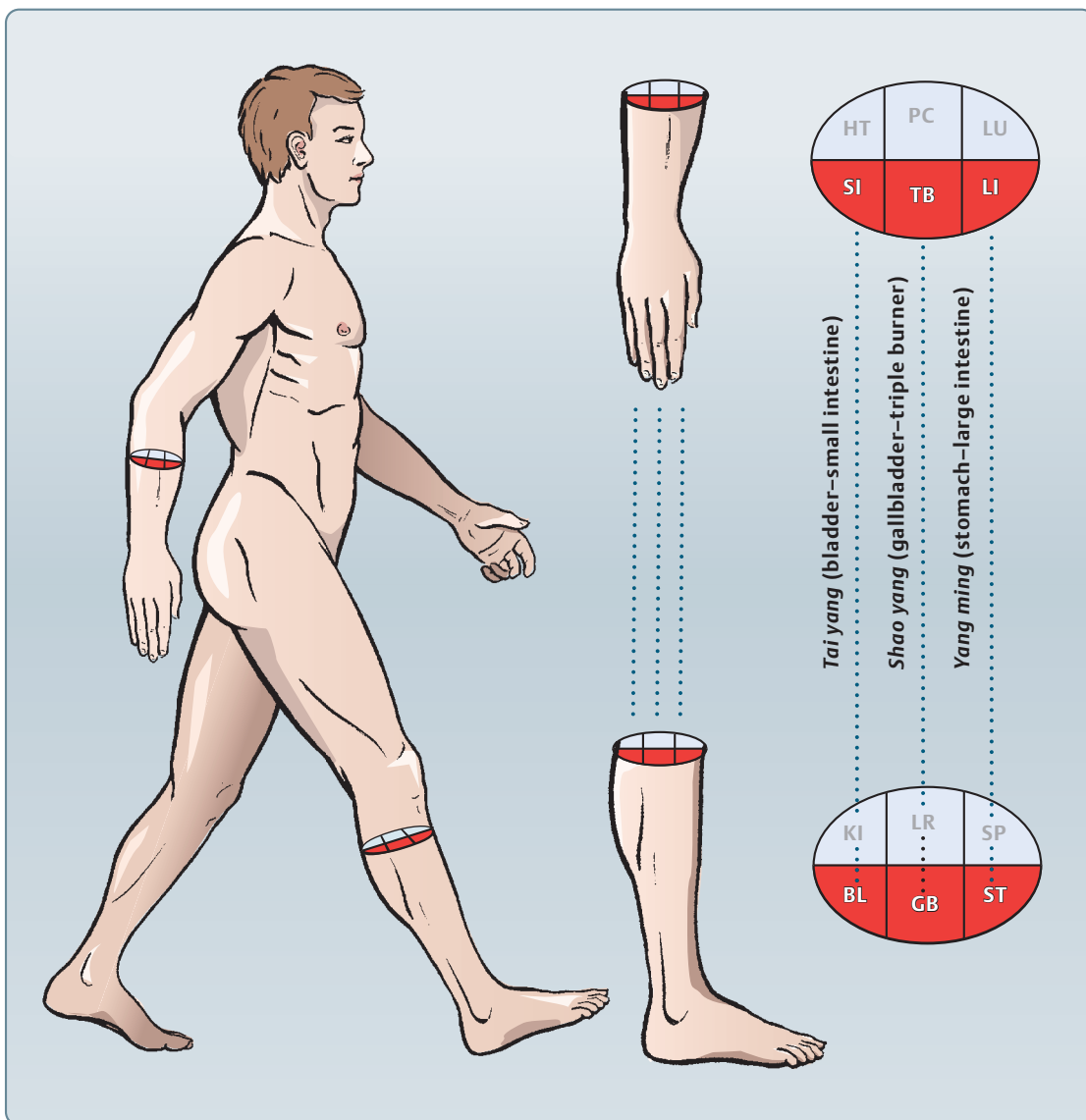
The Three Yang Axes

Front: Large intestine–stomach:
yang brightness (yang ming)

Middle: Triple burner–gallbladder:
lesser yang (shao yang)

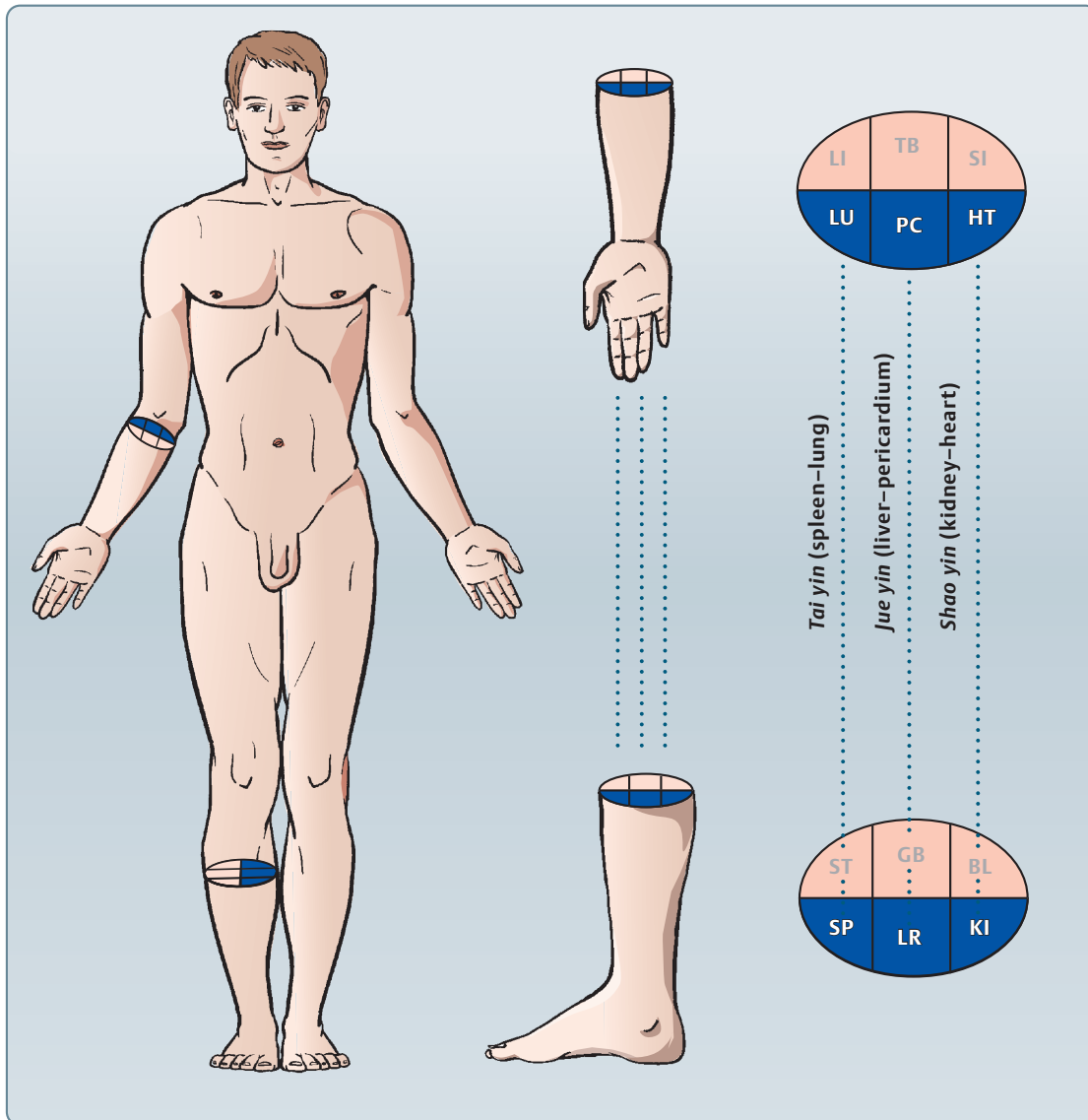
Back: Small intestine–bladder:
greater yang (tai yang).

The three *yang* axes play a special role in the treatment of headaches and painful dysfunctions of the locomotor system (especially in the neck–shoulder region). See also “Pragmatic Five-Step Concept for Treating Locomotor Pain and Headaches,” p. 421.



The Three Yin Axes

- Front:** Lung–spleen:
greater yin (*tai tin*)
- Middle:** Pericardium–liver:
reverting yin (*jue yin*)
- Back:** Heart–kidney: lesser yin (*shao yin*).



The Channel Pairs

The channel pairs represent another principle of channel coupling. This is a coupling of *yang* and *yin* channels within the same third of the transverse section of either the arm or the leg.

Hence, there are three channel pairs of the upper extremity and three channel pairs of the lower extremity.

The three channel pairs of the upper extremity are:

Front: lung—large intestine

Middle: pericardium—triple burner

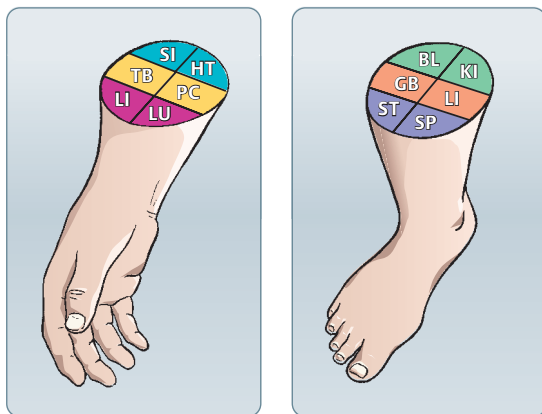
Back: heart—small intestine.

The three channel pairs of the lower extremity are:

Front: spleen—stomach

Middle: liver—bladder

Back: kidney—bladder.



The functional relationships of channel pairs are also of interest to conventional medicine. The pairs are located in the regions of two or three adjacent segments, which explains their functional relationships. For example, the channel pair lung—large intestine lies in segments C5–C7. (These relationships are mainly based on studies by König and Wancura.)

As the illustration of the five phases of transformation on p. 29 shows, coupled pairs occur together in the same phase, which again demonstrates their functional relationships. For

example, the phase of metal includes the organ networks of lung (*zang*) and large intestine (*fu*) as well as the channels of lung and large intestine.

The Channel Cycles

This is the coupling of all channels within the same third of the transverse sections of both the upper and lower extremities.

Thus, a channel cycle represents the coupling of the *yang* and *yin* axes within the same third of the transverse sections. For example, the front channel cycle includes the front *yang* axis of large intestine—stomach and the front *yin* axis of lung—spleen.

A channel cycle can also be regarded as the coupling of a channel pair of the hand with the channel pair of the foot belonging to the same third of the transverse section. The front channel cycle includes the two pairs of lung—large intestine of the hand and stomach—spleen of the foot.

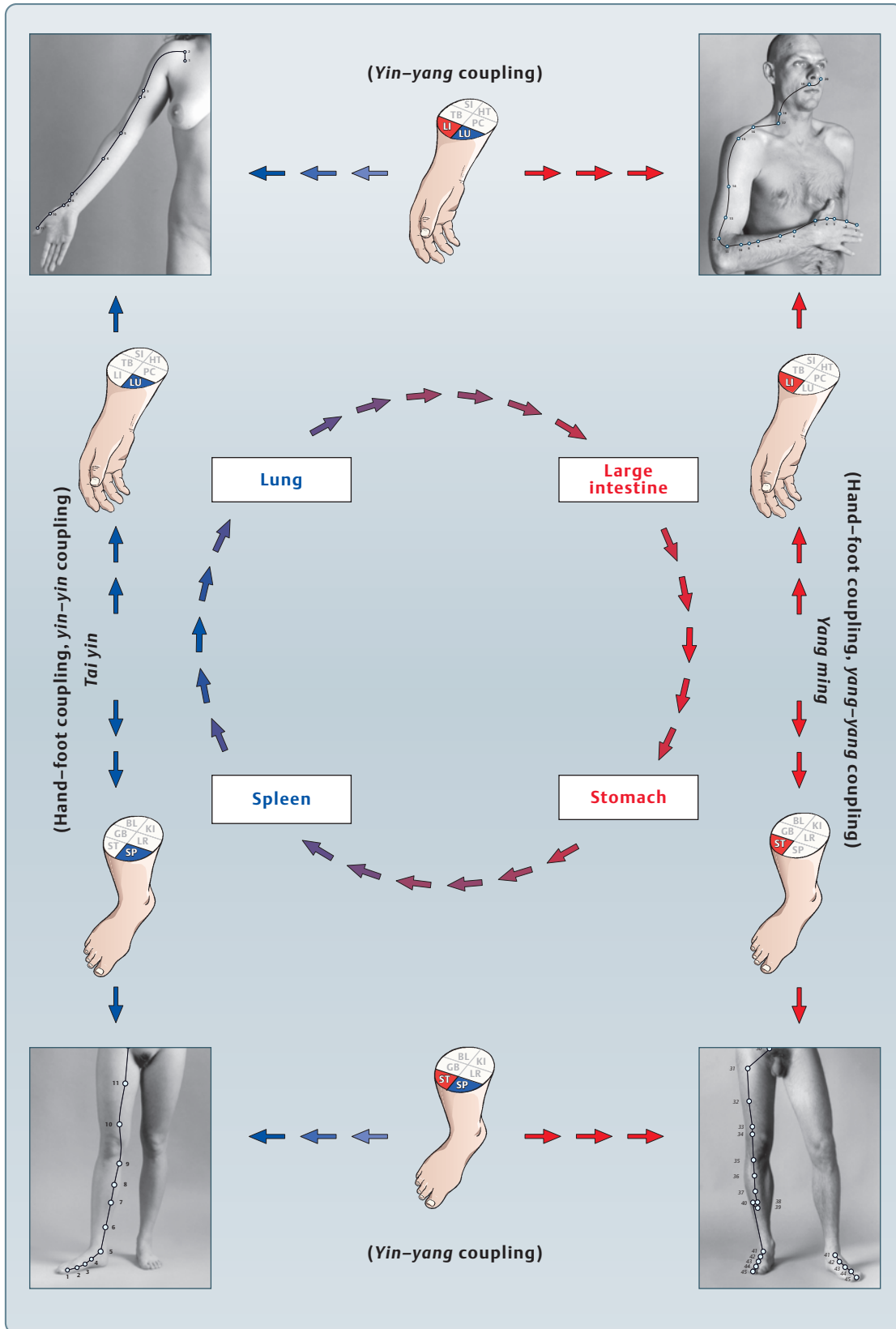
The three channel cycles are:

Front channel cycle: LU—LI—ST—SP

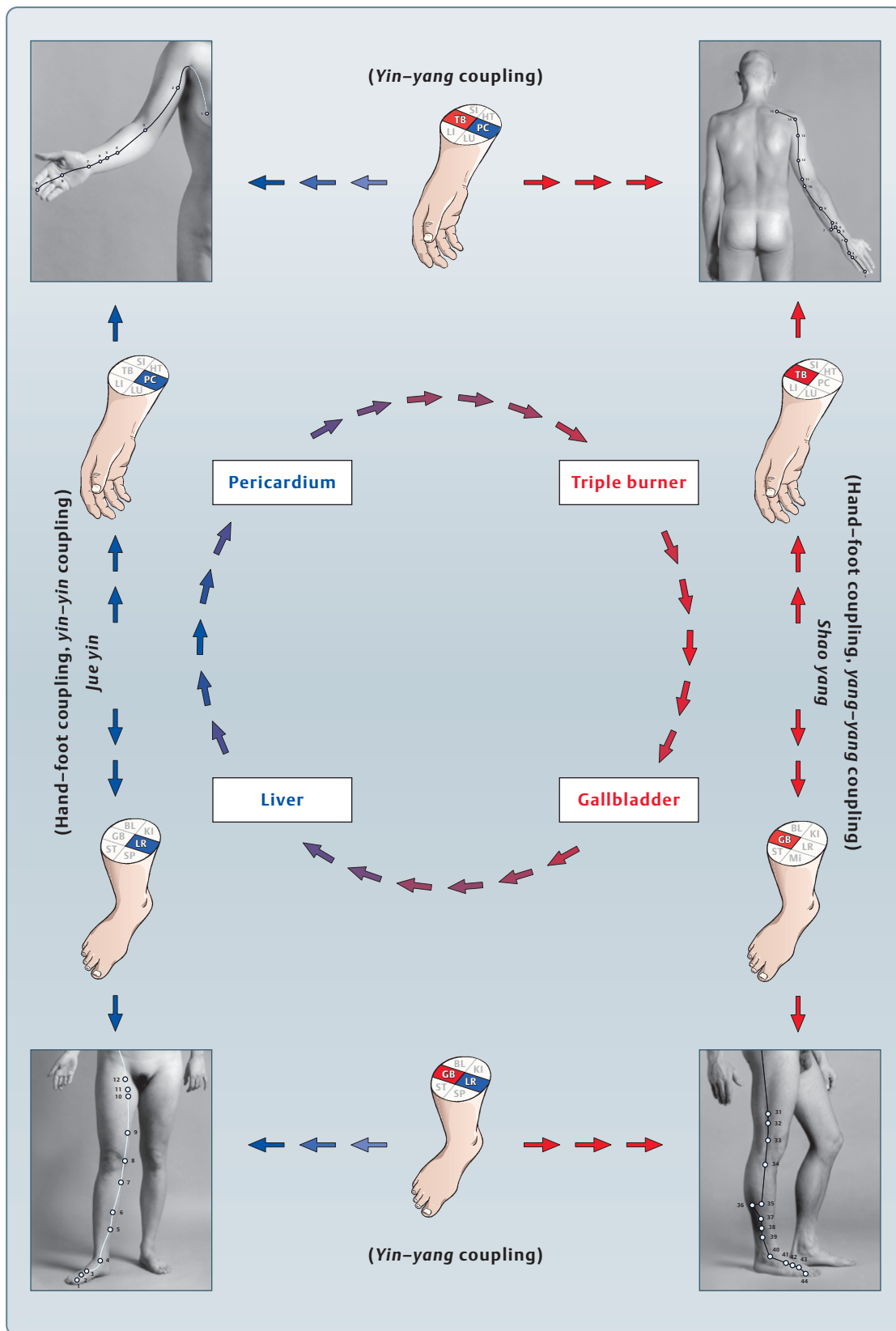
Middle channel cycle: PC—TB—GB—LR

Back channel cycle: HT—SI—BL—KI.

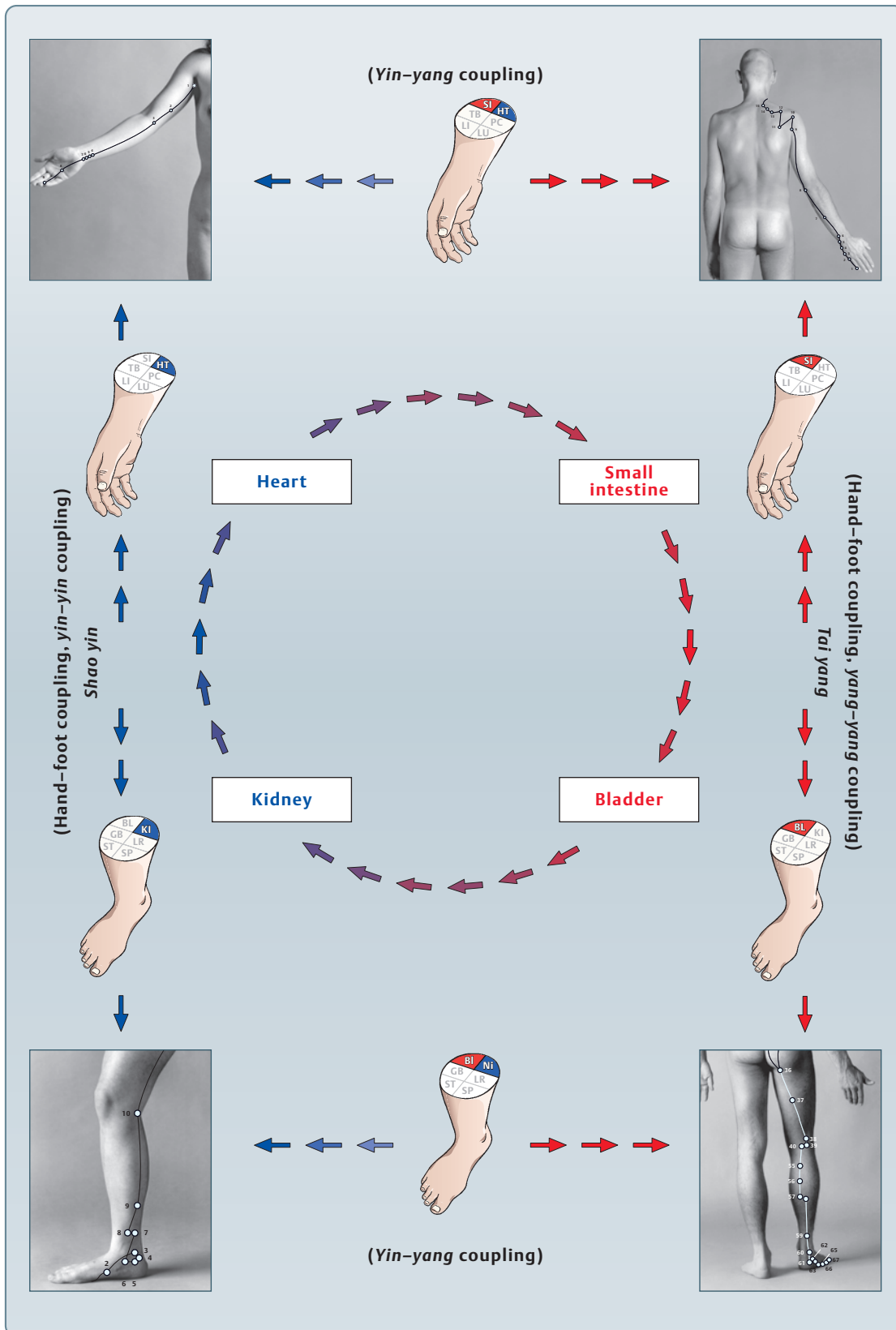
Front Channel Cycle: LU—LI—ST—SP



Middle Channel Cycle: PC—TB—GB—LR



Back Channel Cycle: HT-SI-BL-KI



The Channel Clock

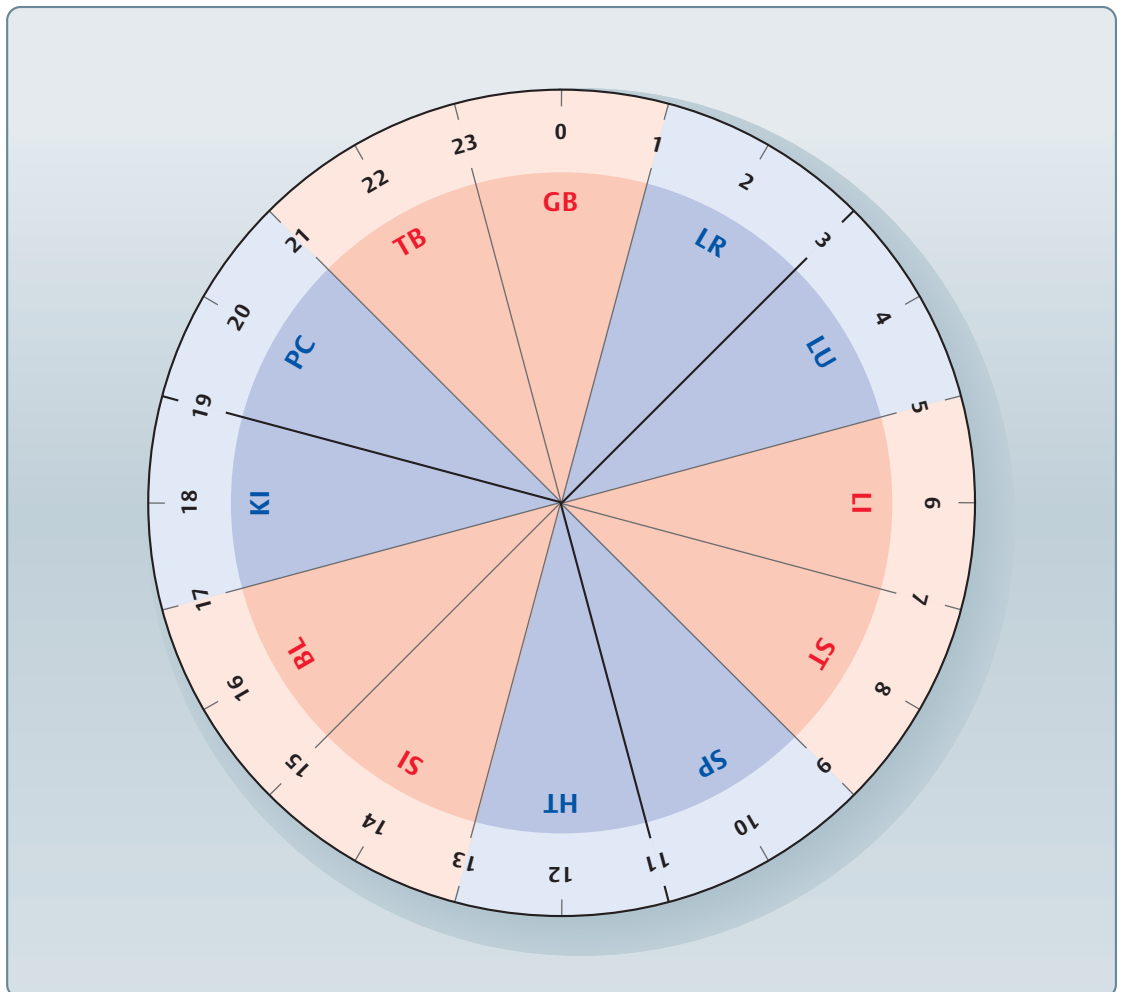
The life energy (*qi*) circulates in the system of the twelve regular channels. All three channel cycles (including all 12 channels) are supplied with energy once every 24 hours. Hence, there are two hours available for each channel, during which time a maximum of energy circulates through its associated organ. This concept of coupling in time and space is expressed in the channel clock.

The circulation of energy begins with the lung channel at 03:00 hours. The channels of the large intestine, stomach, and spleen follow according to the front cycle. Next comes the back cycle which begins at 11:00 and includes the channels of the heart, small intestine, bladder, and kidney. The circulation of energy in the

channels of the pericardium, triple burner, gall-bladder, and liver comes last (middle cycle).

The period of time in which a channel and its associated organ is supplied with a maximum of energy is called peak time. During this time, the organ is particularly susceptible to disturbances. Thus, dysfunctions that happen to occur at the same time of the day may be related to a disturbance of the organ system indicated by the channel clock.

In conventional medicine, the circadian rhythm of organ functions has been known for a long time. For example, allergic diseases often worsen in the early hours of the morning (03:00–05:00), biliary colic is common at midnight (23:00–01:00), and functional heart disease with palpitation is more frequent at noon (11:00–13:00).



The Five Phases of Transformation

Definition
















The five phases of transformation represent an analogous view of different correlates of the human body, its environment, and the cosmos. Here, the existing phenomena are divided into five functional units, the five elements or five phases of transformation. The latter term indicates the dynamic interactions between the five functional units.

The description of the five phases of transformation in the literature varies in terms of the amount of details.

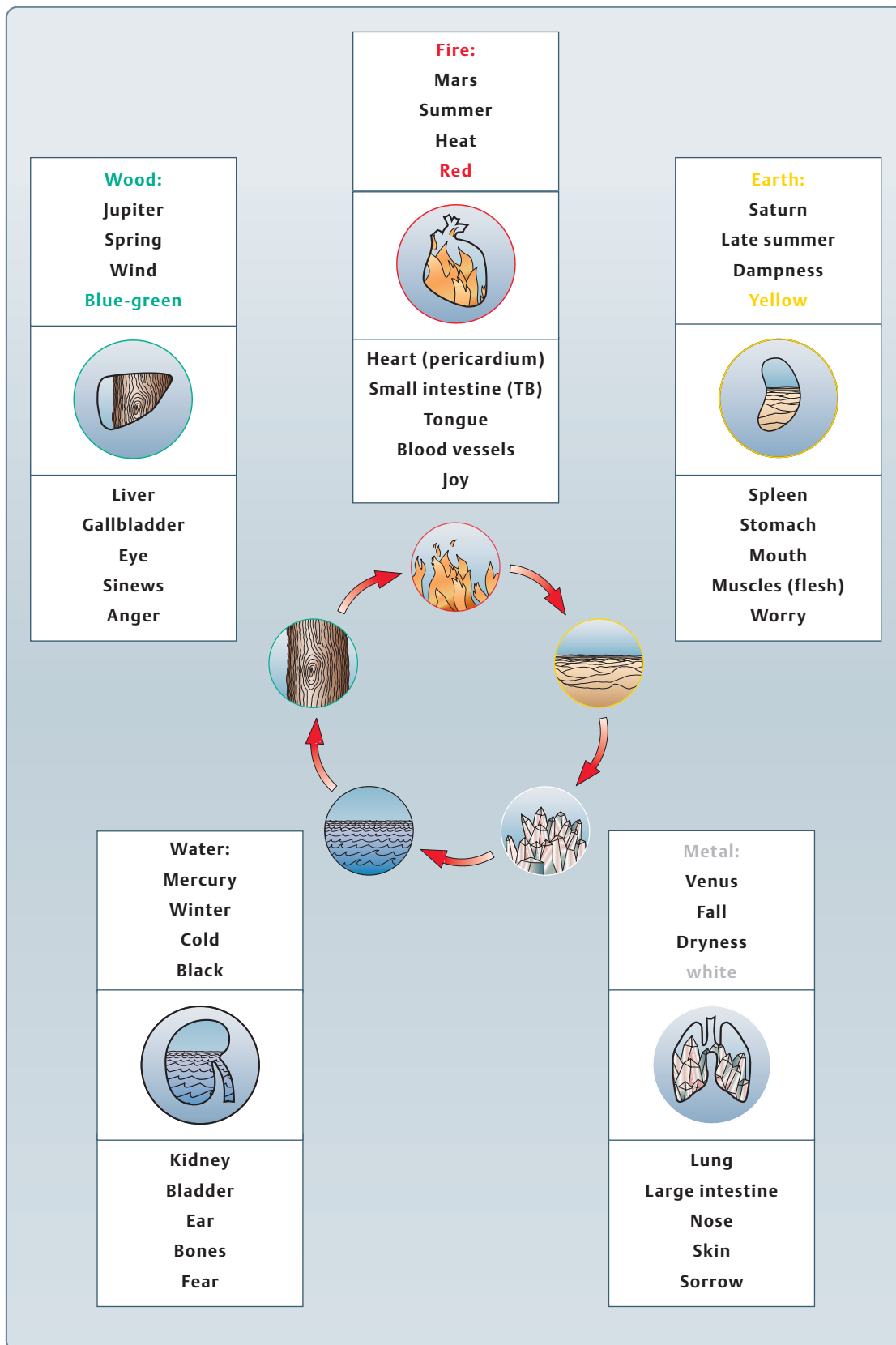
In addition to the most important correlates, the following table lists the animals and plants and also the flavors of food that are important in the field of nutrition.

Those correlates that represent analogous functions in the human body are called organ networks or simply *zang fu* according to the respective *zang* and *fu* organs. The phases of wood, earth, metal, and water include two organ networks each, whereas the phase of fire includes four organ networks.

The Five Phases of Transformation and Their Important Correlates

Phase	Wood	Fire	Earth	Metal	Water
					
Cosmos Planet	Jupiter	Mars	Saturn	Venus	Mercury
Environment Direction Season Climate (external pathogenic factor) Animal Plant Stage Color	East Spring Wind Chicken Wheat Geminating Blue-green	South Summer Heat Sheep Beans Growing Red	Centre Late summer Dampness Cow White millet Transforming Yellow	West Autumn Dryness Horse Oil plants Maturing White	North Winter Cold Pig Yellow millet Storing Black
					
Human being Zang organ	Liver 	Heart (Pericardium) 	Spleen 	Lung 	Kidney 
Fu Organ	Gallbladder	Small intestine (triple burner)	Stomach	Large intestine	Bladder
Sensory organ Body tissue	Eye Sinews	Tongue Blood vessels	Mouth Muscles (flesh)	Nose Skin	Ear Bones
Body parts Flavor Emotion	Nails Sour Anger (resentment, aggression)	Facial skin Bitter Joy (hectic)	Lips Sweet Worry (rumination, obsessive thinking)	Body hair Spicy Sorrow (sadness, grief)	Scalp hair Salty Fear (fright, shock)

The Five Phases of Transformation and Their Most Important Correlates



Practical Importance of the Five Phases and the Organ Networks

The five phases of transformation and the organ networks are of diagnostic as well as therapeutic significance. The diseases that are recorded when taking a patient's history according to TCM fit into one or more phases or organ networks. For example, if a disease reappears always in autumn and manifests itself especially as a dysfunction of the nose and lung, these are three indications for the phase of metal. Treatment consists of needling points of the organ networks belonging to metal, namely, the points of lung and large intestine. It should be noted, though, that all correlates of a particular phase do not always occur concurrently in the patient's history. Furthermore, symptoms of two or three phases may be combined, which then may require treatment by means of points belonging to several organ networks. Dysfunctions of the nose and lung may be accompanied by an excess of mucus or the accumulation of fluid. This already indicates that the organ networks of the spleen and stomach are involved (phase of earth—dampness) and that the points of these organ networks need to be needled as well.

activity of germination that makes a new beginning possible. In human beings, the stage of mourning contains the opportunity for personal maturation. The necessity to let go of ideas, persons, and relationships includes the opportunity for a new beginning after a phase of resting, gathering, and storing.

The Five Phases as Holistic Gateway to the Psychosomatic Consideration of Human Nature

According to Chinese philosophy, the human body is nothing else throughout life than the condensation of *qi*, which is ubiquitous in nature. Physiological and pathological processes of psychosomatic functional relationships between body and mind can be better understood when comparing them with images found in nature. Autumn is the stage of maturing and subsequent separation and removal; it is related to the metal phase. In nature, the stage of separation that follows complete maturation is essential if, after the subsequent resting stage of winter, a new beginning is to be initiated in the spring. In spring, nature exhibits the dynamic

Acupuncture Points

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Characteristics of Acupuncture Points

The following characteristics are used when locating a point:

- Standardized location with respect to anatomical structures (muscles, creases, bones, and tendons)
- Altered mechanical resistance (fingers get stuck due to roughness, depression, or swelling of the skin)
- Altered moisture content of the skin
- Increased sensitivity to pressure
- Increased thermal reflection
- Decreased electrical resistance of the skin.

Localization of Acupuncture Points

Points are located by means of the following:

- Anatomical structures (see above)
- Proportional measurement (body cun, finger cun)
- Dynamic palpation (fingers get stuck due to roughness, depression, or swelling of the skin)
- Increased sensitivity to pressure.

(If the needle is turned, it is important that the needle is not turned in one direction only)

- The puncture direction is normally perpendicular to the surface of the skin—or tangentially in the case of thin, soft tissue or tendons
- Both hands are always used when needling. This applies to:
 - locating the point
 - inserting the needle
 - manipulating the needle
 - removing the needle
- During needle insertion, the other hand is used:
 - to apply counterpressure with the thumb
 - to stretch soft tissue
 - to form a fold.

NOTE: During needling you should be relaxed and focused (rather than being exhausted or pressured by time).

Needle Stimulation

Stimulation of the needle depends on whether there is a condition of excess or deficiency, which is indicated by the symptoms as well as by the constitution and condition of the patient.

Method of Needling

- Needle application is usually carried out with three fingers: The needle is held between the thumb and index finger, while the middle finger gives additional guidance to the needle whenever possible
- Normally, the practitioner quickly punctures the skin and slowly searches in the depth for the *de qi* sensation. It can be helpful to turn the needle slightly, but this is not essential.

Moxibustion

Moxibustion is a term derived from the Japanese word *moxa* (burning herb; *mo*, to burn, and *kusa*, herb). Historically, moxibustion has always been part of acupuncture, as illustrated by the literal translation of the Chinese character for acupuncture:

Acupuncture—*zhen jiu*—to puncture (and) burn.

Moxibustion involves the burning of a specially prepared, dried mugwort (*Artemisia vulgaris*) over acupuncture points.

Methods of Moxibustion

Moxibustion can be carried out with:

- A moxa cigar held at a distance from the skin
- A moxa cone mounted on a small plate and then placed directly onto the skin
- A thin moxa rod held over the skin
- Moxa herb, or a slice of moxa cigar, placed on a slice of ginger
- Moxa herb attached to the end of an acupuncture needle (“fire needle”).

Moxibustion is normally used as a tonifying treatment. It warms the tissue underneath.

The sedating type of moxibustion, where the burning moxa rod directly touches the skin, is less commonly used.

Undesired effects during tonifying moxibustion are local burns. Caution: polyneuropathy, impaired sensibility of segments.

Effect of moxibustion in TCM

- Expels cold and moisture
- Strengthens yang
- Stimulates the flow of blood.

Indications for moxibustion

- Cold diseases
- Conditions of weakness and exhaustion
- Diseases of old people with a weak constitution
- Degenerative chronic diseases.

Contraindications for moxibustion

- Symptoms of heat
- Hypertension.

Moxibustion is not used in the following cases

- Red body of the tongue
- Thick, yellow coat of the tongue
- Rapid pulse

Cupping

Cupping is an effective method of stimulation and is often used in connection with acupuncture. It is therefore briefly introduced and explained in the following section. For a more detailed reading, please refer to the literature (see “References,” p. 638).

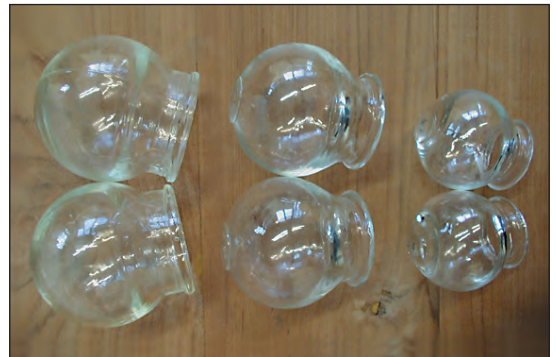
History

The method of cupping is based on the production of negative pressure in a hollow body that is then placed onto the skin. Such procedures have been developed in many different cultures and medical systems. The earliest Chinese sources that mention cupping (to which they refer as “horn therapy”) are from the Han dynasty (206 BC to 220 AD). Cupping was performed by means of animal horns and was mainly used to treat abscesses.

The earliest references to bleeding cupping (see below) were found in Egypt and stem from around 1500 BC. Similar techniques have also been mentioned by *Hippocrates* (460–377 BC) and *Galen* (129–199 AD). European and American physicians used cupping for various health disturbances up until the second half of the 19th century. With the advent of new diagnostic and therapeutic procedures at the beginning of the 20th century, interest in cupping therapy declined. In recent years, however, the method has been revived in connection with the increasing interest in complementary and alternative therapies.

Tools

Today, cupping glasses of various volumes and opening diameters are mostly used in the West (top figure). They are easy to clean and disinfect. The rounded rim is comfortable for the patient. Furthermore, the cupping process can be observed through the glass. In China, bamboo cupping vessels are often used (middle figure). They are relatively robust, but have several disadvantages. They are difficult to disinfect and don't allow for visual control of the treatment process. Furthermore, the rims are sharp and less comfortable for the patient than those of



Various cupping vessels.

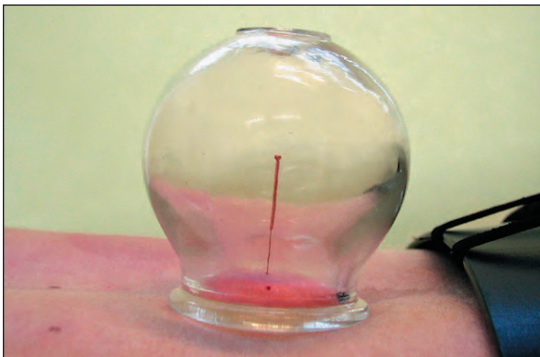
cupping glasses. Other cupping tools made of plastic or rubber (bottom figure, p. 34) are commercially available, but they are less often used. Apart from these special tools, suitable everyday items, such as tea cups or drinking glasses, are also used in Asian countries.

Types of Cupping

We distinguish between two cupping methods: full (bleeding) cupping and dry (nonbleeding) cupping.

In the case of bleeding cupping, the skin is first injured in order to remove blood and tissue fluid from the body. In the case of dry cupping, the cupping vessels are applied to the intact skin. Cupping massage (sliding cupping) is a special form of dry cupping, in which oil or some other lubricant is first applied to the skin so that the cupping glass can then be moved back and forth over the area to be treated (top figure).

Apart from these, there are special forms of application, such as needle cupping or moxa cupping, in which the cupping glass is placed over an acupuncture needle (middle figure) or over an acupuncture needle with a smoldering moxa attached to it (bottom figure, left). Less often used is herb cupping, for which the bamboo cupping vessels are boiled in an herbal brew prior to treatment, or water cupping, for which the cupping glass is filled to one-third with warm water (bottom figure, right). This latter method is especially gentle and is used over point BL-13 as a preferred treatment of dry cough and asthmatic complaints (also in children).



Various ways of cupping.



Technique

Basically, negative pressure must be produced in the cupping vessel. This can be achieved in various ways.

The most common method is to temporarily introduce a flame into the cupping vessel, which warms the air so that it expands (top and middle figures). After placing the vessel on the skin, the air in the vessel cools down and contracts, thus creating negative pressure. This sucks the skin and the underlying tissue into the cupping vessel (bottom figure). This kind of cupping requires the preparation of pads soaked with alcohol. Any excess of flammable fluid must be squeezed out to avoid the dripping of burning fluid. A pad is held with forceps or a clamp; it is then ignited and briefly introduced into the cupping vessel. The greater the warming effect and the shorter the interval between warming and application to the skin, the more intense the resulting suction. A container with water should be available to put out the burning pads.

With other types of cupping vessels, the air is evacuated by means of an attached rubber ball or various pumping systems.

The cupping effect on the skin can be observed through the cupping glass. Removing the cupping vessel is done by depressing the skin at the rim, thus letting air into the vessel. The cupping vessels should always be disinfected after use. Any excess disinfectant must be wiped off because most of these solutions are flammable and run the risk of causing burns when reusing the vessels.



Cupping technique.

Mechanism of Action

In naturopathy, cupping is regarded as an eliminating therapy. According to Western interpretation, the mechanism of action most likely involves a local increase in blood flow and stimulation of a segment—also in the sense of a viscerocutaneous reflex mechanism. The suction causes a release of blood and tissue fluid into the subcutaneous tissue. This activates the blood flow and increases the elimination of metabolites. This can be highly effective in cases of muscle tension and trigger points. Furthermore, there is activation of the immune system. In TCM philosophy, the emphasis is on the removal of pathogenic factors and the easing of local symptoms of excess as well as on the influence on internal organs and their organ networks. Basically, we distinguish between a tonifying form of dry cupping and a sedating form. Production of a slight-to-moderate negative pressure in the cupping vessels (by brief introduction of the flame) is considered to be tonifying and should be used for patients with diagnosed symptoms of weakness. Cupping with a strong negative pressure and cupping massage are considered to be sedating and should be used accordingly.

Apart from this, bleeding cupping results in the removal of a considerable amount of blood and a slight dilution of circulating blood.

The sites of cupping application may be selected locally (e.g., over myogelosis) or over acupuncture points.

Side Effects

Depending on the patient's disposition and the strength of the cupping, more or less severe hemorrhaging of the skin and hematoma that take several days to resorb are frequently seen. Blisters may be formed if the skin is especially sensitive. Caution is advised during cupping over acupuncture needles because the suction pulls the tissue over the needle, thus increasing the effective depths of the puncture. This carries a certain risk especially in critical regions, such as the thorax (risk of pneumothorax). During moxa cupping, the skin around the needle needs to be protected, as burnt moxa herb may fall from the needle.

Contraindications

In principle, cupping therapy is a relatively mild procedure. Nevertheless, there are contraindications:

- Over acute skin damage (e.g., wounds or sunburn) or previously damaged skin (e.g., by radiation therapy), and in cases of hereditary or drug-induced bleeding disorders (e.g., induced by warfarin)
- During pregnancy (at least no cupping should be applied in the abdominal and pelvic regions or in the lumbar region)
- In cases of known predisposition to cramps (e.g., epilepsy as a relative contraindication)
- In cases of severely reduced general health or conditions associated with lack of energy (at least no bleeding and sedating cupping).

Differentiation of Acupuncture Points—Control Points

There are 361 acupuncture points on the 12 regular channels and on two of the extraordinary channels, the governor vessel and conception vessel. The points of the 12 regular channels lie in pairs on the left and right, while those of the governor vessel and conception vessel are unpaired points on the posterior and anterior median line, respectively.

In addition to these acupuncture points, there are 48 extra points (an official numbering system has existed in China since 1991). A characteristic of these extra points is that they are not assigned to a channel.

Ah shi (“that’s it!”) points, also called “ouch” points, are tender points in a person. They play a role as local points in the treatment of chronic pain.

Control Points

Control points are acupuncture points with a special direction of action, i.e., it is possible to assume the direction of action based on the control point’s assignment. The control points are usually called by their Chinese names to prevent misunderstandings due to translation.

The following control points are usually not called by their Chinese names:

- The eight confluence points
- The eight influential points.

Yuan points	
Yin channels	Yang channels
LU-9	LI-4
SP-3	ST-42
HT-7	SI-4
KI-3	BL-64
PC-7	TB-4
LR-3	GB-40

Control Points	
Chinese term	Common English term
<i>Yuan</i> point	Source point
<i>Luo</i> point	Connecting point
<i>Xi</i> point	Cleft point
Front <i>mu</i> point	Front collecting point (alarm point)
Back <i>shu</i> point	Back transporting point
Lower <i>he</i> point	Lower sea point
Group <i>luo</i> point	Group connecting point
Five <i>shu</i> points (including mother and child points)	Five transporting points (including tonifying points and sedating points)

The Yuan Points (Source Points)

The exact translation of *yuan* is “origin” (of *qi*). These are the points at which original *qi* can be moved by acupuncture.

Significance of the *yuan* points:

- Those on the *yin* channels are the most important points for treating chronic dysfunctions of *zang* organs (exception: PC-7)
- Those on the *yang* channels play a minor role in treating dysfunctions of *fu* organs.

Basic therapy for chronic dysfunction of a *zang* organ:

Yuan point + back *shu* point.

Example:

For treating disorders of the respiratory tract:
LU-9 (*yuan* point) + BL-13 (back *shu* point).

Location: Counting from the periphery (the distal end of an extremity), the *yuan* point is the third point on a *yin* channel and the fourth point on a *yang* channel (exception: fifth point on the gallbladder channel).

The *Luo* Points (Connecting Points)

The exact translation of *luo* is “network.”

Connection of the *luo* points to their coupled channels via transverse *luo* vessels

Lu-7	▶	Large intestine channel
LI-6	▶	Lung channel
ST-40	▶	Spleen channel
SP-4	▶	Stomach channel
HT-5	▶	Small intestine channel
SI-7	▶	Heart channel
BL-58	▶	Kidney channel
KI-4	▶	Bladder channel
PC-6	▶	Triple burner channel
TB-5	▶	Pericardium channel
GB-37	▶	Liver channel
LR-5	▶	Gallbladder channel
CV-15	▶	Governor vessel
GV-1	▶	Conception vessel

Significance of the *luo* points:

- Connection with the coupled *yin* or *yang* channel through the respective connecting vessel (*luo mai*). The *luo* point provides a connection to the coupled channel in general, rather than to a specific point on that channel.

The *Xi* Points (Cleft Points)

The exact translation of *xi* is “cleft.”

Xi points

Upper extremity	Lower extremity
Lu-6	ST-34
LI-7	SP-8
HT-6	BL-63
SI-6	KI-5
PC-4	GB-36
TB-7	LR-6

Significance of the *xi* points:

- Treatment of acute dysfunctions of the organ associated with the respective organ network
- Treatment of acute exacerbation of chronic dysfunctions of the organ associated with the respective organ network.

The Front *Mu* Points (Front Collecting Points)

These points are also referred to as alarm points. The exact translation of *mu* is “collecting.”

Action of the front *mu* points:

- Effect on dysfunctions of the respective organ network, especially in cases of acute dysfunctions.

Location of the front *mu* points and the neurophysiological explanation of their effectiveness

The front *mu* points are located on the anterior of the trunk. From a neurophysiological point of view, each front *mu* point lies in the region of the anterior branches of the particular spinal nerve that has a segmental reflex relationship with the internal organ of the organ network belonging to that front *mu* point. For example, LU-1 is related to the function of the anterior branches of the nerve supplying the lung.

All portions of a segment (organ, small vertebral joints, muscles, skin) are interconnected by a spinal nerve to form a functional reflex unit (for a detailed explanation, see textbooks on manual medicine). The signals from painful dysfunctions within a segment are initially transmitted by nociceptive afferent fibers to the posterior horn of the spinal cord. Here, the afferent fibers conduct the signals further to the CNS, but there are also segmental reflex relays to efferent fibers of autonomic neurons of the lateral horn and motor neurons of the anterior horn. For example, the efferent fibers of the autonomic lateral horn cells may cause subcutaneous swellings and increased sensibility of the skin, whereas efferent fibers of motor neurons of the anterior horn may cause myogelosis in muscles. These changes often reach their maximum in the area of the front *mu* point, i.e., the maximal anterior reaction of a dysfunctional segment will be found at the front *mu* point.

Hence, the effect of acupuncture at a front *mu* point can be explained as a viscerocuta-

Front *mu* points

LU-1	▶	Lung (LU)
ST-25	▶	Large intestine (LI)
GB-24	▶	Gallbladder (GB)
GB-25	▶	Kidney (KI)
LR-13	▶	Spleen (SP)
LR-14	▶	Liver (LR)
CV-3	▶	Bladder (BL)
CV-4	▶	Small intestine (SI)
CV-5	▶	Triple burner (TB)
CV-7	▶	Lower burner
CV-12	▶	Stomach (ST), middle burner
CV-14	▶	Heart (HT)
CV-17	▶	Pericardium (PC), upper burner

neous segmental reflex to a therapeutic stimulus. The stimulation within a specific skin area has a regulating effect on dysfunctions of the internal organ belonging to the same segment. By means of acupuncture we are able to reverse the viscerocutaneous reflex, which is well known in conventional medicine (namely, the segmental dysfunction of the skin in the case of disease of an internal organ), and to use this reflex therapeutically.

Apart from three exceptions (LU-1, LR-14, and GB-24), the front *mu* points are not located on their “own” channel, i.e., the channel of the respective *zang fu* organ; most of them are found on the conception vessel.

Significance of the front *mu* points:

- They are of diagnostic importance because their pressure sensitivity indicates a disturbance of the respective organ network
- They are of therapeutic importance in diseases of the *zang fu* organs and their networks (this applies mainly to acute diseases).

The Back *Shu* Points (Back Transporting Points)

The exact translation of *shu* is “transport.” Apart from the back *shu* points, which are located on the back, there are five antique points that are also called *shu* points. To distinguish between these points, one should always refer to back *shu* points and the five *shu* points, respectively.

Location of the back *shu* points

The back *shu* points are located on the posterior of the trunk on the inner branch of the bladder channel. Each point is found at the intersection of this channel with the horizontal line running through the palpable lower edge of the respective vertebral spinous process. Since all back *shu* points lie on the bladder channel, they are all located on a “foreign” channel, with the exception of the back *shu* point of the bladder channel.

Neurophysiological explanation of their effectiveness

From the neurophysiological point of view, each back *shu* point lies in the region of the posterior branches of the particular spinal nerve that is functionally related to the internal organ of the organ network belonging to that back *shu* point. For example, BL-13 is functionally related to the spinal nerves that have segmental reflex relays to the lung (compare with: “Location of the front *mu* points and the neurophysiological explanation of their effectiveness,” p. 40).

Hence, the maximal posterior reaction of a dysfunctional skin or muscle region is found at the back *shu* point. Here, too, acupuncture acts by means of viscerocutaneous reflexes, as described in detail for the front *mu* points.

The number of autonomic fibers in the posterior branches of the spinal nerves is above average compared with other dermatome portions of the same segment. In the case of segmental dysfunctions, we may therefore expect to see more prominent changes in the subcutis of the

Back *shu* points in relation to the lower border of the spinous processes and to the organ networks

BL-13	▶ T 3	▶ Lung (LU)
BL-14	▶ T 4	▶ Pericardium (PC)
BL-15	▶ T 5	▶ Heart (HT)
BL-17	▶ T 7	▶ Diaphragm
BL-18	▶ T 9	▶ Liver (LR)
BL-19	▶ T 10	▶ Gallbladder (GB)
BL-20	▶ T 11	▶ Spleen (SP)
BL-21	▶ T 12	▶ Stomach (ST)
BL-22	▶ L 1	▶ Triple burner (TB)
BL-23	▶ L 2	▶ Kidney (KI)
BL-25	▶ L 4	▶ Large intestine (LI)
BL-27	▶ S 1	▶ Small intestine (SI)
BL-28	▶ S 2	▶ Bladder (BL)

posterior side of the trunk than with the front *mu* points on the anterior side.

Like the front *mu* points, the back *shu* points are therefore of diagnostic and therapeutic importance for segmental dysfunctions of different origins.

Significance of the back *shu* points:

- They are of diagnostic importance because they indicate segmental dysfunctions as well as a disturbance of the respective *zang fu* organ network
- They are of therapeutic importance in chronic diseases of the *zang fu* organ networks (in combination with the front *mu* point)
- They are of therapeutic importance as segmental trigger points.

Lower *He* Points (Lower Sea Points)

These points only play a role for *fu* organs (hollow organs) and are located exclusively on the lower extremity.

Significance of the lower *he* points:

- They are of therapeutic importance in acute diseases of the respective *fu* organs
- Therapy often also involves the front *mu* points of the respective *qi*.

He points

ST-36	▶	Stomach
ST-37	▶	Large intestine
ST-39	▶	Small intestine
BL-39	▶	Triple burner
BL-40	▶	Bladder
GB-39	▶	Gallbladder

The Group *Luo* Points (Group Connecting Points)

The exact translation for *luo* is “network.”

Significance of the group *luo* points:

- The group *luo* points have an effect on the three *yin* and three *yang* channels of the hand or the three *yin* and three *yang* channels of the foot. For example, the group *luo* point may be needed in the case of a disturbance in all *yin* channels of the foot.

Group *luo* points

PC-5	▶	The three <i>yin</i> channels of the hand (lung, pericardium, heart)
TB-8	▶	The three <i>yang</i> channels of the hand (large intestine, triple burner, small intestine)
SP-6	▶	The three <i>yin</i> channels of the foot (spleen, liver, kidney)
GB-35	▶	The three <i>yang</i> channels of the foot (stomach, gallbladder, bladder)

The Eight Confluence Points (*Ba Mai Jiao Hui Xue*) (Opening Points of the Eight Extraordinary Channels, or Master Points of the Eight Vessels)

These points are also referred to as cardinal points because they play a key role in therapy. These points are the sites where the regular channels communicate with the eight extraordinary channels.

Each confluence point is assigned to one of the eight extraordinary channels. Needling of the confluence point regulates the flow of energy in the respective extraordinary channel. The confluence points of the governor vessel (SI-3) and the conception vessel (LU-7) are of special importance for the treatment of painful dysfunctions along these two channels.

The eight confluence points of the extraordinary channels

LU-7	▶	Conception vessel (<i>ren mai</i>)
KI-6	▶	<i>Yin qiao mai</i>
SP-4	▶	<i>Chong mai</i>
PC-6	▶	<i>Yin wei mai</i>
SI-3	▶	Governor vessel (<i>du mai</i>)
BL-62	▶	<i>Yang qiao mai</i>
TB-5	▶	<i>Yang wei mai</i>
GB-41	▶	<i>dai mai</i>

According to the therapeutic concepts of TCM, one should always treat two specific confluence points together, especially when treating chronic psychosomatic syndromes.

The Eight Meeting Points (*Ba Hui Xue*) (*Hui* Points, Master Points of the Eight Tissues)

The exact translation of *hui* is “meeting.” Their alternative name, master points of the eight tissues, indicates the general direction of their action: each point has a powerful effect on one of eight physiological entities. The eight influential points dominate the eight tissues: *fu* organs, zang organs, *qi*, blood, sinews, vessels, bones, and marrow.

The eight influential points (master points)

LU-9	▶	Vessels
BL-11	▶	Bones
BL-17	▶	Blood
GB-34	▶	Sinews
GB-39	▶	Marrow
LR-13	▶	Zang organs
CV-12	▶	<i>Fu</i> organs
CV-17	▶	<i>Qi</i> of the chest (<i>zong qi</i>)

The Five *Shu* Points (Five Transport Points)

The five *shu* points include the mother and child transport points (tonifying points and sedating points, respectively).

These antique points are to be distinguished from the back *shu* points of the bladder channel. They are also called the five elements points.

The five *shu* points are located at the distal ends of the limbs: between the fingers and the elbow, or between the toes and the knee, respectively.

The five *shu* points may be considered under the following three aspects:

- Comparison of the five *shu* points to the flow of a river
- Location of the five *shu* points
- Practical implications of the five *shu* points.

Comparison of the five *shu* points to the flow of a river

The energetic influence of the five *shu* points is compared to a river. The river begins with a well at the distal end of the limb and flows through various stages (spring, stream, river) to the sea in the elbow or knee, respectively. Here, the sea opens into the deeper layers of the body.

Comparing the action of the five *shu* points to a flow of energy has therapeutic consequences. The flow of *qi* in this river is dynamic, quick, and superficial. It runs very quickly and superficially at the most distal points, the well points. After slowing down and running deeper, the energy finally enters the body at the sea points.

According to this concept, the five *shu* points have the following characteristics:

- Because of their energetic dynamics, they can be used to achieve distinct effects quickly (this is true especially for the most distal points)
- Their superficial course provides a connection to the environment. External pathogenic factors enter the body through these points and can be eliminated through them.

This concept explains the more frequent use of these distal channel points compared with other acupuncture points (even if they are not used under the aspect of a specific *shu* point).

Location of the five *shu* points

The first *shu* point of a channel is always the most distal point, regardless of the direction in which the channel runs. It is called the well point, or—to use its Chinese name—the well (*jing*) point.

The second *shu* point is always the second point on the channel counting from the distal end of the extremity. It is called spring (*ying*) point; a less common name is spring (*rong*) point.

The third *shu* point is almost always the third channel point from the distal end. An exception

is the corresponding point on the gallbladder channel, which is the fourth point from the distal end. These points are called stream (*shu*) points.

The fourth *shu* point has various locations—it is not the fourth point from the distal end. It is located either at the wrist or ankle, or in the region of forearm or lower leg. It is called the river (*jing*) point.

The fifth *shu* point is always located at the elbow or knee. It is called the sea (*he*) point.

The five *shu* points

First <i>shu</i> point	Well (<i>jing</i>) point
Second <i>shu</i> point	Spring (<i>ying</i>) point, or spring (<i>rong</i>) point
Third <i>shu</i> point	Stream (<i>shu</i>) point
Fourth <i>shu</i> point	River (<i>jing</i>) point
Fifth <i>shu</i> point	Sea (<i>he</i>) point

In the Chinese literature, the antique points of each *yang* channel include the *yuan* point in addition to the five *shu* points (see table on p. 46). Hence, there are really six antique points on each *yang* channel. The *yuan* point is always the fourth point from the distal end, except for the gallbladder channel, where it is the fifth point.

It is customary to assign the five *shu* points to the five phases of transformation and to the seasons (spring, summer, late summer, autumn, winter). This reflects the superficial location of the points and their close relation with the environment. There are different assignments for *yin* and *yang* channels. On each *yin* channel, the most distal point—the well (*jing*) point—corresponds to wood and spring. Assignment of the other points follows the familiar sequence of the phases of transformation (wood, fire, earth, metal, water).

On each *yang* channel, the most distal point—the well (*jing*) point—corresponds to metal and autumn. Here, too, assignment of the other points follows the sequence of the phases of transformation (wood, fire, earth, metal, water).

The names of the five *shu* points, the corresponding points on the different channels, and their assignments to the seasons and the phases of transformation are listed in the following tables.

The Five *Shu* Points of the *Yin* Channels

	Lung (<i>tai yin</i>)	Spleen (<i>tai yin</i>)	Heart (<i>jue yin</i>)	Kidney (<i>shao yin</i>)	Pericardium (<i>shao yin</i>)	Liver (<i>jue yin</i>)
Fifth <i>shu</i> point: Sea (<i>he</i>) point Water—winter	LU-5 Sedation	SP-9	HT-3	KI-10	PC-3	LR-8 Tonification
Fourth <i>shu</i> point: River (<i>jing</i>) point Metal—autumn	LU-8	SP-5 Sedation	HT-4	KI-7 Tonification	PC-5	LR-4
Third <i>shu</i> point: Stream (<i>shu</i>) point Earth—late summer (<i>yuan</i> point)	LU-9 Tonification	SP-3	HT-7 Sedation	KI-3	PC-7 Sedation	LR-3
Second <i>shu</i> point: Spring (<i>ying</i>) point or spring (<i>rong</i>) point Fire—summer	LU-10	SP-2 Tonification	HT-8	KI-2	PC-8	LR-2 Sedation
First <i>shu</i> point: Well (<i>jing</i>) point Wood—spring	LU-11	SP-1	HT-9 Tonification	KI-1 Sedation	PC-9 Tonification	LR-1

The Five *Shu* Points of the *Yang* Channels

	L. intestine (<i>yang ming</i>)	Stomach (<i>yang ming</i>)	S. intestine (<i>tai yang</i>)	Bladder (<i>tai yang</i>)	Triple Burner (<i>shao yang</i>)	Gallbladder (<i>shao yang</i>)
Fifth <i>shu</i> point: Sea (<i>he</i>) point Earth—late summer	LI-11 Tonification	ST-36	SI-8 Sedation	BL-40	TB- 10	GB-34
Fourth <i>shu</i> point: River (<i>jing</i>) point Fire—summer	LI-5	ST-41 Tonification	SI-5	BL-60	TB- 6	GB-38 Sedation
Source (<i>yuan</i>) point	LI-4	ST-42	SI-4	BL-64	TB- 4	GB-40
Third <i>shu</i> point: Stream (<i>shu</i>) point Wood—spring	LI-3	ST-43	SI-3 Tonification	BL-65 Sedation	TB- 3 Tonification	GB-41
Second <i>shu</i> point: Spring (<i>ying</i>) point or spring (<i>rong</i>) point Water—winter	LI-2 Sedation	ST-44	SI-2	BL-64	TB- 2	GB-43
First <i>shu</i> point: Well (<i>jing</i>) point Metal—autumn	LI-1	ST-45 Sedation	SI-1	BL-67 Tonification	TB- 1	GB-44

Practical Implications of the Five *Shu* Points

This can be considered under the following aspects:

- **Energetic dynamics and elimination of pathogenic factors**
- **Assignment to the five phases of transformation: Points for sedation and tonification.**

Practical Implications of the Five *Shu* Points: Energetic Dynamics and Elimination of Pathogenic Factors

First *shu* point

Here, the channel (and therefore the energy) runs very superficially; the flow of *qi* is very dynamic, and pathogenic factors are still at the surface. By needling these points, it is possible to eliminate external pathogenic factors very quickly—especially heat—and to influence emergencies or acute situations. For example, LU-11 is used for acute sore throat, PC-9 for collapse and heat stroke, HT-9 for collapse, SP-1 for uterine bleeding, and KI-1 for unconsciousness and cramps. These points have a strong effect on the emotional state and quickly lead to mood changes. For example, KI-1 is used for severe agitation, and PC-9 and HT-9 for inner restlessness and sleeping disorders.

Second *shu* point

Here, too, the flow of energy is dynamic and superficial, and external pathogenic factors are still confined to the external course of the channel—as is the case with the first *shu* point. Quick changes can be achieved by needling these points in cases of dysfunctions. These points are also used in acute situations; like the first *shu* points, they are especially effective in the case of heat syndromes. For example, LU-10 is used for acute painful pharyngitis, ST-44 for acute and severe frontal headaches or in acute inflammatory processes in the facial region, GB-43 for acute lateral headaches caused by ascending

liver *yang*, and LR-2 for the most severe lateral headache (migraine) caused by liver fire.

Third *shu* point

Here, the flow of *qi* is slightly slower but wider and—especially in the *yin* channels—more powerful (more effective) in the long term. This explains the common use of these points for chronic dysfunction of the *zang* organs. The third *shu* point of each *yin* channel corresponds to the *yuan* (source) point introduced earlier. The *yuan* points belong, together with the back *shu* points, to the basic therapeutic concepts in cases of dysfunction of the *zang* organs (see p. 441 of the chapter “Pragmatic Five-Step Concept for Treating Internal Diseases”). As the flow of energy already runs in deeper layers at the third *shu* point, pathogenic factors become transported into the body. Defense *qi* gathers at these locations; hence, the third *shu* point is used for eliminating external pathogenic factors. For example, LI-3, TB-3, SI-3, and ST-43 are used for painful dysfunctions of the fingers or toes—but also in cases of painful diseases of the respective channel.

Fourth *shu* point

Here, the flow of *qi* has become slower, wider, and more powerful. The effect of these points therefore unfolds usually more slowly than with the more distal points, and external pathogenic factors penetrate deeper into the body, especially in the regions of joints, bones, and tendons. The fourth *shu* point is often located in the region of the wrist or ankle (LI-5, ST-41, SP-5, SI-5, BL-60, LR-4) and is then used for local treatment of joint pain.

Fifth *shu* point

Here, the flow of *qi* is very wide and slow. The effect of these points unfolds more slowly and is less powerful than with the other *shu* points. From here the energy flows into the body, and the pathogenic factors reach the inside of the body. The fifth *shu* point can therefore be used for internal diseases caused by external pathogenic factors. For example, GB-34 is used for internal wind diseases, and SP-9, KI-10, and LR-8 for treating dampness and heat in the intestine and in the bladder.

NOTE: *The elimination of external pathogenic factors, especially heat and cold, is also possible through the respective fire or water points because of their assignment to the five phases of transformation (see below). However, the first and second shu points also eliminate heat—no matter which phase of transformation is involved. For example, HT-8 is a fire point, and ST-44 is a water point. Both of them eliminate heat because both are second shu points.*

Practical Implications of the Five *Shu* Points: Assignment to the Five Phases of Transformation

This assignment has two aspects:

- **Assignment of two *shu* points of a channel as tonifying and sedating points**
- **Possible therapies through the elimination of pathogenic factors.**

Because of their relationship with the environment, the five *shu* points are assigned to the five phases of transformation (five elements), namely, wood, fire, earth, metal, and water. However, their assignments differ for *yang* and *yin* channels. While the most distal point of all *yang* channels is the metal point, the most distal point of all *yin* channels is the wood point. Further assignments result from the familiar sequence of the phases of transformation (see tables, pp. 28, 29). Thus, the wood point is followed by the fire point, the earth point, the

metal point, and the water point. The *yuan* (source) point (sixth antique point of the *yang* channels) is not considered in this sequence.

Assignment of two *shu* points of each channel as tonification and sedation points (mother and child points)

As an example, these assignments are described for the *yang* channels. The five *shu* points of a *yang* channel are named after one of the five phases of transformation (five elements):

1. First *shu* point—metal point
2. Second *shu* point—water point
3. Third *shu* point—wood point
4. Fourth *shu* point—fire point
5. Fifth *shu* point—earth point.

As shown in the table on p. 27, the six *yang* channels are also assigned to one of the five phases of transformation. The large intestine channel is assigned to metal, the stomach channel to earth, the small intestine to fire, etc. The small intestine and triple burner channels are both assigned to the same element, namely, fire. For each channel, one of the five *shu* points thus belongs to its own element; this point is called the **element point** of the channel. For the large intestine channel (phase of metal), this point is the metal point, namely, the first *shu* point, LI-1. For the stomach channel (phase of earth) this is the earth point, namely, the fifth *shu* point, ST-36, and for the small intestine channel (phase of fire) this is the fire point, namely, the fourth *shu* point, SI-5. The element points belonging to each channel are highlighted in the tables on pp. 45 and 46.

Assuming a circular arrangement of the five *shu* points and always starting at the periphery of the body, each element point has a preceding point and a following point. In the case of LI-1, the preceding point is LI-11, and the following point is LI-2. The preceding point (LI-11) can also be regarded as the “mother” of the element point (LI-1), and the following point (LI-2) as the “child”. According to this mother-and-child rule, the **mother point** has a tonifying (reinforcing) effect on the following element point. For the element point LI-1, this means that the preceding point (LI-11, the earth point) has a tonifying function. The **child point** has a sedating (reducing) effect on the preceding element point. For the element point LI-1, this means that the following point (LI-2, the water point) has a sedating function.

The following examples illustrate once more how the tonification and sedation points are deduced for a *yang* channel and for a *yin* channel:

Example: Stomach channel (*yang* channel)

Element point: ST-36 (earth point).

The point preceding the element point is ST-41 (fire point); this is the tonifying point (mother point). The point following the element point is ST-45 (metal point); this is the sedating point (child point).

Example: Lung channel (*yin* channel)

Element point: LU-8 (metal point).

The point preceding the element point is LU-9 (earth point); this is the tonifying point (mother point). The point following the element point is LU-5 (water point); this is the sedating point (child point).

NOTE: *The tonification and sedation points have been deduced, as described, according to the five phase theory and the mother-and-child rule. The definition of their action is not based on practical experience. This explains the limited practical use of these points.*

Sedation (reduction) and tonification (reinforcement) are primarily achieved through the intensity of stimulation (see the chapter “Pragmatic Five-Step Concept for Treating Internal Diseases,” “Excess–Deficiency,” p. 439). In other words, sedation and tonification can be achieved at any acupuncture point. The correct type of local stimulation by the needle method is more important than the selection of a specific tonification or sedation point. A few examples will demonstrate this: PC-9 and HT-9 are both tonification points. However, they are almost always used for sedation in acute cases. HT-7 is a sedation point, but it is mostly used for tonification. LI-11 is a tonification point, but it is mainly used for sedation.

Possible therapies through elimination of pathogenic factors

External pathogenic factors (even when they have penetrated into the body) can be eliminated by means of the respective point for wind, heat, dampness, or cold. This plays a special role in syndromes of excess.

Among the five *shu* points, the following points correspond to each other:

- Wind point—wood point
- Heat point—fire point
- Dampness point—earth point
- Cold point—water point.

Dryness cannot be eliminated by means of one of the five *shu* points. Dryness is a deficiency syndrome due to insufficient fluids and should be controlled by tonification, i.e., nourishment of the body fluids.

Examples of points often used in this context are as follows:

Elimination of wind:

LU-11 for treating acute laryngopharyngitis,
HT-9 and PC-9 for treating acute unconscious-
ness (internal wind).

Elimination of heat:

LU-10 for treating acute laryngopharyngitis,
LR-2 for purging liver fire.

Elimination of dampness:

Especially by means of SP-3.

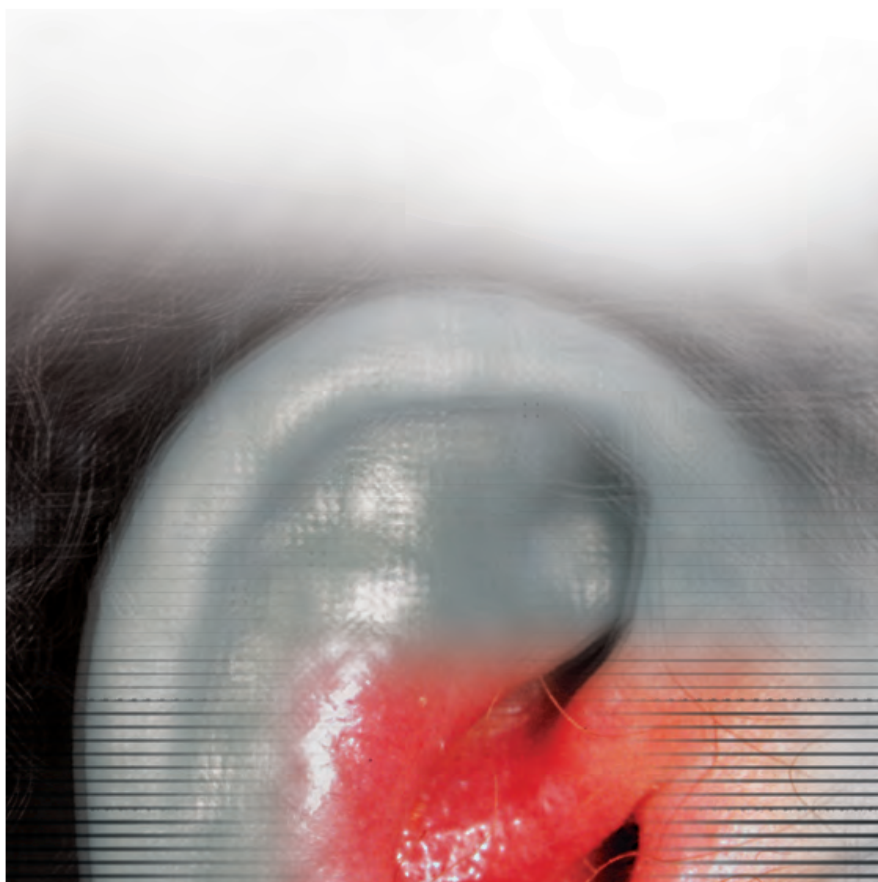
Elimination of cold:

LU-5 purges cold from the lung,
SP-9 purges cold combined with dampness.

However, not all theoretically possible points are used in this context (e.g., HT-3 and PC-3 do not purge cold; HT-7 and KI-3 do not eliminate dampness).

Side Effects of Acupuncture

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Introduction to the Subject

Acupuncture is usually regarded as a natural, holistic, and gentle form of therapy. This view may lead to the misconception that acupuncture treatment is absolutely safe and free of side effects. However, a careful review of literature available in data banks revealed that over 300 severe incidents have been reported worldwide in the last 30 years alone. For various reasons it must be assumed that the number of unreported cases is much higher. First, there have been reports of incidents for which the original descriptions cannot be accessed. Second, for personal or political reasons, no attempts have been made in many cases to inform the public about complications. Furthermore, articles about complications due to acupuncture treatment are rarely published in specialized acupuncture journals, but mostly in the journals of disciplines that have to deal with the consequences. Of course, these scientific journals show little interest after the tenth report of acupuncture-induced pneumothorax or similar incidents. Likewise, the predominantly scientific specialist journals rarely consider reports on acupuncture-induced lesions of nerves and blood vessels important enough to be published. On the other hand, some incidents have been described as being caused by acupuncture, although careful examination revealed that they were probably not attributable to this therapy. Unfortunately, there have been only a few structured studies in which acupuncturists have been interviewed, and no prospective studies have been completed with respect to the frequency and distribution of side effects. However, there are clear indications that there are differences with respect to the incidence of side effects and the degree of severity between medically trained and non-trained practitioners, and there may also be differences between the different education systems.

A large portion of complications and accidents that have been reported could have easily been avoided if the therapists had had a basic knowledge in anatomy and had considered the basic principles of any invasive form of therapy. In other words, these incidents can be attributed to incorrect application of the procedure during diagnosis and therapy. Still, the issue cannot be dismissed with the simple notion that acupuncture would probably be free of side effects if performed by a physician. It doesn't matter whether side effects are due to the procedure or its application. It is the duty of educational organizations and their teachers to point out these potential risks. In connection with the quality assurance required in acupuncture, it is necessary to carry out not only scientifically correct studies on its effects and effectiveness but also reliable studies on its side effects and complications.

Groups of Side Effects

The side effects of acupuncture can be divided into several groups [Rampes and Peuker, 1999; Peuker, 2000]:

- Delay in the diagnosis of a disease
- Worsening of a disease as a result of treatment
- Autonomic reactions
- Infections
- Accidental damage to organs and tissues
- Other side effects.

Delay in the Diagnosis of a Disease

An indirect risk of acupuncture results from overlooking a serious disease or, at least, from delaying its diagnosis.

Worsening of a Disease as a Result of Treatment

It is frequently stated in acupuncture books and during training courses that initial deterioration, i.e., the worsening of symptoms at the beginning of the therapy, can be regarded as a good sign in so far as it obviously indicates a response to the treatment. However, some cases have been described in which an existing disease (not necessarily the reason for treatment) became much worse as a result of acupuncture—sometimes with deleterious outcome. There is no solid evidence for the assumption that an initial deterioration is regularly followed by therapeutic success. On the contrary, the worsening of symptoms under treatment should trigger a review of both indication and needling method.

Autonomic Reactions

A very common side effect of acupuncture is dizziness after the treatment. This is not harmful in itself, and is often even desirable. However, problems may arise when patients subsequently perform activities that require special attention and thus could endanger themselves or others if unaware of this side effect. A Norwegian study has shown that more than half of 122 consecutively treated patients were no longer fit to drive after the treatment and thus would have been a risk to themselves and others if driving a car. The dizziness varied from mild sleepiness to severe tiredness with the risk of falling asleep.

Sometimes acupuncture may lead to fainting. More serious consequences result from falls that occur when a person is losing consciousness.

The following measures are highly recommended in order to prevent serious consequences caused by autonomic reactions:

- If possible, patients should always be needled in the reclining position. Prolonged supervision is essential
- Patients must be informed in writing that their ability to drive may be severely impaired and that they should not drive in the period after the treatment.

Infections

Any invasive procedure includes the risk of introducing microorganisms into the patient's body and thus may lead to local or systemic infections. In addition to bacterial infections, mainly systemic viral infections have been reported to occur through acupuncture. Infections caused by fungi seem to play a minor role.

The risk of systemic bacterial infections exists, first of all, for patients who are in poor general health with reduced immune defenses. Here, small amounts of germs that normally would not lead to an infection may be sufficient to produce septic symptoms. The immune defenses are also more or less severely weakened if the patient is under systemic corticoid therapy or suffers from a systemic disease, such as diabetes mellitus. This calls for the utmost caution with respect to indication and method. It is controversial whether or not patients who would receive prophylactic treatment for endocarditis in connection with other invasive procedures should receive such treatment also in connection with acupuncture; a careful review of the indication is certainly in order in this case.

Any transmission of hepatitis A, B, and C occurring in connection with acupuncture therapy can certainly be attributed to insufficiently sterilized instruments and/or incorrect needling