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Editorial

Dear readers and fans of acupuncture,

We are in the summer season of Wooden Horse, which we can interpret as a season of sudden changes that are not only climatic. This period is typical by increased vigor, dynamism but also by the dissolution of the non-functioning systems, thus challenging adaptability and stability both the internal and external. People around us perceive more the increased pressure and the need to succeed in this pressure. This year we find ourselves in a period of transformation, period of dominance of the Wood element, period of growth. We learn to discover things that are for our integrity as a people, society and environment beneficial, whether personal, social, environmental, economic or political and distinguish not beneficial parts of them. We live in a period where the need of knowledge and the subsequent respect for laws of operation in macro- and microcosm, which form a system of interconnected relationships in an organized network is a prerequisite for the survival of humanity as such. In recognizing and understanding the context of different disciplines we come back to the good old truths that ultimately real freedom can be achieved by respecting the limits and submission to laws and principles which are created by systems macro and micro world together. Those principles may be economic, physical, political, human and other. Limits stabilize the system. They create the framework, hierarchy and conditions for functioning in the system. This, in acupuncture terminology belongs to the energy- informative system of Metal element and we know that the providence of God is the most perfect spiritual self- organized principle of Metal element.

In this spirit of learning about patterns of acupuncture and interdisciplinary areas authors

of following articles will enrich us with their knowledge and information.

In the article by G. Solar, M.D., PhD in the continuation of the series “Acupuncture little differently” we will read about energy-informative networks in acupuncture, which amend the existing traditional view of acupuncture. At first glance, the phrase “energy-informative network” may lead to a false impression that we are talking about computers and power plants. The characteristics

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of interdisciplinarity in the current edition of the magazine are reflected in this phrase. The term is based on long-standing “Eastern European” tradition, which does not yet have an English equivalent. Therefore it is necessary to clarify new terms in Slovak and in English language to reach better understanding. We hope and believe that this process will be a stimulus to interdisciplinary discussions.

The contribution of geophysicist authors doc. Dr. V. Gajdos, CSc and doc. Dr. I. Tunyi, DrSc. clarify the principle of the impact of geomagnetic activity on human health. Physical causes of health decompensation in mentioned contributions are rarely written in textbooks. Therefore this paper encourages the inspiration to comprehensive health care, provided not only by doctors but in form of preventive steps to foster good health of each one of us.

Jean Marc Kespi, M.D. describes a new inspiring view on acupuncture point TM 5 in his article.

T. Mochnac, M.D., PhD describes possibilities of using magnets in the treatment of patients in his article on magnetopuncture, as he proves by his research.

In the article on the use of medicinal leech by Mgr. Habrmanova and colleagues the focus of interest shifts to another point of view in natural medicine, to the biological treatment methods.

As in every edition of the magazine, also in the current issue you can find an article by young acupuncturist. B. Kohutova-Hartmanova informs us about her way to acupuncture in synergy with her path of personal growth.

We consider our acceptance to Pro Quest database an expression of recognition and trust. We perceive this move as commitment and further shift towards knowledge. We believe that we will succeed to continuously improve our magazine in its content and also technically. Further, we contribute by a small part to the development and knowledge in natural medicine in a broader interdisciplinary context.

We wish you pleasant reading and inspiration to discussion.

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Energy-informative networks in acupuncture

Gustáv Solár, M. D., PhD.

Summary

Acupuncture system (AS) as it was described

earlier in this cycle is the carrier of information. It provides for their creation, preservation and transfer. The controlling constituent of acupuncture system is a structured field or fields respectively. AS is a “physical substrate” of these structures. Its multi-level arrangement allows for this information to be structured into organ systems as well as into higher order structures in excess of the organism itself and operating throughout the entire Universe. AS is thus a unique substrate and a backbone of the whole energy-informative system and a cornerstone, not only of acupuncture and natural medicine throughout, but all flows of information as such. Patterns and principles that we have taken from Chinese Traditional Medicine and other Traditional Medicines do not however even closely depict the essence of relations and coherence. Based on the analysis of selected relations and connections, the author introduces the concept of energy-informative networks in acupuncture, which are partially analogous with those in IT. The study of these networks can radically change the image of acupuncture in interdisciplinary professional community in the near future. Most importantly it can contribute to the knowledge of the broader context in prevention, diagnosis and therapy not only in acupuncture.

Key Terms:

Acupuncture system, energy-informative network, triplets, acupuncture, diagnosis, TST,

information transfer, formation and storage of information.

Introduction:

Traditional acupuncture contains rules, i.e. “noon–midnight”, “mother–son” etc. It contains cycles, for example the circadian, the cycle of birth, the cycle of control, and more. Perhaps it is also possible to include some microsystems as well i.e. the tongue, the auricular, the Korean Su Jok and others. In a way, it is possible to consider the “Cun” through which a pulse diagnosis is made. The tradition also includes the following; hexagrams and trigrams from the I Ching, or the Lo Shu Magic Square of Feng-shui. All these elements define some order or system which determines the way things should happen and do happen. Their mutual interconnection, however, is hardly traceable, or is not known at all. All these facts are taught, accepted and applied axiomatically without at least declaring the need to examine the causal relations. References to the “old masters” or works are not relevant. Each of the aforementioned components is a kind of cross-cutting expression of phenomena dynamics at a certain level and in a certain structure. In addition to these traditional components we encounter even newer and unsubstantiated claims of distant and nearby points, or of “placebo acupuncture”. Modern acupuncture diagnostics such as TST elektroacugraphy (EAG) etc., does not confirm the so called distant and nearby points, let alone the “placebo acupuncture”. There is no place on the surface of a human body, which could be considered as irrelevant in terms of acupuncture.





Let us, however, return to the relevant relations and connections.

All prevalent and applied relationships and cycles do not explain and cannot explain the complex processes in the acupuncture system and not just in it. They do not provide a mechanism for creating, storing and transferring information in sufficient quantity and dynamics. It is evident that in addition to these well-known and prevalent options there exists a universal and comprehensive energy-informative system throughout the acupuncture system and beyond that provides a multi-level, complex and continuous communication. We shall try to at least partially identify such mechanism based on current knowledge and experience. The principle of complex structured fields is obviously fully respected in the meantime. These are, however, particularly from a medical point of view too complex, abstract and medically difficult to grasp. Their lower component or the “substrate material” is as the “executive branch” of these action fields not yet identified. The acupuncture system must have in itself mechanisms that allow the comprehensive and multi-level interconnection. These mechanisms must create space for creation, storage and transfer of information. Previously known principles, however, offer very limited and local interconnections of individual meridians (e.g. Luo points and tracks, internal course, Lo Shu etc.) None of them allows for real, universal, sufficiently comprehensive and fast communication, which would facilitate the effective functioning of the acupuncture system. Also, it does not explain the creation, preservation and transfer of information about individual meridians, their functions, relations etc. The reality, however, shows that such a system exists and thus we have at least partially tried to identify it.

Materials and methodology

We have analyzed selected known arrangements of acupuncture system (Pa Kua, Lo Shu, circadian rhythm) in terms of triplets. This means that in every configuration analyzed every meridian is the peak phase of the process, the previous meridian in the given arrangement is the initial phase and the subsequent meridian is the transition phase. This principle is universal and does not apply only to the acupuncture system. Analysis allows for the different sequences, and the arrangement of meridians and their mutual spatial interlinks to be identified. We continue to use Latin/Greek nomenclature of meridians so that it is medically understood in any language. When creating their names and their abbreviations, we always adhere to the rule to indicate a two-letter abbreviation. If the meridian name is a single word, we use the first two letters, if it is a two word name, we use the first letter of each word of the Latin/Greek name. By doing so, we would like to achieve greater clarity, regardless of the language preferences. Thus we present it again in this report for easier reference:

CO (**cor**), IT (**I**nstitutum **T**enue), VU (**V**esica **U**rinaria), RE (**RE**n), PE (**PE**ricard), TC (**Tri** **C**alorium), VF (**V**esica **F**ellea), HE (**HE**par), PU (**PUL**mo), IC (**I**nstitutum **C**rassum), VE (**VE**ntricus) and LP (**L**ien **P**ancreas)

Combinatorics and energy-informative networks in acupuncture

Combinatorics is a branch of mathematics concerning the study of finite or countable discrete structures. Aspects of combinatorics include counting the structures of a given kind and size (*enumerative combinatorics*), deciding when certain criteria can be met, and constructing and analyzing objects





meeting the criteria (as in combinatorial designs and matroid theory), finding “largest”, “smallest”, or “optimal” objects (extremal combinatorics and combinatorial optimization), and studying combinatorial structures arising in an algebraic context, or applying algebraic techniques to combinatorial problems (*algebraic combinatorics*).

In acupuncture, combinatorics works as a tool that allows you to calculate and constitute the relationships and connections that create energy-informative network and at the same time they are an implicit part of this network.

The issues of triplets in acupuncture, was analyzed in more detail in the previous article. The triplets themselves are formed in various ways while maintaining their essence. They are formed on the basis of the Pa Kua, circadian rhythm, Lo Shu etc. The common denominator is a certain configuration of the system, whose order and dynamics form the triplets. According to the system that we derived from, the possibility of formation of a triplet vary. In practice this means that every meridian has more layout options. **In each of these options the studied meridian is the peak meridian of the triplet. Initiation and transition meridians however change in relation to the peak meridian thus there are more triplets formed for the single meridian.** This also means that each meridian has a number

of direct connections to other meridians within the energy-informative network; however these links have a fixed order. Ultimately, the entire acupuncture system is mutually interconnected and forms an energy-informative network. Which is hierarchically controlled by its structured field or fields and is formed by their material graspable substrate.

In terms of combinations – if we take into account only the Pa Kua (arrangement according to Fu Shi, Wen, S1 and S2) we get a total of 752 million combinations for only eight meridians. Furthermore, we do not take into account the four meridians of the so called vertical structure (IC, IN, HE and CO) which will be explained in the next sequel. If we did take into account all previously known triplets, we would get to a level of at least ten or more times greater. It is a hardly conceivable number, but it guarantees the creation, storage and transfer of such a huge amount of information that is absolutely sufficient for any energy-informative operations. Moreover, we do not include the fractal and quantitative orders of acupuncture system, which is mind-boggling variety of other combinations at different system levels. All this and more is stored in the acupuncture system. Here is just an example of one meridian and its possible triplets in systems Pa Kua for illustration.

Table 1. Chosen possible triplet combinations of a meridian LP

LP	VF-LP-IT	TC-LP-RE	RE-LP-TC	VU-LP-RE
	IT-LP-VU	TC-LP-VF	VF-LP-PE	PU-LP-RE

Explanation: LP (Lien Pancreas), IT (Intestinum Tenue), VU (Vesica Urinaria), RE (REn), PE (PEricard), TC (Tri Calorium), VF (Vesica Fellea), PU (PULmo)

At the level of theoretical mathematics and computer science, a lot of space opens up for the

study of storing information in the acupuncture system, which is the base and skeleton of





energy-informative organism. This, of course, does not affect only the body, but the entire Universe. At the clinical level comparison and combinatorics allow detailed analysis of the whole organism in the entire state dynamics, which can also affect very considerably the possibilities of medicine and algorithms not only through the medical thinking. It shifts acupuncture to another level as a science in the position of medical research, prevention, diagnosis and therapy. This presented information serves as a brief introduction to the subject, wherein cognition requires long-term, complex and interdisciplinary studies.

Discussion

For now, the issue of the existence or non-existence of energy-informative network on the basis of the acupuncture system seems to interest the specialists very little. The majority of acupuncturist approach acupuncture pragmatically and their interest is limited to the study of traditional medicine. Mathematicians, IT specialists and other experts from other fields are not interested as they do not have enough information about acupuncture. That might be the reason why we could not find any relevant data on this subject in the available literature. But if we understand acupuncture as a field of science, it is also necessary to pay attention to the mechanism of its effect. According to its historical strands the acupuncture system already works with chi energy, which is the carrier of information. Implicitly, it contains principles, which in any case may not be the result of empiricism. Some of these principles can be found in virtually all the so-called, alluvial civilizations that arose – as well as the Chinese civilization – around 5000–7000 years ago, around the world. These are therefore universal principles, which preserved, or were somehow devoted to these civilizations and the

base of which, at least in old China, developed their medical acupuncture applications. The interpretation of this knowledge, of course, and the preservation for future generations had to be on a contemporary time level despite their timelessness. In addition, they had to be expressed in contemporary language as well. Therefore, we must take these facts into account within the current interpretations. However, it is clear that the so far known rules of the acupuncture system allow only a relatively very slow spread of energy and information in the system that does not explain the complex and often immediate effect of acupuncture. This requires a very operational and “super-fast” and “super complex” system. The network, of course, must provide sufficient number of combinations for the creation and preservation of the necessary information. Such systems are, for example, information networks known in IT or in biological models. In the acupuncture system this requires multiple and multi-level interconnection of all meridians. From the present knowledge, it appears that the missing link in the currently known arrangements and principles of acupuncture is precisely the principle of triplets, which is also known from the biological sciences. It seems that every process whether it is energy-informative, chemical, physical or other, has dynamics of a triplet principle. It has the initiation phase; during which it passes from the previous to the current process, the peak of the current process and transition to the next phase of the process. This principle of triplets makes it possible to understand the structure of energy-informative networks in the acupuncture system.

Of course, the description of the parts of the network is far from complete, and it needs to be developed further. Its elaboration and study then becomes an interdisciplinary matter. It shifts





from the medical field the fields of mathematics, IT and other interdisciplinary approaches. Such energy-informative network can be very close to the arrangement, known from molecular biology. Analysis of the current condition of such network, which is permitted by the contemporary modern acupuncture diagnostic procedures (e.g. TST) can significantly contribute to the prevention, diagnosis and therapy through acupuncture.

Conclusion

The acupuncture system forms the energy-informative network, which also opens up new possibilities of interdisciplinary study. Such arrangement is also graspable and understandable for doctors, but it is also accessible to a broader interdisciplinary study for mathematicians, computer scientists and other professionals in particular. Its understanding, learning and elaboration can be essential for the prevention, diagnosis and treatment in general.

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G. V.-5, Xuanshu From tradition to clinical practice

Jean-Marc Kespi, M. D.

Abstract

I analyse in this article the traditional data about

the point VG 5 (name, localisation, functions, symptoms) and the resulting clinical applications with clinical cases.

Keywords

VG 5, Xuanshu, Kidneys energy, body memory.

Let first analyze **Traditional data**

- **Name** of GV 5 is Xuanshu, “Suspension Pivot”; it relates that at this point the Kidney energy ascends.
- It is **Located**: below the spinous process of L1, between GV 4 (Kidneys) and GV 6 (Spleen)
- The **functions** of GV 5 is to brings up the kidney energy to the others organs Spleen, Liver, Heart, Lung.
- The **symptoms**:
 - When it is blocked, the obstruction of Kidney energy leads a sense of fullness in the pelvis, with lower back pain, intestinal and genitourinary diseases.
 - Ther lower back pain are radiating on the Bladder and Kidneys meridians on both sides.
 - An interesting aspect of this point is that it is associated with dreams that include snakes.
 - Investigation of **chinese pulses** are here very helpful. The proximal pulse (pelvis) is more tense and full than the distal pulse (thorax).

- This point is disrupted in situations of **helplessness**, among others due to fear, but not only.

Case histories

From these traditional data I deduced **clinical applications** of this point as in the following cases histories

G. V.-5 and uterine bleeding

Mrs. R., age 46, has uterine bleeding that persisted continuously since 18 months.

The only treatment available is now an hysterectomy. She had five children; the third child had died 14 years before, at the age of three months. Suddenly, she realized: “In fact, I gave birth every four years; the bleeding began four years after the birth of the last baby! But I did not want more children; neither did my husband.”

Furthermore, the history revealed thoracic symptoms, intense physical and mental tiredness linked to anemia, insomnia and nasopharyngitis.

The pulses show a bad connexion between thorax and pelvis.

I first thought to treat the upper burner, thoracic. I punctured CV-17, the alarm point of the upper burner.

Nothing change. However, this woman spoke up: “I had a strange dream. There were two wooden snakes fighting a duel.” This made me think that In fact the qi was blocked in the the pelvis and and pushes blood out of its normal traffic lanes.

The puncture of GV-5 stopped the bleeding after 12 hours and it did not recur.





GV-5 and uterine fibroid

A woman, 46, had a leiomyoma that had been detected several years ago and that grew considerably after she learned that her husband had cancer of the left lung; it was the size of a grapefruit, which caused big discomfort and urinary problems, so it needed to be surgically removed. This could only be done by laparotomy ; because of its size, vaginal removal was impossible. The pulses and the context made me think to GV-5. This puncture considerably reduced the size of this leiomyoma, permitting a vaginal approach to treatment.

GV-5 and sciatica

MS ..., 62 years old, consults for disabling acute left sacroiliac pain, radiating to the left lower limb on Taiyang / Bladder. Nothing relieves. The scanner shows a large slipped disc compressing the left root. The proximal pulse (pelvis) is more tense and full than the distal pulse (thorax).

What can acupuncture do here? What is the respective share between energy and anatomic trouble caused by the slipped disc? The rest of the examination and pulses leads us to choose, despite the one-sided sciatica, GV 5. The sciatica disappears after the second treatment.

Psychological disease

PMrs. M., age 51, was in the same time very depressed and excited ; she suffered from phobias and had constant insecurity, thoracic anxiety and insomnia. She explains that she was depressed for at least 15 years.

Her life had been difficult during a first marriage, in which she had given birth to a child with birth defects.

Physically, she had periodically, since puberty, painful and liquid diarrhea, burning pain in the bladder, vaginal discharges, some low

back pains. These épisodes occurred without any apparent cause.

The tip of her tongue was red. The proximal pulses (pelvis) were stronger than the distal pulses (thorax) which are tense.

The symptoms and pulses suggested me that there was first a blockage of the Kidney energy and then of the Heart energy. I treated GV-5 and also CV-15 who releases the Heart energy. After the third treatment his woman began to be much better.

Conclusions

They are four.

1. **The V. G.-5 is a pivot.** It brings up energy of Kidneys.
2. **Clinically**, investigation of chinese pulses are very helpfully, with some others symptoms that suggest fullness of energy in pelvis, lowerback pain radiating on both sides and dreams with snakes.
3. We have to **adapt** acupuncture in western countries. In that way, **traditional data** can be very helpfull to deduce clinical applications.
4. **The memory body**
 - a. Acupuncture helps me understand that we have *two memories* somatic and psychic. These memories record all of the experiences and their associated emotions which we have lived since conception. These two memories interact constantly.
 - b. It is not “psychosomatic,” meaning that the physical symptoms are not induced through emotional causes. The body has intrinsic memory and our symptoms are their language. The body memory dialogue constantly with the psyche.
 - c. Acupuncture offers us two things:
 - i. an original grid to read the body language
 - ii. - and a way to gain access to areas where ours suffering was locked in





(where *Qi* is obstructed said TCM).
When I help to stimulate the circulation and release energy, i am in the same time acting on the places of our body where our sufferings are blocked.

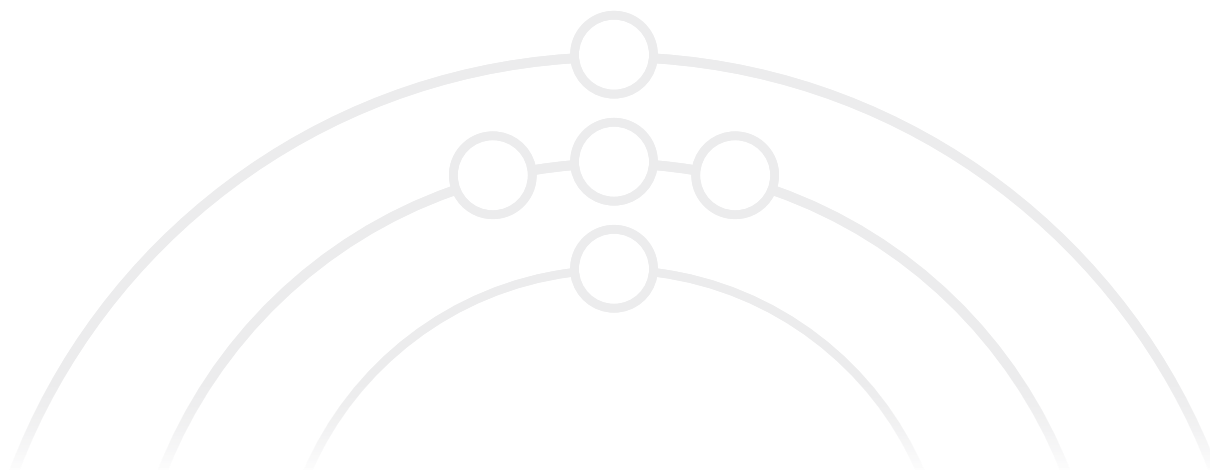
- d. The scars remain of course, because you cannot erase what has been ; but they become less or not painful. Moreover, in the same time our sufferings and emotions, become accessible to the psyche.

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The First Experience with the Controlled Pulsed Magnetopuncture

Teodor Mochnáč, M. D., PhD.

Abstract

The author examines the impact of the individual pulsed magnetic field characteristics not only on the clinical units described in the international classification of diseases but also the impact on the energy-interactional level of the human's energy-interactional system (EIS). The author defines a new concept of the controlled pulsed magnetopuncture. He introduces the new evaluation criteria according to the Impedance data system (IDS-M) and presents the results of the controlled pulsed magnetopuncture in a group of 23 polymorbid patients.

After the controlled pulsed magnetopuncture treatment, the author considers the state improved if in three regimes of IDS-M at least one element improved to the standard level, comparing it to the state before the therapy (60.9% patients). The author considers the state improved, when the algorithm changed to the decompositional clean or hypercompositional clean, or stayed clean (73.9% patients).

Electrical skin conductance level improvement correlate with the patients' clinical status improvement.

Keywords

The Impedance Data System-M, the energy-interactional state, the controlled pulsed magnetopuncture

History

One of the first natural forces that people discovered was most probably magnetism, although the full potential of the magnetic

properties have been realized only recently. Devices using semiconductor technology that are so common these days, cannot be used without their magnetic components. The first magnets were known as a lodestone or a magnetite. The legend says that a shepherd from Crete (Greece) named Magnes was the first to discover these magnetic rocks when the iron tip of his tool was pulled towards a rock as he passed over it. Subsequently, these rocks were named lodestone and later they were called magnetite. The word magnetism is derived from a region called Magnesia in Asia Minor, where a naturally magnetic iron lodestone was found. Another version says that the Greek scientist Archimedes was the first person, who used magnets.

An ancient Indian surgeon Sushruta pioneered the use of magnets in surgery in 500 BC.

An Englishman William Gilbert was the first man, who systematically researched the phenomenon of magnetism by using scientific methods. He also pointed out that the Earth is a weak magnet.

The first theoretical research of the Earth's magnetism was performed by the German named Carl Friedrich Gauss.

But in the nineteenth century, James Clerk Maxwell provided the theoretical foundation to the physics of electromagnetism, proving that magnetism and electricity represent two different aspects of the same fundamental force field. In the late 1960s, Steven Weinberg and Abdus Salam conducted a theoretical synthesis of the fundamental forces by proving





that the electromagnetism is a part of the electroweak force.

At the present day we understand magnetism as a phenomenon, which depends on the theory of movement and interaction of electrons in atoms that derives from the work and theoretical models of two Germans: Ernest Ising and Werner Heisenberg.⁽⁴⁾

Magnetic phenomenon is associated with the movement of charge carriers. The rotary movement of electrons (spin) and its rotation around the atomic nuclei creates elementary magnetic moments. If the sum of the magnetic moments equals zero, we can talk about the **diamagnetic** substance.

Paramagnetic, ferromagnetic and anti-ferromagnetic substances have the sum of the magnetic moments other than zero.

Diamagnetic substances have the magnetic moments of atoms and molecules in opposition to the action of the external magnetic field, resulting in reduced magnetism in such substances. Diamagnetic substances are for example: water, carbon, gold or copper. Cytoplasm of human cells has therefore the diamagnetic character.

Medzi diamagnetické látky patria napr. voda, uhlík, zlato, meď. Cytoplazma buniek má diamagnetickú povahu.

Paramagnetic substances have the magnetic moments of atoms and molecules chaotically oriented but under the external magnetic field influence they are reinforced and they temporarily change their direction according to the external magnetic field. Paramagnetic substances include: oxygen, calcium, sodium, magnesium or aluminium. The blood behaves in the magnetic field like a paramagnetic substance. The external magnetic field creates a positive charge on the erythrocyte membranes causing that equally charged erythrocytes repel each other. Erythrocytes do not create rouleaux

formation resulting in the oxygen transfer and capillary bed flow improvement.

Ferromagnetic substances have some magnetic moments of atoms and molecules chaotically and some equally oriented. Under the external magnetic field influence they change their direction towards the magnetic field, they are reinforced and the magnetic field in such substances is 100–1000 times stronger than the external magnetic field. Ferromagnetic substances are: iron, cobalt or nickel.

We know a lot of devices and procedures that use the electromagnetic field. The biological effect depends on the electromagnetic field spectrum.

We differentiate two main types of magnets: permanent and induced. Substances that are permanently magnetized are known as **permanent magnets**.

Induced magnets are temporarily magnetized while they are under the influence of the magnetic field.

Permanent magnets are made of different alloys. Of all the different kinds of magnets, the permanent magnets are the most commonly used.⁽¹⁾ Permanent magnets are those magnets that once magnetized can retain their magnetism. The permanent magnets are further divided according to their composition:

Neodymium Iron Boron (NdFeB or NIB) – these are really strong magnets that even with 1.5 cm diameter are able to pick up a few kilogram ferromagnetic objects.

In recent time the most frequent magnets are metal alloy like ferrite or samarium-cobalt (SmCo) magnets and they are the strongest magnets on the earth that are rarely produced. Like the neodymium magnets, they are very difficult to demagnetize.

The most frequent are ferrite magnets with magnetic induction of 30–70 mT (millitesla)





or 300–700 G (gauss) named by German mathematician Friedrich Gauss.⁽³⁾

A changing magnetic field creates an electric field and a changing electric field creates a magnetic field. When the electromagnetic field is analogous to the vector H , then we talk about the magnetic field intensity. The magnetic field intensity – H is directly proportional to the current and inversely proportional to the distance from the current-carrying conductor or the magnetic field lines density. Magnetic induction B is given by the magnetic field force acting on the current-carrying conductor. H is according to the SI unit system measured in amperes per metre (A/m) and B is according to the CGS unit system measured in gauss (G) or tesla (T). One millitesla 1 mT = 10 G.

Induced magnets include also devices that produce electromagnetic field. In the treatment, they are used in a form of low frequency application, ranging from 1 Hz to 10 kHz. We characterise them according to the shape of the electromagnetic signal, which may be sinusoidal, triangular, square or rectangular shape.

In terms of the health and safety the World Health Organization (WHO) has recommended the safety regulations for the use of the magnetic flux density that could be potentially hazardous to the human tissues. The recommended magnetic induction density 5–50 mT and the frequency to 50–60 Hz. Other stimulations exceeding these levels lead to the health risks.⁽⁷⁾

The effect of the magnetic field on the biological systems:

1. Anti-inflammatory effects – modification of the membrane and cytoskeletal organization together with the protein kinase activity alteration.
2. Impact on osteoclasts – causes significant reduction in osteoclast formation.

3. Impact on osteoblasts – increased osteoblast proliferation.
4. Metabolism acceleration and detoxifying effect.
5. Vasodilatation effect.
6. Myorelaxation effect.
7. Anti-rheumatic effect.⁽³⁾
8. Analgesic effect.⁽⁶⁾
9. Anti-swelling effect.

General properties of the magnetic field:

1. The negative polarity magnetic field causes an analgesic effect.
2. The positive polarity magnetic field causes a stimulating effect.
3. Low frequency applications (1–10 Hz) have an analgesic and myorelaxant effect.
4. Middle frequency applications (10–15 Hz) have an anti-inflammatory and vasodilatation effect, they have a beneficial effect in degenerative diseases.
5. Higher frequency applications (15–81 Hz) have a stimulating effect and help to heal bones.
6. The positive polarity of the electromagnetic field makes the water tastier and sweeter, while the negative polarity, in case of the long exposure (24 hours), makes the water disgusting and bitter.

Pulsed magnetic devices for the rehabilitation purposes use the magnetic field induction up to 300 G, which is several times stronger than the magnetic field of the Earth. We have therefore decided to verify the effect of the electromagnetic field on the human body. In particular, on the energy-interactional level. Existing available instruments expose the magnetic induction to a large areas, which is from our point of view a non-target application because it affects several acupuncture point projections at the same time and it creates an energy-interactional





disorder in the body. We realized this during the construction of the probe, which has the highest magnetic induction in the middle of the electromagnet with the size of about 1×1 cm with the magnetic induction intensity 7 mT (millitesla) or 70 G. The effect depends on the character of the pulsed magnetic field, which has a rectangular shape changing according to the density as well as the frequency.

The studies dealing with the effect of the magnetic field on the human body are focused mainly on the effect of different magnetic field characteristics on the clinical units or painful syndromes. The low frequency pulsed electromagnetic field can provide noninvasively, safe and easily applicable method to treat pain, inflammation and dysfunctions associated with rheumatoid arthritis and osteoarthritis.

The observation in our group of patients is based on the other theories. We observe the effect of various characteristics of the pulsed magnetic field, not only on the clinical unit, as described in the International Classification of Diseases but also the impact on the energy-interactive level of the human energy-interactive system.

The goal of the study is to objectify:

1. The nature of interactions between the elements before and after the pulsed controlled magnetopuncture via the impedance data system – M (IDS-M) examination.
2. The changes of algorithms and quantitative characteristics of elements during the process of the therapy.
3. The changes of impedance characteristics and their comparison with TST (tactile Solar's test) changes and patients' clinical status.
4. The therapeutic expectation of the interaction movement according to the IDS-M results as

well as therapeutic evaluation criteria of the energy-interactive level.

The methodology

1. We tested the group of 23 patients.
2. Patients underwent TST (tactile Solar's test) and Impedance data system (IDS-M) examination in three regimes: Rm EAB (regime electroacupuncture of biorhythm points), RmKM (regime electroacupuncture of complex meridians) and general regime of (RmC) before and directly after therapy.
3. We established the acupuncture diagnosis and anticipated interaction character in the form of the quantitative change of the target element. (Other elements change too.)
4. During the treatment we used the controlled pulsed magnetopuncture according to the WU XING principles based on the IDS-M examination.

The Impedance data system is a diagnostic system, which evaluates the skin conductance data locally, in the place of acupuncture point system projection. It graphically evaluates seven regimes – groups of acupuncture points.

In our examination we used these three IDS-M regimes:⁽⁹⁾

1. Rm EAB (regime electroacupuncture of biorhythm points).
2. RmKM (regime electroacupuncture of complex meridians).
3. General regime of (RmC).

For the therapeutic application, it was necessary to determine the frequency and density characteristics of the magnetic field. We used the distance info-interactive diagnostic of the display systems individually for each patient, depending on his/her energy-interactive state.





The distance info-interactional diagnostic is defined as reading of the secondary information from various display system projections of the body, without any contact with the patient's body.

The evaluation system includes characteristics of the element interactions such as hypercompositional, decompositional, clean and turbulent algorithms according to authors Zlatica Solárová, M. P., PhD., and Gustav Solár, M. D., PhD., from The First Clinic Acupuncture and Natural Medicine of Gustav Solar in Bratislava; as well as quantitative and qualitative changes at the level of the meridians processed in attestation work by Gustav Solar, M. D., PhD.^{(5),(8)}

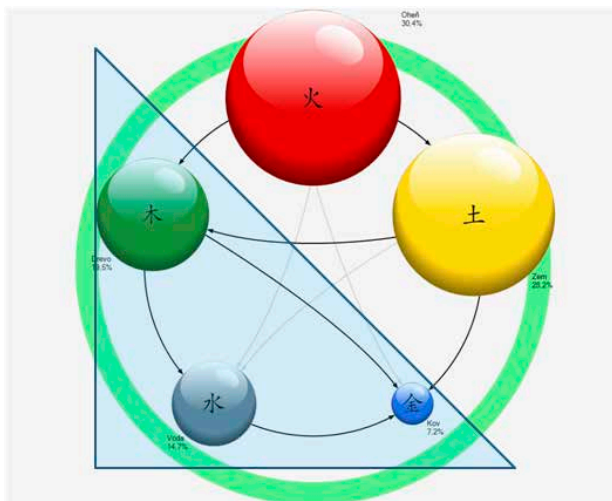


Figure 1. The decompositional algorithm clean (ADC)

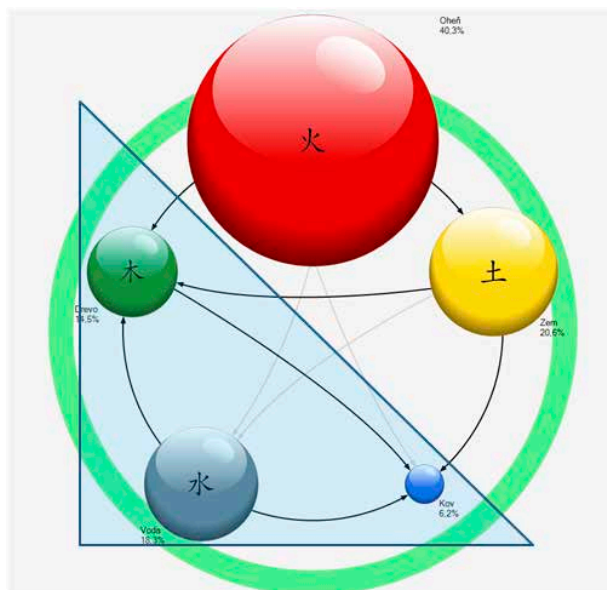


Figure 2. The decompositional algorithm turbulent (ADT)

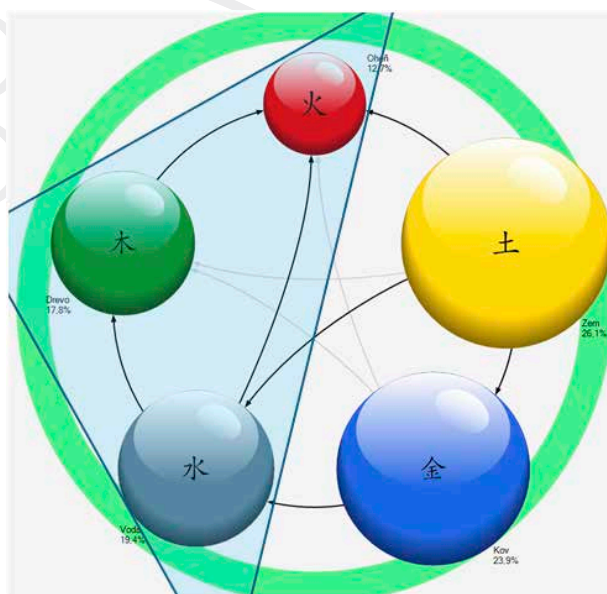


Figure 3. The hypercompositional algorithm clean (AHČ)



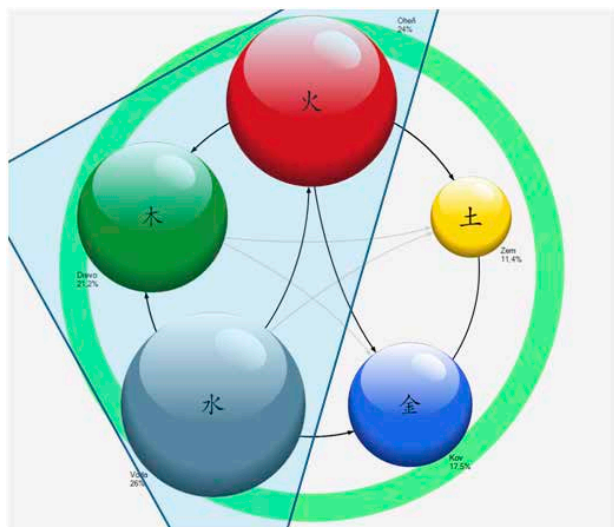


Figure 4. The hypercompositional algorithm turbulent (AHT)

Balanced tactile sensibility as well as the patients' clinical improvement to the standards are the two decisive factors for the other evaluation criteria. To evaluate the energy-interactive state of patients we proposed six criteria, which we want to objectify in this study.

The evaluation criteria of the energy-interactive level according to Impedance Data System – M.

1. **The three regime element improvement to the standard level criterion.**
2. **The algorithm change to the standard level criterion.**
3. **The two regime element improvement to the standard level criterion.**
4. **The one element (RmCM) improvement to the standard level criterion.**
5. **The one element (RmC) improvement to the standard level criterion.**
6. **The meridian quantitative change criterion.**

Results

1. **The three regime element improvement to the standard level criterion.**

The energy-interactive state is improved, when there is in three regimes at least one element improved to the standard level, comparing it to the state before the therapy (60.9% patients).

2. The algorithm change to the standard level criterion.

The energy-interactive state is improved, when the algorithm changed to the decompositional clean, hypercompositional clean or stayed clean (73.9% patients).

3. The two regime element improvement to the standard level criterion.

The energy-interactive state is improved, when there is in two regimes at least one element improved to the standard level, comparing it to the state before the therapy (69.6% patients).

4. The one element improvement to the standard level in RmKM criterion.

The energy-interactive state is improved, when there is in the RmKM at least one element improved to the standard level, comparing it to the state before the therapy (60.8% patients).

5. The one element (RmC) improvement to the standard level in RmC criterion.

The energy-interactive state is improved, when there is in the RmC at least one element improved to the standard level, comparing it to the state before the therapy (65.2% patients).

6. The meridian qualitative change criterion.

The energy-interactive state is improved, when there is reduced or the same number of qualitative changes (65.2% patients).⁽⁸⁾

Conclusion

1. We objectified the overall effect of the controlled pulsed magnetopuncture by influencing the projection of the one acupuncture point.
2. We propose the new evaluation criteria of the energy-interactive level based on the Impedance data system – M.





3. The results also objectify the effectiveness of the magnetic field characteristics determination by the use of the info-interactive methodology.
4. We emphasize that therapeutic effect depends on the influence of the therapist based on his complete diagnostic evaluation), in other words, we did not cure by magnetic field. Therefore, we talk about the **controlled** pulsed magnetopuncture.

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A man in the physical environment

Doc. Dr. Vojtech Gajdoš, CSc., Dr. Igor Túniy, CSc

Abstract

A human in his daily rhythm can rarely be aware that he lives in a natural environment that creates limits for his life processes. A part of this natural environment is also the physical environment. It seems that with the growth of especially technical sophistication of humanity, the physical environment increasingly manifest its limits, which is and will be necessary to respect. In this document we refer to those manifestations of the physical environment that nature creates itself. We give the specific impact of geomagnetic activity on some health related problems as an example.

Keywords

geophysical environment, geomagnetic activity, power and injuries of professional sportsman, alcohol consumption, suicide

Natural environment in which we live can be characterized by its biological, chemical and physical properties and processes. In this paper we point out the physical factors that affect the health status of the human body and the processes that take place in it (*Figure 1*).

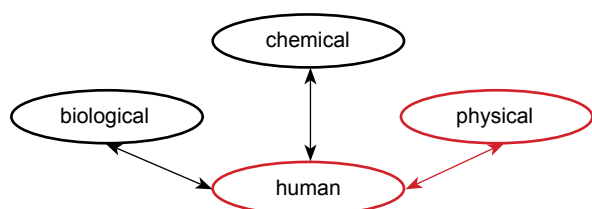


Figure 1. Tangible and energetic objects in the real world interact through biological chemical and physical empowerment.

A man, even if he considers himself as a biological object, is having physical and also chemical essence in terms of the processes that take place in him. Therefore a man is a part of the physical world and as an object internally and externally constantly interacts with the surrounding physical world. This interaction takes place on the gravitational, electromagnetic, mechanical, thermal and nuclear level.

Internally there are mainly electromagnetic, mechanical, thermal and nuclear factors manifested. Electromagnetic factors at the ionic level of biochemical processes affect their functionality. Mechanical factors are manifested mainly on musculoskeletal level, thermal factors in the functionality of body liquids. Nuclear factors manifest in management of biochemical processes and stability of organic building structures.

On the external level all of these levels of interaction operations are reflected, where the major actors of all physical interactions are Earth, Sun and Moon. The main characteristics of interaction include the temporal and spatial variability, which makes an amazing diversification of the biological world.

Earth keeps thru its gravitational action the man and his natural environment within a narrow band around the surface of the earth. Especially the moon and partially the Sun contribute to positive variability of the natural environment by tidal movements (*Figure 2*).



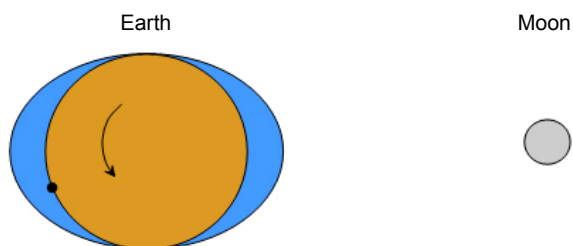


Figure 2. Moon and its gravitational effect causes deformation of the Earth's hydrosphere (water seas and oceans) which manifests in form of tides.

The existence of the geomagnetic field and its electromagnetic interaction with the solar wind significantly contribute to the existence of a diversification of the biological world. The effects of this interaction manifest in the internal state and transformations of electromagnetic influences on the cellular level and thus on the health status of the nature and the man.

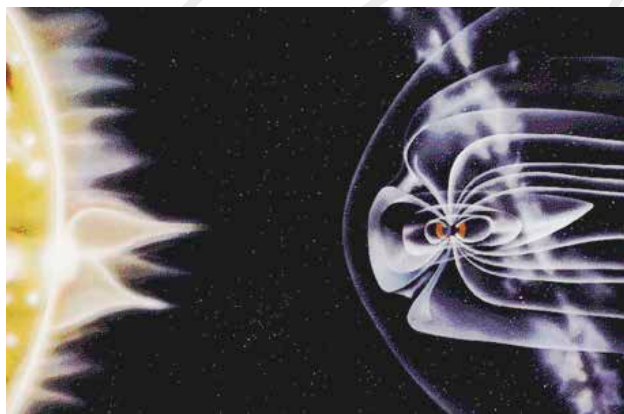


Figure 3. Solar wind and its interaction with the Earth's magnetic field around the Earth creates an electromagnetic unit called the magnetosphere. The solar wind, depending on the activity of the sun changes its intensity, which is reflected in the intensity of the phenomena occurring in the magnetosphere.

The sun is plays a crucial role in the thermal state of the environment on Earth. The Earth

produces internal heat flow, which rises to the surface, but this is not sufficient to support life. Life is not possible without the heat flux from the Sun. The shape of the Earth (sphere) also allows uneven adsorption of the heat on the surface and that supports the diversity of thermal conditions for life and in the interaction with the gaseous envelope also the diversity of biological life. The effects of mobility of matter inside the Earth are considered as mechanical external factors. These are manifested primarily by an earthquake, which belongs to the risks that restrict the environment. At the nuclear level biological life is influenced by manifestations of radioactive decay of elements that build the geological environment and by high-energy particles coming from the surrounding space environment. The orbit of these particles is largely deflected thanks to the magnetic field of the Earth and not they do not get into the environment.

Influence of external physical environment to a healthy life is important and it is a challenge for the man to understand this impact as much as possible and incorporate the findings into human behaviour and to the processes of health care.

One important factor of such an influence of the physical environment on healthy life is the electromagnetic field of the Earth. Electromagnetic field mainly for its induction causes a number of processes involving the movement of charge carriers (ions in body solutions, movement of these ions in the tissues and across cell membranes, this process depends on the frequency - resonance effects), the course of electrical processes in the body reactions and accumulation of electrical charge, EM interaction of the body organs to external EM fields (e.g. muscle contraction), the emergence of parasitic electrical currents generated in the nervous system of human and similar.





Examples of such effects of Earth's EM field are the results of studies of the impact of geomagnetic activity (GA) to certain human activities, carried out in 1985–1990 on samples of different groups of people.

Based on these studies a significant magnetotropism of elite athletes was shown, a strong dependence of their psyche, performance and injury on geomagnetic activity (Tunyi et al., 1987). It was found that the incidence of these conditions depends on the course of the GA, on its increase or decrease (*Figure 4*).

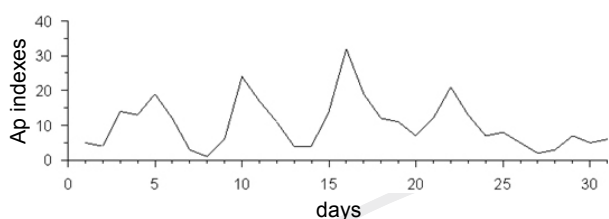


Figure 4. Time changes of planetary AP index GA during the month.

When evaluating the dependence of performance of elite athletes (1,226 soccer league players were assessed) it was discovered that 71% of them showed a dependence on GA. Most players had a positive correlation – with increased impairment of magnetic field their performance decreased, 13% of the players had a negative correlation – with increased impairment of magnetic field their performance improved and in 94% of the players their performance did not change with a constant level of magnetic field.

Furthermore, the influence of sudden onset of magnetic storm on the performance of soccer players was studied (Tunyi et al., 1987). The evaluation included 441 football players. Findings showed that 43% had a positive correlation, 28% had a negative correlation, and 29% of the players had zero correlation.

An important phenomenon is the dependence of injuries on GA. Out of available data from

the Clinic and Institute of Sports Medicine of Comenius University in Bratislava it was found (Lukáčová and Tunyi, 1988 Tunyi and Lukáčová, 1988b) that during the reviewed period 88% of accidents in women and 73% of accidents in men occurred on the day of decreased GA.

The dependence of fatal work accidents (FWA) on GA was also investigated. In the available data from Occupational Safety Inspectorate it was found (Uhnák et al., 1988 Tunyi, Uhnák, 1990) that 66% of the work accidents occurred in the days of the decreasing phase and low GA. For one fatal work accident to occur there was 36 hours during decreasing phase of GA and 44 hours in stage of increasing GA needed.

The dependence of alcohol consumption on geomagnetic activity was curious. According to data from the shortterm rehabilitation centre for disorderly alcoholics and alcohol dependence counselling service (Tunyi, Lovásiková, 1990) in the reviewed period the number of customers in the days of the decreasing phase of GA was 1.39 times higher and alcohol consumption of individuals 1.47 times more often than in the days of the ascending phase of the GA. Further, in the days of magnetic storm occurrence in its stage of settlement there were 56% of cases of increased number of clients and 74% of cases of increased alcohol consumption of the individual recorded.

Finding of suicide dependent on GA is a sad fact either. The available data from sub-department of forensic medicine in Medical Faculty of University of Comenius in Bratislava showed (Tunyi, Tesařová, 1991) that the number of suicides in the reviewed period occurred in 73% on the days of decline and lows of GA. One suicide took place once every 2.51 day in a period of decline and lows of GA and every 4.88 day period and increase and maximum of GA.





Conclusion

Even when we do not realize, life in the physical environment is greatly influenced by the environment. This does not manifest only in natural disasters, but it happens constantly. Our sub consciousness “handles” most of these influences instead of our consciousness and we realize our mistake if doing so often only in an accident. Also, this paper highlights the need to include knowledge of the interactions of man and his physical environment into normal school education, becoming part of our knowledge about our interaction with our environment.

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Hirudotherapy in treatment of different chronic venous diseases

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Abstract

Hirudotherapy is a biotherapeutic method which uses leeches for the treatment of a wide spectrum of diseases in medicine. In our study, we report the treatment of different chronic venous diseases (CVD), which use a combination of conventional pharmacological therapy and leech therapy. There have been 28 patients participating in our study to date. They were divided into five groups: CHVI II-IV CEAP; CHVI VI CEAP, Post-thrombotic syndrome, Acute thrombophlebitis, VSM, VSP; and Acute phlebothrombosis VP, VTP, VFi. For treatment, we used two species of leeches, *Hirudo medicinalis* and *Hirudo verbana*. The treatment of 10 patients showed clinical improvement after first therapeutic cycle, such as a reduction of pain and spasms, healing of wounds, reduction of swelling and recanalisation in the vein and arteries. Common complications after leech therapy were excessive bleeding, small scars, allergic reactions like swelling and itching. Preliminary results show the benefit of combination therapy to be an improvement of subjective symptoms and objective criteria.

Keywords

hirudotherapy, combination therapy, chronic venous disease, leeches, complications

Introduction

Hirudotherapy is an alternative medical therapeutic method that uses leeches for the treatment of various diseases. It is an ancient healing method that has been used for more than two thousand years and was known to ancient Egypt civilisation and ancient physicians like Galen, Hippocrates, and Avicenna. The largest expansion occurred in 17th and 18th century, when doctors used them for the following diagnoses: abdominalgia, headache, swelling of the legs, festering wounds and ulcers (*Whitaker et al., 2004*). Nowadays, high general and professional attention is paid to hirudotherapy in a number of indications in medicine and it is starting to be accepted in modern medicine (*Whitaker et al., 2011*).

There are at least 650 species or kinds of leeches. They live all over the world in places that are wet and damp (*Kite, 2005*). For therapeutic purposes, only these types are acceptable: *Hirudo medicinalis medicinalis*, *Hirudo medicinalis orientalis*, *Hirudo medicinalis officinalis* and *Hirudo verbana* (*Michalsen et al., 2007*).





Figure 1. *Hirudo medicinalis* Linnaeus 1758 (above), *Hirudo verbana* Carena 1820 (below) (Siddal et al., 2007).

All leeches have two suckers. The smaller sucker is on the front of the leech's body, on the place of leech's mouth. The larger sucker is on the tail end of the leech's body. (Kite, 2005). In the mouth, leeches have three jaws with small teeth that are used to bite the skin to suck blood. Their salivary glands are around the pharynx and gums (Michalsen et al., 2007, p.24–26). Saliva of *Hirudo medicinalis* contains dozens of bioactive substances: hirudin, calin, destabilase, hirustasin, bdellins, hyaluronidase, eglins, factor Xa inhibitor, carboxypeptidase A inhibitor, histamine-like substances, acetylcholine, and anaesthetic substances that have anticoagulant, anti-thrombolytic, thrombolytic, anti-ischemic and anti-inflammatory effects (Michalsen et al., 2007, p.133–138).

We attempted the treatment of different chronic venous diseases (Figure 2 A, B, C, D) in our studies. We use a combination of conventional pharmacological therapy and leech therapy. We divided conventional therapy into local therapy, like decongestion or recovery of cutaneous circulation, and complex therapy, like vasodilation, anti-inflammatory and anti-haemostatic therapy in collaboration with an angiologist.

We treat traditional chronic venous diseases (CVD) which are indicated for hirudotherapy,

such as chronic venous insufficiency (CVI), post-thrombotic syndrome, acute thrombophlebitis and phlebothrombosis. Chronic venous disease of the lower limbs is manifested by a range of signs, most obvious of which are varicose veins and venous ulcers. However, the signs also include oedema, venous eczema, hyperpigmentation of the skin on the ankle, atrophie blanche (white scar tissue), and lipodermatosclerosis (induration caused by fibrosis of the subcutaneous fat) (Bergan et al., 2006).



Figure 2. Diagnosis of patients with CVD

Chronic venous diseases

Venous diseases of lower limbs are the most common chronic diseases in developed countries. This is an important medical as well as economic problem; it also reduces the quality of life of patients (Task Force on Chronic Venous Disorders of the Leg, 1999; Fowkes et al., 2011).

Clinical symptoms of CVD patients may be subjective and objective. The most common symptoms in patients are discomfort in legs, tightness, and the feeling of heavy legs, fatigue, burning, pins and needles, and night spasms.





Symptoms often become worse in the evening and after a long effort; women also suffer during menstruation, pregnancy, and gynaecological hormone therapy. Objective symptoms may be minimal in the beginning. Superficial veins are extended gradually – branched and reticular veins, varicose veins, perimalleolar oedema, and finally skin changes – from eczema through lipodermatosclerosis, matrix atrophy alba to defects like venous ulcerations (*Lamping et al., 2003; Gloviczki et al., 2011; Švestková et al., 2008*).

Thrombophlebitis is a non-thrombotic or minimally thrombotic pathologic process of superficial veins associated with vein wall inflammatory changes or vein infection (*Neher et al., 2004; Sullivan et al., 2001; Marchiori et al., 2002; Goldstone, 2002*). The primary process of thrombophlebitis is phlebitis (inflammation of the veins), which then creates a thrombus (blood clot). Phlebothrombosis is intravital intravascular blood clotting, which affects the deep venous system of the lower limbs. Thrombosis is the primary process

of phlebothrombosis of deep vein, while inflammation of the vein wall is the secondary process. Thrombosis occurs when abnormal amounts of fibrin and thrombocytes accumulate in veins. The ratio of the two components in a blood clot is dependent on whether the thrombotic process is progressing in a vein or artery. Consequences of phlebothrombosis can be fatal pulmonary embolism, later resulting in CVI and post-thrombotic syndrome (*Moll et al., 2012*).

Classification of CVD

Chronic venous diseases can be graded according to the description in clinical, aetiological, anatomical, and pathophysiological (CEAP) classification, which provides an orderly framework for communication and decision making (*Porter et al., 1995; Eklof et al., 2004*) (*Table 1*).

The latest classification of chronic venous diseases is from 1995 (*Beebe et al., 1995*), which was later modified or “improved” (*Partsch, 2004*) into a complex and clinical classification (*Table 1*).

Table 1. CEAP classification CVD (Chronic venous diseases) (*Beebe et al., 1995; Partsch, 2004; Antignani, 2001*)

KLASIFIKÁCIA		
C	Clinical	C0 – undetected symptoms of chronic venous diseases C1 – teleangiectasias and reticular veins C2 – varicose veins C3 – oedema C4 – trophic skin changes (hyperpigmentation, eczema, lipodermatosclerosis) C5 – trophic skin changes + healed ulcer C6 – ulcer cruris
E	Etiological	Ec – congenital Ep – primary Es – secondary En – undetected





KLASIFIKÁCIA		
A	Anatomical	Superficial veins 1 – teleangiectasias 2 – vena saphena magna (VSM) – above knee 3 – vena saphena magna (VSM) – below knee 4 – vena saphena parva (VSP) 5 – others Deep veins 6 – vena cava inferior (caudalis) 7 – vena iliaca communis 8 – vena iliaca interna 9 – vena iliaca externa 10 – pelvic veins (gonadal and others) 11 – vena femoralis communis 12 – vena profunda femoris 13 – vena femoralis superficialis 14 – vena poplitea 15 – vena tibialis anterioris, vena tibialis posterioris, vena fibulares (peroneae) 16 – muscle veins Connecting veins 17- on femur 18 – on tibia
P	Pathophysiological	Pr – reflux Po – obstruction Pr,o – reflux and obstruction Pn – undetected

Methodology

Leech therapy procedure

The baseline method for the treatment of chronic venous diseases in our studies is hirudotherapy using *Hirudo medicinalis medicinalis* and *Hirudo medicinalis officinalis* (certified leeches) combined with conventional pharmacological treatment in collaboration with an angiologist.

Before undergoing leech therapy, patients have to be examined by an angiologist and a haematologist. Then, the doctor decides whether the patient requires treatment with leeches. In our ambulance, all patients had to fill in the “Declaration of risks of medicinal leeches” and “Questionnaire on health status”. Patients with haemophilia, anaemia, leukaemia, hypotonia, pregnancy (Glyova, 2005; Mory et al., 2000), infectious diseases, AIDS, histamine and

hirudin allergy, immunosuppression, wound healing disorders, and diabetes mellitus are contraindicated for hirudotherapy (Michalsen et al., 2007).

Before the leech procedure, we prepared the following material:

- towel (under patient)
- sterile gloves
- alcohol wipes – BBraun for disinfection of the desired area
- compresses Sterilux
- disinfection antiseptic solution Dettol
- absorbent fleece material – Zetuvit or san towel
- adhesive plaster – Omnipor, Omniplast
- emit bowl
- plastic container with blue vitriol – for the disinfection of leeches





- 5 l bottle with unused and fresh leeches (2/3 filtered water)
- 5 l bottle for used leeches (2/3 filtered water)
- pressure gauge

We disinfected the required number of leeches in a solution of water and blue vitriol or in chlorine water for 2–10 minutes. The number of leeches per procedure for one patient was selected according to the extent of the defect, weight, age, disease and blood pressure. During the disinfection of leeches, we disinfected the desired area to be exposed to leeches with alcohol wipes, we waited for 2 minutes and then we placed the sterilised leeches on the desired area. We had to avoid placement of leeches on areas with insufficient blood circulation (ankle), or on open wounds, blood vessels and bones. Leeches sucked blood usually for 30–50 minutes and

were then removed using the alcohol tampon, before being stored in a container. Leeches were only used once.

After removing the leeches, the wounds would bleed, so they were disinfected with Dettol and then covered with compresses and absorbent material. Wounds have bled individually (2–24 hours) and then created scabs and scars. During the healing process, there may be inflammation, redness, swelling or itching around the wound. After therapy, the patients must be at rest and should not physically exert themselves.

Results

There have been 28 patients (20 men aged 32–73 and 8 women aged 22–71) participating in our study to date. We separated them into 5 groups according to diagnosis (*Table 2*).

Table 2. Results and complications in patients with CVD

Diagnosis	Number of patients	Results	Complications
CHVI II-IV CEAP	10	<ul style="list-style-type: none">– improvement of symptoms CVI (reduction of pain, spasm, swelling),– reduction of leg swelling – 2 cm– *CCDS of deep vein system – recanalisation without active or exceeded thrombosis	<ul style="list-style-type: none">– erythema– increased body temperature
CHVI VI CEAP	4	<ul style="list-style-type: none">– improvement of subjective complaints– reduction of hyperpigmentation on skin– reduced pain and symptoms of CVI on the leg– healing in 2 months	
Post-thrombotic syndrome	6	<ul style="list-style-type: none">– clinical improvement of subjective complaints (reduction of leg swelling, pain)– *CCDS of deep vein system – recanalisation, without active or exceeded thrombosis, lumens are compressible and with clear passage	<ul style="list-style-type: none">– increased body temperature– bleeding
Acute thrombophlebitis, VSM (<i>vena saphena magna</i>), VSP (<i>vena saphena parva</i>)	5	<ul style="list-style-type: none">– clinical improvement in 7 days– *CCDS of deep vein system – recanalization after 4 weeks	<ul style="list-style-type: none">– erythema– increased body temperature





Diagnosis	Number of patients	Results	Complications
Acute phlebothrombosis, VP (<i>vena porte</i>), VTP (<i>vena tibialis posterior</i>), VFi (<i>vena fibularis</i>)	3	<ul style="list-style-type: none"> – improvement of complaints of CVI and leg swelling – healing of Ulcus cruris I. sin. – *CCDS – deep vein system is recanalization – recanalisation after 4 weeks 	

*CCDS = Color-Coded Duplex Sonography

Each patient participated in 6–8 leech procedures in one therapy. We placed 1–3 leeches on the desired area for each procedure. We placed leeches on following locations on the lower limbs: inner, outer and front of thigh and calf. We applied leeches on the left and right shoulders of one patient during 4 procedures, because he underwent another therapy and the wound on the leg was obstructed. Leeches sucked blood for

30–50 minutes. In some patients, there was no need to remove leeches with the alcohol tampon, because some of them fell off spontaneously.

After 8 leech procedures (i.e. 1 therapeutic cycle), each patient had a 2–3 month rest period and then continued with their second therapy. After each procedure with leeches, we watched the subjective and objective condition of patients (*Table 3*).

Table 3. Subjective and objective observations in patients with CVD

Subjective observations		Objective observations	
1. application			
– hot and hardened points in surrounding of wounds	1×	– strong inflammation	2×
– reddish skin	1×	– mild inflammation	1×
– mild pain	1×	– without inflammation	1×
– mild bleeding	1×	– mild swelling	1×
– “feeling of light legs” and heavy bleeding	1×	– strong swelling	1×
– thin stool	1×		
– creeps in the foot and muscle cramp	1×		
– strong itching	1×		
2. application			
– mild pain	1×	– reduction of hyperpigmentation of skin	1×
– itching	1×	– without inflammation	1×
– mild bleeding	1×	– mild inflammation	1×
– stronger bleeding	1×	– mild allergic reaction around wound	1×
– reddish skin	2×		
– “feeling of light legs” and strong bleeding	1×		





Subjective observations		Objective observations	
3. application			
– reddish skin	1×	– reduction of hyperpigmentation of skin	2×
– “feeling of light legs”	1×	– without inflammation	1×
– creeps in the ankle	1×	– mild inflammation	1×
– itching	1×	– strong swelling – ankle	1×
– mild bleeding	1×	– strong swelling with inflammation	2×
		– mild allergic reaction in duration 1 day	1×
		– stronger allergic reaction around wound	1×
		– USG investigation → reduction of thrombus from 7cm to 1,5 cm	1×
		– blisters within 20 cm of the wound after sucking of leeches	1×
4. application			
– pain in calf	1×	– reduction of hyperpigmentation of skin	1×
– creeps in the leg	1×	– without inflammation	1×
– “feeling of light legs”	1×	– mild swelling	1×
– itching	1×	– stronger inflammation in duration 3 days	1×
– short bleeding – 2 hours	1×	– mild allergic reaction without excessive symptoms	1×
– “easier walking” , less swelling of feet	1×		
– pain resembling spasm in calf	1×		
– reddish skin, hot points in surrounding of wounds, pain of wound after sucking of leeches	1×		
5. application			
– pain in calf	1×	– reduction of hyperpigmentation of skin	2×
– itching	2×	– mild swelling	1×
– short bleeding – 2 hours	1×	– strong swelling of calf	1×
– “easier walking” , less swelling of feet	1×	– mild allergic reaction without excessive symptoms	1×
		– stronger allergic local reaction in duration 2 days	1×
		– USG examination showing improvement of recanalisation of vein in right leg about 90 %	1×
6. application			
– cold feet	2×	– reduction of hyperpigmentation of skin	1×
– reduction of pain caused by CVD	1×	– without inflammation and without allergic reaction	1×
– creeps in leg	1×		
– pain in leg	1×	– mild inflammation	2×
– itching after 2 days of leech therapy 1	1×	– inflammation near wound	1×
– mild bleeding	2×	– mild allergic reaction near wound	1×
– “easier walking” , mild swelling of feet	2×		
– itching of the wound area after sucking of leeches	1×		





Subjective observations		Objective observations	
7. application			
– mild bleeding and itching	1×	– strong swelling in calf and ankle	2×
– mild itching in calf	1×	– mild swelling	3×
– “easier walking”	1×		
8. application			
– mild creeps in the ankle	1×	– strong swelling and pain of calf	1×
– mild itching and mild bleeding	1×	– constriction of dilated superficial veins on feet	1×
– “feeling of light legs”	1×	– reduction of swelling	1×
– pain in place after sucking of leeches	1×	– USG examination: v. poplitea completely recanalised, – proximal 1/3 of v. fibularis recanalised to 50–60%	1×

In 10 patients, there were significant clinical improvements of disease after 1 therapeutic cycle ; they felt a reduction of pain, reduction of swelling and relieved symptoms of CVD.

The deep vein system was recanalised and patency in the vein and artery was improved in some patients (Table 4, Figure 3 A, B, C, D).

Table 4. Results of 10 patients with CVD after 1st leech therapy

Patients	Diagnosis	Number leeches placed on desired area	Desired area	Results after 1 st leech therapy
1	Post-thrombotic syndrome + CVI	17	right calf	Improvement of subjective complaints and leg swelling, and reduced pain and symptoms of CVI on the leg. CCDS of deep vein system (DVS) – deep vein system is recanalised, without active or past thrombosis, lumens are compressible and feasible.
2	CVI (V. stage)	13	lateral left calf	Improvement of subjective complaints, reduction of hyperpigmentation on skin around the defect, reduced pain and symptoms of CVI in the leg.
3	CVI (IV. stage)	16	lateral and medial right calf	Improvement of subjective complaints and leg swelling, reduced pain and symptoms of CVI on the leg. CCDS of DVS – deep vein system is recanalised, without active or exceeded thrombosis, lumens are compressible and feasible.
4	Acute phlebothrombosis	14	left calf	CCDS of DVS – deep veins without visible varicose veins, compressible without thrombosis. Normal morphologic and Doppler findings on the deep and superficial venous system of leg.
5	Acute thrombophlebitis	20	right calf + left and right shoulder	Infrapopliteal vv. show complete recanalisation, proximal 1/3 of v.fibularis is compressible with 50–60 % recanalisation.





Patients	Diagnosis	Number leeches placed on desired area	Desired area	Results after 1 st leech therapy
6	CVI (II. stage)	16	left calf	Improvement of subjective complaints and leg swelling, and reduced pain and symptoms of CVI on the leg. CCDS of deep vein system (DVS) – deep vein system shows recanalisation, without active or past thrombosis; lumens are compressible and feasible.
7	Acute phlebothrombosis	12	left calf	Improvement of complaints of CVI and leg swelling, healing of Ulcus cruris I. sin. CCDS – deep vein system is recanalised, without active thrombosis; leg shows 50 % recanalisation.
8	Acute phlebothrombosis	11	right calf	Clinical improvement of CVD, CCDS -deep vein system on leg – complete recanalisation in v. poplitea.
9	Acute phlebothrombosis	12	right calf and right femur	Improvement of subjective complaints and leg swelling. CCDS – recanalisation of deep vein system.
10	CVI (II. stage)	15	interior femur and right calf	Reduction of swelling, without claudications and inflammations on leg. CCDS – deep vein system is recanalised, without active or exceeded thrombosis, lumens are compressible and with clear passage.



Figure 3. Patients after 8 weeks of leech therapy: clinical improvement of CVD symptoms was seen in some patients – reduced discoloration, slight constriction of superficial veins on feet (left – before leech therapy, right – after leech therapy).





Complications

Common complications which occur with hirudotherapy include excessive bleeding. Scars are also a common complication, but the leech bite scar is only a small dot after a few weeks (Whitaker *et al.*, 2003). Allergic responses including anaphylaxis can also occur (Whitaker *et al.*, 2003), therefore, the patient must fill the "Declaration of risks of medicinal leeches". The most critical complication is infection by the bacteria *Aeromonas hydrophila*, which is a parasite in the digestive system of leeches (Abdullah *et al.*, 2012). Infection can begin 2 to 11 days after leech therapy and can result in an abscess and cellulitis, which can progress to sepsis (Abdelgabar *et al.*, 2003). Infections are treated with antibiotics (aminoglycosides, fluoroquinolones, tetracycline, or trimethoprim) (Abdelgabar *et al.*, 2003; Ardehali *et al.*, 2006). Every patient has bleeding and mild allergic reactions like itching and swelling after leech therapy.

Conclusion

Chronic venous disease is extremely common problem that has a significant impact on affected individuals and the healthcare system (Evans *et al.*, 1999; Eberhardt *et al.*, 2005). Although not restricted to the elderly, the prevalence of chronic venous disease increases with age. Most studies have shown that chronic venous disease is more prevalent among women (Bergan *et al.*, 2006), although there were 71 % men participating in our study.

After 2 months of hirudotherapy in combination with conventional pharmacological therapy, significant improvement of the condition was seen in most patients (reduction of pain and spasms, reduction of swelling and recanalisation in vein and arteries). Preliminary results show the benefit of combined therapy in treatment of CVD. Early diagnosis of disease

and subsequent treatment is important, as it will increase the chances of improvements in the condition and healing itself.

Hirudotherapy is a beneficial method for the treatment of CVD, but it incurs certain complications, such as excessive bleeding, swelling, itching, allergy to histamine and hirudin, and small scars. However, these complications are relatively small compared to the improvement in the condition of CVD after leech procedures.

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How acupuncture “caught” me

Bibiana Kohútová Hartmannová, M. D.

There was a new “Basic course of acupuncture” led by Gustav Solar, M.D., PhD. opening in the Center of acupuncture in Bratislava in October 2012. I was logged on to this course some time already. The reason of my interest toward acupuncture was my desire to better understand sick people and move forward on my path both professionally and personally. I held books about acupuncture in my hands long before the course took place. I am a kind of person who likes to fully understand issues that he deals with. When reading this literature I have, despite my tenacity not quite understood concepts such as yin and yang, and the five elements and the relationships between them. My failure stimulated even more my interest in this medical discipline. I therefore decided to take part on course of acupuncture. During introductory hours I often heard: „Don’t tell me what kind of disease the patient has, tell me, what kind of patient is sick“. Hearing this, I knew it was a good decision to come and I was on the right place. Starting from the beginning the course was interesting not only medically and professionally but I found the introduced philosophy very interesting, too. When we learned about the five elements (fire, earth, metal, water, wood) and about relationships between them, I didn’t understand at first, where that was going to lead. Yet very soon I understood that elements are only symbols and didactic models of relations and connections and a lot of variables intervene into them in real life. Relations between elements (birth, control, suppression, humiliation) are their inevitable dynamic component and their interplay keeps the whole in balance. I realized that elements and

their relationships go far beyond the boundaries of acupuncture. They are present everywhere around us, in the nature, in the society, in the universe. Each element is represented by its color, emotion, pathogen, taste, season... I found very interesting the information that pathogens could not only be outer, but inner origin, too- those are emotions. I accepted the information that also joy can cause health disorder. Inner pathogens form a substantial part of the development of imbalances and disease. Suddenly I saw interconnections that I have not understood before. A person is able to disrupt his fragile balance by his thoughts and feelings. Every excessive emotion might cause imbalance and thus symptoms of disease. However, emotions belong to people, we can’t renounce them. Thus it is important to understand the emotion, to know why it arose, what it wants to tell me and where it wants to shift me. If I don’t understand it and I experience it repeatedly in excess it will have an impact on my health. We live to learn. Thru our emotions we can grow further or we can suffer, stagnate and hurt ourselves as well as interfere negatively with our surroundings. Continuing imbalance on the energy-information level results in changes on other levels – on psycho- regulatory level and ultimately also on biochemical-morphological level. That is the time person begins to feel really sick. Acupuncture in its therapeutic action effects all mentioned levels. In the light of today’s science (especially quantum physics) it is odd that nowadays medicine ignores the fact that mind and matter are inseparable, as inseparable as matter and energy are. Network of meridians and acupuncture points are an inevitable part of acupuncture study. This part filled me with skepticism at times. On the other side,





the awareness that everything has its logic and system was my drive to continue my education. Each meridian is associated primarily with its organ circuit. However, everything is so closely intertwined that a complex structure is formed. I learned about arrangement of meridians, that in all meridians there are points with certain meaning and connection to other meridians or elements, for example source points, cleft points, confluent points... I learned that there are not only superficial meridians but there is a whole network of channels including deep divergent channels and connecting channels. It got more complicated for a while when we learned about triplets and concatenations. However, logic and rules gradually acquired their meaning. I was interested in trigrams. At that time, one of lecturers told that if we would understand trigrams and their configuration in Ba-gua, we would not need to express ourselves in words. I have thought about it a long time. There are information stored in trigrams and their configuration to Ba-gua. Our lecturers added Ba-gua S1, Ba-gua S2 and Ba-gua Universal to already known Ba-gua Fu-si and Ba-gua Wen. The logic of these configurations and resulting connections and relations imprinted an indescribable feeling inside me: everything is ruled by an omnipresent program. Hereby, acupuncture exceeds learning within medical science and incorporates teachings and philosophy related to the universe, to God.

Diagnostic methods used in acupuncture were another remarkable part of the acupuncture course. In addition to the basic and known components of diagnoses, such as medical history, constitution and current state, we were introduced to the TST (tactile Solar's test). Simply spoken this test works as a “reader”, by means of which we are able to find malfunction or imbalance in meridians, microsystems, scars, elements. TST enables us to read directly

patient's body and find out, where the largest disorder is; and thus, consistently with other findings we can decide about the treatment of as few acupuncture points as needed. In acupuncture textbooks “instructions” are given about specified acupuncture points that should be treated in each diagnosis. However, if a physician knows not only acupuncture channels and points, but also multi-level relationships between them and he has the ability to examine each channel and microsystem, he doesn't need to know those „instructions“. At the end of a complex examination this physician knows where the largest imbalance is and he can decide which acupuncture point to treat. TST is used for an immediate review of the therapeutic intervention after treatment. Such a physician who has TST and understands connections and relationships not only within acupuncture, but throughout nature and the universe has great opportunities at his hands.

Acupuncture helps and gives not only to patients, but to physician- acupuncturist as well. Acupuncturist is not a „needle inserter“. Acupuncturist is a person who knows how to navigate through the wide maze of information obtained from the patient, knowledge obtained by study and practice, but also personal intuition. Spirituality is not only an integral part of us people, but the whole nature and the universe. Everyone will achieve the knowledge but each of us has his unique path to walk and grow. I am glad that as a physician acupuncturist I have the opportunity to help people on their paths. I am only on the beginning and I know the way is difficult. I look on my patients, people around me and indeed on the entire universe with different eyes thanks to acupuncture.

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small linen regular iplicator

A1



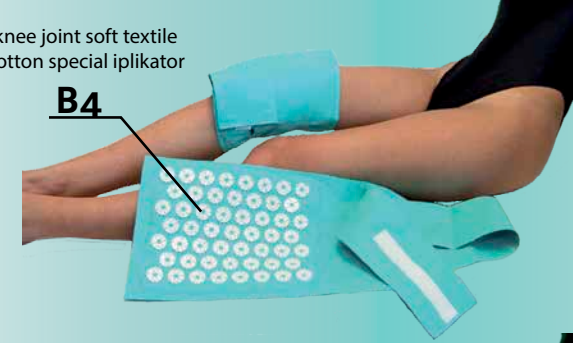
small soft textile cotton iplicator

A2



knee joint soft textile cotton special iplicator

B4



small soft textile cotton iplicator for face

A6



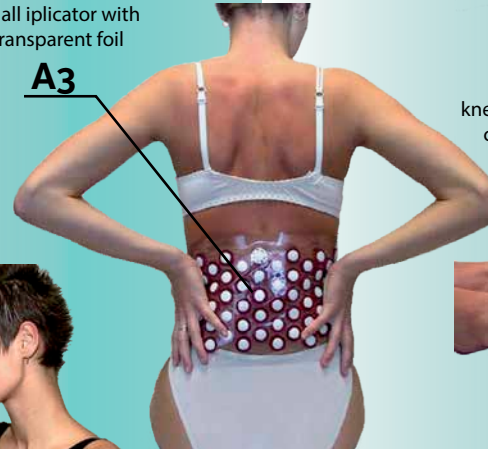
elbow joint regular soft textile cotton iplicator

B6



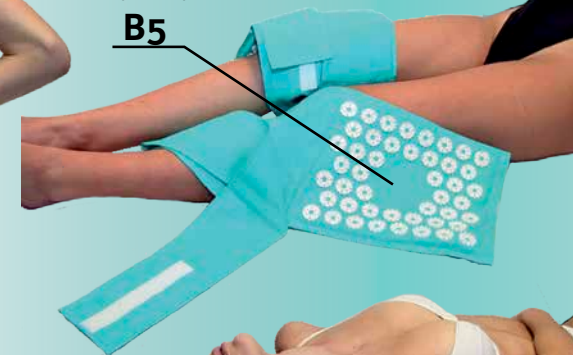
small iplicator with transparent foil

A3



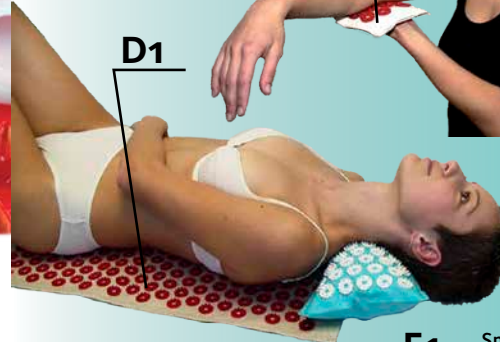
knee joint gentle soft textile cotton special iplicator

B5



large regular linen iplicator

D1

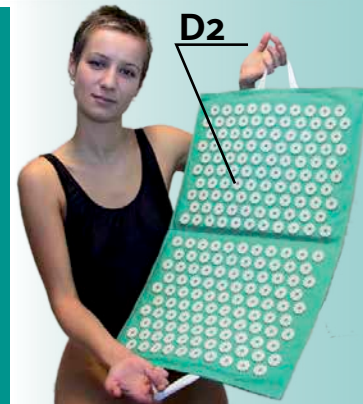


E1

Small textile cotton inflatable iplicator for cervical spinal area and lower back.

large soft folding textile cotton iplicator

D2



Large textile cotton inflatable iplicator

D5



textile cotton pneumoiplicator for lower back

large regular iplicator with transparent foil

D6



small inflatable iplicator with transparent foil for cervical spinal area

E2



Small textile cotton inflatable iplicator for reflex zones of the feet and for increasing blood circulation

E5





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3. **reviews** – short informative reviews of up to 1 standard page
4. **reports** on scientific events – up to 10 lines, the title constitutes a part of the text

The form of studies and surveys:

- **Basic format:** MS Word, font Times New Roman, font size 12, double spaced, unaligned on the right edge, paragraph 5 strokes from the left, aligned to the left, no page numbering, refrain from word division;

- **The first page** contains the name of the study, the author's name and institution, abstract in Slovak language, respectively, in the language of the paper, max. 600 symbols (including spaces), Times New Roman font type with font size 11 points, 4–6 key words, phrases;
- A **summary in English language** below the study shall be present, approximately 10 lines (600 symbols including spaces) in lengths, including the author's name and address, or e-mail address;
- **Citations:** kindly include citations of less than 4 lines in double quotation marks inline, quotes exceeding 4 lines shall be divided into visually separate short paragraph absent of quotation marks, 5 strokes from the left, using Times New Roman font type size 11 points;
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- Short bibliographic reference styled as (Bakoš 1966, 115) following a citation shall be used;
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