

DENAS MC CORPORATION  
Medical Centre

**DENAS**  
**Manual for dynamic  
electrostimulation  
using DENAS devices**

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This edition presents a new form of physiotherapy: dynamic electroneurostimulation (DENS), with a device intended for usage, as well as basic instructions for the application of DENS treatment and techniques both for widespread diseases and emergency medical aid.

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# **CHAPTER 1**

## **DENAS DEVICES**

### **1. WHAT IS DYNAMIC ELECTRONEURO-STIMULATION**

Dynamic electroneurostimulation (DENS) is a non-medicinal form of treatment in which a frontal projection of a lesion focus, and the segmental and reflexogenous zones are treated with pulses of electric current, the shape of which will depend on the magnitude of electrical resistance (impedance) in the skin surface underneath the electrode. The curative effect of DENS is achieved chiefly by triggering reflex mechanisms through stimulation of skin receptors. The DENAS process triggers a chain of responses in the human body.

A succession of experimental and clinical tests, aimed at measuring the efficacy and safety of DENS and at optimising its therapeutic impact, confirmed the advanced curative effects of DENS treatment, whether applied by medical professionals or by patients using DENAS in the privacy of their own homes.

Used on its own or in combination with other forms of treatment, DENS creates a marked improvement in patients suffering from different acute or chronic conditions, accelerating convalescence and allowing the attending physician to reduce medication dosage and thus lessen the chemical impact on the body. DENS also works as an anaesthetic during minor surgery and post-operative recovery. The result is shown primarily in its instant analgesic effect, making the patient feel, sleep and eat better, and enabling them to work more productively.

No patients have ever developed any side effects or complications caused by the use of DENS.

Clinical experience and ongoing scientific research combine to develop and offer effective and straightforward techniques towards rehabilitation for numerous conditions, which can be self-administered by the patient in the home independently or with the help of another person.

## TERMINOLOGY

### **Dynamic electroneurostimulation and technical equipment registrations**

**DENS** – dynamic electroneurostimulation is a new method of electroreflex therapy (*registered certificate from the Russian Federal Inspection Agency in Health Care and Social Development No./ ФC-2005/004, dated 04 March 2005*).

**DENAS** – the dual-range electroneuroadaptive stimulator for influence on the BAZ and BAP (see below). The device has inbuilt electrodes, “TEST” procedure (10 Hz, in measured doses) and “THERAPY” (77 Hz, constant) (*registered certificate from the Russian Federal Inspection Agency in Health Care and Social Development No. ФC 022a2005/2135-05, dated 09 August 2005, and certificate of EC regulation medical products No. RQ 040632-V, dated 03 March 2005*).

### **Technological specifics and functional capacities of DENAS devices**

**Inbuilt electrodes** – electrodes built in within the device frame. They are also referred to as being zonal, as the DENS performed by them affects the neural elements of the area of skin rather than the active point.

**Skin impedance** – full electrical resistance of the skin surface in the area beneath the electrode.

**MSSI** – monitoring of surface impedance of skin in the “TEST” (the dosed process). It enables the revelation of latent triggers (see below).

**“TEST” programme** – dosed programme of the DENAS devices, which is designed to assess the functional condition of organs and the bodily system by determining the time of stabilising of the skin electrical impedance beneath the electrode in stimulation with the frequency 10 Hz.

**“THERAPY” programme** – constant therapeutic programme carried out by the DENAS devices. Operates at 77 Hz.

### **Intensity of electric pulse effects of the DENAS devices**

**ER-1** – minimum energy range (see point 2 of the Chapter 1).

**ER-2** – comfortable energy range.

**ER-3** – maximum energy range.

## Device modes

**Stationary** – when the electrodes remain immobile on the skin surface for the duration of the action exerted upon the suggested area.

**Labile** – when the inbuilt electrodes of the device are moved smoothly over the suggested operating area, without breaking contact with the skin surface, at a velocity of 0.5 to 2-3 cm per second.

**Stationary-labile** – when the device's electrodes can be held for some time in specific skin areas.

## Most frequently recommended treatment zones and points by the DENAS devices

**BAZ and BAP** – biologically active zones and biologically active points.

**Corporeal zones and points** – active reflexogenous zones and points on the patient's body.

**FPC** – frontal projection of the complaint or of the bodily organ showing evidence of the complaint (localised area of pain, lesion focus or organs with impaired function).

**Trigger zones** – zones of asymmetry where the skin electric impedance sharply deviates from that in adjacent areas.

**Segmental zones** – areas of skin on the human body linked via neural pathways to respective organs and parts of the human body.

**Universal (general) zones** – areas of skin which, when operated on, prompt a general rehabilitative response from the organism.

**Posterior zone of the meridian midpoint or the posterior midpoint line of the body** – area of skin with a universal trend. It covers the spinous processes of vertebrae (the central course) down from the second cervical vertebra to the last sacral vertebra. The spinous processes of vertebrae are situated on the back and can easily be felt in almost all people.

**"Concordance points" or paravertebral zone** – a paired skin area (right and left) following the universal trend. It is situated next to the spine (lateral paths), parallel to the vertical zone of the posterior meridian midpoint. In this area, BAPs are located as "concordance points"; furthermore, it is the zone of frontal projection of the spinal cord root outlets. Together with the zone of posterior median merid-

ian, it forms the “Three paths” zone.

**Trigeminal zone** – skin area of frontal projection of the trigeminal nerve branch outlet on both sides (the “six points” zone). It relates to the universal trend zones.

**CCZ** – cervical-collar zone. It relates to segmental zones of universal trend.

**CC** – zone “cervical circle”. It relates to segmental zones of universal trend.

**LSZ** – lumbar-sacral zone. It relates to segmental zones of universal trend.

**2 CV** – skin area of frontal projection of the second cervical vertebra.

**7 CV** – skin area of frontal projection of the seventh cervical vertebra.

**Systems of concordance. Zones and points** — human body limited skin areas or mucous membrane areas having zones and points representing all organs and systems of the organism. At present, these will be distinguished as follows: maxi-systems (e.g. on the body, face, head), midi-systems (e.g. on feet and hands – the main concordance system Su Jok), and mini-acupuncture systems (e.g. in the ear).

### **Advantages of using DENAS devices**

- DENAS – device for performing dynamic electroneurostimulation – a new treatment technique. It is easy to use, portable, with a wide range of applications (it can be used for emergency aid as well as for standard treatment of chronic diseases), and is safe.

- The intensity (energy range) of the treatment can be chosen easily for patients of any age and within any pain threshold.

- The shape of the DENAS device’s inbuilt electrodes enhances the efficacy of DENS treatment and enables one to perform therapeutic treatment in biologically active zones.

### **Indications and contraindications for DENAS device usage**

#### *Suggestions for DENAS device usage*

- Treatment of acute and chronic pain syndromes.
- Correction of functional disorders in diseases of the musculoskeletal, nervous, cardiovascular, endocrine, urogenital systems,

the respiratory organs, digestion, ears, nose, throat, eyes and skin.

- Rehabilitation following previous diseases, surgery, injuries.
- Prophylactics of diseases, recurrence of chronic diseases, functional disorders, separate symptoms and syndromes of most known diseases, including correction of disorders revealed at the preclinical stage with the aid of traditional diagnosis techniques.

### **Contraindications for usage**

#### *Absolute:*

- individual intolerance of electric current;
- presence of implanted heart pacemaker.

#### *Relative\*:*

- epileptic status
- neoplasms of any causation and localisation
- fever of unknown origin
- thrombosis of the veins
- acute mental, alcohol or narcotic excitation

### **Combination of DENAS device usage with other treatment techniques**

If necessary, a combination of the DENAS device with other reflex therapy techniques (such as acupuncture and acupressure) is acceptable, as well as manual therapy, balneal water and mud methods, phytotherapy, homeopathy, therapeutic physical exercises and dieting, as well as with drug therapy. DENS combines well with symptomatic therapy, e.g. in simultaneous application of analgesic (non-narcotic as well as narcotic series) and spasmolytic preparations, the dosage of pharmacological drugs will then be reduced as well as the duration of their application. It is not recommended to conduct DENS with the DENAS devices on the same day as physiotherapeutic procedures (particularly electric-based treatment).

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*\*Treatment with the device will be conducted in these cases after consultation with physician.*

## 2. INFORMATION ON THE SPECIFICS OF USING THE DENAS DEVICE

### **Appearance of the DENAS devices. Control terminals**

More details on appearance of the DENAS devices (Fig. 1, 2) and control terminals are given in the manual of the device.

### **Ranges of the energy exposure and selection**

The intensity of the treatment is determined on an individual basis according to each patient's subjective feelings, and is always started from the minimum level.

The intensity of electrostimulation will normally be divided into three ranges of energy exposure: minimum, comfortable, and maximum.

The first (ER-1), minimum energy range (at the sensation threshold) amounts to an effect of weak intensity, in which the patient feels either no sensations (pain, stinging, etc.) or feels a slight vibration.

The second, comfortable energy range (above the sensation threshold but below the pain threshold) amounts to an effect of medium intensity, in which the patient clearly feels a vibration, a pleasant stinging or burning but painless sensation. This energy range (ER-2) is used as the basic setting when operating the DENAS device.

The third, maximum energy range (sensations at the pain threshold) amounts to an effect of high intensity, in which the patient feels painful stinging or burning. Such intense exposure may be followed by a spontaneous muscle contraction next to the electrode (the myostimulating effect). This energy range (ER-3) is only used in the regular "THERAPY" programme in pronounced painful conditions in adolescent and adult patients, as well as when rendering emergency medical aid.

**!** *NOTE! Use of the electric pulse effect at an intensity exceeding the tolerable pain threshold is not recommended.*

ER-1 and ER-2 exposure is used, as a rule, in the head, neck and chest areas; ER-2 and ER-3 – in the area of abdomen, back and the extremities. During treatment, the level of intensity of the electrostimulation may be increased or decreased depending on

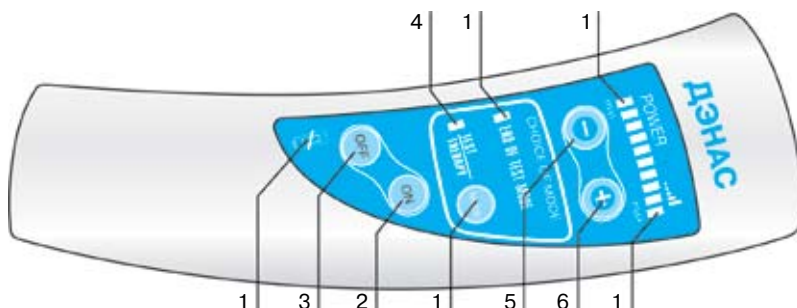


Fig. 1. Front of the DENAS device

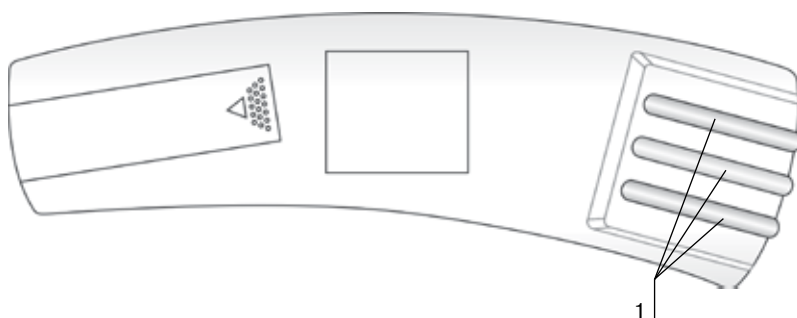


Fig. 2. Back of the DENAS device

- |  |   |
|--|---|
| 1 – Inbuilt electrodes                     | treatment strength  |
| 2 – On button                              | 11 – LED indicating the completion of the dosed programme (the TEST programme)  |
| 3 – Off button                             | 12 – LED indicating the operation of the dosed/TEST programme (flashing light) or the constant/THERAPY programme (continuous light) |
| 4 – Programme switch button (TEST/THERAPY) | 13 – LEDs indicating the level of the treatment strength  |
| 6 – Power boost button                     | 14 – Label  |
| 7 – Power reduction button                 |   |
| 8 – Frame                                  |   |
| 9 – Power supply compartment cover         |   |
| 10 – LEDs indicating the level of the      |   |

changes in the patient's sensitivity as well as any elimination of the pain syndrome. Thus, in moderately pronounced disorders of the peripheral nerve functions, for instance (numbness, paresthesia, paresis), ER-1 and ER-2 exposure should be used, whereas in cases of obvious pain ER-3 is appropriate.

### **Apparatus working methods**

Dynamic electrostimulation with the DENAS devices can be conducted in three ways: stable, labile, and labile-stable those.

Stable mode – when the electrodes remain immobile on the skin surface for the duration of the action exerted upon the suggested area. This is used when acting upon small areas.

In the labile mode, when the inbuilt electrodes of the device are moved smoothly over the suggested operating area, without breaking contact with the skin surface, at a velocity of 0.5 to 2-3 cm per second. The movements should be straight, spiral, circular or other – depending on the size and shape (relief) of the area in question, with slight pressure (reflexogenic areas, skin areas of internal organ projections) or stronger pressure (back, hips, buttocks).

In the labile mode, a delay of inbuilt or trailing electrodes is acceptable at points of maximum painfulness, for instance, in the trigger zones. In this way, the labile-stable mode is implemented.

In the “TEST” procedure, the stable mode is used. In the “THERAPY” procedure, all three modes may be used: stable, labile and labile-stable.

### **Conditions and general information on the use of the DENAS device**

No special conditions are necessary for usage of DENAS devices. DENS can be performed both indoors and under field conditions. During the DENS treatment, the patient can sit in a chair or lie in a comfortable position. After the session, it's recommended that the patient has a 10-15 minute rest.

During the procedure, the device's electrode should always be in contact with the surface of the patient's skin. After each procedure, the electrodes of the DENAS device should be treated with a disinfectant solution. The devices must be stored with its electrodes kept dry.

### **3. DIAGNOSTIC AND THERAPEUTIC POSSIBILITIES AND DENAS TREATMENT PROCEDURE**

#### **1. The “TEST” programme**

The “TEST” programme is designed to assess the functional condition of organs and the bodily system by means of searching for zones where the skin impedance will be very different from that in adjacent areas (latent trigger zones), as well as for treating the skin areas symmetrical to the complaint projection.

The energy range of the treatment is either minimal (ER-1) or comfortable (ER-2). The treatment method is stable; the electrodes are moved after an audio signal. The “TEST” programme operates at the frequency 10 Hz.

When switching the DENAS device on, the “TEST” programme will be initiated automatically.

**!** *NOTE! Intensity level is controlled subjectively according to the patient's sensations when the skin surface comes into contact with the electrodes. The pain sensation threshold should not be exceeded. When switching the device on, minimal energy range will be automatically set.*

Having stabilised the skin impedance of the skin under the electrode, the device emits an audio signal, after which the device should be moved to an adjacent zone. Those areas where the treatment time of the device differs considerably from that in adjacent areas either positively or negatively are referred to as latent trigger zones. These zones should be treated using the “THERAPY” programme for 3-5 minutes.

If the treatment time of the “TEST” programme is over 1 minute, the electrodes should be moved to an adjacent area while continuing the process. This zone should be regarded as the latent trigger zone. Move to the next zone for testing.

## **2. The “THERAPY” programme**

The “THERAPY” programme is intended for emergency aid, elimination of acute sources of complaints, and treatment of identifiable trigger zones.

The “THERAPY” programme in the DENAS device operates at a frequency of 77 Hz. In order to set the mode of the “THERAPY” programme, carry out the following steps.

Switch the device on and push once the “MODE” button.

The duration of the “THERAPY” programme is set by the operator (the treatment is usually continued until improvement in the patient’s condition).

In the device treatment in the labile way, in the “THERAPY” programme, a change might occur in the sound timbre of the device or difficulty in sliding of the DENAS device over a particular area of skin (a “sticking” effect). These zones should also be regarded as latent trigger zones.

These trigger zones should be treated in the “THERAPY” programme setting for an additional 3-5 minutes.

## **CHAPTER 2.**

# **ZONES FOR TREATMENT WITH THE DEVICE AND TREATMENT TECHNIQUES**

### **1. ZONE OF FRONTAL PROJECTION OF PATIENT'S COMPLAINTS**

Only the complaint presented by the patient him/herself can determine the zone of the primary DENAS and DiaDENS electrode treatment on the "THERAPY" programme. For instance, in cases of displacement of the knee joints, the electrodes are placed directly upon the impaired joint area, whereas in diseases of the broncho-pulmonary system they are placed on the chest area.

In areas of pain or in localised absence of sensitivity, the energy range ER-2 or ER-3 will be applied. In other situations and prepubertal children, the ER-1 range should be used. For treatment of the FPC, both the stable and the labile ways of treatment can be used, as well as the labile-stable way.

The duration of the FPC zone treatment depends on the presence or absence of pain. If the patient's main complaint is pain, then the device action will be continued until the pain has completely disappeared or has considerably diminished painful feelings. If there is no pain, then the action will be continued until the central complaint has disappeared (e.g. stuffiness of the nose, coughing, shortness of breath, palpitation, skin sensitivity disorders, etc.) or until redness appears beneath the electrode, a sensation of "goose flesh", a feeling of warmth or lightness. The treatment of the device in a single FPC zone often causes the patient to relax and fall asleep; in this case, the DENS should also be stopped.

## 2. SEGMENTAL ZONES

Information from the internal organs – from the central nervous system to certain cutaneous areas of the human body (and vice versa: from the skin to the internal organ) – is transferred by the same segments of the spinal cord.

Treatment on an area of skin using DENS pulses leads to positive changes in the organs and tissues communicating with the segment of skin surface under stimulation. Under the effect of the neurostimulation pulses, changes will occur in microcirculation, metabolic processes in cells, tissues and organs, and the formation of biologically active substances will also occur. All these phenomena prompt normalisation of motor, secretion, immune system and other activity of internal organs and parts of the body connected with the skin areas under stimulation.

Segmental areas can be included as part of a device treatment scheme. Depending on symptoms of any diseases and pathologic processes for strengthening of the DENS effect.

Segmental zones can conventionally be divided into zones for specific treatment and zones for multi-purpose treatment.

### **Segmental zones for specific treatment**

Specific treatments on segmental zones are designed to regulate functions of certain organs (e.g. liver, kidneys, prostate gland, etc.).

Specific treatments on segmental zones (herein, segmental zones) are designated by letters and numbers. The eight cervical segmental zones are C1–C8, the twelve thoracic ones D1–D12, five lumbar L1–L5 and the five sacral zones S1–S5. Segmental zones in the human body can be represented in a simple way as transversal circles; thus in the special references you might encounter the expression “the segmental circle zone”. On the extremities of the body, segmental zones appear as longitudinal strips (Fig. 3, 4).

There are widely accepted recommendations for use of some segmental zones (Table 1). These recommendations enable one to conduct DENS in the “THERAPY” programme according to the patient’s detailed complaints of the projected organs that correspond to a particular segment.

*Table 1*  
*Segmental zones recommended for treatment in*  
*the “THERAPY” programme*  
*Listed by complaint, symptom, condition and disease*

<b>Complaints, symptoms, conditions and diseases</b>	<b>Segmental zone</b>
<ul style="list-style-type: none"> <li>— Headache, dizziness, cerebral oedema, arterial hypotension;</li> <li>— Noise and ringing in the ears, deaf-mutism, speech disorders (aphonia, dysarthria, aphasia);</li> <li>— Eye diseases;</li> <li>— Pain and oedema of mucous membrane in throat and nose, chronic rhinitis (coryza), disorders relating to sense of smell, nasal haemorrhages;</li> <li>— Tension of occipital muscles, torticollis, tension and poor mobility of the spine muscles, pain in the shoulder area, paralysis of the upper limbs;</li> <li>— Mental diseases, neurasthenia, hysteria.</li> </ul>	<p>C 1 – C 2</p>
<ul style="list-style-type: none"> <li>— Headache, dizziness, cerebral oedema, arterial hypotension;</li> <li>— Noise and ringing in the ears, speech disorders (dysarthria, aphasia), pharyngitis, laryngitis, disorders relating to sense of smell;</li> <li>— Face oedema, tension of occipital muscles, headache in the back of the head, torticollis, pain in the shoulder area, in the back, in the small of the back, paralysis of upper extremities;</li> <li>— Pain and oedema of mucous membrane in throat, chronic rhinitis (coryza), sense of smell disorders, nasal haemorrhages;</li> <li>— Eye diseases;</li> <li>— Mental diseases, neurasthenia, maniacal conditions.</li> </ul>	<p>C 3 – D 1</p>

<ul style="list-style-type: none"> <li>— Migraine and other head aches, dizziness, poor memory, asthenia, hyperhydrosis;</li> <li>— Feeling of tension in the spine, spasm of muscles in the neck and back (contracture), tension of muscles in the back of the head, pain in the area of scapula, pains in the knee, pain in joints, paralysis of upper extremities;</li> <li>— Sensation of heart palpitation (tachycardia);</li> <li>— Bronchitis, bronchial asthma;</li> <li>— Susceptibility to catarrhal illnesses, coughing, rhinitis, pleurisy, influenza;</li> <li>— Neurasthenia, psychoses, hysteria, fear, anxiety.</li> </ul>	<p>D 1 – D 2</p>
<ul style="list-style-type: none"> <li>— Pain and muscle tension in the area of the back, small of the back, shoulder, back of the head, torticollis, intercostal neuralgia;</li> <li>— Cold, cough, bronchitis;</li> <li>— Urticaria fever;</li> <li>— Decreasing or absence of skin sensitivity in the shoulder and bend of elbow.</li> </ul>	<p>D 2 – D 3</p>
<ul style="list-style-type: none"> <li>— Diseases of the spinal cord and brain;</li> <li>— Disorders of mobility in the area of neck, muscle tension in back of the head;</li> <li>— Pain in the area of external surface of shoulder, scapula, chest, in the area of waist, abdomen, lumbodynia, pain in sacrum and the back;</li> <li>— Frequent coughing, chronic tracheitis, bronchitis, pneumonia, bronchial asthma;</li> <li>— Nosebleeds, nausea, vomiting;</li> <li>— Mental disorders, neurasthenia, nightmares.</li> </ul>	<p>D 3 – D 4</p>
<ul style="list-style-type: none"> <li>— Headache;</li> <li>— Ailments concerning neck pain, pain in the scapula, shoulders or back;</li> <li>— Coughing, tracheitis, bronchitis, bronchial asthma;</li> <li>— Pain in the area of heart, feeling of tightness in the chest, pericarditis;</li> <li>— Hiccupping, nausea, vomiting, stomach pains.</li> </ul>	<p>D 4 – D 5</p>

<ul style="list-style-type: none"> <li>— Headache, dizziness, poor memory;</li> <li>— Delay in speech development and decelerated growth in children;</li> <li>— Muscle tension in the back and spine;</li> <li>— Pain in the back and chest, intercostal neuralgia, pain in spine and muscle cramp in the back (cramp);</li> <li>— Coughing, dyspnoea, bronchitis, bronchial asthma;</li> <li>— Heart palpitation, arrhythmia;</li> <li>— Vomiting, poor appetite, anorexia, chronic enteritis;</li> <li>— Neurasthenia, feeling of fear, anxiety, hysteria.</li> </ul>	<p>D 5 – D 6</p>
<ul style="list-style-type: none"> <li>— Tension at the back of the head, back and neck pain, limited spinal mobility, of muscle cramp in the back, intercostal neuralgia;</li> <li>— Inflammatory diseases of upper respiratory tract (acute respiratory diseases), coughing, breathlessness, tracheitis, bronchitis, bronchial asthma, pleurisy;</li> <li>— Heart palpitation, pericarditis, pain in the heart area, pain in the back and heart;</li> <li>— Belching, hiccupping, nausea, dysphagia, borborygmus, spasm of oesophagus, stomach pain, dyspepsia, pancreatitis;</li> <li>— Hypersplenism (enlarged spleen);</li> <li>— Hair loss;</li> <li>— Acute conjunctivitis, corneal ulcer, sty.</li> </ul>	<p>D 6 – D 7</p>
<ul style="list-style-type: none"> <li>— Neurogenic vomiting, increased hyperhidrosis, nettle-rash;</li> <li>— Anaemia, nose, intestinal and uterine bleedings;</li> <li>— Back pain and lumbago, intercostal neuralgia, intervertebral muscle cramp (spasm of muscles along the spine);</li> <li>— Coughing, breathlessness, tracheitis, bronchitis, bronchial asthma, Pleurisy.</li> </ul>	<p>D 7 – D 8</p>

<ul style="list-style-type: none"> <li>— Hiccapping, nausea, vomiting, borborygmi, poor appetite, stomach pain, discomfort in the stomach (gastric dyspepsia), cholecystitis;</li> <li>— Diabetes mellitus;</li> <li>— Pain in abdomen, back pain and lumbago, urinary tract infections.</li> </ul>	<p>D 7 – D 8</p>
<ul style="list-style-type: none"> <li>— Back pain and lumbago;</li> <li>— Mucous discharges from the nose, nose-bleeds, coughing, pleurisy;</li> <li>— Pain in the chest, hypochondrium and pain in the heart area;</li> <li>— Anorexia, dyspepsia (vomiting, diarrhoea, decreased peristalsis, irregular stool, constipation, wind, borborygmus, spasm of oesophagus and stomach, pain in stomach), chronic gastritis, diseases of stomach and liver;</li> <li>— Poor night vision, conjunctivitis, atrophy of the optic nerve, cataract, retinitis;</li> <li>— Hysteria, psychosis, phobia (fear).</li> </ul>	<p>D 9 – D 10</p>
<ul style="list-style-type: none"> <li>— Stomach pain, waist, back, contracture and disorders of mobility in the spine, intercostal neuralgia;</li> <li>— Painful coughing, pleurisy;</li> <li>— Arterial hypertension;</li> <li>— Reduction or loss of appetite (anorexia), nausea, vomiting, dysphagia, borborygmi, pain and heaviness in stomach, diarrhoea, spasms of oesophagus and stomach spasms, narrowing of oesophagus, pains in stomach, jaundiced skin, gall-bladder and liver dysfunction, cholecystitis, hepatitis;</li> <li>— Diseases of the kidneys;</li> <li>— Poor vision;</li> <li>— Asthenic conditions, phobias (alarm and fear).</li> </ul>	<p>D 10 – D 11</p>

<ul style="list-style-type: none"> <li>— Back pain, weakness of the limbs, anasarca (widespread swellings), nettle-rash;</li> <li>— Dyspepsia, belching, wind, poor appetite and exhaustion, vomiting blood, diarrhoea, jaundice, stomach pain, stomach ulcer, duodenal ulcer, pain in the intestine, enterocolitis, haemorrhoids, rectal prolapse in children, intestinal bleeding, jaundice;</li> <li>— Psychosis, epilepsy, seizures in children;</li> </ul>	<p>D 11 – D 12</p>
<ul style="list-style-type: none"> <li>— Abdominal pain, back and spine;</li> <li>— Abdominal pain and borborygmi, constipation, wind, pain in epigastric area, vomiting, vomiting in babies, exhaustion (hypotrophy and lag of physical development);</li> <li>— Gastritis, stomach ulcer, enterocolitis, functional disturbances of liver, hepatitis, pancreatitis, enlarged liver (hepatomegaly);</li> <li>— Enlarged spleen (splenomegaly).</li> </ul>	<p>D 12 – L 1</p>
<ul style="list-style-type: none"> <li>— Pain and contracture of the lower back, muscle tension around the spine and small of the back, swelling of lower limbs;</li> <li>— Dysphagia, spasmodic pain and spasms in the stomach, dyspepsia, borborygmus, abdominal distension, diarrhoea, diseases of small intestine (enteritis), diseases of large intestine (colitis), dysentery, hepatosplenomegaly (enlarged liver and spleen);</li> <li>— Nocturnal enuresis, incontinence (atony of urinary bladder, weakness of sphincter of the urinary bladder), nephritis;</li> <li>— Lactation dysfunction, mastitis, endometritis, parametritis;</li> <li>— Disturbance of sexual function in men;</li> <li>— Neurasthenia.</li> </ul>	<p>L 1 – L 2</p>

<ul style="list-style-type: none"> <li>— Headache, dizziness, ringing in ears;</li> <li>— Pain and tension in back and waist, feeling of tension in spine muscles, pain in thigh, paralysis of lower extremities, lumbago;</li> <li>— Diseases with tendency to bleedings, nose-bleeds;</li> <li>— Vomiting, diarrhoea, melena, stool with blood, gastralgia, intestinal colic (pain in intestine), intestinal diseases (of small and large intestine), haemorrhoids;</li> <li>— Urinal incontinence, prolonged urination, nocturnal enuresis, haematuria (blood in urine), anuria, nephritis;</li> <li>— Anasarca (widespread swellings);</li> <li>— Diabetes mellitus;</li> <li>— Glaucoma;</li> <li>— Endometritis, adnexitis, disorders of menstrual function and other gynaecological diseases;</li> <li>— Diseases of male genitalia;</li> <li>— Sleep disorders, weakness.</li> </ul>	<p>L 2 – L 3</p>
<ul style="list-style-type: none"> <li>— Anorexia, weakness;</li> <li>— Pain in lower back;</li> <li>— Inflammation of the navel area in children;</li> <li>— Enterocolitis, rectal prolapse, haemorrhoids;</li> <li>— Diseases of pelvic organs, cystitis.</li> </ul>	<p>L 3 – L 4</p>
<ul style="list-style-type: none"> <li>— Hypertension;</li> <li>— Pain in lower back and in pelvic area, pain in the external surface of knee joint, paralysis and disturbances of sensitivity of lower extremities, lumbago;</li> <li>— Diarrhoea, intestinal colic, borborygmi, abdominal distension, constipation, rectal prolapse, enterocolitis, enteritis, colitis, haemorrhoid;</li> <li>— Urinary incontinence, cystitis, nephritis;</li> <li>— Disturbance of the menstrual cycle and other gynaecological diseases;</li> <li>— Diseases of male genitalia.</li> </ul>	<p>L 4 – L 5</p>

<ul style="list-style-type: none"> <li>— Arterial hypertension;</li> <li>— Paralysis of lower extremities, lower back pain;</li> <li>— Urinary incontinence of urine, delay in urination, anuria, haematuria, cystitis, nephritis;</li> <li>— Borborygmus, diarrhoea, constipation, enteritis, colitis, rectal prolapse, haemorrhoid.</li> </ul>	<p>L 5 – S 1</p>
<ul style="list-style-type: none"> <li>— Abdominal pain, sacrum and hip joint pain, lumbago;</li> <li>— Intestinal colic, diarrhoea, constipation, enterocolitis;</li> <li>— Gynaecological diseases.</li> </ul>	<p>S 1 – S 2</p>
<ul style="list-style-type: none"> <li>— Pain in the sacrum, waist, spine, feeling of weakness in knee joint, pain in joints;</li> <li>— Wind, constipation, diarrhoea, enterocolitis;</li> <li>— Disturbance of urination, incontinence of urine, heavy urination, cystitis, anuria, pyelonephritis;</li> <li>— Diabetes insipidus;</li> <li>— Labour pains, endometritis, swelling of genitals, disturbance of menstrual cycle;</li> <li>— Diseases of male genitalia.</li> </ul>	<p>S 2 – S 3</p>
<ul style="list-style-type: none"> <li>— Pain in the area of small of the back, sciatica, pain in spinal column;</li> <li>— Intestinal colic, diarrhoea, enteritis, enterocolitis, haemorrhoids, dysentery;</li> <li>— Cystitis;</li> <li>— Disturbance of menstrual cycle.</li> </ul>	<p>S 3 – S 4</p>
<ul style="list-style-type: none"> <li>— Pain in the area of the back and small of the back, sacrococcygeal pains, pain in buttocks, in waist, muscles tension of spine, paralysis of legs;</li> <li>— Anaemia;</li> <li>— Constipation, anal dysfunction, faecal incontinence, rectal prolapse, haemorrhoids;</li> <li>— Urinary dysfunction, cystalgia, cystitis, pain in urethra, insufficient kidney function;</li> <li>— Disturbance of menstrual cycle, endometritis;</li> <li>— Diseases of male genitalia.</li> </ul>	<p>S 4 – S 5</p>

Where complaints are in evidence, the segmental zone is treated using the “THERAPY” programme within the ER-2 energy range, starting from the spinous processes of vertebrae towards the lateral surfaces of the body on both sides. The width of the skin region undergoing treatment should be equal to the patient’s palm width. The device electrodes will be moved or shifted with a velocity of 1-3 cm/sec. The treatment is completed once the complaints have gone or been reduced considerably. In the absence of complaints, the segmental zones for specific treatments are treated with the “TEST” programme at ER-2. Diagnosed latent trigger zones (see point 4 of the Chapter 2) should be treated using the “THERAPY” programme.

### **Segmental zones for general treatment**

Aside from the above segmental zones, in operating DENS, general treatment zones are used efficiently. They consist of the cervical-collar zone (CCZ) and lumbar-sacral zone (LSZ). The CCZ will be treated if the pathologic process is localised in the head, neck and upper extremities; the CSZ – in pathologic processes of the abdominal cavity organs, those of retroperitoneal space, pelvis minor, and in lower extremities.

**Cervical-collar zone (CCZ)** (Fig. 5). The upper limit of this zone passes along the outer surface of the neck at the level of spinous process of the second cervical vertebra. The lower limit is an imagined horizontal line drawn at the level of the scapulae. The lateral limits lie in the lateral surfaces of the neck, shoulders, and upper arms on both sides.

The device treatment of this zone is performed using the “TEST” programme in the stable mode at ER-1 or ER-2, with revealing the trigger zones.

Apart from segmental responses, treatment of this zone will result in a general adaptive response, in the form of normalization of the vegetative nervous system functional condition on a widespread basis. This makes it possible to use treatment of the cervical-collar zone in diseases of the brain vessels, chronic inflammatory conditions in the head and neck areas, in neuroses, in changes of arterial blood pressure of various aetiologies, and in other diseases.

## **IMPORTANT!**

*When treating the cervical-collar zone one should take the following into consideration:*

- in diseases whose symptoms include increased intracranial and arterial pressure (blood pressure – BP), the direction of the device movement along the zone in the “THERAPY” programme must always be top-down;*
- in diseases whose symptoms include decreased BP and in conditions of shock, the direction of the device movement along the zone in the “THERAPY” programme must always be bottom-to-top;*
- the ER-3 action will always increase BP in patients;*
- in stable normal BP, the direction of the device movement along the CCZ must always be horizontal;*
- in unstable BP, prior to use of the device over the CCZ, it is advisable, first of all, to measure the BP and to continue working according to concrete values.*

**“Cervical circle” Zone (CC) (Fig. 6).** The device treatment will be performed in the “TEST” programme at the minimal or comfortable energy level, starting from posterior central line of the neck and then moving the device along the neck circumference, bypassing the zone of the lower third of the neck in the front (the frontal projection of the thyroid gland) and closing the circle on the back of the neck.

In the zone of “cervical circle”, large nervous branches and nodes of the vegetative nervous system, large blood vessels and lymphatic nodes are localised. The “cervical circle” is included in the DENS prescription when dealing with any problems associated with diseases of the head (pathologic changes in the brain, hearing organs, poor vision, diseases of throat and nose, etc.) and neck (laryngitis, pharyngitis, tracheitis, etc.).

**The lumbar-sacral zone (LSZ) (Fig. 7)** is situated on the body’s back surface. The zone’s upper limit is the twelfth rib, and the lower limit is where sacrum meets the coccyx. From the sides, it is restricted by the lateral surfaces of the body on both sides.

Treatment upon this zone is performed using the “TEST” programme at the ER-2 range, with exposure of the trigger zones.

In this zone, DENS treatment has an effect upon blood supply and trophism of the small pelvis and the lower limbs. Treatment of the lumbar-sacral zone is given in instances of diseases of the lower limbs, intestine, in enuresis, functional disorders of the male sexual sphere, functional and inflammatory diseases of female sex organs, in secondary infertility, in the rehabilitation period after diseases and injuries of the spinal cord, and in some other diseases.

Apart from particular segmental responses, treatment of the lumbar-sacral zone induces complex general responses manifested by a tonic effect upon the whole organism, improvement of sleep, appetite, raising of the general tonicity.

### 3. UNIVERSAL (GENERAL) ZONES

Universal zones comprise those areas where visible large nervous structures are situated (the spinal cord, vegetative ganglia, trigeminal nerve) or areas rich in microcirculatory passages. The universal zones include the posterior median meridian zone (skin zone which corresponds with the body's posterior median line) and the "concordance points" zone (the paired paravertebral zone, as well as the trigeminal zone and the hands and feet zone). These zones are included in the "TEST" and "THERAPY" treatment programmes in situations where it is necessary to stabilize the therapeutic effect and reduce or eliminate the causes of the disease (pathogenetic treatment) and obtain a clear general adaptive response from the organism.

In the universal zones DENS will be preferable also in those cases where it is unnecessary to localise the reflex effect precisely but where, on the other hand, it is essential to provide a reliable long-lasting general (systemic) response, to eliminate exhaustion, to raise the capacity for work, to influence the central nervous system functions in order to normalize treatment of the endocrine system and the balance between the processes of excitation and inhibition.

***Posterior zone of the meridian midpoint or the posterior midpoint line of the body (Fig. 8).*** In this zone, the BAP of the posterior meridian midpoint is localised. It covers the spinous processes of vertebrae from the top to the second cervical vertebra to the last sacral vertebra. The spinous processes of vertebrae are located on the back and can easily be felt in almost all people.

The treatment is performed using the "TEST" programme at minimal or comfortable energy level (ER-1 or ER-2) in order to reveal latent trigger zones (see below, point 4 of this Section). The stable treatment mode is applied.

***The "concordance points" zone or paravertebral zone B (Fig. 9).*** The paired skin zone (right and left). It is situated paravertebrally, i.e. next to the spine and parallel to the Posterior zone of the meridian midpoint. In projection of this zone, sympathetic ganglia of the vegetative nervous system are situated. Besides, it is a zone of frontal projection of the spinal cord root exits.

When treating the “concordance points” zone using the “TEST” programme, the device electrodes are established in the order indicated with numbers in the Figure 9. The LT zones (see below point 4 of this Section) are shown when comparing parameters in symmetrical areas. The treatment energy level will either be minimal or comfortable.

**The trigeminal zone (Fig. 10)** is a zone of frontal projection of the passage of the upper, middle and lower branches of the trigeminal nerve on the right and left sides.

The points of the trigeminal nerve branch passages are located on the face:

- the first pair of points (the upper branch) are in the eyebrow area, near bridge of nose;
- the second pair of the points (the middle branch) are ectad from the nasal wings;
- the third pair of the points (the lower branch) are a little below the corners of the mouth.

Treatment in this zone is performed in the following way: the first pair of points followed by the second and the third ones will be treated using the “TEST” programme. The results obtained at symmetrical areas should be compared in order to reveal the LTZ (see below, point 4 of this Section).

**The hands and feet zone.** The organism’s responses to stimulation of the hand and foot skin are general responses owing to presence in these zones of rich neural-receptor apparatus and a microcirculatory bed. Additionally, the Su Jok therapy concordance system of all internal organs and related parts of the body are situated in the hands and feet.

During the procedure, the hands and feet are treated in pairs using the “TEST” and “THERAPY” programmes with the search for latent trigger zones (see below, point 4 of this Section).

## 4. TRIGGER ZONES

Trigger zones (TZ) are specific abnormal zones at certain areas and zones of the human body. As a rule, healthy people should not have trigger zones. The trigger zones constitute a phenomena brought about by specific neural-reflex connections of the skin, sinews and muscles with internal organs and organ systems.

Disorders in the functioning and the structure of internal organs, in certain limited skin areas, in sinews, muscles, periosteum, lead to an occurrence of colour disturbances, sensitivity, enhanced painfulness, areas of induration, changes in electric conductivity and other changes not characteristic of a healthy body and not found in other symmetrically positioned parts of the body. These have been referred to as "trigger" zones.

The trigger zones can be active (visible) and latent (hidden).

### Active TZs

Active TZs can be revealed by the operator by means of questioning the patient, through examination of the latter, and with palpation (with the fingers) and percussion on the body surface.

The active TZs comprise:

- localised projections of complaint (e.g. pain in certain parts of the body or the extremities);
- localised painfulness occurring after palpitation with fingers or following movement;
- localised disruption of skin sensitivity, sweating, temperature;
- reddening or paling of separate skin areas;
- localised induration in the skin, focal painful swellings, "goose flesh" on a restricted skin area, spots of abnormal pigmentation or flaking, etc.;
- localised change in the muscle tonus, induration of muscle tissue in various places, of various shape and extension (varies from a few millimetres to a few centimetres).

The active TZs in patients with internal organ diseases are often manifest in localised areas with enhanced sensitivity and/or reflected painfulness in respective areas (segments) of the body (the Zakharyin-Ged zones).

## Latent TZ

The appearance of latent TZs is associated with localised changes in electric skin impedance and with a localised vegetative response that will occur in segmental or general zones, or in the zone of frontal projection of the organ in case of its function disorder.

The main differences between latent and active TZs can be seen in the following:

- Latent TZs appear on the human body in the preclinical stage of any acute disease or as an exacerbation of a chronic pathologic process, i.e. prior to the appearance of complaints and active TZs in the patient;
- Latent TZs are not revealed by ordinary techniques of examination (in physical examination, palpation, percussion, listening, etc.);
- Latent TZs can only be revealed using DENAS.

Latent TZs can be revealed both in the “TEST” and the “THERAPY” programmes.

In the “TEST” programme, the following indications of latent TZs will be in evidence:

1. *Sensitive asymmetry* – localised change of the skin sensitivity during DENAS treatment in any programme, but at the same ER (in this area, in comparison to others, the patient feels either an enhanced or a weakened piercing sensation).

2. *Localised change in skin colour*. Following treatment of a skin area under the device electrode (contact asymmetry) or in another body area (distant asymmetry), reddening or paling appears, distinguishing this particular area from others.

3. *Temporary asymmetry*. Zones where the treatment time of the device in the “TEST” programme up until the signal sounding is considerably different from that of the treatment in other areas, either greater or less, or zones where the treatment time is over one minute.

4. *Localised increase in perspiration*. Following treatment of a skin area, drops of perspiration appear under the device electrode thus distinguishing this particular area from others.

5. *Change in the operational sound of the device* in a localised skin area during treatment in using the “THERAPY” programme in the labile mode.

6. When moving the device in the “THERAPY” programme, the operator has to make an effort when moving the electrodes in a separate skin area (the “sticking effect”).

The active and the visible latent TZs are subject to mandatory treatment in the “THERAPY” programme at ER-2 during 3-5 minutes.

## 5. VARIOUS SPECIAL ZONES

**Second cervical vertebra zone (2CV) (Fig. 11)** is positioned on the border between the head and the neck (along the lower hairline).

It is treated in diseases and injuries of the head and neck involving increased intracranial pressure; as well as dizziness, headaches, neuralgia of the occipital nerve, etc.

Treatment is performed in the stable or labile mode in the “THERAPY” programme at the ER-2 range for 2-3 minutes. In painful disorders, the treatment will be continued until there is an improvement in the patient’s general wellbeing or until pain has been fully eliminated.

**Seventh cervical vertebra zone (7CV) (Fig. 12)** – the last cervical vertebra, its spinous process, which can always be felt in palpation along the middle posterior line in the lower part of the neck.

Treatment is performed in cases of allergic, autoimmune or any inflammatory processes and diseases.

Treatment is performed out in the stable mode in the “THERAPY” programme at the ER-2 range for 2-3 minutes.

**Jugular fosse zone (Fig. 13)** is positioned on the edge of the border between the neck and the sternum.

Treatment of the jugular fosse is performed in cases of any allergic diseases, suffocation, coughing, disorders of swallowing.

DENS is performed in the stable mode in the “THERAPY” programme at the minimal or comfortable energy level for 3-5 minutes.

**Tongue zone (Fig. 14)** is positioned on the middle third of the tongue.

Owing to abundant blood supply and specific nervous connections, treatment for the tongue zone can be used in cases of mouth cavity diseases (mucous membrane, teeth, tongue, sore throat), speech disorders, pharyngitis and laryngitis, constipation, etc. One should remember that the action upon the tongue zone exerts a stimulating effect on the central nervous system, therefore

it is recommended that it is not carried out in the evening and prior to patient going to sleep. The tongue zone may be treated in patients of any age.

The tongue zone is treated using the “THERAPY” programme at the minimal energy level for 2-3 minutes.

**Speech zones (Fig. 15)** are positioned in a cross formation around the area of the mouth: the upper lip, the lower lip, the left and right corners of the mouth.

This zone is subject to treatment for any speech disorders (motor aphasia resulting from a stroke, stuttering, etc.).

The speech zones are treated using the “THERAPY” programme at the ER-1 range for 2-3 minutes in each position.

**Eye area and the paraorbital zones (Fig. 16).** The eyes are treated through closed eyelids via points situated at the upper and lower margins of the orbit, in medial and lateral corners of the eye.

**Zone of frontal projection of the carotid arteries (Fig. 17)** is positioned in the middle third of the neck, in front and medially of the right and left muscles used for nodding.

It is used in diseases of cardiovascular system, hypertensive crises, high fever.

Treatment is performed in the stable mode using the “THERAPY” programme at the ER-1 range for 1-2 minutes on each side.

**Zone of frontal projection of the adrenal glands (Fig. 18)** is positioned in the lower segments of the chest, behind it, on the right and left sides of the spine.

It is widely used in dishormonal disturbances, chronic inflammatory diseases, allergic processes, and in emergency conditions.

Treatment is performed in the stable or labile mode using the “THERAPY” programme at the ER-2 range. Duration of the treatment is 3-5 minutes on each side.

**Kidney, ureter, and bladder zone (Fig. 19).** Frontal projection of the kidneys is found in the lumbar area on both sides; frontal

projection of the bladder is found in the suprapubic area.

DENS is used in any diseases accompanied by oedemas, in all kinds of increased pressure (arterial, intracranial, intraorbital, in the portal vein, etc.).

Treatment is performed using the “THERAPY” programme at either the ER-2 or ER-1 range. The device is moved by sliding from the lumbar area from the lateral surface of abdomen forwards and downwards to the suprapubic area. The treatment is performed for 5-7 minutes on each side. Where LTZ occurs (the “sticking effect”), the latter is treated for a further 3-5 minutes in each zone.

**Liver and intestinal zone (Fig. 20).** Frontal projection of the liver is found in the right lower segments in the front surface of the chest, as well as laterally and behind, its width being equal to patient’s palm width; the intestine zone is positioned on the anterior surface of the abdomen.

The lever and intestine areas are treated in almost all chronic diseases, in all types of metabolic disorders, and in acute and chronic intoxications, within the course treatment.

DENS is performed using the “THERAPY” programme in the stable or labile mode at the ER-2 range. First the liver area is treated, taking into account any incidence or absence of gall stones (if stones are present, the liver is only treated laterally or from behind, whereas if stones are not present, treatment is from all three sides) for 5-7 minutes. Then the intestine is treated in the stable or labile mode using the “THERAPY” programme at either the ER-2 or ER-1 range, depending on the character of the stool (in cases of normal stools and those tending towards constipation, the device should be moved clockwise, whereas in the instance of weak stools it should be moved anti-clockwise) for 10-15 minutes. Diagnosed trigger zones are treated additionally for 3-5 minutes each.

**Suprapubic zone (Fig. 21)** is a triangular area whose apex is positioned in the umbilicus and the base is in the inguinal folds and pubic area. In women, a frontal projection of the uterus and ovaries is positioned within this zone.

Stimulation of the suprapubic zone is used in instances of

menstrual cycle disorders, dishormonal disturbances, in circulation disorders and pathologic processes in the pelvis minor in women, as well as for normalising the functionality of sexual organs in women and in men. Treatment of the suprapubic zone is indicated as a general normalising action in almost all instances of chronic diseases in women.

In the instance of complaints, the suprapubic area is treated in the stable or labile mode using the “THERAPY” programme at the ER-2 range. In this case, treatment is exerted until there is a substantial improvement in health or until pain has been eliminated.

In the absence of pain and in course of treatment, the suprapubic area is treated using the “TEST” programme, with diagnosed LTZs and with their subsequent treatment being carried out using the “THERAPY” programme for 3-5 minutes.

**Perineum zone (Fig. 22)** is situated between the anus and scrotum in men and between the anus and vulvar lips in women.

Treatment is used in any inflammatory diseases of sexual organs in men and women alike, in disorders of sexual function in men, as well as in diseases of the rectum.

Treatment is performed in the stable mode using the “THERAPY” programme at either the ER-1 or ER-2 ranges for 3-10 minutes.

**He-gu zone (Fig. 23)** is situated on the back of the left and right hands in the standard triangle between the first and second middle metacarpal bones. This zone contains the point of the classical meridian of the colon 4GI (he-gu), being one of the main medical strengthening and prophylactic points.

It is used in allergic diseases, in pathologic processes in the nervous system, for improving the circulation in the brain in numerous diseases and conditions. Stimulation of this zone is effective in epilepsy, amenorrhea, prolonged labour, constipation.

Treatment is performed in the stable mode using the “THERAPY” programme at ER-2 for 3-5 minutes on each side.

**Zu-san-lei zone (Fig. 24)** is situated on both legs, below the exterior of the patella. It is one of the most frequently used points. Stimulation of the point zu-san-lei enhances treatment of other points and zones.

Treatment is performed in diseases of the nervous and cardiovascular systems, in diseases of the gastrointestinal tract, and in diseases of mammary glands.

Stimulation of the zu-san-lei points is also effective in reducing pain of any origin, fever, insomnia, high BP. Treatment is performed in the same way as with the he-gu points: in the stable mode using the “THERAPY” programme at the ER-2 range for 3-5 minutes on each side.

## 6. CONCORDANCE SYSTEM ZONES AND POINTS

In order to increase the efficacy and extent of the therapeutic capacities of DENS treatment, the individual prescription might include action upon the zones and points of the organ and system representations according to diagnosis, some of which have long since been known, and others are quite modern developments. At present, among the known concordance systems, the maxi-systems can be distinguished (e.g. on the body, face, head), midi-systems (e.g. on the feet, hands, sexual organs), and mini-acupuncture systems (e.g. auricular, orbicular, nasal, oral).

### ***Su Jok concordance system in the hands and feet (Fig. 25).***

Where complaints are in evidence, the points and zones of the Su Jok concordance system should be treated using the "THERAPY" programme at the ER-2 range for 3-5 minutes. Treatment of the hands and feet zones can be combined and alternated until the desired effect is achieved. In elderly persons, children and obese patients, treatment of the Su Jok concordance systems yields even better effects than treatment of a complaint in frontal projection.

As a course treatment for chronic diseases (when exacerbation of the condition has already been halted), the Su Jok zones should be treated in combination with the following programmes: first any of the two sides with the "THERAPY" programme at the ER-2 range for 2-3 minutes, then the other side using the "TEST" programme.

## **7. THE MAIN ZONES OF RESUSCITATIVE THERAPY**

The main zones of the resuscitative therapy are situated on the face (Fig. 26) which makes them readily accessible.

The first zone is positioned on the upper lip. The inbuilt electrode is placed tightly against the upper lip from the outside in such a way that part of the electrode touches the place of transition from the nasal septum to the upper lip.

The second zone is positioned in the centre of the chin-lip sulcus.

The third zone is positioned in the middle of the tip of the nose.

The above zones are treated in the event of shock, fainting induced by any cause, loss of consciousness, obvious alcohol intoxication.

In case of emergency, treatment is performed in the stable mode using the "THERAPY" programme at the maximum energy capacity. For each resuscitation zone, treatment is performed in phases lasting 30 seconds until the desired effect is achieved or until the arrival of an emergency medical team.

# **CHAPTER 3**

## **RECOMMENDED TREATMENT PROCEDURES AND DENAS DEVICE TECHNIQUE**

A DENS operation will always be different for each patient and for each specific situation. In order to choose the zones to be operated on, the order of operation, and how to plan a treatment course, one must comply with the following set of conditions:

- establish the main complaint, its localisation, history, details (i.e. to determine the character of pain);
- establish concomitant complaints (e.g. the arterial blood pressure of a patient with knee pain might periodically increase);
- determine whether this condition is acute or is just an exacerbation of a chronic condition (i.e. whether the complaints are occurring for the first time or the patient had similar symptoms before);
- determine whether the patient took any drugs (both on account of the given deterioration of the condition or as a basic therapy on a constant basis).

Having received answers to these questions, the operator can use one of the treatment schemes given below:

## **SCHEME 1. COMPLAINT IS COMPLEX AND LOCALISED, DISEASE IS ACUTE**

In cases of emergency, life-threatening conditions, DENS should be carried out as the first before-doctor aid. In other cases, DENS may be combined with medicinal treatment and other kinds of treatment prescribed by a doctor, but in a number of cases DENS is applied as an independent curative method.

The purpose of DENS is to eliminate or to substantially reduce the existing symptoms.

**!** *NOTE! The first - and quite often the only - sign of serious disease may be a pain that suddenly appears at any localisation. Therefore, if unprecedented attacks of pain occur and reoccur continuously, and pain intensity becomes stronger, it is necessary to consult a doctor urgently!*

In an acute period of illness DENS treatment should be started on the FPC zone. If the treatment of the complaint in its frontal projection is impossible because of the current circumstances (e.g., you have back pain, but you are in a tram at the current moment), as well as in elderly patients and children, the procedure can be commenced by processing the Su Jok zone in the "THERAPY" programme at either the ER-1 or ER-2 ranges until the condition improves.

Treatment of the FPC zone and concordance zones can be combined, alternated or repeated until any of the following are in evidence:

- the complaint has been fully eliminated;
- the patient feels significantly better;
- there is a hyperemia (reddening of skin), feeling of "goose flesh" or warmth and lightness in the zone beneath the electrode;
- patient has fallen asleep.

If any of these results are in evidence, the procedure should be stopped at any stage.

If the effect is not distinct enough, the following should be performed:

- increase the power of the energy deposition according to patient's pain tolerance;
- in cases of diseases of paired organs or symmetrical body

areas, treat the healthy side using the “TEST” programme at the ER-2 range;

- treat the segmental zone that corresponds to the complaint zone (see Chapter 2) using the “THERAPY” programme at the ER-1 or ER-2 range;

- treat additional zones of influence (for example, common zones, he-gu and zu-san-lei points, liver and intestinal projection, and in women, the suprapubic zone and others – refer to Chapter 2).

With most of pain symptoms and functional disorders, it is enough to treat 3-4 zones (in rare cases, 8-10 zones and points are necessary) during one procedure.

**!** *NOTE! If the complaint resurfaces, the procedures are to be repeated as required. When complaints become less severe, the interval between procedures should be 30-45 minutes in children and 1.5 hours in adults.*

In the event of an acute illness, treatment must be finished after the elimination of the symptoms.

**Clinical example.** During epidemic of influenza in an otherwise healthy patient, acute respiratory viral disease (ARVD) symptoms appear suddenly. This is an acute illness. The patient suffers from a head-cold, a cough, fever, and he or she feels unwell. It is advisable to start the treatment with FPC, which is a straight projection of the nose and submandibular zone using the “THERAPY” programme at the ER-2 range in the stable or labile mode. It is possible to treat concordance zones in keeping with the Su Jok method in the area of thumbs and feet using the “THERAPY” programme at ER-2 for 3-5 minutes for each zone. Treatment of these zones can be combined and repeated until the condition improves (until the recovery of nasal breathing). If complaints recommence, treatment should be repeated (up to 5-7 times and more per day as required). If the result of DENS treatment is not satisfactory, you can treat auxiliary zones (he-gu and zu-san-lei zones, projection of liver and intestine and suprapubic areas, common zones and other). After recovery, DENS treatment must be stopped.

## **SCHEME 2. COMPLAINT IS COMPLEX AND LOCALISED, DISEASE IS CHRONIC**

This is the most common variant of this course of diseases. In these cases, patients usually have numerous consultations, examinations, and are taking an assortment of medicines. In this case, DENAS becomes a significant additional form of treatment, often enabling a reduction in the patient's medicine intake, reducing the frequency and severity of exacerbations. If complaints arise during an acute condition, it is recommended that treatment is carried out according to SCHEME 1.

When symptoms of an acute condition are lessened or eliminated, it is advisable to perform course treatment for more pronounced results. The duration of course treatment is determined on an individual basis, being subject to the disease itself, its severity, concomitant pathology, and includes 5-7 to 12-15 procedures and sometimes more (see disease prescription, Chapter 4).

The following zones are recommended for treatment during the procedure:

– one **of the common universal zones** (the posterior zone of the meridian midpoint, the “concordance points” zone, the trigeminal area or trifacial zone, the area of hands and feet) using the “TEST” programme with further treatment of LTZs treated using the “THERAPY” programme at the ER-2 range for 3-5 minutes on each;

– **segmental zones of particular** (listed according to the disease, see Table 1 of segmental zones, Chapter 2) or **universal treatment** using the “TEST” programme with further treatment of LTZ performed using the “THERAPY” programme at the ER-2 range for 3-5 minutes for each;

– **special zones:**

- liver and intestine zones will be treated in the labile or stable mode in the “THERAPY” programme at the ER-2 range (refer to Chapter 2);

- suprapubic area in the “TEST” programme or the “THERAPY” programme in a labile or stable mode at the ER-2 range (refer to the same chapter);

- zone 7 of CV, jugular fosse, adrenal glands, he-gu, zu-san-lei in combined modes;

- zones of concordance systems in keeping with the Su Jok method in combined modes, as in chapter 2.

During one procedure combine do not more than 2-3 zones.

Average procedure duration: for babies up to 12 months – 5-10 minutes; for children of 1-3 years – 10-15 minutes; for children of 4-5 years – 15-20 minutes, for children over 5 years old and for adults – 20-40 minutes.

As a rule, the procedure is performed once daily. In cases of prolonged, persistent and severe diseases (for example, cerebral strokes, skin diseases etc.), the procedure may be performed 2-3 times a day. It is recommended that the courses are repeated after an interval of 2 weeks.

If during the intervening period new complaints appear or former complaints recommence, DENS must be restarted earlier, as required.

**Clinical example.** A patient with a history of frequently catching colds develops clinical symptoms of rhinitis (stuffiness of the nose, mucopurulent nasal discharges, feeling unwell, fever) after becoming excessively cold. This is an exacerbation of a chronic disease. In this case, as in SCHEME 1, DENS ought be started with the FPC (frontal projection of nasal and submandibular area) using the “THERAPY” programme at the ER-2 range in either of the stable or labile modes. One can treat concordance zones in keeping with the Su Jok method on the thumbs and toes using the “THERAPY” programme at the ER-2 range for 3-5 minutes at each zone. The said zones may be combined, their treatment repeated until the condition improves (restored nasal breathing). When treating such a patient, it is advisable to apply treatment to one or two auxiliary zones during each procedure (projection 7 of CV, adrenal glands, jugular fosse, points he-gu and zu-san-lei). When complaints recommence, the treatment procedures should be repeated (up to 5-7 times daily as required). As the symptoms of the acute condition are eliminated, one should include treatment of the common zones, projection of liver and intestine, the suprapubic area in the DENS prescription, along with the above zones. During one treatment procedure, do not combine more than 2-3 zones. The duration of the treatment course is 7-10 days.

### **SCHEME 3. PRESENCE OF A NUMBER OF DIFFERENT COMPLAINTS**

Patients with several different chronic diseases may present a number of different complaints simultaneously. The operator must choose a priority complaint in order to commence treatment. The choice of complaint should be made by the following principles:

- First and foremost life-threatening situations (for example, if a patient is affected by an attack of bronchial asthma and simultaneously has pain in the knee, it is necessary to commence treatment to eliminate the asthmatic fit, since this condition is life-threatening).

- First-time complaints take priority (for example, the patient has had knee pain for 20 years, and now pain is present in the hip joint. In this case, treatment must be commenced with the hip joint).

- If it is impossible to determine priorities as above, treatment should be commenced on the complaint which disturbs patient the most (for example, the patient has had chronic constipation and a disease of the joints for approximately the same amount of time).  
Variant 1: at the current time, stool delay stretches for several days. Treatment for such a patient must be commenced with the liver and intestine. Variant 2: Patient produced a stool the previous evening. DENS must be commenced with treatment of the affected joints.

After the zones for treatment have been determined, please follow SCHEME 2.

## SCHEME 4. INDEFINITE COMPLAINTS

Complaints are provisionally indefinite if the patient cannot describe his or her feelings clearly, and defines them as indisposition, weakness, easy fatigability (in medicine this is known as *asthenia*), emotional instability and so on. Such conditions may be clinical manifestations of a number of diseases, especially at initial stage (the “pre-disease” condition).

The purpose of DENS is to eliminate these symptoms as far as possible and in some cases to determine and eliminate the cause of the initial pathosis by searching for latent trigger zones and a way of treating them.

In order to reveal the source of indefinite complaints and to diminish the clinical manifestation of *asthenia* one should:

- treat one of the general universal zones (posterior zone of the meridian midpoint, the “concordance points” zone, trigeminal zone, or hands and feet zone) in the “TEST” programme mode with further treatment of revealed LTZ in the “THERAPY” programme at the ER-2 range, spending 3-5 minutes on each;

- or expose one of segmental zones to universal treatment (CCZ or LSZ) in the “TEST” programme with further treatment for revealed LTZ on the “THERAPY” programme at the ER-2 range, spending 3-5 minutes for each zone;

- or treat one of special zones (area of liver and intestine will be treated in a labile or stable programme using the “THERAPY” programme at the ER-2 range (refer to Chapter 2));

- the suprapubic area may be treated using the “TEST” programme or the “THERAPY” programme in a labile or stable mode at the ER-2 range (refer to the same ch.);

No more than 2-3 zones should be combined during the procedure. The average duration of procedure is as follows: in babies up to 12 months – 5-10 minutes; in children of 1-3 years – 10-15 minutes; in children of 4-5 years – 15-20 minutes, in children over 5 years and in adults – 20-40 minutes.

If during DENS treatment certain complaints appear which constitute a satisfactory prognostic sign, SCHEME 1 or SCHEME 2 should be applied until the condition generally improves.

The procedure must be performed as a daily course for 7-10 days. The course may be repeated if necessary.

# CHAPTER 4

## DENAS DOSAGE SCHEDULE FOR MOST COMMON DISEASES

### 1. USING DENS IN CASES OF DISEASES OF THE RESPIRATORY ORGANS

#### GENERAL POINTS

1. In diseases of the respiratory organs (particularly in acute cases), it is essential to consult a doctor. DENS is performed as an supplementary method of treatment.

2. In life-threatening conditions (suffocation, etc.), DENS is commenced as soon as possible as the first pre-hospital form of aid.

3. In severe cases, it is possible to operate two or three devices over different zones.

4. In cases of coughing syndromes, DENS is performed in order to improve sputum discharge rather than to eliminate coughing (the coughing thus becomes productive).

#### ZONES FOR TREATMENT

##### *Zones of frontal projection of complaint (FPC)*

1. **Dorsum and lateral parts of nose.** FPC of the nasal cavity.

2. **Submandibular zone (Fig. 27).** FPC of the vocal cords, larynx, hyoid and submandibular lymphatic nodes, bottom of the mouth.

3. **Jugular fosse zone (Fig. 13).** FPC of trachea and bronchi.

**4. Projection zone of the upper lung lobes in front (Fig. 28).**  
 FPC of the upper lung lobes. The upper threshold of this zone is horizontally level with the clavicles. The lower threshold is represented by the line connecting the anterior margins of the axillae. When operating first on one half of the zone and then on another half, the electrodes are moved or shifted from the periphery to centre, towards the sternum, from the lower parts of the zone and gradually ascending to the clavicles.

**5. Projection zone of the lung from the back (Fig. 29).**  
 FPC of the lungs, trachea and bronchi. This zone corresponds to posterior-lateral frontal projection of the bronchial tree and lungs. The upper threshold of the zone is level with the first thoracic vertebra. The lower threshold is represented by the horizontal line level with the lower margin of the eleventh thoracic vertebra. The lateral thresholds are represented by the middle axillae lines on both sides. The direction of the device movement is that of the arrows in the illustration.

***Supplementary treatment zones (Chapter 2)***

1. Universal zones.

2. Segmental zones.

3. Active and latent TZs.

4. Zones of the 7 CV, adrenal glands, he-gu.

5. Suprapubic zone in women.

6. Zones of liver and intestine.

7. Concordance system zones on the hands and feet.

**TREATMENT METHOD**

**1. Rhinitis, nasal congestion (catarrhal diseases, rhinitis)**

Purpose of DENS: to eliminate the symptoms as soon as possible.

*DENS technique (SCHEME 1):*

- FPC – lateral parts of nose. “THERAPY” programme at the ER-2 range (in infants this is ER-1), in the stable mode until achievement of full treatment or a considerable improvement of the condition.

- Submandibular zone. "THERAPY" programme at the ER-2 range, in a stable mode for 3-5 minutes.

- Concordance zones on thumbs and on feet. "THERAPY" programme at the ER-2 range for 3-5 minutes.

The procedure is performed as required several times a day.

A stable positive effect in monotherapy is usually achieved on the first-third day from the start of treatment.

## **2. Coughing, asthma (laryngotracheobronchitis, tracheitis, bronchitis, bronchial asthma, pneumonia)**

Purpose of DENS: to relieve dry cough, to achieve easy expectoration of the sputum, to eliminate rale, breathing difficulties, and subsequently eliminate the symptoms.

*DENS technique (SCHEME 1):*

- FPC – jugular fosse zone, submandibular zone. "THERAPY" programme at the ER-1 range in the stable mode for 3-5 minutes.

- FPC – the projection zone of the lungs' anterior upper lobes, the projection zone of the lungs from the back. "THERAPY" programme at the ER-2 range in the labile mode, moving the device from periphery towards the centre for 7-10 minutes.

- Concordance zone in the Su Jok system of the lungs on the hands and feet. The "THERAPY" programme is used at the ER-2 range for 3-5 minutes in each zone.

- CCZ. "THERAPY" programme at the ER-2 range in the labile mode (with due consideration of the blood pressure) for 7-10 minutes.

- Gastrocnemius muscle zone. "THERAPY" programme at the ER-2 range for 5 minutes on each side.

- The prescription might include treatment of the tongue zone using "THERAPY" programme at the ER-1 range for 1-2 minutes.

Treatment is performed until there is an improvement of the condition, relief or elimination of coughing, shortness of breath, asthma. The session is repeated, depending on the patient's condition, but no less frequently than 3-4 times during the first day.

In addition, it is necessary to drink plenty of warm alkaline drinks (e.g. milk, mineral water, etc.).

In frequently recurring diseases it is advisable to continue DENS as a course treatment (following SCHEME 2):

- One of general zones. "TEST" programme with subsequent treatment of the LTZs using "THERAPY" programme at the ER-2 range for 3-5 minutes each.

- Segmental zones for specific treatment (lungs) (see Table 1, Chapter 2). The "TEST" programme is used at the ER-2 range. The diagnosed LTZs are treated using "THERAPY" programme for 5-7 minutes each.

- Other auxiliary zones.

At a single session, 2-3 zones are combined. The procedure duration is predetermined by the patient's age. The course duration is 7-10 procedures, depending on the condition severity. If necessary, the courses can be repeated.

## 2. USING DENS IN CASES OF DISEASES OF THE EAR, NOSE AND THROAT (ENT-DISEASES)

### GENERAL STATEMENTS

1. In diseases of ear, nose and throat, DENS is performed as a supplementary procedure to complement the treatment prescribed by otorhinolaryngologist.

2. DENS treatment will enable to faster achieve a positive result from the treatment and to lower the intensity of the patient's drug intake.

3. In treatment of the CCZ, the direction of movement of the device will depend on blood pressure values. In increased BP, the device movement direction is from the top downwards, in decreased BP – upwards

### ZONES FOR TREATMENT

#### Zones of frontal projection of the complaint (FPC)

**1. Ear and adjacent zones (Fig. 30)** – the auricle proper is treated as well as zones in front of the hircus, upper point of the auricle attachment to the head skin, the zone behind the auricle (mastoid bone) and behind the ear lobe. These zones are treated in cases of ear pain and poor hearing (deafness).

**2. Nose and projection of maxillary and frontal sinuses (Fig. 31)** are treated as follows: nose, zones lateral to the nose wings (maxillary sinuses), and the zone above the bridge of nose (frontal sinuses) in nasal diseases, in antritis and frontitis.

**3. Submandibular zone and upper third of the neck in front (Fig. 27)** – the area of the chin and neck is treated in diseases of larynx and pharynx.

4. Tongue zone (Fig. 14) – is treated in diseases of the larynx and pharynx.

#### Auxiliary zones for treatment (Chapter 2)

1. Universal zones.
2. Segmental zones.
3. CCZ, CC.
4. Active and latent TZs diagnosed in treatment of universal or segmental zones.

5. Suprapubic zone in women.
6. Projection of the liver and intestine.
7. 7 CV zones, jugular fosse, adrenal glands, zu-san-lei.
8. Concordance system zones on the hands and feet.

## **TREATMENT TECHNIQUES**

### **1. Pain, swelling sensation, nasal stuffiness (antritis, frontitis, sinusitis)**

Purpose of DENS: to relieve the inflammatory symptoms, to be taken with medication and special treatment.

#### **DENS technique (SCHEME 2)**

- FPC (nose and projection of maxillary and frontal sinuses). The "THERAPY" programme is used at the ER-2 or ER-3 range, in the stable mode for 3-5 minutes in each zone.

- Concordance system on the hands and feet. "THERAPY" programme at the ER-2 range for 3-5 minutes for each.

- CCZ. "THERAPY" programme at the ER-2 range, in the labile or stable mode for 5-7 minutes and/or CC using the "THERAPY" programme, in the stable mode for 5-7 minutes.

On the first day, the procedure must be repeated several times with 1-1.5 hour breaks until there is an improvement in the patient's condition. It is advisable to carry out DENS using the following scheme:

- One of the universal zones of general treatment (the back central line and paravertebral lines, trigeminal zone, hands or feet) using the "TEST" programme at the ER-2 range with subsequent treatment of the LTZs using the "THERAPY" programme at the ER-2 range for 3-5 minutes in each zone.

- CCZ. The "TEST" programme is used at the ER-2 range. Diagnosed LTZs are treated using the "THERAPY" programme at the ER-2 range for 3-5 minutes.

- Zone of the liver and intestine projection. "THERAPY" programme (with due consideration of the stool character) at the ER-2 range for 10-15 minutes at each zone.

- Suprapubic zone in women. "TEST" programme at the ER-2 range, with a search for and subsequent treatment of the LTZs using "THERAPY" programme at the ER-2 range for 3-5 minutes each.

- Other auxiliary zones.

Length of course duration: 7-15 days, depending on the severity of the condition. The treatment can be repeated where necessary.

## **2. Sore throat, husky voice, cough (laryngitis, pharyngitis, tonsillitis, quinsy)**

Purpose of DENS: to relieve cough, achieve easy expectoration of the sputum and restoration of the voice, to relieve pain and to prevent complications.

### **DENS technique (SCHEME 1)**

- FPC – jugular fosse zone. «THERAPY» programme at the ER-2 range (in infants this is ER-1) in the stable mode, for 2-3 minutes.
- Submandibular zone. "THERAPY" programme at the ER-2 range (in infants this is ER-1) using the stable mode of treatment until voice huskiness and shortness of breath have considerably diminished or disappeared, and a productive cough has appeared.
- Projection zone of the lungs' upper lobes in front. "THERAPY" programme at the ER-2 range in the labile mode until the condition improves.
- If necessary, one or two zones can be added from among the following: the tongue zone, 7 CV, the cervical circle zone, the frontal projection of adrenal glands zone, gastrocnemius zones (posterior surface of the shins). "THERAPY" programme at the ER-2 range for 3-5 minutes in each zone.

The procedure is performed as needed several times a day until appearance of productive cough and normalizing of the voice. DENS course will last 5 days.

In infants, laryngitis might have a complication in the form of the pharynx stenosis (the croup syndrome). This is a very dangerous condition that might lead to death of the patient.

## **3. Pain in the ear, poor hearing (otitis, neurosensory deafness)**

Purpose of DENS: to relieve pain and accelerate healing of inflammation in the ear, to decelerate progression of deafness, to improve hearing.

### **DENS technique (SCHEME 2)**

- FPC – the ear and adjacent zones. "THERAPY" programme at the ER-2 range (if the patient is in severe pain, then this is at the

ER-3 range). In unilateral lesion, the healthy ear is treated using the "TEST" programme at the ER-2 range (symmetry principle).

- Concordance zones on the thumbs and foot pollex. "THERAPY" programme at the ER-2 range for 3-5 minutes on each zone.
- CCZ. "THERAPY" programme at the ER-1 or ER-2 range for 7-10 minutes.

The procedure is performed as required several times a day until the inflammation symptoms have been eliminated. Next, it is advisable to continue DENS as a course treatment. Aside from the above zones, the following are subject to treatment:

- One of the universal zones for general treatment (the back central line and paravertebral lines, trigeminal zone, hands or feet) using the "TEST" programme at the ER-2 range with subsequent treatment of the LTZs using the "THERAPY" programme at the ER-2 range for 3-5 minutes in each zone.

- CCZ. The "TEST" programme is used at the ER-2 range. The diagnosed LTZ is treated using the "THERAPY" programme at the ER-2 range for 3-5 minutes.

- Zone of the liver and intestine projection. The "THERAPY" programme is used (with due consideration of the stool character) at the ER-2 range for 10-15 minutes.

- Suprapubic zone in women. The "TEST" programme is used at the ER-2 range, with a search for and subsequent treatment of the LTZs using the "THERAPY" programme at the ER-2 range for 3-5 minutes in each zone.

- Other auxiliary zones.

### 3. USING DENS IN CASES OF DISEASES OF THE DIGESTIVE SYSTEM

#### GENERAL STATEMENTS

<p>1. The treatment is always started in accordance with the complaints presented by the patient rather than a diagnosis established some time ago.</p>
<p>2. In cases where there is sudden intolerable pain in the abdomen accompanied by excessive sweating, an medical ambulance must be called immediately.</p>
<p>3. The device is used in cases when the pain is familiar to the patient: it either occurs or disappears during a certain period of time and does not change in its characteristics.</p>
<p>4. The patient must be examined by gastroenterologist. An ultrasound examination of the abdominal cavity organs is strongly recommended. If gall-stones were diagnosed in the gall bladder but they make the patient doesn't present any complaints, then the zone of frontal projection of the gall bladder and the right hypogastria area must not be treated.</p>
<p>5. In the gastric ulcer, in ulcers of the intestine, the stabilisation of the condition (cicatrisation of the ulcer) should only be established on the grounds of results of endoscopic studies (fibrogastroscopy, colonoscopy, etc.).</p>
<p>6. When using DENS in cases where chronic diseases of the digestive organs have exacerbated (course treatment), starting from the second-third day, any restrictive diets can gradually be extended (in compliance with WHO recommendations).</p>
<p>7. In the zone of frontal projection of the organ presenting complaint, the operation should continue until considerable relief or elimination of the complaint.</p>
<p>8. In a course of treatment, the sessions are performed at the time of day when the complaints occurred previously. For instance, if the pain used to appear before meals, then the operation is performed before a meal, and if the pain used to appear in the morning, then the operation is performed in the morning.</p>

9. During a biliary colic, the patient is seated in DENS session.

10. In spasmodic pain, DENS treatment using the "THERAPY" programme at the ER-2 and ER-3 range might sometimes increase the pain.

## TREATMENT ZONES

### Zones of the frontal projection of complaint (FPC)

**1. Epigastria (infrasternal) zone (Fig. 32)** is the frontal projection of the stomach and pancreas. It occupies the upper third of the abdomen surface.

**2. Liver and intestinal zone (Fig. 20)** occupies the right lower segments of the chest in front, laterally and behind, by the patient palm's width; the intestinal zone is the anterior surface of the abdomen. Treatment depends on the stool character: in normal stool and constipation it is clockwise, whereas in weak stool or diarrhoea it is anticlockwise.

**3. Perineum zone (Fig. 22)** is situated between the anus and scrotum in men and between the anus and large lips of pudendum in women.

**4. Perianal zone (Fig. 33)** is situated around the anus and is treated in pathological processes in the anal area (anal fissures, haemorrhoids, paraproctitis, etc.)

### Auxiliary treatment zones (Chapter 2)

1. Universal zones.
2. Segmental zones.
3. LSZ.
4. Active and latent TZs diagnosed in treatment of universal or segmental zones.
5. Suprapubic zone.
6. Concordance zones on the hands and feet.

## TREATMENT TECHNIQUES

### **1. Stomach pain, nausea, vomiting, bloatedness**

Purpose of DENS: general improvement of state of health.

### **DENS technique (SCHEME 1)**

- Solar plexus zone (hypogastric area of abdomen) and zone of frontal projection of the liver. "THERAPY" programme at the ER-2 range in the labile mode, by means of lateral movements for 5-10 minutes.

- Part of the zone of concordance points in the chest segment of the spine. "THERAPY" programme at the ER-2 range in the labile mode, from the top downwards for 3 minutes.

- Zone of the anterior abdominal wall. "THERAPY" programme at the ER-2 range in the stable-labile mode, depending on the stool character (in normal stool and in constipation this is clockwise, whereas in weak stool or diarrhoea it is anticlockwise) for 10-15 minutes.

- LSZ. "THERAPY" programme at the ER-2 range in the labile-stable mode for 10 minutes.

- Concordance zones of the stomach and liver on the hands and feet. "THERAPY" programme at the ER-2 range in the stable mode for 3 minutes.

Where the disease is chronic and recurrent, a course treatment is performed using the following scheme:

- One of general zones for universal treatment (the central line of the back and paravertebral lines, trigeminal zone, hands and feet) using the "TEST" programme at the ER-2 range, with subsequent treatment of the LTZs using the "THERAPY" programme at the ER-2 range for 3-5 minutes each.

- The LSZ. "TEST" programme at the ER-2 range. The diagnosed LTZs are treated using the "THERAPY" programme at the ER-2 range for 3-5 minutes.

- Zone projection of the liver and intestine. "THERAPY" programme (with due consideration of the stool character) at the ER-2 range for 10-15 minutes each zone.

- The prepubic zone in women. "TEST" programme at the ER-2 range, including search for latent trigger zones and subsequent treatment of the LTZs using the "THERAPY" programme at the ER-2 range for 3-5 minutes in each zone.

- Other auxiliary zones.

## **2. Diarrhoea**

Purpose of DENS: the first pre-medical aid.

### **DENS technique (SCHEME 1)**

- Zone of the anterior abdominal wall. "THERAPY" programme at the ER-2 range in the labile mode, counter-clockwise for 10-25 minutes (depending on the severity of the disease).

- Frontal projection zone of the liver. "THERAPY" programme at the ER-2 range for 5-15 minutes.

- LSZ. "THERAPY" programme at the ER-2 range in the labile mode for 10 minutes.

In cases of chronic constipation, auxiliary zones are included in the treatment.

The treatment is performed in courses which comprise of 10-12 procedures each.

#### **! NOTE!**

- *Mandatory reasons for consultation of the patient by surgeon, infectionist and gastroenterologist:*

- *diarrhoea with acute, sharp, unfamiliar pain in the stomach;*

- *diarrhoea with fever;*

- *diarrhoea with dry mouth, dry furred tongue, dry flabby skin, no urination;*

- *mixture of mucus, blood, pus in the faeces.*

- *The operator should be aware that performing DENS treatment in cases of watery diarrhoea does not substitute for replenishment of lost fluids (this is particularly significant for children) or for administration of medication: the sorbent agents and the medication which treat intestinal bacterial organisms (probiotics, eubiotics).*

### **3. Constipation**

Purpose of DENS: restoration of the lost defecation reflex and hence the restoration of normal self-regulating defecation.

### **DENS technique (SCHEME 2)**

- Zone of the direct liver projection. "THERAPY" programme at the ER-2 range in the labile mode for 10-15 minutes.

- Zone of the anterior abdominal wall. "THERAPY" programme at the ER-2 range (ER-1 in children) in the stable or labile mode clockwise for 10-15 minutes. Diagnosed sticking zones are also treated.

- LSZ. "THERAPY" programme at the ER-2 range for 5-10 minutes.

- Concordance zones of the liver and intestine on the hands and feet. "THERAPY" programme at the ER-2 range in the labile-stable mode for 5-15 minutes (depending on the patient's age).

- Tongue zone. "THERAPY" programme at ER-1 in the stable mode for 1-2 minutes.

- One of the universal zones using the "TEST" programme with subsequent treatment of the LTZs using the "THERAPY" programme at the ER-2 range for 3-5 minutes in each zone.

In cases of persistent constipation, treatment is performed at the same time of day, once a day, with 12-15 treatment procedures per course. If necessary, the courses are repeated with 10-14-day intervals.

The above zones are included in the treatment prescription in other diseases which have stool disorders as an accompanying symptom.

#### **4. Haemorrhoids**

Purpose of DENS: to reduce itch and discomfort in the anal area, to prevent inflammation and bleeding from the haemorrhoid nodes.

#### **DENS Technique (SCHEME 2)**

- FPC – periproctoc zone and the perineum zone. "THERAPY" programme at the ER-1 range in the stable mode for 10-15 minutes.

- LSZ. The "THERAPY" programme is used at the ER-2 range for 10-15 minutes.

- One of the universal zones using the "TEST" programme with treatment of diagnosed LTZs using the "THERAPY" programme at the ER-2 range for 3-5 minutes in each zone.

- Liver and intestinal zones. The "THERAPY" programme is used at the ER-2 range, in the labile mode with due consideration of the stool character for 10-15 minutes.

- Concordance zone on the hands and feet. The "THERAPY" programme is used at the ER-2 range for 3 minutes in each zone.

- Other auxiliary zones.

! *NOTE! In cases of distention of the haemorrhoid veins in pregnant women, the treatment should only be performed in the FPC zone.*

The procedure is performed once a day over a period of 7 days. If necessary, the courses can be repeated after a 10-14-day interval.

## 4. USING DENS IN CASES OF DISEASES OF THE KIDNEYS AND URINARY TRACT

### GENERAL STATEMENTS

<p>1. For greater efficacy, irrespective of localization of pathological process (kidneys, ureters, bladder or urethra), all zones of frontal projection of urinary organs are treated with the DENAS device.</p>
<p>2. Zones of frontal projection of urinary organs will always be treated on both sides even if one of the kidneys has been removed.</p>
<p>3. The device movement direction in zones of frontal projection is always along the current of urine, i.e. top down.</p>
<p>4. In latent developments (without symptoms) of the pathological process and in cases where diagnosis of the disease has been established, complaints include asthenia, fatigue, weakness, and isolated pathological changes in the urinalysis.</p>
<p>5. Every ensuing day, it is necessary to operate according to the central complaint presented by the patient on this particular day.</p>
<p>6. In the frontal projection zone of the organ of complaint, the device will operate 2/3 of the time of the whole session. In the remaining 1/3 of the time, zones of projection of other organs of the urinary tract are treated.</p>

### TREATMENT ZONES

<p><b>Zones of frontal projection of the complaint (FPC)</b></p>
<p><b>1. Zone of frontal projection of kidneys (Fig. 19)</b> is localized on the back to the right and to the left of the spine, level with the twelfth thoracic to first-second lumbar vertebrae. The projection area of one kidney is equal to the area of one palm of the patient.</p>
<p><b>2. Zone of frontal projection of ureters (Fig. 19).</b> The device electrodes are moved or placed smoothly on the skin from the zones of frontal projection of the kidney on the back, with a descending arc movement via the abdomen lateral surface towards the zone of frontal projection of the bladder.</p>

<p><b>3. Zone of frontal projection of the bladder (Fig. 19)</b> is localized above the pubis on an area of one palm of the patient. It is treated in a direction from from the top downwards.</p>
<p><b>4. Perineum zone (Fig. 22)</b> is localized between the scrotum and anus in men and large lips of pudendum and anus in women.</p>
<p><b>Auxiliary zones of treatment (Chapter 2)</b></p>
<p>1. Universal zones.</p>
<p>2. LSZ.</p>
<p>3. Active and latent TZs diagnosed in treatment of universal or segmental zones.</p>
<p>4. Suprapubic zone in women.</p>
<p>5. Projection of the liver and intestine.</p>
<p>6. 7 CV zone, zones of jugular fosse, adrenal glands, he-gu, zu-san-lei.</p>
<p>7. Concordance on the hands and feet.</p>

## TREATMENT METHODS

### **1. Pain in the small of the back, frequent and painful urination (pyelonephritis, urolithiasis, glomerulonephritis, cystitis and urethritis).**

Purpose of DENS: to relieve or diminish the pain (in urolithiasis, to prompt a less painful ejection of stones), to normalize urination.

DENS Technique (SCHEME 1)

- Zone of maximum pain. The "THERAPY" programme is used at ER-3 range until pain ceases or diminishes.

- Zone of the kidneys and ureters on both sides. The "THERAPY" programme is used at the ER-2 range, duration of the treatment until pain ceases.

- Zone of the bladder frontal projection. The "THERAPY" programme is used at the ER-2 range for 5-7 minutes.

- In presence of the increased blood pressure, also treat the CCZ using the "THERAPY" programme at the ER-2 range in the labile mode from the top downwards until the condition improves.

The procedure is resumed several times a day on recurrence of complaints. Following the elimination of the pain syndrome in urination disorders, perform course treatment using the following scheme (SCHEME 2):

- Daily treatment of universal or segmental zones, using the "TEST" programme (one zone during one procedure). The diagnosed LTZ is treated using the "THERAPY" programme is used at the ER-2 range for 1-3 minutes in each zone.

- Zones of frontal projection of kidneys, ureters, bladder on both sides. The "THERAPY" programme is used at the ER-2 range, average duration is 10-15 minutes.

- 7 CV zone, zones of adrenal glands, he-gu, zu-san-lei. The "THERAPY" programme is used at the ER-2 range, for 3-5 minutes or "TEST" programme at the ER-2 range.

- Additional zones

Duration of the course is not less than 10-14 days.

After exacerbation of the patient's condition has ceased, it is necessary to operate on any other complaints, including as part of the procedure treatment of urinary organs, within 2 or 3 days.

## 5. USING DENS IN CASES OF DISEASES OF THE MUSCULOSKELETAL SYSTEM

### GENERAL STATEMENTS

1. Problems with joints may involve both independent diseases (osteoarthritis, rheumatoid arthritis) and manifestations of numerous other diseases such as chronic inflammatory processes (so-called reactive arthritis), metabolic disorders (e.g. gout), etc. Therefore DENS prescription should include not only treatment of the area of joint impairment alone but also zones for general treatment, the segmental and special zones.

2. In simultaneous impairment of many joints (polyarthritis, polyarthrosis), during one procedure, not more than two large joints is treated (hip joint, knee joint, shoulder and elbow joints) and only from three sides (the flexor surface of the joints should not be treated). Small joints of the hands and feet, radiocarpal and talocrural joints are treated from all four sides.

3. In oedema, swelling of a joint, the way of treatment is stable, the direction of device movement from periphery towards the centre. In other cases, it is possible to operate in labile, stable and labile-stable modes.

4. In impairment of the spine and joints, it is advisable to additionally palpate the paravertebral points and periarticular tissues for revealing the most painful areas (active trigger zones) with their subsequent treatment using the "THERAPY" programme at the ER-2 range or ER-3 range.

5. In treatment of the CCZ, the device movement direction will depend on the blood pressure value. In trend towards an increase in blood pressure, movement of the device is from the top downwards, in patients with blood pressure movement is in an upwards direction.

### TREATMENT ZONES

#### Zones of frontal projection of the complaint (FPC)

1. The frontal projection of the joints is treated in cases of joint pain, limited movement, swelling of the joints.

2. The neck is treated from behind in cases of impairment of the spine cervical segment.
3. The back is treated in diseases of thoracic, lumbar, sacral segments of the spine.
<b>Auxiliary treatment zones (Chapter 2)</b>
1. Universal zones.
2. Segmental zones.
3. CCZ.
4. LSZ.
5. Active and latent TZs diagnosed in treatment of universal or segmental zones.
6. Suprapubic zone in women.
7. Zones of liver and intestine projection.
8. 7 CV zone, zones of the jugular fosse adrenal glands, he-gu, zu-san-lei.
9. Concordance zone in the Su Jok system on the hands and feet.

## **TREATMENT METHODS**

### **1. Joint pain (arthritis, arthrosis)**

Purpose of DENS: to relieve pain, to enhance the extent of joint movement, to decelerate progress of the disease.

DENS Technique (SCHEME 2)

- FPC (Projection of the impaired joint). The "THERAPY" programme is used at the ER-2 range (in cases of severe pain this is the ER-3 range). In cases of unilateral impairment, a symmetrical healthy joint will have been treated using the "TEST" programme at the ER-2 range.

- Concordance zone in the Su Jok system in impaired joints on the hands and feet. The "THERAPY" programme is used at the ER-2 range for 3-5 minutes.

- CCZ or CC (in upper extremity joint diseases), LSZ (in lower

extremity joint diseases). The "THERAPY" programme is used at the ER-2 range for 5-7 minutes.

In cases of acute joint pain or exacerbation of chronic disease, the procedure is carried out by combining and alternating the diagnosed zones, until there is an improvement in the condition. In relapse of the complaints, the sessions are repeated as required several times a day.

In stabilization of the condition, it is advisable to continue DENS as a course treatment including these zones in the procedures:

- One of the universal zones of general treatment (the back central line and paravertebral lines, trigeminal zone, hands or feet) using the "TEST" programme at the ER-2 range with subsequent treatment of the LTZs using the "THERAPY" programme at the ER-2 range for 3-5 minutes in each zone.

- CCZ or LSZ. The "TEST" programme is used at the ER-2 range. The diagnosed LTZs is treated using the "THERAPY" programme at the ER-2 range for 3-5 minutes in the labile mode. The device movement direction along the CCZ is predetermined by the blood pressure level prior to the procedure.

- Projection of impaired joints. The "THERAPY" programme is used at the ER-2 range in labile or stable mode for 7-10 minutes.

- Zone of the liver and intestine projection. The "THERAPY" programme is used (with due consideration of the stool character) at the ER-2 range for 10-15 minutes.

- Suprapubic zone in women. The "TEST" programme is used at the ER-2 range, with a search for and subsequent treatment of the LTZ using the "THERAPY" programme at the ER-2 range, for 3-5 minutes each.

- Other auxiliary zones.

In a course of treatment, it is necessary to combine 2-3 zones in the procedure, the session duration is adjusted according to the patient's age. Duration of the course: 12-15 procedures. In long-term and persistent diseases, it is advisable to perform several (3-4 and more) courses a year.

## ***2. Neck pain and back pain (osteochondrosis of the spine, discogenic radiculopathies, posture disorders, lumbodynia, sciatica, etc.)***

Purpose of DENS: to relieve pain and prevent its relapse.

**! NOTE!**

*If acute pain in the small of the back area is accompanied by urination disorders and spreads over to the lower abdomen, bladder and inguinal area, one should first rule out an attack of renal colic. A medical ambulance is called or consult with urologist.*

*If acute pain in the back thoracic segment spreads over the arm and the anterior surface of the chest, one should first rule out myocardial infarction. A medical ambulance is called.*

*In these cases, DENS is only performed as the first form of pre-clinical aid.*

### **DENS Technique (SCHEME 1)**

- FPC is the area of the maximum painfulness. The "THERAPY" programme is used at the ER-2 range or the ER-3 range until the condition improves;

- Concordance zone in the Su Jok system on the hands and feet. The "THERAPY" programme is used at the ER-2 range for 3-5 minutes in each zone;

- Prior to revealing the active trigger zones, it is advisable to palpate the paravertebral points on the neck and back of the patient with the thumb. The most painful points are subjected to additional treatment in the "THERAPY" programme is used at the ER-2 range or ER-3 range until the pain is reduced;

- In instances of the reflected pain, to treat the zones of its spreading on the arm, leg or chest and abdomen in the "THERAPY" programme is used at the ER-2 range, in the labile mode during 15-20 minutes.

In the first few days, DENS procedures is repeated an unlimited number of times, in accordance with resuming or enhancing complaints, until achieving a stable anaesthetising effect.

After that, in compliance with the symmetry principle, it is advisable to treat the healthy side in the "TEST" programme at the ER-2 range.

Course treatment in chronic pain in the back (SCHEME 2)

In chronic recurrent pain in the back, after cessation of the acute pain syndrome, it is advisable to continue the treatment using the following scheme:

- One of the common zones. The "TEST" programme is used at

the ER-2 range with subsequent treatment of the LTZ in the "THERAPY" programme at the ER-2 range, 3-5 minutes in each zone.

- CCZ (with due consideration of the blood pressure level in pathological processes in the neck segment and in interscapular zones) or LSZ (in pathological processes in the lumbar-sacral segment) in the "TEST" programme at the ER-2 range. The diagnosed LTZ is treated in the "THERAPY" programme for 5-7 minutes in each zone.

- Auxiliary zones.

The course treatment takes 12-15 procedures. The courses is repeated as required.

**NOTE!**

*In rare cases, after an initial reduction in the intensity of back pain, it might grow on the second-third day after the start of DENAS treatment. In this case, it is necessary to continue the treatment of the frontal projection of the pain several times a day in the "THERAPY" programme at the ER-2 or ER-3 range until the desired effect has been achieved.*

## 6. USING DENS IN CASES OF NEURAL DISEASES

### GENERAL STATEMENTS

1. In treatment of the CCZ, the device movement direction depends on the blood pressure value and intracranial pressure. Where there is an increase in blood pressure, and intracranial pressure, the device movement direction is from the top downwards, and where there is a decrease, movement is in an upwards motion.

2. In motor and sensitive disorders in the extremities, principles of horizontal (right – left) and vertical (top downwards) symmetry are applied as well as the principle of the tetrasymmetry (criss-cross).

3. Where unilateral impairment has occurred, treatment on the impaired side (pain, paralysis, sensitive disorders, etc.) is performed using the “THERAPY” programme, and on the symmetrical healthy side using the “TEST” programme.

4. The device movement direction along the extremities is predetermined by a concomitant vascular pathological process. If there are no vascular disorders, then the device is moved in labile or stable mode from the centre to periphery (in Fig. 34, 35, 36, the order of the figures shows sequence of the extremity treatment, and the arrows – the device movement direction).

5. In a course of treatment, it is necessary to estimate the changes in the skin sensitivity, the extent of movement and muscle strength. For instance, in each procedure, the patient’s response to the same range of the energy treatment is noted, the patient is asked to move fingers of the impaired hand, to squeeze the operator’s finger or palm, etc.

6. The DENS principle in neurological impairments is “step by step”.

## TREATMENT ZONES

<b>Zones of frontal projection of complaint</b>
1. Pillary section of the head (Fig. 37) is treated in headaches. Treatment of a limited part (forehead, temples, back of the head, parietal areas) is possible in cases of localized pain or along lines (central anterior-posterior, transversal from ear to ear, and along the lower limit of the hair growth) in diffuse pain.
2. The face is treated in impairment of trigeminal and facial nerve.
3. The neck is treated in the back in impairment of cervical spinal roots.
4. The back is treated in diseases of thoracic, lumbar, sacral spinal roots.
5. The extremities are treated in motor and sensory disorders in the upper and lower extremities.
6. The tongue (Fig. 14) and speech zones (Fig. 15) are treated in cases of speech disorders and in stuttering.
<b>Auxiliary zones of treatment (Chapter 2)</b>
1. Universal Zones.
2. Segmental Zones.
3. CCZ.
4. LSZ.
5. Active and latent TZ diagnosed in treatment of universal or segmental zones.
6. Suprapubic zone in women.
7. Projection of the liver and intestine.
8. 7 CV zone, zones of jugular fosse, adrenal glands, he-gu, zu-san-lei.
9. Concordance system zones on the hands and feet.

## TREATMENT METHODS

### **1. Headache (migraine, vascular and other diseases of the brain)**

Purpose of DENS: to relieve headache.

#### **DENS Technique (SCHEME 1)**

- 2 CV zone. The «THERAPY» programme is used at the ER-2 range for 3-5 minutes.

- Zone of frontal projection of pain. The "THERAPY" programme is used at the ER-2 range in the stable mode, pushing the hair to one side.

- Zones of concordance on the hands and feet. The "THERAPY" programme is used at the ER-2 range for 3-5 minutes in each zone.

- CCZ. The "THERAPY" programme is used at the ER-2 range (with due consideration of the blood pressure and intracranial pressure).

Treatment procedures are performed several times a day until pain has completely disappeared.

In instances of recurrent and chronic headache, following cessation of the acute fit, it is advisable to continue DENS, also treating the zones following zones (SCHEME 2):

- One of general zones. The "TEST" programme is used at the ER-2 range. The diagnosed latent TZs are treated in the "THERAPY" programme at the ER-2 range during 3-5 minutes each zone.

- CCZ. The "TEST" programme is used at the ER-2 range with treatment of the diagnosed LTZs in the "THERAPY" programme at the ER-2 range.

- Suprapubic zone in women. The "TEST" programme is used at the ER-2 range with a search for and subsequent treatment of LTZs in the "THERAPY" programme at the ER-2 range for 3-5 minutes in each zone.

- Other auxiliary zones.

The procedures are performed once a day for a period of 10-14 days.

### **2. Facial pain (neuralgia of trigeminal nerve)**

Purpose of DENS: to relieve pain and ensure that neuralgia attacks are as rare as possible.

### **DENS Technique (SCHEME 2)**

- Treatment of the FPC (zone under the ear lobe and places of exit of the trigeminal nerve facial branches) during the neuralgia attack. The "THERAPY" programme is used at the ER-2 range or ER-3 range. On the healthy side, the same zones are treated using the "TEST" programme at the ER-2 range.

- Face concordance zone in the Su Jok system on thumbs and halluxes. The "THERAPY" programme is used at the ER-2 range or ER-3 RANGE, 5-7 minutes in each zone.

- CCZ (considering the blood pressure level). The "THERAPY" programme is used at the ER-2 range in the labile mode for 10-15 minutes.

- CC. The "THERAPY" programme is used at ER-1 or ER-2 in the stable mode for 5-7 minutes.

The procedures are repeated several times a day.

Where there is considerable improvement or a complete cessation of the pain syndrome, the procedures are performed once a day using the following scheme:

- Concordance zone points and the trigeminal zone. The "TEST" programme is used at the ER-2 range. The diagnosed LTZs are treated using the "THERAPY" programme at the ER-2 range for 3-5 minutes.

- Treatment of the CCZ is repeated on alternate days (bearing in mind the blood pressure) and CC zones. The "TEST" programme is used at the ER-2 range for 3-5 minutes.

- Trigeminal zone. The "TEST" programme is used with subsequent treatment of the LTZs in the "THERAPY" programme at the ER-2 range for 3-5 minutes in each zone.

- Auxiliary zones.

In one procedure, not more than 2-3 zones are combined. The course duration is 12-15 operational procedures.

### **3. Postapoplectic conditions, paralyzes, consequences of brain lesion and infection in the central nervous system**

Purpose of DENS: maximum improvement possible in each given patient or restoration of lost functions.

#### **DENS Technique (SCHEME 2)**

- FPC or zones according to the main concordance system in the Su Jok in the existing problem. The "THERAPY" programme is

used at the ER-2 range until the condition improves.

- One of the universal general treatment zones (central line of the back and paravertebral lines, trigeminal zone, hands and feet). The "TEST" programme is used at the ER-2 range with subsequent treatment of LTZs in the "THERAPY" programme at the ER-2 range for 3-5 minutes in each zone.

- CCZ (particularly in lesion of the upper extremities) or LSZ (in lesion of the lower extremities). The "TEST" programme is used at the ER-2 range. The diagnosed LTZs are treated using the "THERAPY" programme at the ER-2 range in the labile mode for 3-5 minutes, the device movement direction on the CCZ is determined by the blood pressure level prior to the procedure.

- The extremities (in paralyses, pareses, sensitivity disorders) are treated by the principle of horizontal (right-left, Fig. 34), vertical (top downwards, Fig. 35) and tetrasymmetry ("crosswise", Fig. 36). In the procedure, two extremities are treated: the paralysed one in the "THERAPY" programme at the ER-2 range or ER-3 range in the labile or the stable mode along one of the lines (external, internal, anterior or posterior), and the healthy one is treated in the "TEST" programme at the ER-2 range (the impaired extremities are distinguished in the illustrations by the yellow colouring, and the numbers show the treatment sequence).

- Speech zones (in speech disorders). The "THERAPY" programme is used at ER-1 in the stable mode for 2-3 minutes in each zone.

- Zone of projection of the liver and intestine. The "THERAPY" programme is used (with due consideration of the stool character) at the ER-2 range for 10-15 minutes in each zone.

- Suprapubic zone in women. The "TEST" programme is used at the ER-2 range with a search for and subsequent treatment of LTZs in the "THERAPY" programme at the ER-2 range for 3-5 minutes in each zone.

- Other auxiliary zones.

One procedure is performed daily (not more than 2-3 zones per session) over 12-15 days. Repeated courses are separated by intervals of 2-3 weeks. In cases where complaints appear during the course of the treatment, the next procedure is started with treatment of the FPC.

## 7. USING DENS IN CASES OF CARDIOVASCULAR DISEASES

### GENERAL STATEMENTS

<p>1. In cases of acute pain occurring for the first time in the heart area, it is necessary to seek medical advice in the first instance. In these cases, DENS is performed as the first preclinical aid (until arrival of a medical ambulance).</p>
<p>2. The presence of an implanted electric pacemaker in the patient is a contraindication against using the DENAS device.</p>
<p>3. The presence of pain constitutes grounds for operating on the frontal projection of the heart from the side and from behind. The heart area on the front will only be treated for resuscitation purpose.</p>
<p>4. The necessity of commencing treatment in cases of heart disease is determined by the heart complaint rather than any diagnosis established by the doctor.</p>
<p>5. In the event of a heart complaint in elderly patients, DENS is more advisable if it is commenced from the treatment upon the heart's zones of microconcordance according to the Su Jok system on the patient's hands and feet.</p>
<p>6. In persons with predisposition to increasing of the arterial pressure, the maximum energy ranges of treatment (ER-3 range) should not be applied.</p>

### TREATMENT ZONES

<p><b>Zones of frontal projection of the heart (FPC)</b></p>
<p>1. Zone of the anterior frontal projection of the heart (Fig. 38). It is situated on the left from the sternum on the area equal to area of the patient's one palm. Treatment upon this zone is only performed for resuscitation purpose.</p>

<p>2. Zone of the lateral frontal projection of the heart (Fig. 39). It is situated on the left surface of the chest. Its area is equal to area of the patient's one palm. The patient's right palm is put in such a way that the finger tips touch the bottom of the left armpit. It is treated in pain in the heart area.</p>
<p>3. Zone of the posterior frontal projection of the heart (Fig. 40). Its area is equal to area of the patient's one palm. It is situated between the spinous processes of thoracic vertebrae and the medial margin of the left scapula. It is treated in pain in the heart area.</p>
<p>4. Zones of the lower and upper extremities. It is treated in diseases of peripheral vessels.</p>
<p>Auxiliary zones of treatment (Chapter 2)</p>
<p>1. Universal Zones.</p>
<p>2. Segmental zone at the level of Th 9–11.</p>
<p>3. Cervical circle zone, CCZ, LSZ.</p>
<p>4. Active and latent TZs, diagnosed in treatment of universal or segmental zones.</p>
<p>5. Suprapubic zone in women.</p>
<p>6. Projection of the liver and intestine.</p>
<p>7. Concordance zone in the Su Jok system on the hands and feet.</p>

## TREATMENT METHODS

### **1. Pain in the heart (coronary disease of the heart, cardialgia, rheumatism, myocardiodystrophy, etc.)**

Purpose of DENS: to reduce frequency and severity of attacks, to diminish the pain.

#### **DENS Technique in acute pain in the heart (SCHEME 1)**

- FPC – lateral and/or posterior surfaces of the heart. The “THERAPY” programme is used at the ER-2 range in stable or labile mode until the condition improves.
- Concordance zone in the Su Jok system heart projection on

the hands and feet. The "THERAPY" programme is used at the ER-2 range, 3-5 minutes in each zone.

- CCZ. The "THERAPY" programme is used at the ER-2 range for 3-5 minutes, in upwards direction.

- Zone of frontal projection of adrenal glands. The "THERAPY" programme is used at the ER-2 range for 3-5 minutes on each side.

The procedure may be repeated as required several times a day until stabilisation of the condition has occurred. The treatment is performed in the same circumstances in which the patient's medicines are usually taken.

During the interictal period it is necessary to perform DENS on account of any other complaint, including the zones using the following prescription:

- One of common zones. The "TEST" programme is used at the ER-2 range with subsequent treatment of LTZs in the "THERAPY" programme at the ER-2 range for 3-5 minutes in each zone.

- Segmental zones for particular (heart) treatment (see Table 1, Chapter 2). The "TEST" programme is used at the ER-2 range. The diagnosed LTZs are treated in the "THERAPY" programme for 5-7 minutes in each zone.

- Other auxiliary zones.

## **2. Increased arterial pressure (arterial hypertension)**

Purpose of DENS: to reduce the symptoms; during the course treatment the aim is to stabilise blood pressure and to reduce the patient's medicinal intake.

### **DENS Technique in hypertonic crisis (SCHEME 1)**

- FPC – the lateral and/or posterior surfaces of the heart in pain. The "THERAPY" programme is used at the ER-2 range in stable or labile mode until the complaint has diminished considerably.

- CCZ. The "THERAPY" programme is used at ER-1 or ER-2 in the labile mode, in a fanning movement from the top downwards, until elimination of the complaint (on average 7-15 minutes).

- Zones 2 CV and occipital tubercles. The «THERAPY» programme is used at the ER-2 range in the stable mode for 2-3 minutes in each zone.

- Zones of the kidneys and ureters projection. The "THERAPY" programme is used at ER-1 in the labile mode for 5-7 minutes on each side.

- Concordance zone in the Su Jok system on the hands and feet. The "THERAPY" programme is used at the ER-2 range, in the stable mode until considerable diminishing or elimination of the complaint.

**NOTE!**

*Disappearance of subjective sensation for 20-30 minutes develops prior to the decrease in the arterial pressure when measuring the latter with a tonometer. Therefore, treatment is performed until the condition improves, rather than until there is a normalisation in blood pressure. The arterial pressure should not be measured until 20-30 minutes after the treatment has finished.*

Procedures are repeated several times a day on resumption of the complaints. Following the elimination of the complaints and stabilisation of the blood pressure, course treatment is performed using the following scheme (SCHEME 2):

- One of the universal zones for general treatment (central line of the back and paravertebral lines, trigeminal zone, hands and feet). The "TEST" programme is used at the ER-2 range with subsequent treatment of LTZs in the "THERAPY" programme at the ER-2 range. 3-5 minutes in each zone.

- CCZ. The "TEST" programme is used at the ER-2 range. The diagnosed LTZs are treated from the top downwards using the "THERAPY" programme at the ER-2 range for 3-5 minutes from the top downwards.

- Zones of projection of the kidneys and ureters. The "THERAPY" programme is used at ER-1 in the labile mode for 5-7 minutes on each side.

- Zone of projection of the liver and intestine. The "THERAPY" programme is used (with due consideration of the stool character) at the ER-2 range for 10-15 minutes in each zone.

- Suprapubic zone in women. The "TEST" programme is used at the ER-2 range with a search for and subsequent treatment of LTZs in the "THERAPY" programme at the ER-2 range for 3-5 minutes in each zone.

- Other auxiliary zones.

Not more than two zones are treated during the procedure. The

course duration is 8-10 days with regular control of the blood pressure. Correction using medicinal therapy is provided by a doctor.

### **3. Leg pain, "intermittent claudication" (diseases of the peripheral arteries)**

Purpose of DENS: to reduce clinical manifestations, to preserve the capacity to move independently; preventive measures for trophic disorders.

#### **DENS Technique (SCHEME 2)**

- FPC: the skin from knees to the toes is treated. The "THERAPY" programme is used at the ER-2 range or ER-3 range in the labile or the labile-stable mode.

- LSZ. The "TEST" programme is used at the ER-2 range with subsequent treatment of the diagnosed LTZs in the "THERAPY" programme at the ER-2 range in the labile or stable mode for 3-5 minutes.

- The points of pulse "disappearance" (peripheral arteries on impaired extremities where no pulsation can be felt, Fig. 41). The "THERAPY" programme is used at the ER-2 range for 10-15 minutes.

- Skin around a trophic ulcer. The "THERAPY" programme is used at the ER-2 range in the stable mode 5-7 minutes.

Having achieved a clinical improvement, the following zones are also treated:

- One of universal zones of general treatment (central line of the back and paravertebral lines, trigeminal zone, hands and feet). The "TEST" programme is used at the ER-2 range with subsequent treatment of LTZs in the "THERAPY" programme at the ER-2 range for 3-5 minutes in each zone.

- LSZ. The "TEST" programme is used at the ER-2 range. The diagnosed LTZs are treated in the "THERAPY" programme at the ER-2 range for 3-5 minutes.

- Zone of projection of the liver and intestine. The "THERAPY" programme should be used (considering the stool character) at the ER-2 range, 10-15 minutes.

- Suprapubic zone. The "TEST" programme is used at the ER-2 range with a search for and subsequent treatment of LTZs in the "THERAPY" programme at the ER-2 range for 3-5 minutes in each zone.

- Other auxiliary zones.

Depending on the degree of severity of the neurotrophic disorders, it is possible to perform 1 to 5 sessions a day. In one procedure, 2-3 zones are treated. The duration of the course is 3-4 weeks. The courses may be repeated with a 10-14-day interval until achieving a stable result.

#### **4. Heavy and tired legs, oedemas, extensive twisted veins, varicose nodes, trophic ulcers on the legs (chronic venous failure syndrome, varicose disease of the lower extremities)**

Purpose of DENS: to eliminate the sensation of heavy legs, to reduce oedemas, to prevent development and to cure trophic ulcers.

#### **DENS Technique (SCHEME 2)**

During the first four days, DENS is performed using the following scheme:

- LSZ and suprapubic area. The "THERAPY" programme should be used at the ER-1 or ER-2 in the labile-stable mode for 15-20 minutes.
- Heart concordance zone in the Su Jok system on feet. The "THERAPY" programme should be used at the ER-2 range in the stable mode for 3-5 minutes.

From the 5th day, the treatment is performed as follows:

- Zone of the lower extremities from the finger tips to the knees. The "THERAPY" programme should be used at the ER-2 range in the stable mode in an upwards direction for 10-15 minutes. In cases of unilateral impairment, the healthy leg is treated using the "TEST" programme at the ER-2 range.
- One of universal zones. The "TEST" programme is used at the ER-2 range with subsequent treatment of the diagnosed LTZs using the "THERAPY" programme at the ER-2 range for 3-5 minutes in each zone.
- LSZ. The "TEST" programme; the diagnosed LTZs are treated using the "THERAPY" programme at the ER-1 range or ER-2 range for 3-5 minutes in each zone.
- Zones of posterior-lateral surfaces of the shins and inguinal folds. The "THERAPY" programme should be used at ER-1 or ER-2 in the stable mode for 3-5 minutes in each zone.
- Zone projection of kidneys, ureters, bladder. The "THERAPY"

programme should be used at the ER-2 range in the labile mode for 5-7 minutes on each side.

- Auxiliary zones.

**!** **NOTE!**

*In treatment of the FPC on the shins, the following conditions apply:*

- *If the varicous vein is visible (superficial vein), then the treatment is performed in the area next to the vein. The device electrodes must not be placed upon the veins and varicous veins.*
- *If there is a deep vein protuberance, then only the external-posterior surface of the shins should be treated.*
- *If there is an oedema on the legs, then the device should be repositioned rather than moved.*
- *In all conditions involving venous problems, the direction of device movement is upwards.*
- *Where trophic disorders occur on an impaired extremity (ulcer, etc.), treatment should be performed on the skin around the ulcer using the "THERAPY" programme at the ER-2 range in the stable mode.*

Total course duration is 14 days. Following a 7-10 day interval, the courses must be repeated.

## 8. USING DENS IN CASES OF ENDOCRINE DISEASES

### A. DIABETES MELLITUS GENERAL STATEMENTS

1. DENS is only performed in cases where treatment with drugs have been prescribed by an endocrinologist.
2. During the first week/fortnight of the treatment, the sugar level will become unstable. It will either decrease or increase. For this reason, checking the sugar level must be performed in the urinalysis no less frequently than every two or three days.
3. If the patient has some complications of diabetes mellitus, then DENS treatment should be started on these complications, and afterwards continued with the method recommended for diabetes mellitus proper.

### TREATMENT ZONES

<b>Zones of frontal projection of the complaint (FPC)</b>
1. Epigastria zone (Fig. 32) – the frontal projection of the pancreas. Occupies the upper third of abdomen surface.
2. Zone of the lower extremities (from the knees to foot finger tips) is treated in cases of diabetic angiopathy and neuropathy.
3. Points of “pulse disappearance” (Fig. 41) – peripheral arteries on impaired extremities where no pulsation can be felt.
4. Zone of frontal projection of kidneys, ureters, bladder (Fig. 19). It is situated on the back to the right and to the left of the spine, at the level of the 12th thoracic to the 1st-2nd lumbar vertebrae. The projection area of one kidney corresponds to the patient’s palm area. It is treated in diabetic nephropathy.
5. Eye areas and paraorbital zones (Fig. 16) – with the device inbuilt electrodes, the DENAS will treat the eyes (via closed eyelid) and points situated on the upper and lower margins of the orbit, in medial and lateral corners of the eye.
<b>Auxiliary zones of treatment (Chapter 2)</b>
1. Universal Zones.
2. Zone of segmental circle at the level of pancreas projection, the patient’s one palm wide.
3. LSZ.

4. Active and latent TZ, diagnosed in universal treatment or segmental zones.
5. Zone of the liver and intestine – is situated in the right lower segment of the chest in front, at the side and behind, the patient's one palm wide, zone of the intestine – frontal surface of abdomen.
6. Suprapubic zone in women.
7. 7 CV zone, zones of the jugular fosse, the adrenal glands and he-gu.
8. Zones of concordance on the hands and feet.

Purpose of DENS: to reduce manifestations of diabetes mellitus and its complications.

### **DENS Technique (SCHEME 2)**

- Zone of frontal projection of the pancreas in the event of pain (epigastria zone, Fig. 32). The "THERAPY" programme should be used at the ER-1 range in the stable mode for 10-15 minutes.
  - In diabetic angiopathy and neuropathy, the zone of the lower extremities from the knees to the foot finger tips is treated. The "THERAPY" programme should be used at the ER-2 range or ER-3 range in the labile or the labile-stable mode for 5-7 minutes.
  - In diabetic nephropathy, zones of frontal projection of the kidneys, ureters, bladder. The "THERAPY" programme should be used at ER-1 or ER-2 in the labile or the stable mode for 20 seconds in each zone.
  - In diabetic retinopathy the eye area and paraorbital zones should be treated. The "THERAPY" programme should be used at the ER-1 range for 2-3 minutes in each zone.
  - One of general zones. The "TEST" programme is used at the ER-2 range with subsequent treatment of LTZ in the "THERAPY" programme at the ER-2 range for 3-5 minutes in each zone.
  - Zone of segmental circle at the level of pancreas frontal projection. The "THERAPY" programme should be used at the ER-2 range. The circle should be covered twice.
  - Zone of frontal projection of the liver. The "THERAPY" programme should be used at ER-1 in the labile mode for 5-7 minutes.
  - Suprapubic zone in women. The "TEST" programme is used at the ER-2 range with a search for and subsequent treatment of LTZs

in the "THERAPY" programme at the ER-2 range for 3-5 minutes in each zone.

- Other auxiliary zones.

The procedures are performed once a day, with 2-3 zones in a session. The course treatment takes 2-3 weeks. Supplementary device therapy takes the form of 3-5 courses per year.

## **B. DISEASES OF THE THYROID GLAND GENERAL STATEMENTS**

1. DENS is only performed against the background of treatment with the drugs prescribed by an endocrinologist.
2. In cases of normal function (euthyrosis) and in enhanced production (hyperthyrosis) of the hormones, zones of frontal projection of the thyroid gland (the lower third of the neck in front) should not be treated with the device (Fig. 42).
3. In cases of decreased hormonal production (hypothyrosis), treatment of frontal projection of the thyroid gland is possible.
4. In cases of nodular goiter, the DENAS device should not be used in frontal projection of the thyroid gland.
5. If neither an examination of the hormonal status nor an ultrasonic study has been carried out, one should not work in frontal projection of the thyroid gland.

## **TREATMENT ZONES**

<b>Zones of frontal projection of the complaint (FPC)</b>
1. Frontal projection of the thyroid gland – the lower third of the neck in front (Fig. 42).
<b>Auxiliary zone treatment (Chapter 2)</b>
1. Universal Zones.
2. "Cervical circle" zone.
3. CCZ.
4. Active and latent TZs diagnosed in treatment of universal or segmental zones.

5. Zone of the liver and intestine is situated in the right lower segments of the chest in front, on the sides and behind, according to the width of the patient palm; intestinal zone is the anterior surface of abdomen.
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6. Suprapubic zone in women.
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7. 7 CV zone, zones of jugular fosse, adrenal glands, zone he-gu.
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8. Zones of concordance on the hands and feet.
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Purpose of DENS: to reduce symptoms, to decelerate progression of the diseases.

### **DENS Technique (SCHEME 2)**

- FPC (increased or decreased blood pressure, pain in the heart, stool disorders, menstrual cycle disorders, etc.) treated by the relevant method in the "THERAPY" programme until there is an improvement in the condition.

- Frontal projection of thyroid gland (will only be treated in decreased hormonal production: hypothyrosis). The "THERAPY" programme should be used at the ER-1 range in the stable mode for 3-5 minutes.

- Concordance zone points. The «TEST» programme is used with treatment of the diagnosed LTZs in the «THERAPY» programme at the ER-2 range for 1-3 minutes in each zone.

- "Cervical circle" zone. The "THERAPY" programme should be used at the ER-1 range in the stable mode. The circle should be covered up to 5 times.

- CCZ. The "TEST" programme is used (the device movement direction is determined by the blood pressure level) with subsequent treatment of LTZs in the "THERAPY" programme at the ER-1 or ER-2 range for 3-5 minutes in each zone.

- Suprapubic zone in women. It is treated in the "THERAPY" programme at the ER-2 range for 5 minutes every 3 days.

- Other auxiliary zones.

Perform one procedure daily, with two-three zones in procedure. The course treatment will last 10–17 days. To repeat the course three times with a 10-15 day interval.

During the intervals and during the remaining time, DENS may be performed for any other complaint.

## **9. USING DENS IN CASES OF OBSTETRICS, IN GYNAECOLOGICAL DISEASES AND IN DISEASES OF THE MAMMARY GLANDS**

### **GENERAL STATEMENTS**

1. Before starting DENS, the woman must be examined by a gynaecologist and/or a mammologist.
2. DENS is performed in courses temporally associated with menstrual cycles: the short scheme over a period of 7 days before the start of the menstrual cycle and over a period of 7 days after its cessation; or by the long scheme, from the last day of menstruation until the first day (depending on the duration of the individual's menstrual cycle). If necessary, to apply the device during the menstruation, one should consider the possibility of increasing of the extent of blood loss.
3. Frontal projection of the uterus will not be treated in presence of a fibromyoma of the size above 8 weeks (from ultrasonic study data).
4. During pregnancy, work should not be carried out on the frontal projection of the uterus. Treatment may be performed for any other complaint.

### **TREATMENT ZONES**

<b>Zones of frontal projection of gynaecological organs (FPC)</b>
1. Suprapubic zone (Fig. 21). This resembles a triangle with its apex represented by the umbilicus and the base represented by the inguinal folds and the pubic area. Within these zones, frontal projection of the uterus and ovaries is situated in women.
2. Zone of the perineum (Fig. 22) is from the pubis to anus.
3. Zone of frontal projection of the mammary glands (Fig. 43) – this is treated in the direction from periphery to the centre.

<b>Auxiliary zones of treatment (Chapter 2)</b>
1. Universal Zones.
2. LSZ with treatment of buttocks.
3. Rhombus of Michaelis (Fig. 44) – the area within the LSZ, with the coccyx acting as lower boundary, by the symmetrical point above, and by the fosses the junction of the pelvic bones and the sacrum to the sides.
4. Active and latent TZs are diagnosed in treatment of universal or segmental zones.
5. Reflexogenic gynaecological zones (Fig. 45): internal surface of the hips, external surface of the shins, back of the feet.
6. Projection of the liver and intestine.
7. 7 CV zone, zones of jugular fosse, adrenal glands, he-gu.
8. Zones of concordance on the hands and feet.

## **TREATMENT METHODS**

### **1. Menstrual cycle disorder**

Purpose of DENS: to prompt restoration of standard menstrual cycle.

### **DENS Technique (SCHEME 2)**

- In case of any other complaint, one should start with treatment of zones relevant to the existing problem.

- In the absence of an existing complaint, LSZ should be treated. The "TEST" programme is used at the ER-2 range. The diagnosed LTZs are treated in the "THERAPY" programme at the ER-2 range for 3-5 minutes in each zone.

- Suprapubic zone. The "TEST" programme is used at the ER-2 range with subsequent treatment of the diagnosed LTZs in the "THERAPY" programme at the ER-2 range for 3-5 minutes in each zone.

- Zones of concordance according to the Su Jok system on the hands and feet, combining the programmes: "TEST" on one side, "THERAPY" on the other side at the ER-2 range for 2-3 minutes.

- Universal and segmental zones. The "TEST" programme

is used at the ER-2 range. The diagnosed LTZs is treated in the "THERAPY" programme at the ER-2 range for 3-5 minutes in each zone.

- Other auxiliary zones.

The treatment is started 2 or 3 weeks after the last menstruation and is continued until occurrence of the next one. By this scheme, DENS should be repeated until a standard cycle is achieved.

## **2. Pain at the base of the abdomen (inflammation and other diseases of women's reproductive organs)**

Purpose of DENS: to eliminate the disease symptoms and prevent relapses.

### **DENS Technique (SCHEME 2)**

- First several days – the zone of frontal projection of the pain. The "THERAPY" programme should be used at the ER-2 range or ER-3 range until elimination of the pain syndrome.

- Zones of concordance on the hands and feet. The "THERAPY" programme should be used at the ER-2 range, 3-5 minutes in each zone.

- LSZ. The "THERAPY" programme should be used at the ER-2 range for 5-7 minutes.

In relapses of the pain, the sessions is repeated every 2 or 3 hours until stabilising of the condition. Then it is advisable to continue DENS including in the process the zones as follows:

- One of common zones. The "TEST" programme is used at the ER-2 range with subsequent treatment of LTZs in the "THERAPY" programme at the ER-2 range, 3-5 minutes in each zone.

- LSZ. The "TEST" programme is used at the ER-2 range. Diagnosed LTZs to be treated using the "THERAPY" programme for 5-7 minutes in each zone.

- Zone of frontal projection of the liver and intestine. The "THERAPY" programme should be used at the ER-2 range in the labile mode, with due consideration of the stool character (in cases of normal stool or a tendency towards constipation, movement should be clockwise, whereas in weak stool it should be anticlockwise) for 10-15 minutes. Suprapubic zone. The "THERAPY" programme should be used at the ER-1 or ER-2 ranges, in either the labile or stable mode for 7-10 minutes.

The treatment is performed combining 2 or 3 zones in the procedure, in accordance with the "long" scheme (excluding the menstruation period), depending on the duration of the menstrual cycle.

### **3. Hypogalactia, lactostasis**

Purpose of DENS: to prompt an increase in the production and improvement of the milk excretion.

#### **DENS Technique (SCHEME 2)**

- Zone of frontal projection of the mammary glands. The "THERAPY" programme should be used at the ER-2 range in the stable mode, from the periphery of the mammary gland to the mamilla for 10-15 minutes prior to feeding the baby.

- Segmental zone at the rear at the level of the mammary glands. The "TEST" and "THERAPY" programmes are used at the ER-2 range in the labile mode in the direction from the spinous processes of the spine to the mammary glands for 10 minutes on each side.

- Suprapubic zone. The "THERAPY" programme is used at ER-1 or ER-2 in the labile mode for 5-10 minutes.

- Rhombus of Michaelis. The "THERAPY" programme should be used at the ER-2 range for 5-10 minutes.

- Auxiliary zones.

The procedures is repeated two or three times a day, alternating mammary glands, prior feeding the baby. Following the feeding, the remaining milk in the mammary glands should be thoroughly expressed. The treatment course takes 5-7 days.

### **4. Cracks in the mammary gland in feeding mother, lactation mastitis**

Purpose of DENS: healing of cracks, prevention of their repeated formation.

#### **DENS Technique (SCHEME 1)**

- Zone FPC – nipple of the mammary gland. The "THERAPY" programme should be used after feeding at the ER-1 or ER-2 range in the stable mode for 5-10 minutes.

- FPC – zone of frontal projection of inflammatory focus. The THERAPY programme at the ER-2 range in the stable mode, from

periphery of the mammary gland towards the mammary gland, during 15-20 minutes every 1.5-2 hours until there is an improvement of condition.

- Zone of the segmental circle at the mammary gland level. The "THERAPY" programme should be used at the ER-2 range for 10-15 minutes.

- In cases where the axillary lymphatic nodes on the side of the lesion have become enlarged and painful, treatment of these zones are performed. The "THERAPY" programme should be used at the ER-2 range for 3-5 minutes.

- 7 CV zone, zones of the adrenal glands, he-gu, zu-san-lei. The "THERAPY" programme should be used at the ER-2 range, or 3-5 minutes or the "TEST" programme at the ER-2 range.

- In addition, treatment of universal zones should be performed once or twice. The "TEST" programme is used at the ER-2 range with subsequent treatment of diagnosed trigger zones using the "THERAPY" programme at the ER-2 range for 3-5 minutes in each zone.

Before feeding the baby, the nipples must be washed with warm boiled water. DENS is to be performed as a course for 7-10 days.

## 10. USING DENS IN CASES OF DISEASES OF MALE SEX ORGANS

### GENERAL STATEMENTS

- |  |
|--|
| <p>1. In inflammatory diseases of male sex organs, examination by urologist is necessary for revealing infectious agent and determining further treatment tactics.</p> |
| <p>2. DENS is performed in courses against the background of the treatment prescribed by a doctor.</p>   |
| <p>3. In cases of male infertility, it is advisable to study the sperm (spermogram) prior to and after DENS course.</p>  |
| <p>4. In frontal projection of male genitalia, DENS will only be performed in presence of complaints.</p>  |

### TREATMENT ZONES

- | <b>Zones of frontal projection of urination organs (FPC)</b>  |
|---|
| <p>1. Suprapubic zone and inguinal areas (Fig. 21 – localisation of the suprapubic zones in men is analogous to that in women) is localised in the bottom of the abdomen on the area corresponding to the patient's two palms area.</p>   |
| <p>2. Zone of the perineum (Fig. 22) is localised between the scrotum and the anus.</p>   |
| <p>3. Zone of the scrotum is treated in diseases of testicles and in male infertility.</p>  |
| <p>4. Zone of the penis is treated in pain in the genitalia area and in painful urination.</p>  |
| <p>5. Zone of frontal projection of kidneys (Fig. 19). It is localised on the back, to the right and to the left of the spine at the level of the 12th thoracic to 1st-2nd lumbar vertebrae. A single kidney projection zone corresponds to area of a single palm of the patient.</p> |

6. Zone of frontal projection of ureters (Fig. 19). The device electrodes are smoothly moved or repositioned on the skin from the zones of frontal projection of the kidney from the back, in an arched descending movement, via the lateral surface of the abdomen, towards the zones of frontal projection of the bladder.
<b>Auxiliary zones of treatment (Chapter 2)</b>
1. Zones common universal.
2. LSZ.
3. Active and latent TZs are diagnosed in treatment of the universal or segmental zones.
4. Rhombus of Michaelis (Fig. 44) is the area within the limits of LSZ, bordering with the coccyx below, symmetrical point above, and fosses in the places of joints between pelvic bones and the sacrum from the sides.
5. Projection of the liver and intestine.
6. 7 CV zone, zones of jugular fosse, adrenal glands, he-gu, zu-san-lei.
7. Zones of concordance on the hands and feet.

**1. Pain at the base of the abdomen, in the genitalia area (prostatitis, urethritis, orchitis, orchiepididymitis)**

Purpose of DENS: to eliminate the clinical symptoms.

**DENS Technique (SCHEME 2)**

- Zones of frontal projection of the complaint (suprapubic and inguinal zones, perineum, genitalia). The "THERAPY" programme should be used at ER-1 for 5-7 minutes in each zone or until there is a reduction in the clinical symptoms.

- Zones of frontal projection of kidneys, ureters. The "THERAPY" programme should be used at the ER-2 range for 7-10 minutes on both sides.

- LSZ. "THERAPY" programme at the ER-2 range for 7-10 minutes.

- Zones of concordance on the hands and feet. The "THERAPY" programme should be used at the ER-2 range for 3-5 minutes in

each zone.

After acute symptoms have ceased, it is advisable to continue DENS, also including the following zones:

- One of universal common zones in the "TEST" programme at the ER-2 range. The diagnosed LTZs are treated in the "THERAPY" programme at the ER-1 or ER-2 range for 3-5 minutes in each zone.

- LSZ in the "TEST" programme. The diagnosed LTZs are treated in the "THERAPY" programme at the ER-1 or ER-2 range for 3 to 5 minutes in each zone.

- Rhombus of Michaelis. The "THERAPY" programme should be used at the ER-2 range in the stable or labile mode for 5-7 minutes.

- Other auxiliary zones.

In the event of an acute development and exacerbation of chronic diseases, DENS treatment is carried out several times a day until stabilisation of the condition occurs. Then it is carried out only once daily. The treatment course takes two or three weeks.

## **2. Sexual function disorders**

Purpose of DENS: improvement of the sexual function.

DENS Technique (SCHEME 2)

- LSZ. The "TEST" programme is used at the ER-2 range. The diagnosed LTZs are treated in the "THERAPY" programme at the ER-2 range for 3-5 minutes in each zone.

- Zone of the perineum, zone of the scrotum. The "THERAPY" programme should be used at ER-1 up to 5-10 minutes in each zone.

- Rhombus of Michaelis. The "THERAPY" programme should be used at the ER-2 range in the stable or labile mode for 5-7 minutes.

- One of universal general zones. The "TEST" programme is used at the ER-2 range. The diagnosed LTZs are treated in the "THERAPY" programme at the ER-1 or ER-2 ranges, 3-5 minutes in each zone.

- Other auxiliary zones.

In one session, 2-3 zones are treated. The treatment course takes 2 or 3 weeks.

## 11. USING DENS IN CASES OF SKIN DISEASES AND IN COSMETOLOGY

### GENERAL STATEMENTS

<p>1. In skin diseases, the mode of treatment for the impaired areas will only be the stable (the device should not be moved on impaired skin).</p>
<p>2. In large impairments of the skin, during one session, the most problematic area is treated (pain, itch, inflammation, haemorrhage, etc.), the area of treatment is equal to the two of the patient's palm.</p>
<p>3. When itched, an increased energy level of treatment (ER-3 range) is used until the condition improves.</p>
<p>4. Wet areas of the skin should be treated by repositioning the device around the area.</p>
<p>5. In almost all skin diseases, the frontal projection of the liver and intestine should be included in the procedure.</p>
<p>6. To improve the appearance of the skin (in cosmetology), DENS will only be used after the elimination of acute manifestations of all other diseases.</p>

### TREATMENT ZONES

<b>Zones of frontal projection of the skin (FPC)</b>
<p>1. Limited skin areas are in local impairment (where the surface area is less than two of the patient's palms).</p>
<p>2. Skin on the area equal to two palms of the patient – in extensive lesions.</p>
<p>3. Beauty spot (Fig. 46) is situated on the chin, along the face middle line.</p>
<p>4. The face skin along the cosmetic lines on the forehead, cheeks, mandible (Fig. 47) – is treated for improvement of the skin condition.</p>
<p>5. Submandibular zone (Fig. 27) is treated in double chin.</p>

6. Area of the abdomen, buttocks, hips (Fig. 48, 49, 50) is found in cellulitis.
7. Points of appetite suppression (Fig. 51) are localised on the shoulder lateral surface on both sides.
8. Pilary part of the head is treated in cases of hairloss.
<b>Auxiliary zones of treatment (Chapter 2)</b>
1. Universal Zones.
2. Segmental Zones.
3. Active and latent TZs.
4. Zones of the jugular fosse, 7 CV, adrenal glands, he-gu, zu-san-lei.
5. Suprapubic zone in women.
6. Zones of the liver and intestine.

## TREATMENT METHODS

### ***1. Rash, spots, skin abscesses, skin itching (pyodermia, psoriasis, neurodermitis, eczema, pyodermatites, fungal and other diseases of the skin)***

Purpose of DENS: to reduce clinical manifestations, to accelerate healing, to improve skin condition.

### **DENS Technique (SCHEME 2)**

- FPC. The "THERAPY" programme should be used at the ER-2 range or ER-3 RANGE in the stable mode for 15-20 minutes in a session.

- 7 CV, zone of projection of the adrenal glands, jugular fosse, zone he-gu, zu-san-lei. The "THERAPY" programme should be used at the ER-2 range for 3-5 minutes in each zone.

- One of universal zones for general treatment (the central line of the back and paravertebral lines, trigeminal zone, hand and feet). The "TEST" programme is used at the ER-2 range with subsequent treatment of the diagnosed LTZs in the "THERAPY" programme at the ER-2 range for 3-5 minutes in each zone.

- Frontal projection of the liver and intestine. The "THERAPY" programme should be used at ER-1 or ER-2 for 7-10 minutes.
- Other auxiliary zones.

The total course duration is determined by the severity and amount of time the diseases have been suffered by the patient and takes 5-7 to 12-15 days. In cases of severe persisting diseases (psoriasis, eczema, etc.), it is advisable to perform two procedures a day.

## **2. Facial care**

Purpose of DENS: to improve skin condition.

### **DENS Technique (SCHEME 2)**

• Beauty spot. The "THERAPY" programme should be used at the ER-2 range for 5-7 minutes.

• Face skin along the cosmetic lines on the forehead, cheek and the lower jaw. The "THERAPY" programme should be used at the ER-2 range in the stable mode, from the middle of the face towards its periphery, remaining on the problematic zones for 3-5 minutes.

• In cases of double chins, this is the submandibular zone. The "THERAPY" programme should be used at the ER-2 range in the stable mode, from the middle of the face towards its periphery, for 7-10 minutes.

• CCZ. The "TEST" programme is used at the ER-2 range with subsequent treatment of the diagnosed LTZs in the "THERAPY" programme at the ER-2 range for 3-5 minutes in each zone.

• Frontal projection of the liver and intestine. The "THERAPY" programme should be used at ER-1 or ER-2 for 7-10 minutes.

- Other auxiliary zones.

The procedure is carried out in the morning, after getting up, prior to washing and makeup, every day or on alternate days. In one procedure not more than two zones are treated.

The course duration is 10-14 procedures. Intervals between courses is 7-10 days.

## **3. Cellulites, obesity**

Purpose of DENS: prevention of cellulites, reduction of symptoms, suppression of appetite.

### **DENS Technique (SCHEME 2)**

During one course, the treatment should be performed in one of the cellulites zones using the following scheme only:

- One of universal zones. The "TEST" programme is used at the ER-2 range with subsequent treatment of LTZs in the "THERAPY" programme at the ER-2 range, for 3-5 minutes in each zone.
- Treatment of the abdomen skin using a cross formation (the sequence of the electrode repositioning is shown in the Figure 48); or zone of the buttocks along zonal lines (Fig. 49), or zone of the hips along zonal lines (Fig. 50). The "THERAPY" programme should be used at ER-3 RANGE for 1-2 minutes in each zone.
- Zones of frontal projection of the liver and intestine (clockwise or anticlockwise, with due consideration of the stool character). The "THERAPY" programme should be used at the ER-2 range for 15-20 minutes.
- LSZ. The "THERAPY" programme should be used at the ER-2 range for 3-5 minutes.
- Points of appetite suppression. The "THERAPY" programme should be used at the ER-2 range in a stable mode for 3-5 minutes on both sides.

## 12. USING DENS IN CASES OF EYE DISEASES

### GENERAL STATEMENTS

- |  |
|--|
| 1. Diagnosis of the diseases is established by an ophthalmologist by means of a special examination.   |
| 2. Examination by an ophthalmologist should be carried out on a regular basis in order to objectively determine any positive changes in vision acuity. |
| 3. Number of DENS courses depends on the severity and general duration of the disease.   |

### TREATMENT ZONES

#### Zones of frontal projection of the complaint (FPC)

- |  |
|--|
| 1. The eye area and paraorbital zones (Fig. 16) – eyes (through closed eyelid) and points on the upper and lower margins of the orbit, in medial and lateral corners of the eye are treated with DENS device electrodes. |
|--|

#### Auxiliary treatment zones (Chapter 2)

- |   |
|---|
| 1. General universal zones.   |
| 2. CCZ.   |
| 3. Active and latent TZs diagnosed in treatment of the universal or segmental zones.  |
| 4. Zone of projection of the liver and intestine.   |
| 5. Zone of frontal projection of kidneys.   |
| 6. Suprapubic zone in women.  |
| 7. Zone of the temporal area.   |
| 8. Zone of frontal projection of the visual analyser – the skin covering the occipital region of the head from ear to ear, equal to the area of the patient's palm. |
| 9. Zones of the jugular fosse, adrenal glands, he-gu, zu-san-lei.   |
| 10. Zones of concordance on the hands and feet.   |

## TREATMENT METHODS

### **1. Disturbance in refringence (cyclospasm, myopia, hyperopia, astigmatism), glaucoma, cataract, inflammatory eye diseases.**

Purpose of DENS: to prompt elimination of vision fatigue, cyclospasm, reduction of intraorbital pressure, deceleration of cataract progression, to prompt the reduction and the elimination of inflammatory processes.

#### **DENS Technique (SCHEME 2)**

- Eye area and paraorbital zones. The "THERAPY" programme should be used at the ER-1 range for 2-3 minutes in each zone.
- Zone of the temporal area. The "THERAPY" programme should be used at the ER-1 or ER-2 range for 2-3 minutes.
- Zones of concordance according to the Su Jok system on the hands and feet. The "THERAPY" programme should be used at the ER-2 range for 3-5 minutes in each zone.
- CCZ. The "THERAPY" programme should be used at the ER-2 range for 5-7 minutes, bearing in mind the blood pressure. In glaucoma, the device movement direction is from the top downwards.
- The concordance zone points and the trigeminal zone. The "TEST" programme is used with subsequent treatment of the diagnosed LTZs in the "THERAPY" programme at the ER-2 range for 3 minutes in each zone.
- In glaucoma, zones of frontal projection of kidneys, ureters, bladder on both sides is also treated. The "THERAPY" programme should be used at the ER-2 range for 10-15 minutes.
- Other auxiliary zones.

Procedures are carried out once a day. The course takes 2-3 weeks. If necessary, the course should be repeated after a 1-1.5-month interval.

## **13. USING DENS IN CASES OF DISEASES OF THE ORAL MUCOUS AND DENTOALVEOLAR SYSTEMS**

### **GENERAL STATEMENTS**

- |  |
|--|
| 1. In toothache, DENS is carried out only as the first pre-medical aid. Consultation by dentist is mandatory!                                      |
| 2. Application of DENS at the treatment stage after dental intervention enables one to faster eliminate the toothache, oedema and other disorders. |

### **TREATMENT ZONES**

<b>Zones of frontal projection of complaint (FPC)</b>
1. Skin projection of the sore tooth is treated in toothache.
2. Skin projection of the oral mucous cavity (Fig. 52) – the temporal area is treated with the inbuilt electrodes, as well as the projection of the temporomandibular joint, and the projection of upper and lower jaws on both sides. They are treated in (spread) diseases diffused from the oral mucous cavity (stomatitis, parodontosis).
3. Submandibular zone (Fig. 27) and the tongue zone (Fig. 14) – the chin area and the tongue are treated in diseases of the oral mucous cavity.
<b>Auxiliary zones of treatment (Chapter 2)</b>
1. Universal Zones.
2. Segmental Zones.
3. CCZ, CC.
4. Active and latent TZs diagnosed in treatment of universal or segmental zones.
5. Suprapubic zone in women.
6. Projection of the liver and intestine.

7. 7 CV zone, zones of jugular fosse, adrenal glands, he-gu, zu-san-lei.

8. Zones of concordance points on the hands and feet.

## TREATMENT METHODS

### 1. *Toothache*

Purpose of DENS: the first premedical aid.

#### DENS Technique (SCHEME 1)

- FPC – projection of the sick tooth. The "THERAPY" programme should be used at the ER-2 range or the ER-3 range.
- Zones of concordance points according to the Su Jok system on the hands and feet. The "THERAPY" programme should be used at the ER-2 range or ER-3 range for 3-5 minutes.

Procedures should be performed several times a day as required.

### 2. *Stomatitis, parodontosis, parodontosis*

Purpose of DENS: to relieve pain, inflammation and haemorrhage from the gums.

#### DENS Technique (SCHEME 2)

- FPC – skin projection of the oral mucous cavity, the mandibular zone. The "THERAPY" programme should be used at the ER-1 or ER-2 range in the stable mode for 10-15 minutes each zone.
- Zone of the tongue. The "THERAPY" programme should be used at the ER-1 range for 2-3 minutes.
- Zones of concordance points on the hands and feet. The "THERAPY" programme should be used at the ER-2 range for 3-5 minutes in each zone.
- CCZ. The "THERAPY" programme should be used at the ER-2 range in the labile mode with due consideration of blood pressure for 7-10 minutes.

Procedures are repeated several times a day in proportion with the resumption of the complaints. In the event of pain relief, additional zones are included in the DENS prescription as follows:

- One of universal zones for general treatment (the central line of the back and the paravertebral lines, trigeminal zone, the hand

and feet). The "TEST" programme is used at the ER-2 range with subsequent treatment of the diagnosed LTZs in the "THERAPY" programme at the ER-2 range for 3-5 minutes in each zone.

- CCZ. The "TEST" programme is used at the ER-2 range. The diagnosed LTZs are treated using the "THERAPY" programme at the ER-2 range for 3-5 minutes.

- Zone of the projection of liver and intestine. The "THERAPY" programme should be used (with due consideration of the stool character) at the ER-2 range for 10-15 minutes.

- Suprapubic zone in women. The "TEST" programme is used at the ER-2 range with a search for and subsequent treatment of LTZs in the "THERAPY" programme at the ER-2 range for 3-5 minutes in each zone.

- Other auxiliary zones.

Course duration is 10-12 days, depending on the severity of the diseases. If necessary, the treatment may be repeated.

## 14. USING DENS IN CASES OF CHILDREN'S DISEASES

### GENERAL STATEMENTS

1. There are no age limitations for treatment using the DENAS devices.

2. The duration of the procedures is determined by the age of the child: in children under 12 months it is 5-10 minutes, in children of the age less than 3 years it is 10-15 minutes, in children from 4-5, 15-20 minutes, in children over 5, it is the same as in adults, i.e. 20-40 minutes.

3. Before device treatment for infants, the energy range of treatment must always be checked on the skin of one's own neck.

4. In treatment of children less than 5 years of age, the ER-1 range is used (ruling out the emergency aid). In elder children, it is possible to use the ER-2 range.

5. If the child falls asleep during the treatment, it is recommended that the session is terminated.

6. If the child rarely falls ill, the DENS operation is carried out in keeping with the complaint: from one to several sessions during 1-3 days until complete elimination of the complaint or the child's recovery (SCHEME 1). The children who often fall ill need a course treatment for 8-10 days (SCHEME 2).

7. The methods and schemes of the treatment of most neurological diseases of children correspond to the technique and scheme in adults indicated in respective sections of the book.

8. The earlier DENS treatment commences, the better the results are for any disease.

### TREATMENT ZONES

#### Zones of frontal projection of complaint (FPC)

Zones of frontal projection of complaints depend on existing diseases and do not differ from those in adults.

<b>Auxiliary zones of treatment (Chapter 2)</b>
1. Universal Zones.
2. Segmental Zones.
3. Active and latent TZs.
4. 7 CV zone, zones of adrenal glands, he-gu, zu-san-lei, jugular fosse.
5. Suprapubic zone in women
6. Zones of the liver and intestine.
7. Concordance system zones on the hands and feet.

## **TREATMENT METHODS**

### **1. Infantile cerebral paralysis**

Purpose of DENS: correction of the impaired functions acquisition of new motor, emotional, speech skills in children.

#### **DENS Technique (SCHEME 2)**

As the clinical development of infantile cerebral paralysis is individual in each separate patient, a universal scheme of the procedures DENS does not exist. The relevant DENS technique is created individually for each patient on the grounds of the main clinical symptoms, dominant complaints, muscle tone condition, presence of some or other neurological disorders, etc.

- FPC (e.g. in headache: the pilary area of the head (see "headache" section), in other complaints: the respective zones). The "THERAPY" programme should be used at the ER-1 range or the ER-2 range depending on the child's age and his/her individual sensitivity to the current treatment. Still, one should always start from the minimum energy level.

- Zones of the Su Jok concordance system according to the complaint. The "THERAPY" programme should be used at ER-1 or ER-2 for 3-5 minutes in each zone.

The treatment is carried on until there is an improvement of the child's condition. In the period of acute complaints, the procedures can be repeated several times a day as required. Once the condition has been stabilised as part of the course treatment, it is advisable

to treat the zones as follows:

- One of universal zones of general treatment (central line of the back and paravertebral lines, trigeminal zone, hands and feet). The "TEST" programme is used at the ER-1 range or the ER-2 range with subsequent treatment of LTZ in the "THERAPY" programme at the ER-2 range for 2-3 minutes in each zone.

- CCZ (particularly in impairment of the upper extremities) or LSZ (in impairment of lower extremities). The "TEST" programme is used at the ER-1 or the ER-2 range. Diagnosed LTZs are treated using the "THERAPY" programme at the ER-2 range in the labile mode for 3-5 minutes. The device movement direction along the CCZ is determined by the level of intracranial pressure (in its increase, the device is moved from the top downwards).

- Extremities (in paralysis, paresis, sensitivity disorders) is treated by the horizontal principle ("right-left", Fig. 34), vertical ("from the top downwards", Fig. 35) and tetrasymetry ("cross-ways", Fig. 36). During the procedure, two extremities are treated: the paralysed one – in the "THERAPY" programme at ER-1, ER-2 in the labile or stable mode along one of the lines (external, internal, anterior or posterior), and the healthy one using the "TEST" programme at the ER-1 range or ER-2 range (in the Figure, yellow colour distinguishes the impaired extremities, numbers indicate the sequence of the treatment).

- Speech zones (in speech disorders). The "THERAPY" programme should be used at ER-1 in the stable mode for 2-3 minutes in each zone.

- Zone of projection of the liver and intestine. The "THERAPY" programme should be used (with due consideration of the stool character) at the ER-1 range or ER-2 range for 10-15 minutes in each zone..

- Suprapubic zone in girls. The "TEST" programme is used at the ER-2 range with a search for and subsequent treatment of LTZs using the "THERAPY" programme at the ER-1 range or ER-2 range for 3-5 minutes in each zone.

- Other auxiliary zones.

In the procedure, treatment of two-three zones are combined. The time of the procedures will vary according to the child's age.

The DENS course is to be carried on for up to 2-3 weeks. During a year, it is advisable to carry out 3-5 courses. One should not

forget acute complaints (rhinitis, cough, lesions under domestic conditions, etc.), for which it will be necessary to start extra DENS procedures.



**NOTE!**

*The quality of life of children suffering from infantile cerebral paralysis will always improve following DENS courses. The earlier DENS is started, the faster and more noticeable the improvement.*

## **2. Neurotic stuttering (logoneurosis)**

Purpose of DENS: to calm the child down, to eliminate the stuttering.

### **DENS Technique (SCHEME 2)**

- FPC – speech zones, tongue. The «THERAPY» programme should be used at the ER-1 range in the stable mode for 2-3 minutes.

- Concordance zones on the hands (finger tip cushions). The "THERAPY" programme should be used at the ER-2 range for 2-3 minutes.

- One of universal zones of general treatment (central line of the back and paravertebral lines, trigeminal zone, hand and feet). The "TEST" programme is used at ER-1 or ER-2 with subsequent treatment of LTZs using the "THERAPY" programme at the ER-2 range for 2-3 minutes in each zone.

- CCZ. The "TEST" programme is used at the ER-1 range or ER-2 range. The diagnosed LTZs are treated in the "THERAPY" programme at the ER-2 range in the labile mode for 3-5 minutes. The device movement direction along the CCZ is determined by the level of intracranial pressure (where it increases, the device is moved from the top downwards).

- Auxiliary zones.

In a single procedure, 2-3 zones are treated, the procedure duration being in proportional to age. The course treatment consists of up to 7-10 procedures.

## **3. Enuresis**

Purpose of DENS: restoring the urge for urination.

### **Technique DENS (SCHEME 2)**

- One of common zones. The "TEST" programme is used at the ER-1 or ER-2 ranges. Diagnosed latent trigger zones are treated in the "THERAPY" programme at the ER-1 range or ER-2 range for 2-3 minutes in each zone.

- Zone of frontal projection of the bladder. The "THERAPY" programme should be used at ER-1 for 5 minutes.

- To alternate treatment of the LSZs and zones of segmental circle at the bladder level. The "THERAPY" programme should be used at the ER-2 range in the labile-stable mode for 10-15 minutes.

- Zones of concordance of kidneys and bladder on palms and soles. The "THERAPY" programme should be used at the ER-2 range for 2-3 minutes.

The duration of the procedures is determined by the child's age. DENS is carried out once daily immediately before going to sleep. The treatment course is 10-14 days. If necessary, the courses may be repeated with 10-14-day intervals.

During DENS course, the patient should follow a water schedule under supervision by the parents: water drinking should be limited in the second half of day and particularly before going to bed.

## **15. SOME SPECIFICS CONCERNING USE OF DENS IN CASES OF ONCOLOGICAL DISEASES**

1. Diagnosis of a malignant neoplasm must be verified by oncologist.
2. The therapy prescribed in oncological clinic should be carried out without fail.
3. Neoplasms of any aetiology present a relative contraindication for DENS. This means that, in frontal projection of the tumour, the treatment should not be performed.
4. The DENS procedures are carried out against the background of the basic treatment (chemotherapy, radiotherapy, surgery, etc.) as an auxiliary rehabilitation means in accordance with a complaint presented by the patient (nausea, pain, stool disorder, etc.). Please see relevant section.
5. In late stages of oncological process, DENS is carried out as agreed with the patient and as the pain-killing means as required.

# CHAPTER 5

## STANDARD SCHEMES OF THE DENAS DEVICE APPLICATION IN SOME EMERGENCY CONDITIONS

### 1. USING DENS IN CASES OF INJURIES AND IN SPORTS MEDICINE

#### GENERAL STATEMENTS

1. In injuries, the treatment should be started as soon as possible as the first medical aid. In severe injuries (fracture, dislocation, etc.) a medical ambulance should be immediately summoned.

2. On suspicion of bone fractures in the zones of frontal projection of complaint, the electrodes should only be repositioned (the stable mode of treatment).

3. In cases of fractures, immobilizing of the extremity is necessary (fixation). In presence of plaster or plastic splint, DENS is carried out on the skin areas adjacent to the splint.

4. In cases of acute pain, first the treatment should be started in the "THERAPY" programme in the zones of frontal projection of complaint, then in the "TEST" programme to treat the symmetrical area on the healthy side.

5. The osteosynthesis, artificial joint, and Ilizarov's device do not present contraindications for DENS treatment.

#### TREATMENT METHODS

##### **1. Contusion, sprain, micro-disruption of ligaments, tendons and muscles**

Purpose of DENS: to relieve pain and accelerate the restoration of impaired functions.

##### **DENS Technique (SCHEME 1)**

- Zone of frontal projection of the injury, pain. The "THERAPY"

programme should be used at the ER-2 range or ER-3 range until relief of the pain.

- Symmetrical healthy extremity is treated in the "TEST" programme at the ER-2 range.
- Segmental zone corresponds to the contusion area. The "THERAPY" programme should be used at the ER-2 range for 7-10 minutes.
- Zones of concordance on the hands and feet. The "THERAPY" programme should be used at the ER-2 range for 3-5 minutes in each zone.

Procedures should be repeated until elimination of complaints (bruise, oedema).

## **2. Joint dislocations, injury of meniscis**

Purpose of DENS: to relieve pain and accelerate the restoration of impaired functions.

### **DENS Technique in acute injury (SCHEME 1)**

- Zone of frontal projection of pain and beginning oedema. The "THERAPY" programme should be used at the ER-2 range or the ER-3 range, repositioning the device along the oedema upwards, as well as along the most painful points, until the pain has been eliminated or relieved.
- The symmetrical healthy extremity is treated in the "TEST" programme at the ER-2 range.
- Concordance zones on the hands and feet. The "THERAPY" programme should be used at the ER-2 range for 3-5 minutes in each zone.
- CCZ (if upper extremities have been injured) or LSZ (if lower extremities have been injured). The "THERAPY" programme should be used at the ER-1 range or the ER-2 range for 7-10 minutes.

Apply a compression bandage and provide an elevated posture for the extremity. If necessary, the procedures may be repeated until achieving the desired result (10-14 days).

After the embole, it is advisable to continue the DENS course by carrying out following technique: (SCHEME 2):

- One of universal zones of general treatment (central line of the back and paravertebral lines, trigeminal zone, hand and feet). The "TEST" programme is used at the ER-2 range with subsequent

treatment of the diagnosed LTZs in the "THERAPY" programme at the ER-2 range for 3-5 minutes in each zone.

- CCZ or LSZ. The "TEST" programme is used at the ER-2 range. The diagnosed LTZs are treated in the "THERAPY" programme for 3-5 minutes.

- 7 CV zone, zones of adrenal glands, jugular fosse, he-gu, zu-san-lei. The „THERAPY“ programme should be used at the ER-2 range for 3-5 minutes in each zone, or „TEST“ programme at the ER-2 range.

- Auxiliary zones.

During the procedure, 2-3 zones are treated. The course duration is 10-14 days. If necessary, the treatment can be repeated.

**!** **NOTE!**

- *Regardless of usual opinion, it's recommended to make no attempts to reset dislocated bone in the joint, as it may result in further serious tissue damage.*

- *Any traumatic impact which ends with intolerable acute pain in the affected person, with their skin turning pale, suggests that he/she has a fracture of bones.*

- *In all cases if there is a suspected fracture, it's not recommended to move a patient, especially if there are grounds to believe it may be a fracture of spine.*

### **3. Bone fractures**

Purpose of DENS: to eliminate pain during acute period of trauma and to accelerate consolidation (adhesion) of the fracture.

**!** **NOTE!**

1. *For rendering first aid DENS procedure must be carried out immediately after sustaining an injury. It will provide immediate an analgesic effect as well as an antishock effect, and prevent the development of severe haemorrhages and swelling of tissues.*

2. *Broken extremities must not be moved and must stay in a relaxed state.*

3. *Warm up the patient; don't give him/her drink or food, as he/she may need narcosis when being conveyed to the hospital.*

4. After adhesion of the fracture it's advisable to proceed with DENS as a rehabilitation measure.

### **DENS Technique (SCHEME 1)**

- In simple fractures, the zone of frontal projection of the fracture is treated (pain, swelling and so on). The "THERAPY" programme is used at the ER-3 range in the stable mode, without pressure upon the underlying tissue.

- With open fractures a skin around the wound is treated using the "THERAPY" programme at the ER-2 range or ER-3 range, re-positioning the device.

- Symmetrical healthy extremity is treated using the "TEST" programme at the ER-2 range.

- Zones of correspondence on the hands and feet. The "THERAPY" programme should be used at the ER-2 range for 3-5 minutes in each zone.

- CCZ (if upper extremities are damaged) or LSZ (with damaging of lower extremities). The "THERAPY" programme should be used at the ER-1 range or ER-2 range for 7-10 minutes.

DENS procedure is to be proceeded until a medical ambulance comes. After the fracture fixation (plaster splint, osteosynthesis operation, Ilizarov's apparatus and other methods) it is advisable to proceed with DENS course, including the additional treatment of the following zones (SCHEME 2):

- One of the universal zones of general treatment (the central line of back and paravertebral lines, trigeminal zone, hands and feet). The "TEST" programme is used at the ER-1 range or ER-2 range with subsequent LTZ treating, using the "THERAPY" programme at the ER-2 range for 2-3 minutes in each zone.

- CCZ or LSZ. The "TEST" programme is used at the ER-2 range. LTZs diagnosed are to be treated using the "THERAPY" programme at the ER-2 range in the labile mode for 3-5 minutes.

- 7 CV zone, zones of adrenal, jugular fosse, he-gu, zu-san-lei. The "THERAPY" programme should be used at the ER-2 range for 3-5 minutes for each or the "TEST" programme at the ER-2 range.

- Zone of frontal projection of liver and intestine. The "THERAPY" programme should be used at the ER-2 range in the labile mode for 10-15 minutes. Diagnosed trigger zones are to

be treated additionally using the "THERAPY" programme for 3-5 minutes in each zone.

- Suprapubic zone in women. The "THERAPY" programme should be used at the ER-1 range or the ER-2 range in the labile or stabile mode for 7-10 minutes.

During the procedure it's recommended to treat 2-3 zones. The duration of the course is 10-14 days. The treatment may be repeated if necessary.

#### **4. Wounds**

Purpose of DENS: to eliminate pain and to stop bleeding.

##### **DENS Technique (SCHEME 1)**

- FPC – skin around wound. The "THERAPY" programme should be used at the ER-2 range or ER-3 range in the stable mode until bleeding stops and pain is reduced.

- Concordance zones on the hands and feet. The "THERAPY" programme should be used at the ER-2 range for 3-5 minutes each.

With extensive infected, festering wounds the continuation of DENS with additional treating of following zones are necessary (SCHEME 2):

- One of the universal zones of common treatment (the central line of back and paravertebral lines, trigeminal zone, hands and feet). The "TEST" programme is used at the ER-1 range or ER-2 range with subsequent LTZ treating using the "THERAPY" programme at the ER-2 range for 3-5 minutes in each zone.

- CCZ or LSZ. The "TEST" programme is used at ER-1 or ER-2. Diagnosed LTZs are to be treated using the "THERAPY" programme at the ER-2 range in the labile mode for 3-5 minutes.

- 7 CV zone, zones of adrenal, jugular fosse, he-gu, zu-san-lei. The "THERAPY" programme should be used at the ER-2 range for 3-5 minutes for each or the "TEST" programme at the ER-2 range.

- Zones of frontal projection of liver and intestine. The "THERAPY" programme should be used at the ER-2 range in the labile mode for 10-15 minutes. Diagnosed trigger zones are to be treated additionally using the "THERAPY" programme for 3-5 minutes in each zone.

- Suprapubic zone in women. The "THERAPY" programme

should be used at the ER-1 range or the ER-2 range in the labile or stabile mode for 7-10 minutes.

The duration of the course is 7-15 days, depending on the severity of the injury.

## **5. Burns**

Purpose of DENS: to eliminate pain, to prevent infection, to promote faster recovering of skin.

### **DENS Technique (SCHEME 1)**

- FPC is a burn zone. The "THERAPY" programme should be used at the ER-2 range or ER-3 range in the stabile mode until pain is reduced. Where there is a wound (disintegration of skin) it's necessary to treat surrounding skin.

- Segmental zone corresponding to burned skin. The "THERAPY" programme should be used at the ER-2 range for 7-10 minutes.

With severe vast burns it's also advisable to include treatment of following zones in DENS prescription (SCHEME 2):

- One of the universal zones of common treatment. The "TEST" programme is used at the ER-1 range or ER-2 range with subsequent treating of diagnosed LTZs using the "THERAPY" programme at the ER-2 range for 3-5 minutes in each zone.

- CCZ or LSZ. The "TEST" programme is used at the ER-1 range or the ER-2 range. Diagnosed LTZs are to be treated using the "THERAPY" programme at the ER-2 range in the labile mode for 3-5 minutes.

- 7 CV zone, zones of adrenal, jugular fosse, he-gu, zu-san-lei. The "THERAPY" programme should be used at the ER-2 range for 3-5 minutes for each or "TEST" programme at the ER-2 range.

- Zones of frontal projection of liver and intestine. The "THERAPY" programme should be used at the ER-2 range in the labile mode for 10-15 minutes. Diagnosed trigger zones are to be treated additionally using the "THERAPY" programme for 3-5 minutes in each zone.

- Suprapubic zone in women. The "THERAPY" programme should be used at ER-1 or ER-2 in the labile or stabile way for 7-10 minutes.

During the procedure it's recommended to treat 2-3 zones. In

the first days the procedures are to be repeated for several times a day, then their quantity may be reduced to 1-2 procedures a day. The duration of treatment is up to 10-15 days.

**!** *NOTE!*

- *The earlier one applies the device the better the therapeutic effect and the lesser consequences of thermal trauma.*
- *The device electrodes must not be moved over the burned skin, they must be repositioned.*
- *With burns of one paired part of the body it's necessary to treat the symmetrical healthy part of body (the principle of symmetry).*
- *With chemical burns, it's necessary first to wash the damaged area with clean running water for no less than 10 minutes.*
- *Severe and deep burns are to be always treated by doctor*

## 2. APPARATUS AID IN SOME STATES OF EMERGENCY

### GENERAL STATEMENTS

- |   |
|---|
| 1. With emergency states which require urgent aid, the device must ALWAYS be set to the "THERAPY" programme.  |
| 2. If a patient is unconscious, the maximum output energy level, ER-3 range, must ALWAYS be used.   |
| 3. If the patient is conscious the choice of energy level is determined by the patient's complaint (with severe pain it is ER-3 range, in other cases it is ER-2, in little children it is ER-1). |
| 4. The treatment will proceed until the patient's condition improves or until ambulance team comes.   |

### TREATMENT METHODS

#### **1. Patient is unconscious (uncertain situation)**

The first aid:

- Call ambulance team,
- Promptly put the patient on his/her back with care,
- Provide clear airways,
- Evaluate breathing and blood circulating. In the absence of breathing and a pulse, the artificial pulmonary ventilation of lungs must be started (mouth to mouth or mouth to nose) and cardiac massage.

#### **DENS Technique (SCHEME 1)**

- Zones of reanimation on the face (Fig. 26). The "THERAPY" programme should be used at the ER-3 range for 15-30 seconds in each zone.
- Zone of frontal projection of heart at the front. The "THERAPY" programme should be used at the ER-3 range for 3-5 minutes.

The treating of zones must be repeated until consciousness is restored or until an ambulance comes.

#### **2. Fever (elevated body temperature)**

The purpose of DENS is to decrease body temperature and to alleviate the patient's state.

### **DENS Technique (SCHEME 1)**

- Zones of frontal projection of carotid arteries, brachial arteries (in axilla and in bend of elbow) and femoral arteries (in inguinal folds and in popliteal space). The "THERAPY" programme should be used at the ER-2 range or the ER-1 range for 20-30 seconds on each side.
- Forehead and temporal areas. The "THERAPY" programme should be used at the ER-2 range or ER-1 range for 3-5 minutes.
- Wrists (zone for bracelets). The "THERAPY" programme should be used at the ER-2 range or ER-1 for 3 minutes on each side.
- Other zones are according to the basic disease.



#### **NOTE!**

*One must remember that improvement of health, appearance of rose colour of skin, elimination of excitement, and the falling asleep of a patient frequently precede a great reduction in body temperature, so control thermometry must be performed no earlier than in 20-30 minutes after finishing of the procedure.*

### **3. Shock**

For rendering aid during the shock, it's necessary to call ambulance team.

The purpose of DENS involves rendering the urgent aid.

### **DENS Technique (SCHEME 1)**

DENS procedure for prompt effectiveness is recommended to be performed with two-three devices at one time.

With appearance of symptoms of shock and with in keeping consciousness the zones to be treated are:

- Zone 2 CV. "THERAPY" programme at the ER-2 range for 2-3 minutes.
- Zones of frontal projection of carotid arteries. The "THERAPY" programme should be used at the ER-2 range or the ER-1 range for 1-2 minutes.
- CCZ. The "THERAPY" programme should be used at ER-3 RANGE or ER-2 for 10-15 minutes with sliding fan-shaped upwards movement.

- Zones of frontal projection of adrenal glands. The "THERAPY" programme should be used at the ER-2 range for 3-5 minutes on each side.

- Zones of forearms and hands. The "THERAPY" programme should be used at the ER-2 range in the labile mode beginning from the tips of the fingers to the middle of forearm for 5-7 minutes.

If the patient loses consciousness it's advisable to use the re-animation method (refer to point 1 of present part).

## CONCLUSION

The working methods for DENS operation when dealing with the most common symptoms and diseases are outlined in this manual. If you didn't find an explanation of DENS relevant to your area of interest, please follow the general scheme outlined in Chapter 3: "Recommended treatment procedures and DENAS device technique".

Dynamic electroneurostimulation is a relatively new form of treatment. It was registered by Ministry of Health of the Russian Federation as an independent method in March 2005. It can be performed with different devices: the list of DENS devices has been growing from year to year; in its latest updated version it implements not only new customer-targeted properties but also new functions.

The diagnostic functions of the new DENAS devices (DiaDENS-T and DiaDENS-DT) are designed to provide the possibility of performing electropuncture evaluation of internal organs and the human body, evaluation of the dynamics of changes achieved during the treatment process, as well as testing the medicine, homeopathic preparations and nutritional supplements with the help of portable, easily-operated equipment.

Existing practice indicates that both the diagnostic and therapeutic possibilities of DENAS devices are very advanced and that this promising beginning requires suitable development and maintenance.

The team of authors of this manual and the techniques listed here are grateful for any reviews, notes and proposals from interested parties.

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Charcot's Syndrome  
Concussion  
Constipation  
Coronary heart disease  
Cough  
Croup  
Cyclospasm  
Cystitis  
Diabetes mellitus  
Diarrhoea  
Discogenic radiculopathies  
Diseases  
    *cardiovascular system diseases*  
    *catarrh*  
    *cerebral disease*  
    *children's diseases*  
    *digestive system diseases*  
    *breast diseases*  
    *ear, nose and throat diseases*  
    *endocrine system diseases*  
    *eyes diseases*  
    *female reproductive organ diseases*  
    *kidney and urinal tract diseases*  
    *diseases of male genitals*

*musculoskeletal system diseases*  
*nervous system diseases*  
*oral mucosa and dentition diseases*  
*peripheral artery diseases*  
*respiratory system diseases*  
*skin diseases*  
*thyroid gland diseases*  
*gynaecological diseases*

Dislocations of joints

Disturbance in menstrual cycle

Eczema

Energy range

*Comfortable*

*Maximum*

*Minimum*

Enuresis

Epididymoorchitis

Elevated body temperature

Facial care

Facial cosmetics

Feeling of heaviness in legs

Fever

Fissure of mamilla in nursing mother

Frequent and painful urination

Frontal sinusitis

Genyantritis

Glaucoma

Glomerulonephritis

Headache

Haemorrhoids

Hearing impairment

High blood pressure

Hoarse voice

Hyperopia

Hypertension

Hypogalactia

Infantile cerebral paralysis

Inflammation diseases of eyes

Lactational mastitis

Lactostasis

Laryngitis

Logoneurosis

lumbodynia

Meniscal injuries  
Migraine  
Myocardiodystrophy  
Myopia  
Nasal catarrh  
Nasal stuffiness  
Nausea  
Neurodermatitis  
Neurotic stammering  
Obesity  
Oedema  
Orchitis  
Otitis  
Pain in throat  
    *in abdomen*  
    *in face*  
    *in lower part of abdomen*  
    *in legs*  
    *in area of genitals*  
    *in small of the back*  
    *in heart*  
    *in back*  
    *in joints*  
    *in ear*  
    *in neck*  
Paralysis  
Parodontitis  
Parodontosis  
Parotid zones  
    *paraorbital zones*  
    *resuscitation zones*  
    *reflex gynaecological zones*  
    *segmental zones*  
    *segmental zones for universal action*  
    *segmental zones for particular action*  
    *trigger zones*  
    *universal (general) zones*  
Perceptive hearing loss  
Pharyngitis  
Pneumonia  
Points of "pulse loss"  
Points of appetite suppression  
Postapoplectic state

Postural disorder  
Prostatitis  
Psoriasis  
Pyoderma  
Rash  
Refraction disorders  
Rheumatism  
Rhinitis  
Rhombus of Michaelis  
Sciatica  
Sexual dysfunction  
Shock  
Sinusitis  
Skin abscesses  
Skin itch  
Speech zones  
Spinal osteochondrosis  
Spots on skin  
Sprains in the ligaments, tendons and muscles  
Stomatitis  
Su Jok (system of concordance on hands and feet)  
Syndrome of chronic venous insufficiency  
“TEST” programme  
“THERAPY” programme  
Tonsillitis  
Toothache  
Tracheitis  
Trigeminal neuralgia  
Trophic ulcers on the legs  
Unconscious state  
Urethritis  
Urolithiasis  
Varicose disease of lower extremities  
Varicose nodes  
Varicose veins  
Vomiting  
Wounds  
Zone of  
    *“cervical circle”*  
    *“concordance points” or paravertebral area*  
    *cervical-collar*  
    *direct projection of adrenal glands*  
    *direct projection of carotid arteries*

*direct projection of mammary glands*  
*direct projection of patient's complaint*  
*direct projection of thyroid gland*  
*epigastric area*  
*frontal direct projection of the heart*  
*hands and feet*  
*he-gu area*  
*jugular fosse*  
*kidneys, ureter and urinary bladder*  
*lateral direct projection of the heart*  
*liver and intestine*  
*lumbar area*  
*penis*  
*perianal area*  
*perineum*  
*posterior direct projection of the heart*  
*posterior meridian midpoint or the posterior midpoint line of the body*  
*projection of lungs from behind*  
*projection of maxillary and frontal sinus*  
*projection of mucous membrane of oral cavity*  
*projection of upper lung lobes at the front*  
*second cervical vertebra*  
*seventh cervical vertebral*  
*submandibular area*  
*suprapubic area*  
*tongue*  
*trigeminal area*  
*zu-san-lei area*

Zones and point of systems of concordance

## LIST OF ILLUSTRATIONS

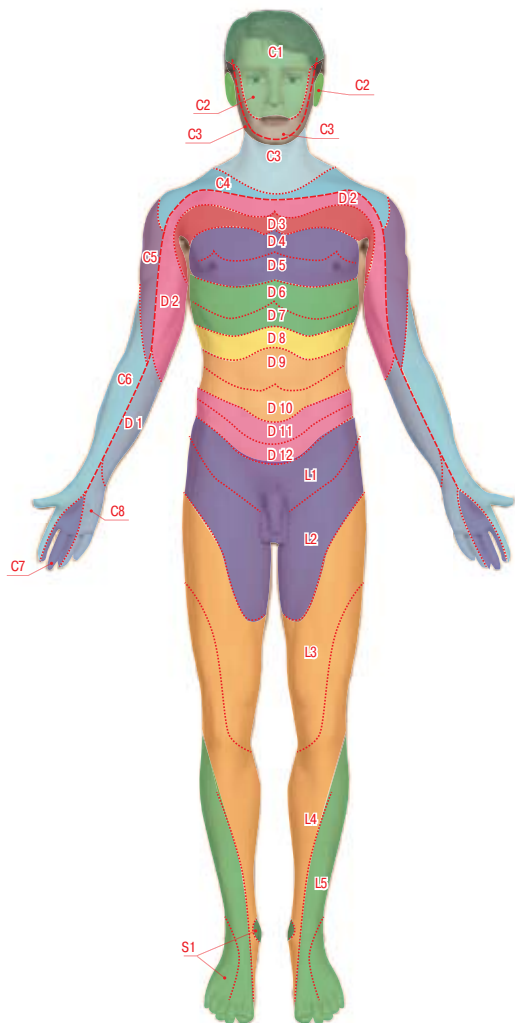


Fig. 3. Sketch showing location of the segmental zone's peripheral parts on the body's frontal surface

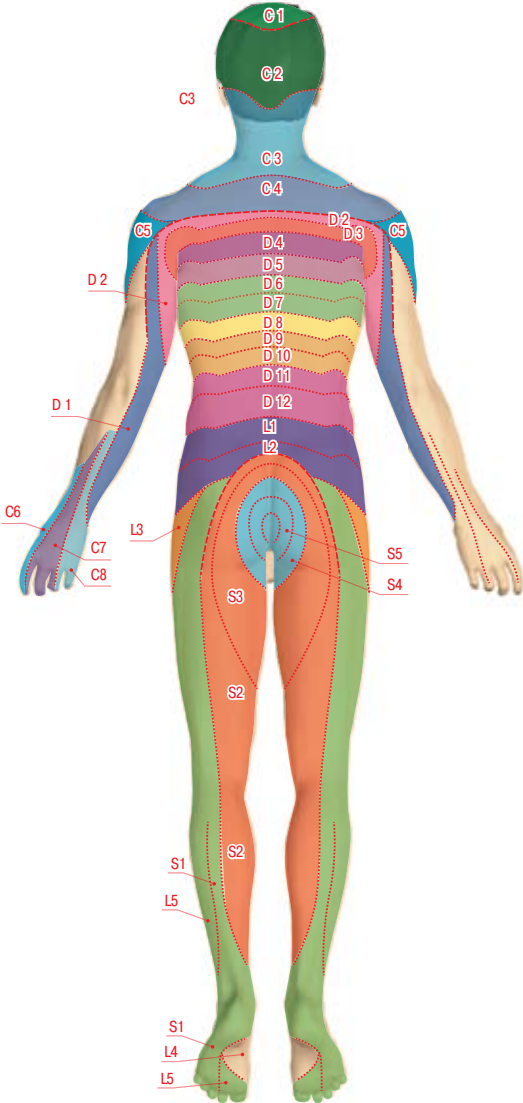


Fig. 4. Sketch showing location of the segmental zone's peripheral parts on the body's back surface

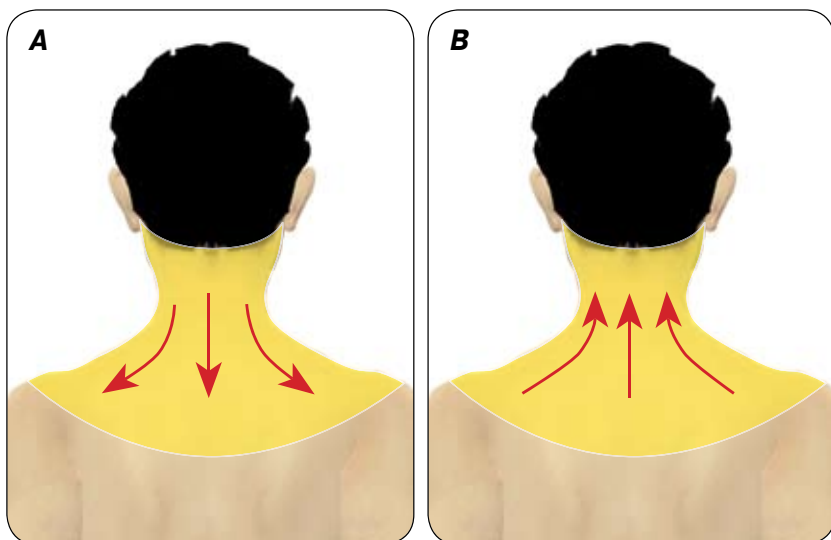


Fig. 5. Cervical-collar zone (CCZ)

A – method of treatment for increased arterial pressure

B – method of treatment for decreased arterial pressure

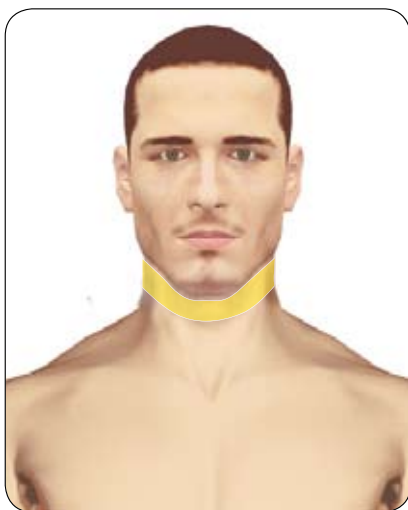


Fig. 6. "Neck circle" zone (CC)



Fig. 7. Lumbar-sacral zone (LSZ)

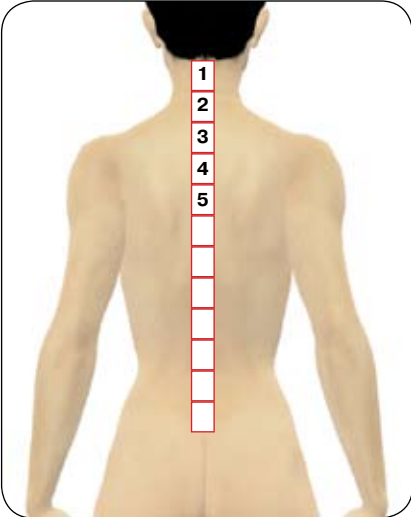


Fig. 8. Posterior zone of the meridian midpoint or the posterior midpoint line of the body

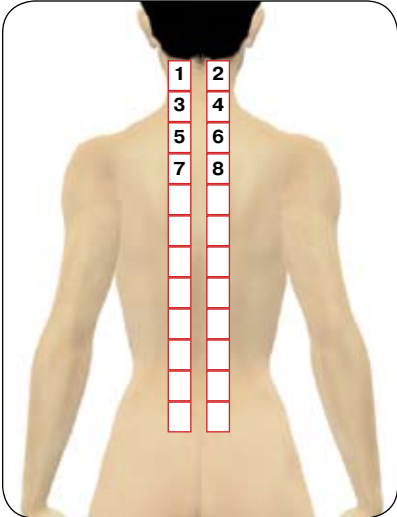


Fig. 9. "Concordance points" or paravertebral zone

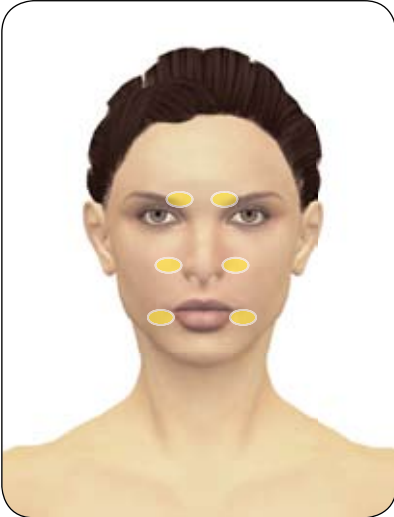


Fig. 10. Trigeminal zone



Fig. 11. Second cervical vertebra zone (2 CV)

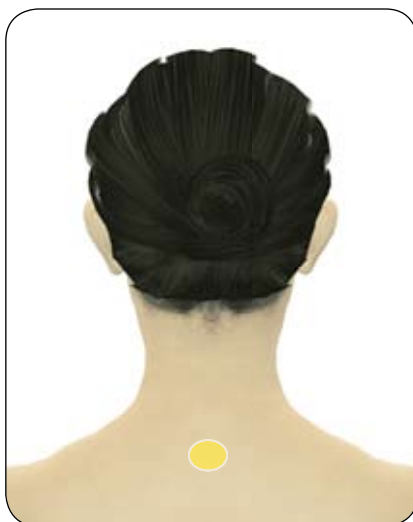


Fig. 12. Seventh cervical vertebra zone (7 CV)



Fig. 13. Jugular fosse zone

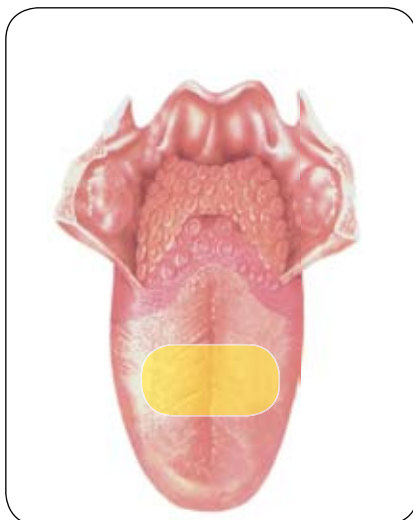


Fig. 14. Tongue zone



Fig. 15. Speech zones

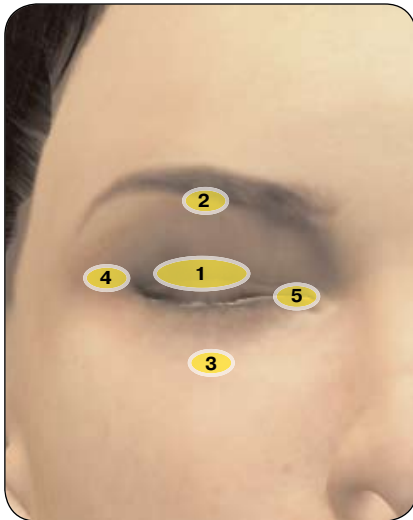


Fig. 16. Eye area and paraorbital zones

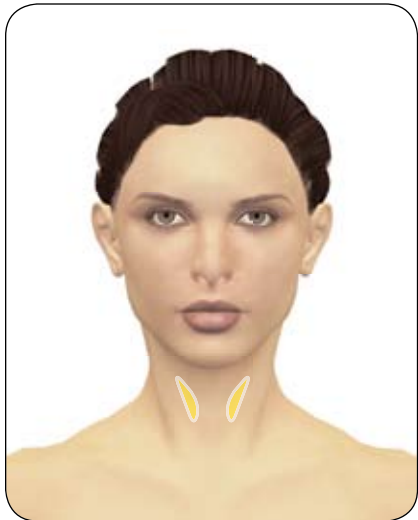


Fig. 17. Zone of direct projection of the carotid arteries

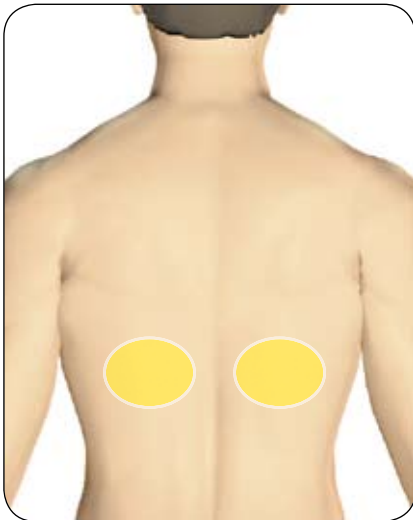


Fig. 18. Zone of direct projection of the adrenal glands

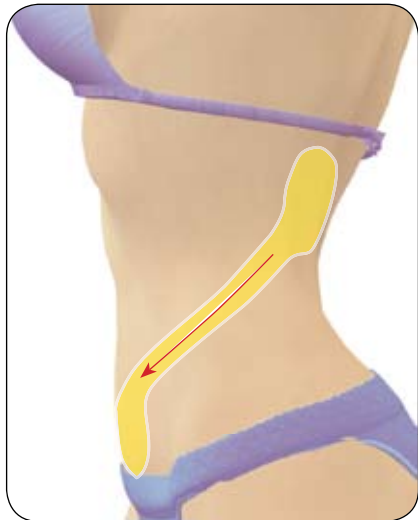


Fig. 19. Kidney, ureteric and bladder zone (treated on both sides)

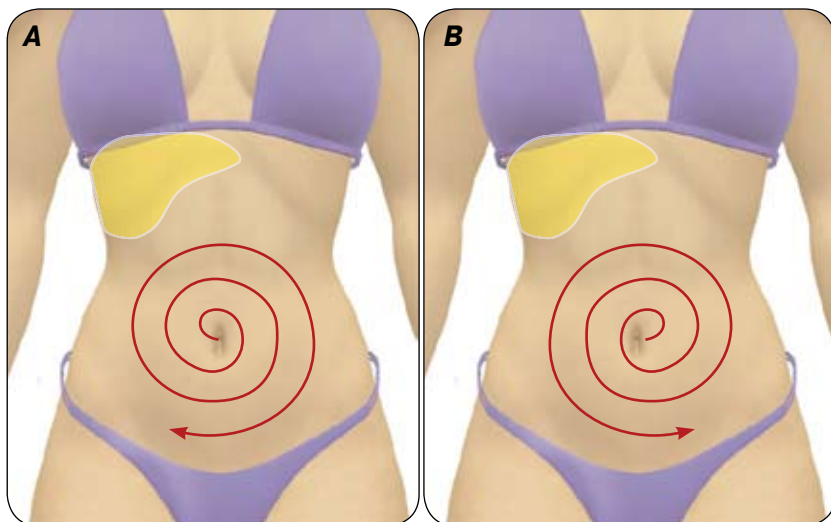


Fig. 20. Liver and intestinal zone

A – method of treatment for normal stools and for constipation

B – method of treatment for diarrhoea



Fig. 21. Suprapubic zone

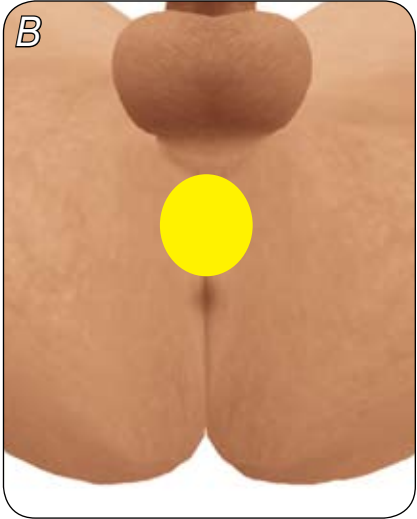


Fig. 22. Perineum zone  
A – in women  
B – in men

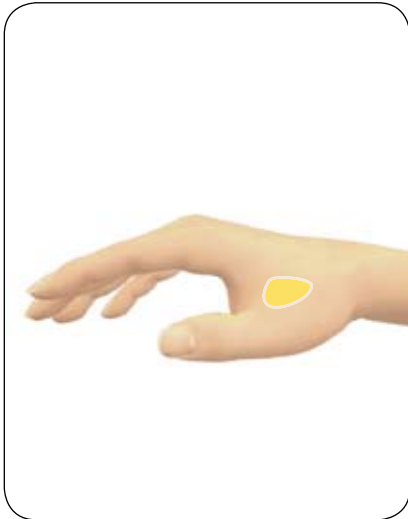


Fig. 23. He-gu zone



Fig. 24. Zu-san-lei zone

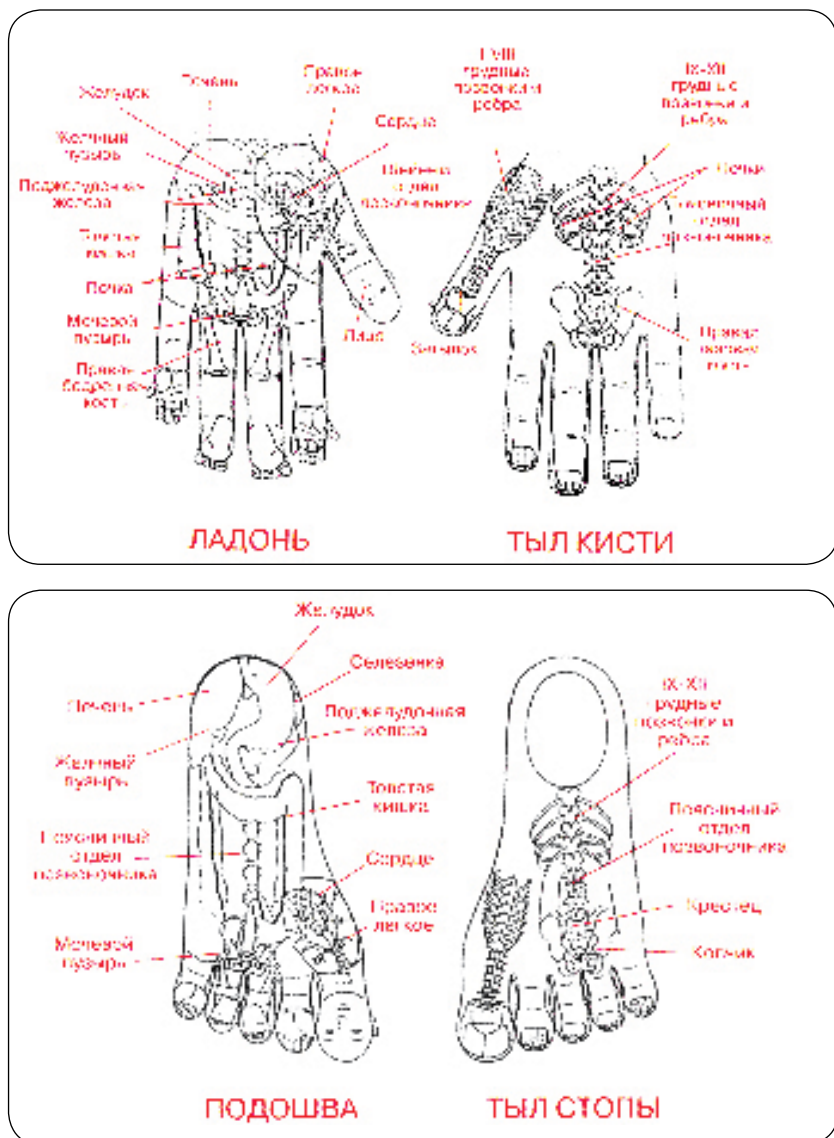


Fig. 25. Su Jok concordance system



Fig. 26. Main resuscitation zones



Fig. 27. Submandibular zone

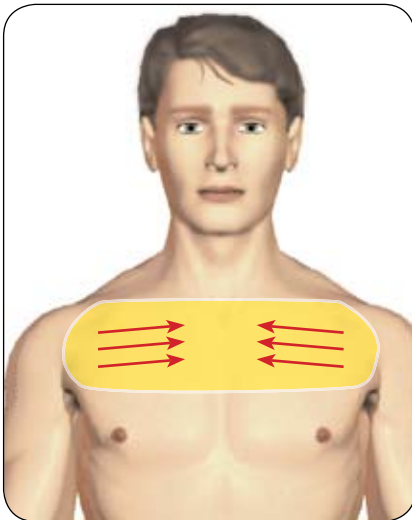


Fig. 28. Frontal zone of projection of the lung upper lobes

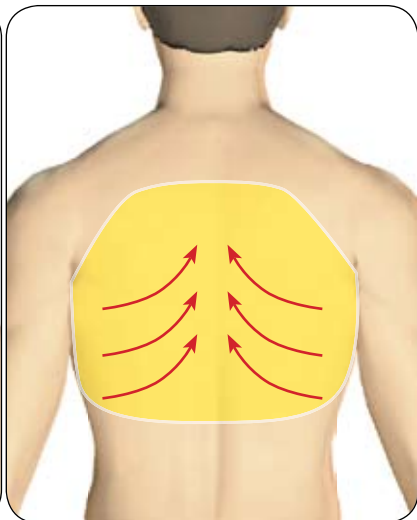


Fig. 29. Posterior zone of projection of the lung

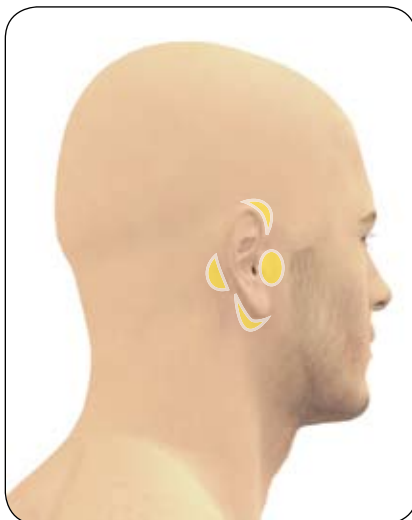


Fig. 30. Parotic zones



Fig. 31. Projection of maxillary and frontal sinuses



Fig. 32. Epigastria zone



Fig. 33. Perianal zone

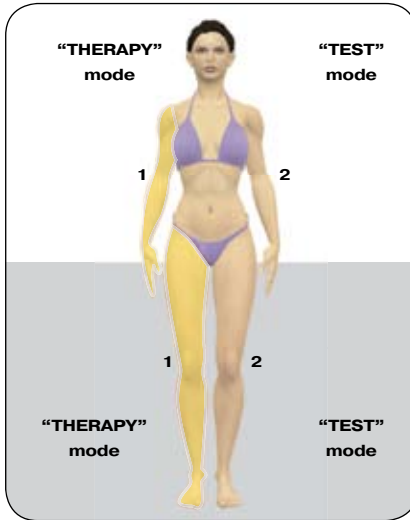


Fig. 34. Treatment programme for the extremities according to the horizontal symmetry principle

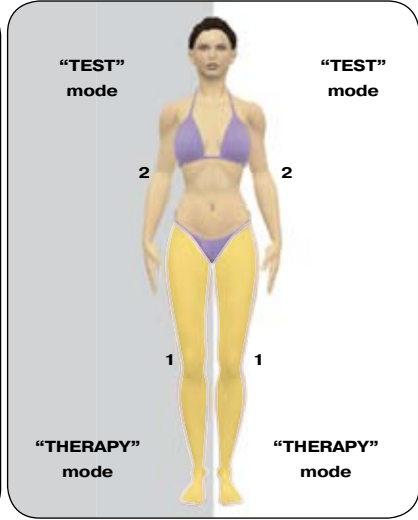


Fig. 35. Treatment programme for the extremities the vertical symmetry principle

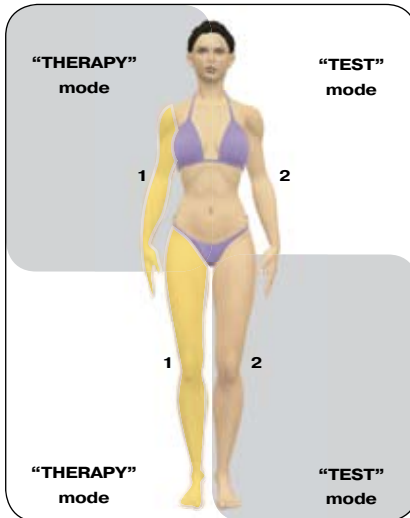


Fig. 36. Treatment programme for the extremities according to the principle of tetrasymmetry

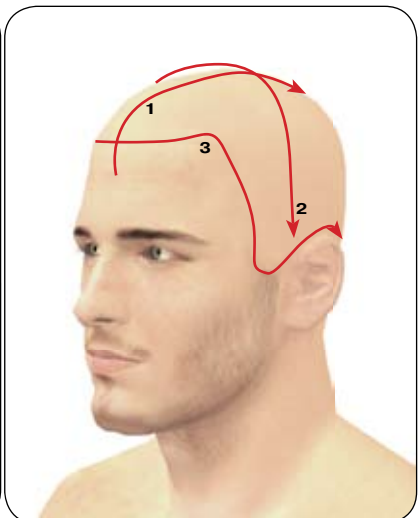


Fig. 37. Technique for treatment along the lines of the head

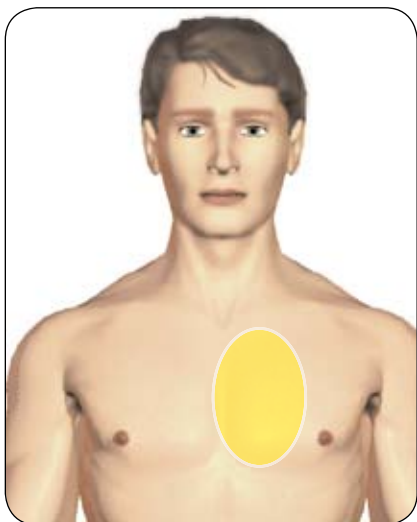


Fig. 38. Zone of anterior direct projection of the heart



Fig. 39. Zone of lateral direct projection of the heart

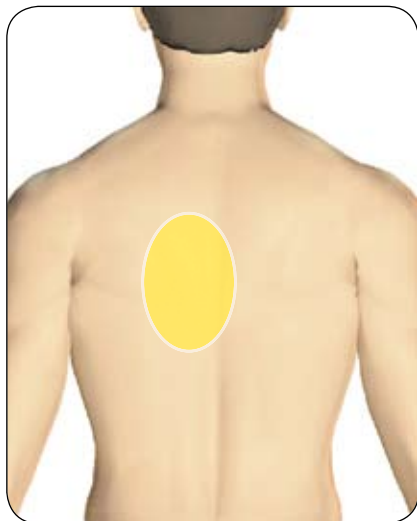


Fig. 40. Zone of posterior direct projection of the heart



Fig. 41. Points of "pulse loss"



Fig. 42. Zone of direct projection of thyroid gland

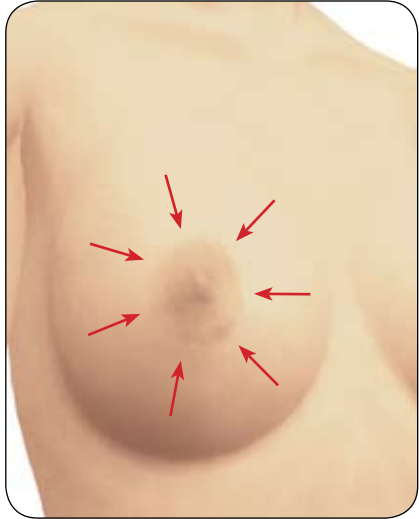


Fig. 43. Zone of direct projection of thyroid mammary gland (arrows indicate direction of the treatment)



Fig. 44. The rhombus of Michaelis

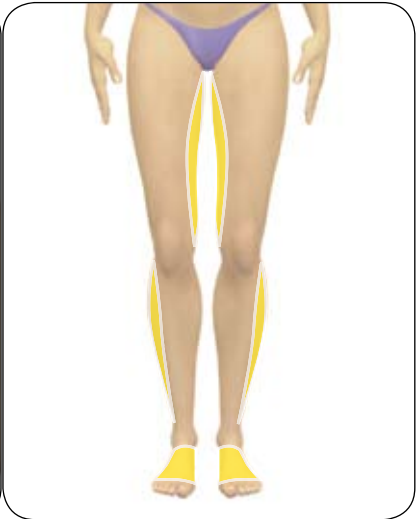


Fig. 45. Reflexogenic gynaecological zones



Fig. 46. Beauty spot



Fig. 47. Cosmetic treatment for the face

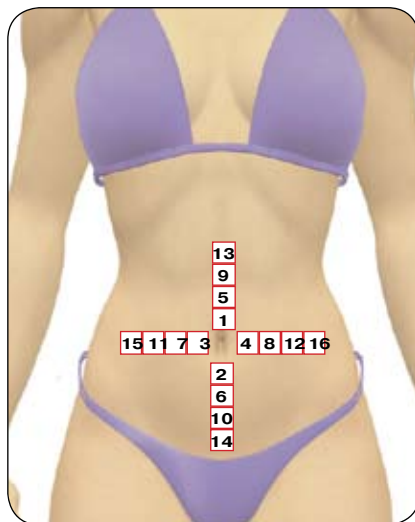


Fig. 48. Device treatment using the cross technique

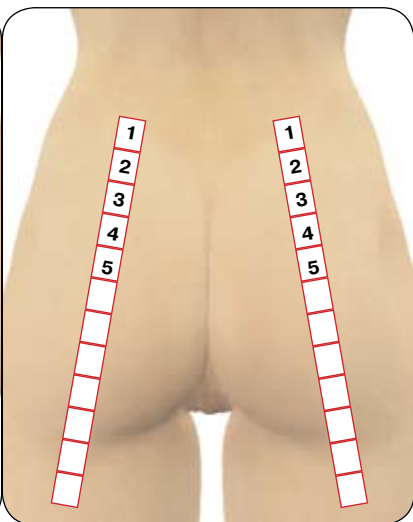


Fig. 49. Cellulite treatment scheme for the buttocks

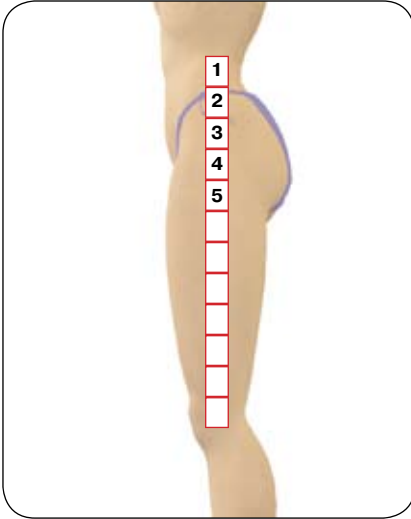


Fig. 50. Cellulite treatment scheme for the hips



Fig. 51. Appetite suppression point (treated on both sides)



Fig. 52. Zone of oral mucosa projection