

ZooDENS

Operating Manual Part 2. Instruction Manual

(The instructions were composed proceeding from the “Practical Guide to the DENS-therapy in Veterinary Medicine” approved by the Methodological Commission of the Veterinary Medicine Faculty, the Ural State Agricultural Academy, Ekaterinburg, 07 January 2006, Protocol # 1).

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1. Introduction

A special feature of veterinary science is the absence of verbal contact, and in some diseases and special symptoms this makes diagnosis difficult. A disease in animals, whether it is poisoning or serious kidney disease, metabolism disorders or pneumonia, begins with and often progresses against the background of general symptoms: dry nose surface, intoxication, food aversion, etc. So, setting a precise diagnosis for an animal is as hard as for a little baby.

On the other side, it is not always possible to consult with a highly professional vet. Therefore, it is vital to apply a universal approach to veterinary science with which a

prompt therapeutic result is possible to obtain at the early stages of a disease. It includes a new method of electro-reflex therapy: the dynamic electric stimulation of nerves (DENS, Registration Certificate FS-2005/004, March 4, 2005, issued by the Federal Service for Supervision in the Sphere of Healthcare and Social Development of the Russian Federation).

ZooDENS dynamic electric-neurostimulation Device is used to stimulate an animals recovery by reflex therapy on biologically active points (BAP) and biologically active zones (BAZ). With ZooDENS Device, as a therapeutic element, there is an unique energy-information signal in the form of modulated pulsing current with a dynamic modifying of its parameters depending on skin impedance in the subelectrode zone (biological feedback), that is distinguished by its ultimate safety in operation and by its high tolerance.

DENS results in pain elimination, blood flow improving and normalization of nervous, hormonal and immune systems. Elaborated specially for animals, the therapeutic regimen provides a maximum comfortable and efficient treatment during which animals do not experience unpleasant sensations caused by treatment with the Device. ZooDENS Device is designed for use by owners of pets and exotic animals, vets, breeders working under field and home conditions or in special conditions of veterinary clinics, farms, nurseries etc.

2. Indications for use

The Device is recommended to be used independently, as well as concurrently with therapy for pets, cattle and exotic animals to increase efficiency of current therapy and to reduce the length of treatment in the following diseases and conditions:

- urgent conditions: apparent death, depression, drowsiness, contusions, fractures, bites, wounds, bleedings, post-operative conditions;
- respiratory diseases: rhinitis, laryngotracheitis, bronchial pneumonia, emphysema of lungs;
- cardiovascular diseases: myocarditis, pericarditis, dropsy of pericardial sac, acute and chronic cardiovascular failure;
- digestive apparatus diseases: poisoning, vomiting, loss of appetite, colic, diarrhea, constipation, jaundice, gastritis, gastroenteritis, colitis, hepatitis;
- diseases of urinary system: ischuria, paralysis and paresis of urinary bladder, nephritis, urocystitis, urolithiasis;
- non-contagious diseases with skin affection: dermatitis, shedding of hair, allergy;
- diseases and functional disorders of reproductive system: sterility, weakness of birth activity, postpartum complications, mastitis, inflammation, impotence;
- other diseases: myosites, arthrites, traumatic injuries of capsular-ligamentous apparatus of joints, osteodystrophy, conjunctivitis, otitis, neuritis, pareses, strokes, spasm attacks, heat stroke, etc.

3. Contra-indications for use

Absolute ones:

- individual intolerance to electric current;
- implanted cardiostimulator.

Relative ones:

- status epilepticus;
- neoplasm of any etiology and localization;
- fever of unclear origin;
- condition of severe excitement.

ATTENTION:

Every owner must keep in mind:

- if the animal is in a severe condition it is necessary to consult with a vet;
- the earlier therapy with ZooDENS Device is started, the easier and faster the manifestation of any disease or trauma will be.

4. Preparation for a procedure

1. There are no special requirements for a place or time of procedure.
2. During the procedure it is necessary to provide the most comfortable position for operator and animal.
3. To treat the area under therapy with thin layer of cream, e.g., “Malavtilin”, to moisten hair with water.

5. Order of carrying out DENS procedure

1. Make sure that the battery is in the power supply compartment.
2. Press the “On” button and switch on the Device.
3. Set the necessary power in the energy range of action.

As during the procedure the animal must not experience any unpleasant sensation caused by therapeutic effect, it is recommended to use a minimum energy range. Upon switching the Device on, the first point will be set automatically on “POWER” an LED scale and the range from 1 to 3 points corresponds to the minimum of energy range.

ATTENTION!

- In cases of rendering the first aid and in other emergency situations, it is advisable to increase the energy range by sequential and quick pressing button “POWER+” until the animal’s reaction becomes obvious.
- In other cases, the animal during the procedure should not be nervous, and the procedure of DENS should be as comfortable as possible.

4. After setting power of energy range, the built-in electrodes of the Device must be fitted to the relevant and preliminary treated skin zones of the animal. If the contact of electrodes is quite good there will be a single beep. At the moment when the electrodes cease to contact the skin, there will be a double beep. If there is no contact with the skin for 10 minutes, the Device will automatically shut down.
5. The duration of one procedure is from 5 to 25 minutes. In many cases, a sufficiency of the Device effect and multiplicity of procedures is determined according to animal's behavior (disappearance or reduction of symptoms) by operator.
6. When the procedure is finished, press the "Off" button and switch off the Device.

6. General recommendations and algorithms of applying ZooDENS Device in animals

In veterinary science, ZooDENS Device is used for rendering the first aid in critical situations, with acute and chronic diseases, as well as with functional disorders. The treatment by the Device goes well together with drugs and any other kind of therapy prescribed by a vet at any stage of treatment and rehabilitation of any animal.

- The choice of treated zone depends on character and localization of the disease, illness or symptoms.
- The procedure depending on intensity of symptoms is carried out for one or several reflex zones, given in every section.
- Average time of processing one zone is 1–5 minutes (may be increased or reduced, as appropriate).
- Average duration of one procedure is 5–25 minutes (may be increased or reduced). Elimination of one or other acute symptom (vomit, diarrhea, asphyxia, bleeding, edema etc.) is demonstrates sufficient use of the Device.
- Multiplicity of procedures is determined according to the severity of a disease: with acute and severe diseases there are no limitations, up to state stabilization; with chronic diseases — 1–3 times a day.
- Ways of operation:
 - labile way — built-in electrodes of the Device are to be moved along skin surface (over large areas);
 - stable way — built-in electrodes of the Device are set on one zone and kept there up to the end of procedure (over small areas).

Algorithm of the Device applying No. 1

The symptoms have been determined; diagnosis of the animal's condition has been established beyond doubt, the target affected organ or body part is obvious. Proceeding from this, we determine a zone of direct projection of the involved organ or body part.

The recommended zones of the Device action:

1. A frontal skin projection zone of an affected organ or a part of body, located above the organ or the part of body (Fig. 1 and 2).

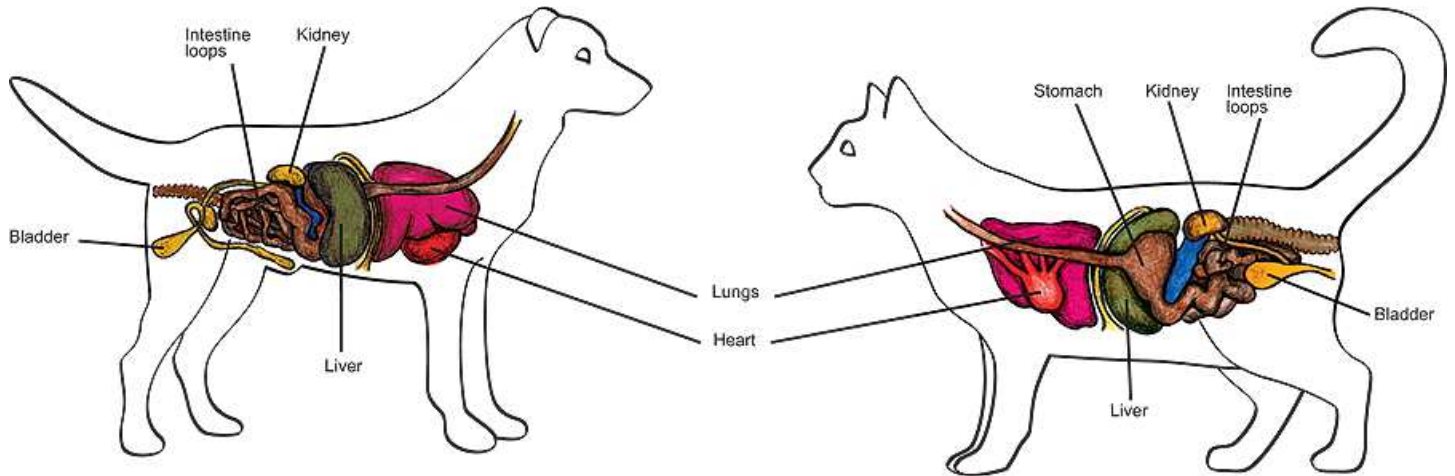


Fig. 1 Internal organ localization in cat and dog.

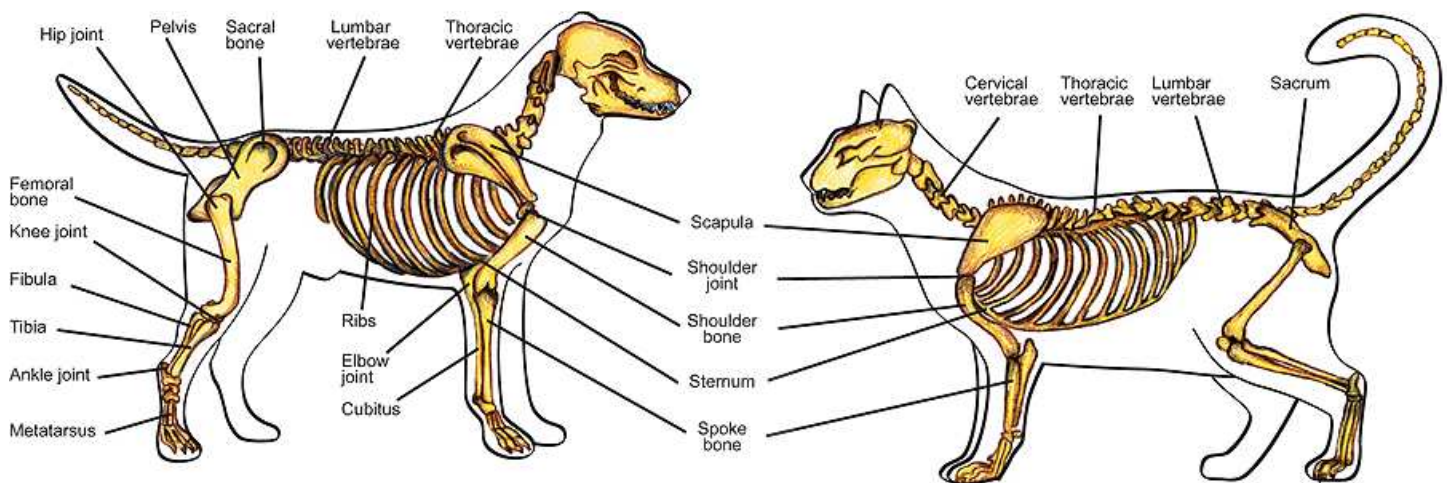
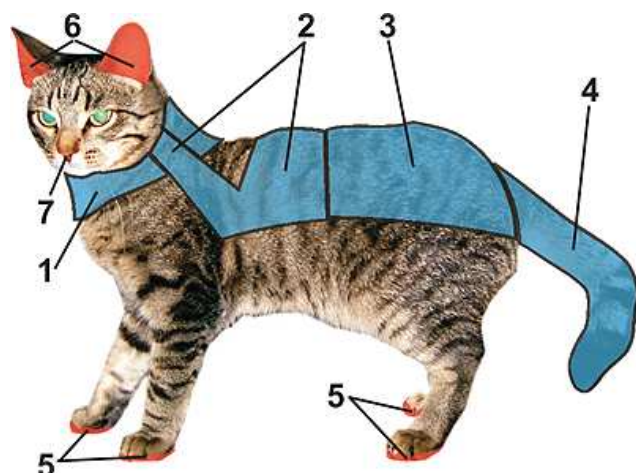


Fig.2 Cat and dog skeleton



2. Segmental skin zones: in head diseases, the cervical segment of the spine will be treated, i.e. the neck ring zone (Fig.3, zone 1); in diseases of the chest organs and fore limbs: the neck and thoracic spine segments (Fig.3, zone 2); in diseases of abdominal cavity organs: the spine lumbar-sacral zone (Fig.3, zone 3) and tail (Fig.3, zone 4).

3. Universal skin zones: cushions of the fore-and/or hind limbs, inner surface of ears, nose areolet (Fig.3, zones 5, 6, 7).

Fig. 3. Segmental and universal skin zones

During the procedure, one or more of recommended zones will be treated. In severe states, acute diseases and traumas, the procedure must be repeated no less than 3–4 times a day. In other cases, the procedure will be carried out 1–3 times a day. The duration of treatment is determined according to the animal's dimensions and severity of disease. Average duration of a single procedure is 5–25 minutes. A single course includes 1 to 14 procedures.

Examples.

1. Liver disease.

- Prepare the animal for the procedure (p. 4 of this Manual);
- Switch on the Device;
- Treat the zone of liver frontal projection (Fig. 4, zone 1):
- Then treat the lumbar-sacral area with the Device (Fig. 4, zone 1) and universal zone — (pads of fore- and hind-limbs in turn) (Fig. 4, zone 3).

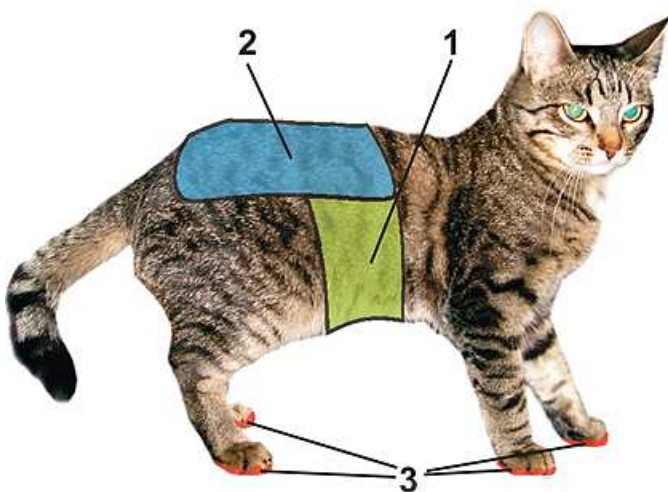


Figure 4. Example of algorithm No. 1 of ZooDENS Device effect with set diagnosis of liver disease.

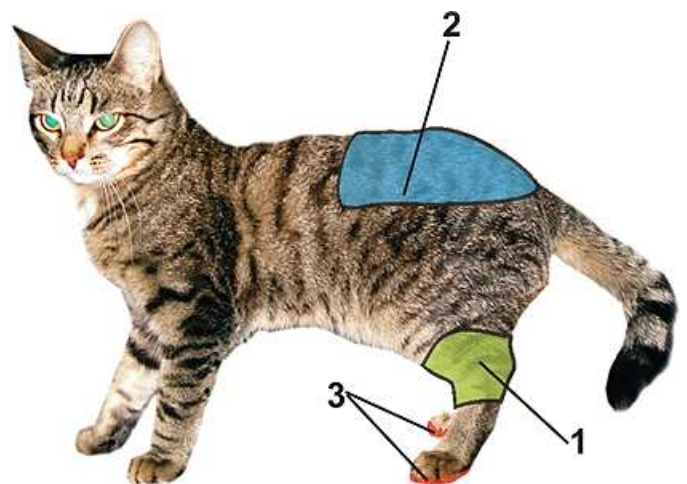


Figure 5. Example of algorithm No. 2 of ZooDENS Device effect with set diagnosis of left hock disease.

2. Disorder of left hock:

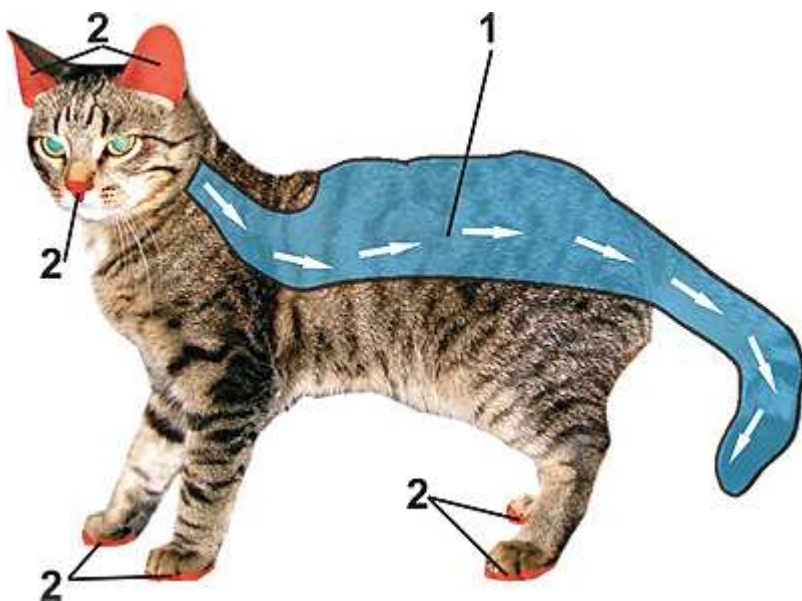
- Prepare the animal for the procedure;
- Switch on the Device;
- Treat the zone of hock frontal projection (Fig. 5, zone 1);
- Then treat the lumbar-sacral area (Fig. 5, zone 2) and universal zone with the Device — (pads of hind-limbs in turn) (Fig. 5, zone 3).

Algorithm of the Device effect No. 2

A diagnosis has not yet been established. Only general indefinite symptoms of disease have appeared in the animal, such as: atony, drowsiness, reduced appetite, refusal to drink, weight loss. In this case, we do not know the zone of frontal projection of affected organ or a body part.

Zones recommended for the Device action:

1. Spine zone and tail: to treat in the direction from head to tail (Fig. 6, zone1).
2. Universal zones: pads of fore- and/or hind limbs, internal surface of ear, nose areolet (Fig. 6, zone 2).
3. In case of appearance of certain concrete symptoms, use Algorithm of the Device applying No 1, i.e. begin to treat the zone of frontal projection of affected organ or body part (e.g., in case of cough and asphyxia: treat the zone of frontal projection of the respiratory organs, in vomiting and diarrhea: that of digestion organs).



During the procedure, one or several proposed zones will be treated.

The procedure will be performed 3-4 times a day.

The term of treatment will be determined by the size of the animal and severity of the disease. Average duration of a single procedure is 10 - 15 minutes. A single course comprises 1 to 14 procedures.

Fig. 6. Example of algorithm of the ZooDENS # 2 action.

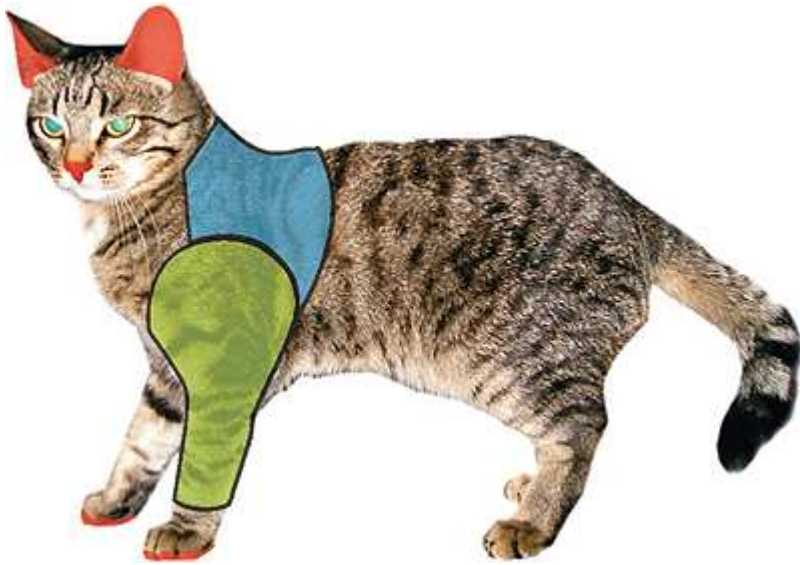
7. Recommended usage for some diseases in carnivores.

In many cases, the zones of action in carnivores (cats, dogs, tigers, lions, cheetahs, wolves etc.) are identical as the topography of internal organs and the zone of location of nervous system centers coincide in many aspects.

Critical states

A. Trauma: contusion, fracture, bite, cut, bleeding, postoperative wounds

1. The zone of trauma frontal projection or the zone around trauma. If a bandage is applied (plaster, fascia) treat pads of paws.
2. In cases of cuts or bleeding, preliminarily bathe a wound with antiseptic, put wound edges together and apply the Device in the electric range 1.



3. Segmental zones: in head injuries, zone of the neck ring will be treated, in injury of the chest and forelimbs – cervical and thoracic area of the spine, in injury of the body posterior part – lumbar-sacral zone and tail.

4. Universal zones: in head injuries and in injuries of the body anterior part: pads of the forelimbs and the nose areolet, in injury of the posterior part – pads of the hind limbs and the ear internal surface.

Fig.7. The scheme of ZooDENS Device action in injury of the left forelimb.

Example of rendering DENS-aid in injury of the left forelimb is presented in Fig 7.

Severe states

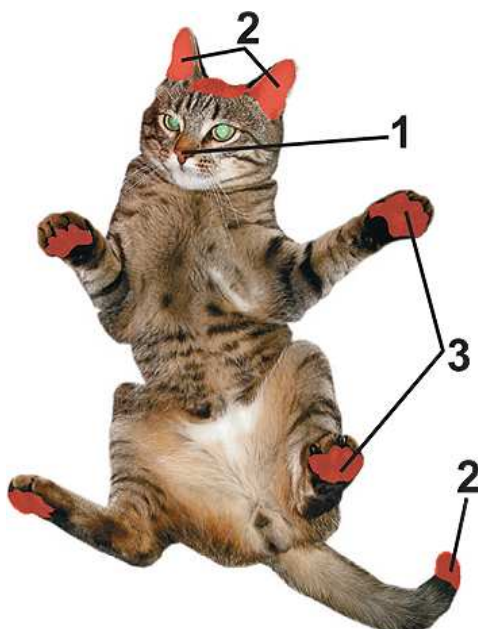
B. Apparent death (absence of life signs), depression, drowsiness, obvious weakness, severe weakness, intoxication.

It is recommended to stimulate in turn the following reanimation zones:

1. Nose areolet, upper lip (Fig. 8, zone 1);
2. Zone between ears, internal surface of ears, tip of tail (Fig. 8, zone 2);
3. Pads of fore- and hind limbs (Fig. 8, zone 2).

ATTENTION:

In severe state of animal, it is necessary to consult with a vet!



ATTENTION!

In case of absence of life signs, the energy range should be increased with successive and fast pressing the “POWER+” button until the animal responds.

Fig.8. The resuscitation zones of action

Diseases of the respiratory system.

Rhinitis, laryngotracheitis, bronchopneumonia, emphysema of lungs (Fig. 9):

1. Zones of frontal projection of respiratory tracts:

- in rhinitis: nose areolet and nose clivi, bridge of nose zone, angle of mouth zone at upper jaw on both sides; submandibular zone (Fig. 9, zone 1);
- in laryngotracheitis: nose areolet, submandibular zone, angle of mouth zone at upper jaw (Fig. 9, zone 1); “neck ring” and subscapular zone (Fig. 9, zones 2 and 3);
- in bronchopneumonia, emphysema of lungs: nose areolet, zone between forelimbs, interscapular zone and lateral surfaces of thorax, frontal surface of neck (Fig. 9, zone 4).

2. Segmental zones: cervical and pectoral zones of spine (See Fig. 3).

3. Universal zones: pads of fore- and hind limbs, internal surface of ear and the tip of tail (Fig. 9, zone 5).

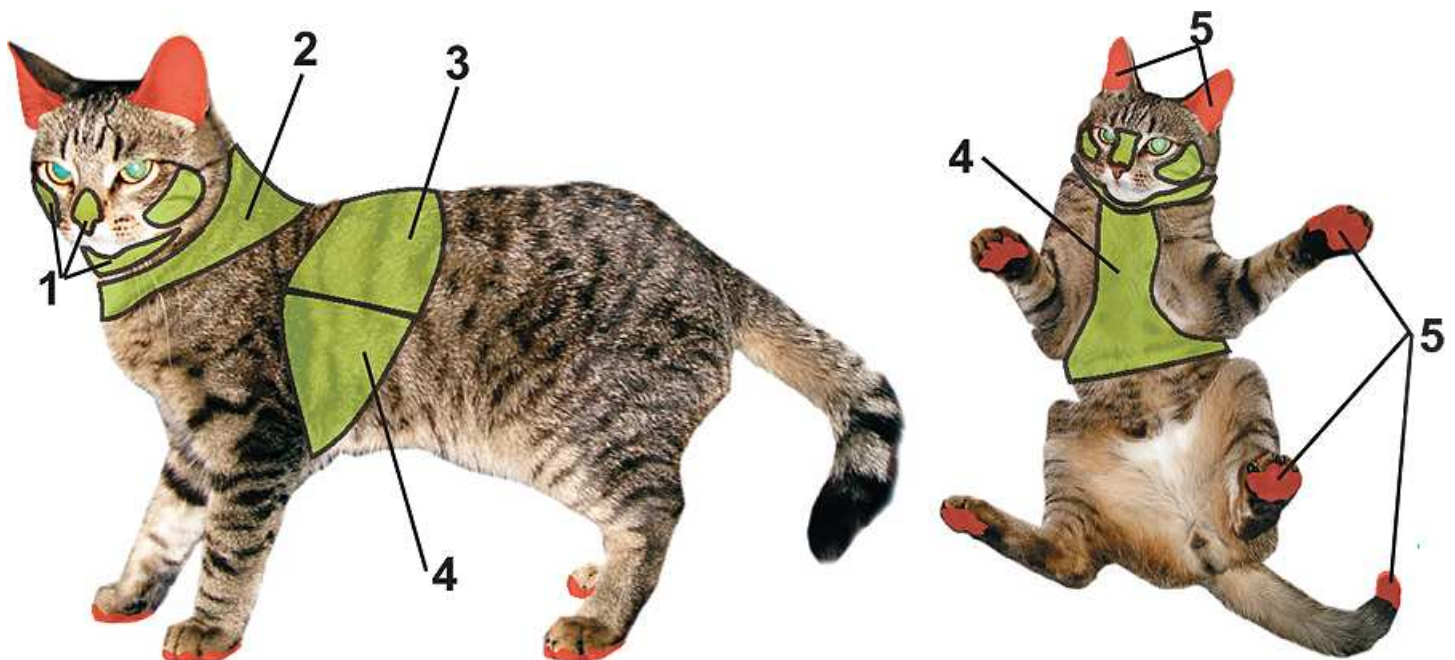


Fig. 9. Zones of the ZooDENS Device action in diseases of the respiratory system.

Cardiovascular diseases

Myocarditis, pericarditis, dropsy of heart sac, acute and chronic cardiovascular failure:

1. Zones of frontal projection of heart:

- anterior: left axillary region (Fig. 10, zone 1);
- posterior: interscapular area or withers (Fig. 10, zone 2).

2. Segmental zones: cervical and pectoral zones of spine (See Fig. 3).

3. Universal zones: pads of fore- and hind limbs, internal surface of ear and the tip of tail, nose areolet (Fig. 10, zone 3).

4. Special zones: external surface of left shoulder joint (Fig. 10, zone 4); zone of abdominal wall (Fig. 10, zone 5) — with ascites will be treated following the direction from thorax to pubis; “heart” zone on wrist (Fig. 10, zone 6, its stimulation helps reducing the rate of heartbeats).

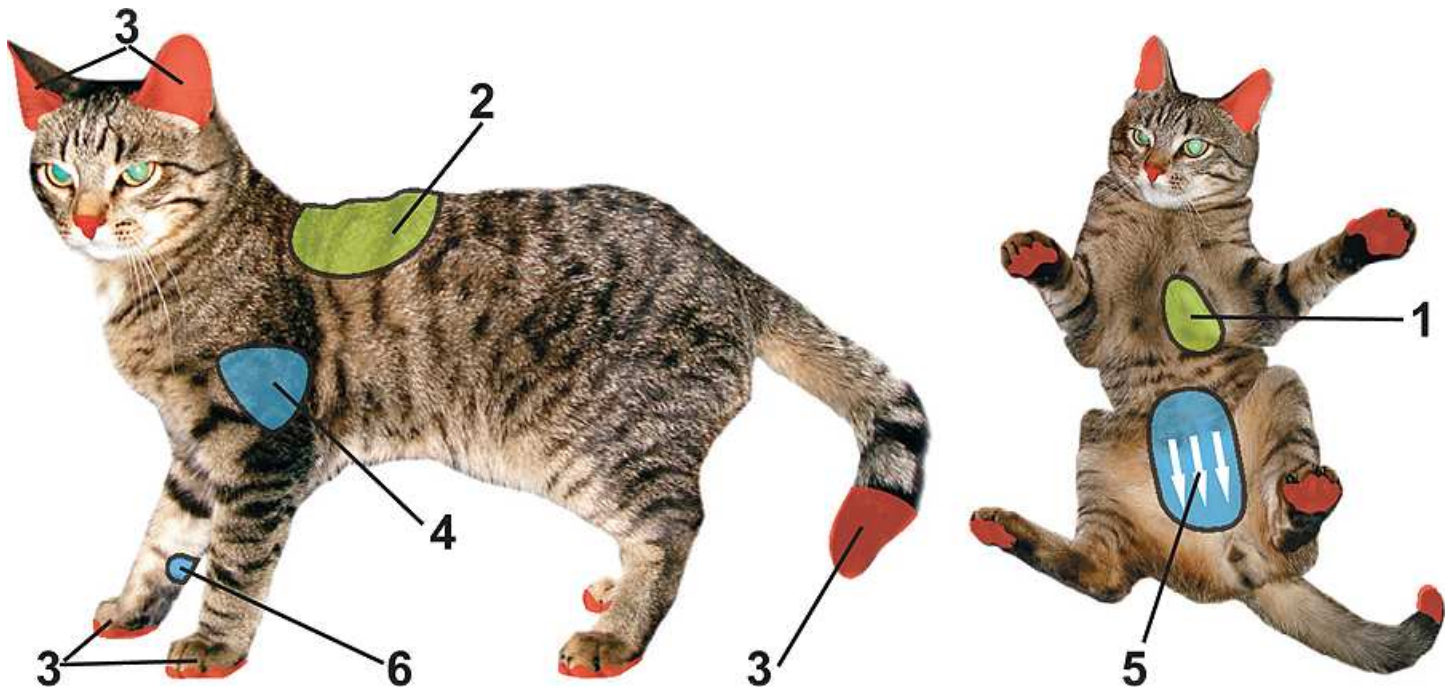


Fig.10. Zones of the ZooDENS Device action in 3 cardiovascular diseases.

Diseases of digestive apparatus

Food poisoning, vomiting, loss of appetite, colic, diarrhea, constipation, jaundice, gastritis, acute gastric dilatation, gastroenteritis, colitis, hepatitis.

1. Zones of frontal projection of digestive organs:

- stomach and bowels (Fig. 11, zone 1);
- liver (see Fig. 4, zone 1);
- gall-bladder (Fig. 11, zone 2, on the right);
- pancreas (Fig. 11, zone 2, on the left);

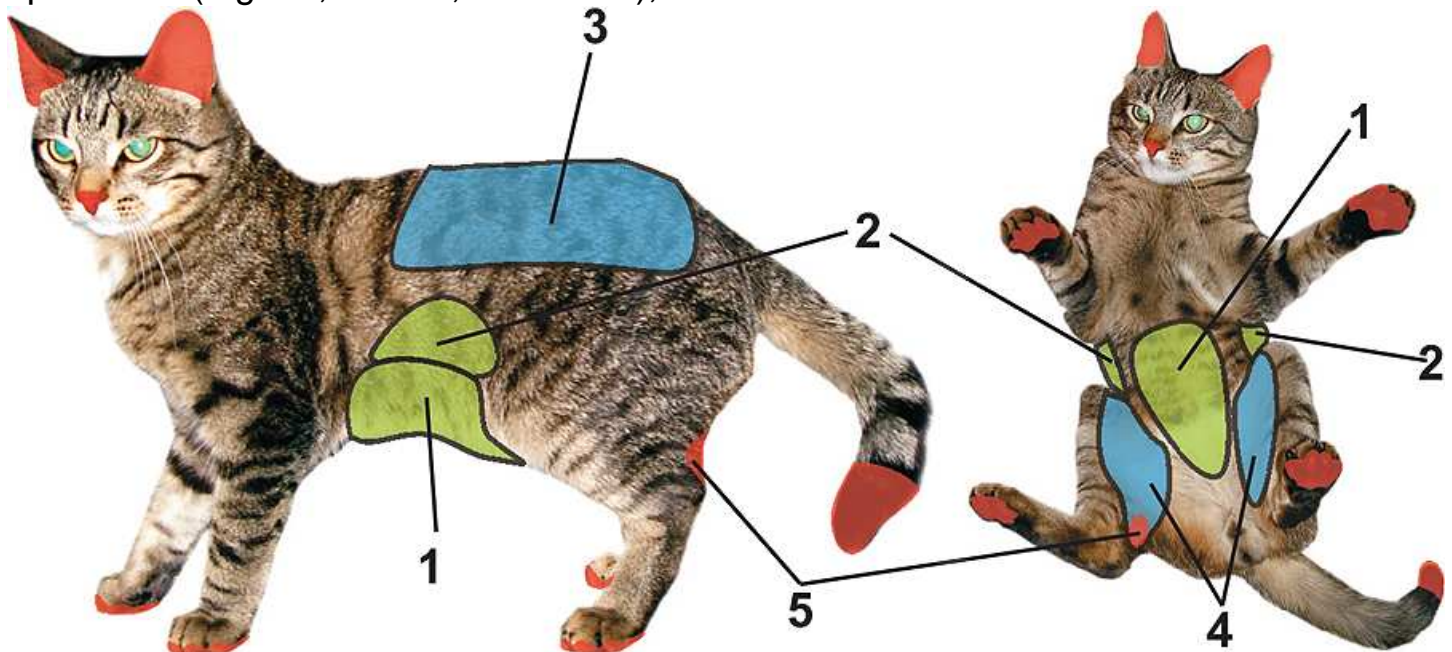


Fig.11. Zones of the ZooDENS Device in diseases of digestive apparatus.

2. Segmental zones: Lumbar-sacral zone (Fig. 11, zone 3).
3. Universal zones: pads of fore- and hind limbs, internal surface of ear and the tip of tail, nose areolet.
4. Special zones: internal surface of femurs (Fig. 11, zone 4), stomach zone under the knee joint (Fig. 11, zone 5).

Diseases of urinary excretion organs

Retention of urine, paralysis and paresis of urinary bladder, nephritis, urocystitis, urolithiasis.

1. Zones of frontal projection of urinary excretion organs (are being processed from top to bottom):

- kidneys and ureters from both sides of spine (Fig. 12, zone 1);
- urinary bladder (Fig. 12, zone 2) — bottom of belly over pubic bones. In males, the zone of urinary bladder is located on right and left sides of external sex organs.

2. Segmental zones: Lumbar-sacral zone of spine (see Fig. 11, zone 3).

3. Universal zones: pads of hind limbs, internal surface of ear and the tip of tail, nose areolet.

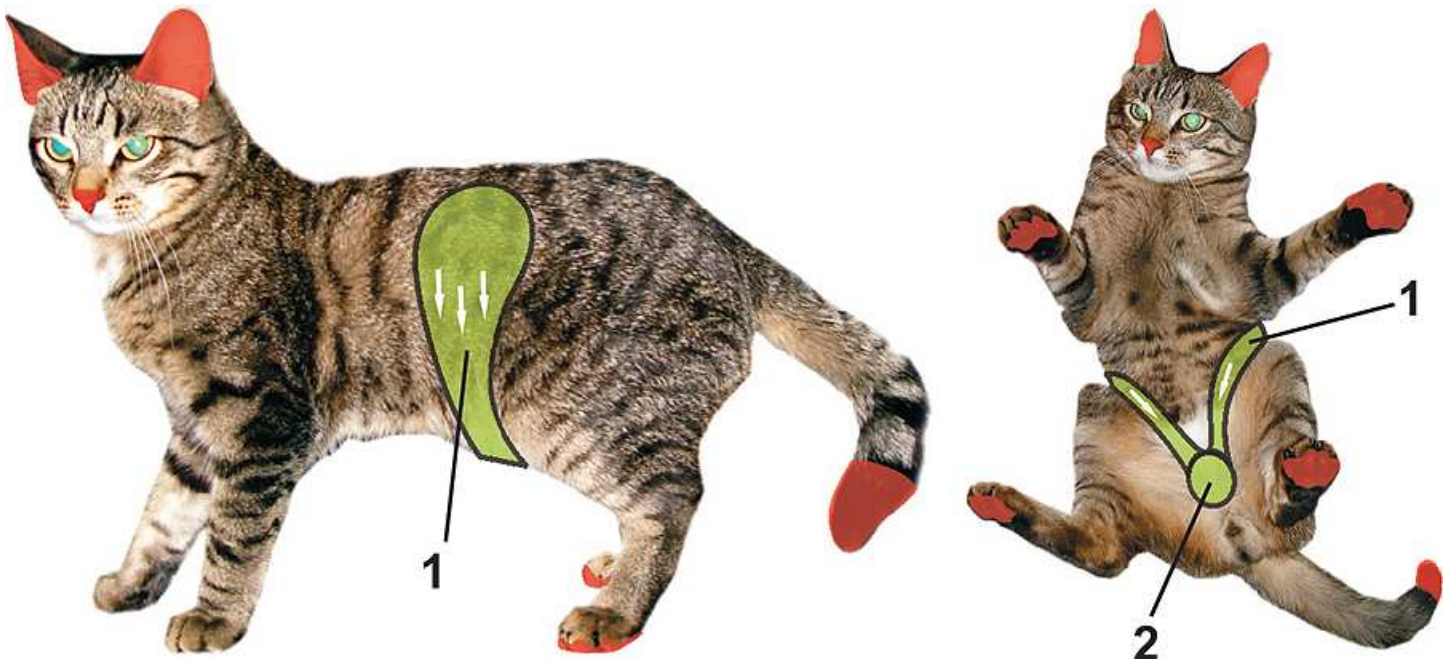


Fig.12. Zones of the ZooDENS Device action in diseases of urinary excretion organs.

Non-contagious diseases with skin affection

Dermatitis, shedding of hair, allergy etc.

1. Zone of frontal projection of affected skin:

- The first is “ring” zone of 2–3 cm wide around an affected area on the skin;
- Then to treat directly the zone of frontal projection of affected skin area.

2. Special zones:

- integral zone of frontal projection of liver, gall-bladder and pancreas (Fig. 13, zone 1);
- antiallergenic zone No 1 (Fig. 13, zone 2);
- antiallergenic zone No 2 (Fig. 13, zone 3).

3. Segmental zones: in case of localization of affected skin area on a head, the zone of neck ring is processed; on fore and hind limbs — cervical and thoracic ones; on the lower part of the body and on the limbs, the lumbar-sacral zone and the tail will be treated (see Fig.3).

4. Universal zones:

pads of fore- and hindlimbs.

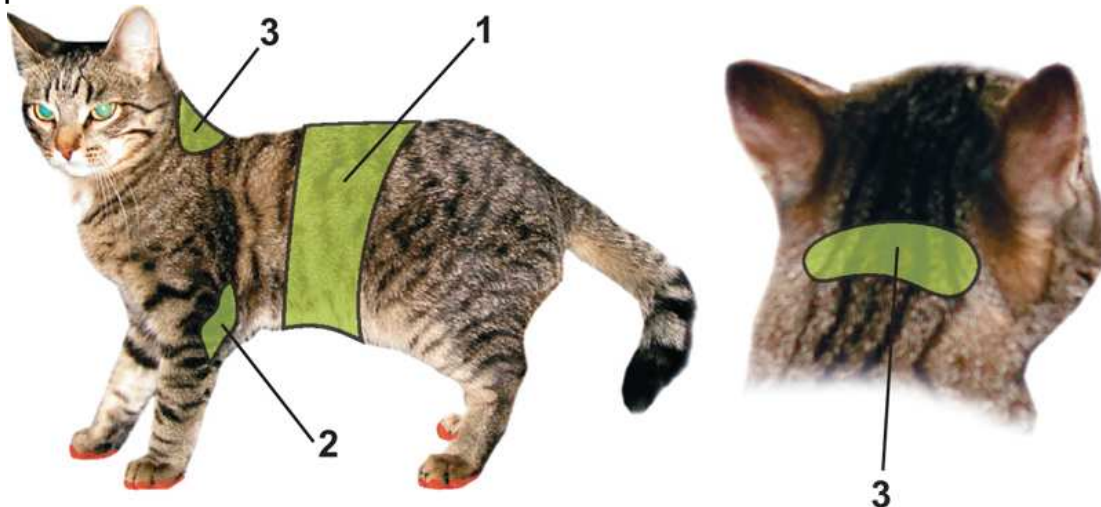
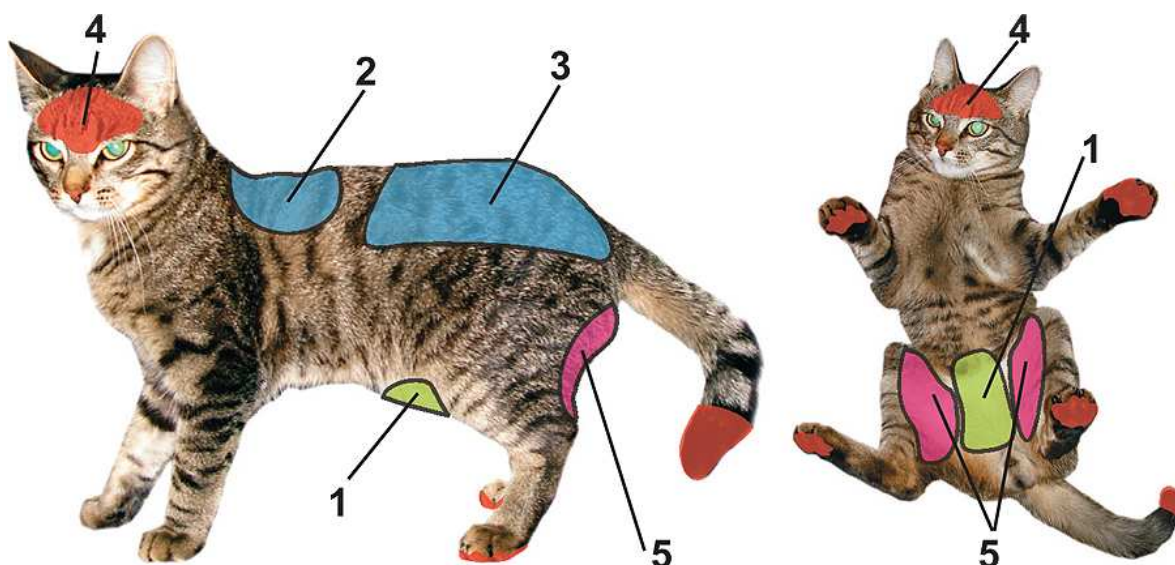


Fig.13. Zones of the ZooDENS Device action in non-contagious diseases with skin damage.

Diseases and functional disorders of reproductive system

Sterility, weakness of birth activity, postpartum complications, mastitis, inflammation, impotence.

1. Zone of frontal projection of reproductive organs (Fig. 14, zone 1);



2. Segmental zones: zone of spine between scapulas (Fig. 14, zone 2) and Lumbar-sacral zone (Fig. 14, zone 3);

Fig.14. Zones of the ZooDENS Device action in diseases and disorders of reproductive system.

3. Special zones: zone of forehead (Fig. 14, zone 4), internal and posterior surface of femurs (Fig. 14, zone 5) and tip of tail (even if the tail is bobbed);
4. Universal zones: pads of hind limbs.

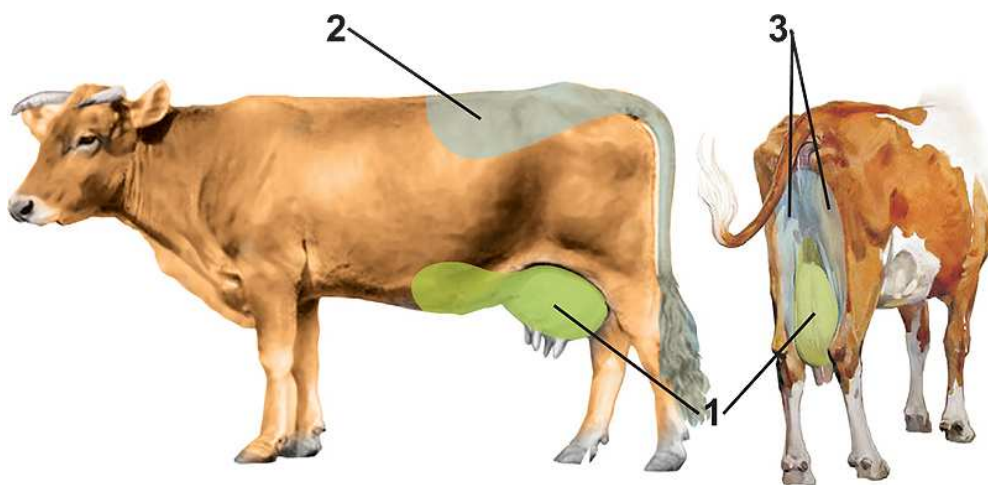
8. Recommended usage for mastitis in cows

ZooDENS Device applying in cows is effective in any mastitis — beginning from serous edema of udder and up to purulent-catarrhal and fibrinogenic inflammation. The necessary condition for effective procedure is a good contact of built-in electrodes with animal's skin. For this purpose the recommended zone of effect should be preliminary moistened (cleaned) with soap solution.

The following practically tested way of ZooDENS Device action is suggested.

1. Zones of the Device effect:

- The zone of frontal projection — bottom of belly, total surface of udder and bases of all dugs (Fig. 15, zone 1). A minimum energy range of effect is used.
- Segmental zones: Lumbar-sacral zone and tail (Fig. 15, zone 2), internal surface of femurs (Fig. 15, zone 3). Energy range suitable (comfortable) for animals is used.



2. Total duration of the procedure is 15 - 20 minutes (5 - 10 min in each zone).
3. Not less than 1-2 procedures a day.
4. The treatment course is 5 – 7 days.

Fig.15. Zones of the ZooDENS Device action for mastitis in cows.

9. Recommended usage in traumatic injuries of fetlocks in horses

Injuries of fetlocks, more often of hind limbs, are widespread disorders in racehorses and are connected with contusions, dislocations, muscle strains and other traumas. The main manifestations: changes in area of joint itself, claudication up to the loss of capacity for work in horses.

A necessary precondition for carrying out an effective procedure is a good contact of built-in electrodes with the animal's skin. For this purpose the recommended zone of effect should be preliminary moistened (cleaned) with soap solution. During the procedure, an energy range suitable (comfortable) for animals is used.

Recommended ways of the DENS Device action in traumatic injures of fore limbs fetlocks

1. The zone of frontal projection of fore limbs fetlocks (Fig. 16, zone 1).
2. Segmental zones:
 - cervical spine zone on both sides (Fig. 16, zone 2);
 - spine zone between scapulas (Fig. 16, zone 3).
3. Special zones:
 - zone of shoulder (Fig. 16, zone 4);
 - posterior area of subshoulder (Fig. 16, zone 5).
4. Total duration of the procedure: 15–30 min. (5–10 min. for every zone).
5. Therapy course: 1–2 procedures a day, for 5–7 days.

Recommended ways of the DENS Device action in traumatic injures of hind limbs fetlocks

1. The zone of frontal projection of hind limbs fetlocks (Fig. 16, zone 6).
2. Segmental zones:
 - Lumbar-sacral zone (Fig. 16, zone 7).
3. Special zones:
 - Zone No 1 (Fig. 16, zone 8, hip and external surface of knee and crus);
 - Zone No 2 (Fig. 16, zone 9, a lower third of internal surface of crus).
4. Total duration of the procedure: 15–30 min. (5–10 min. for every zone).
5. Therapy course: 1–2 procedures a day, for 5–7 days.

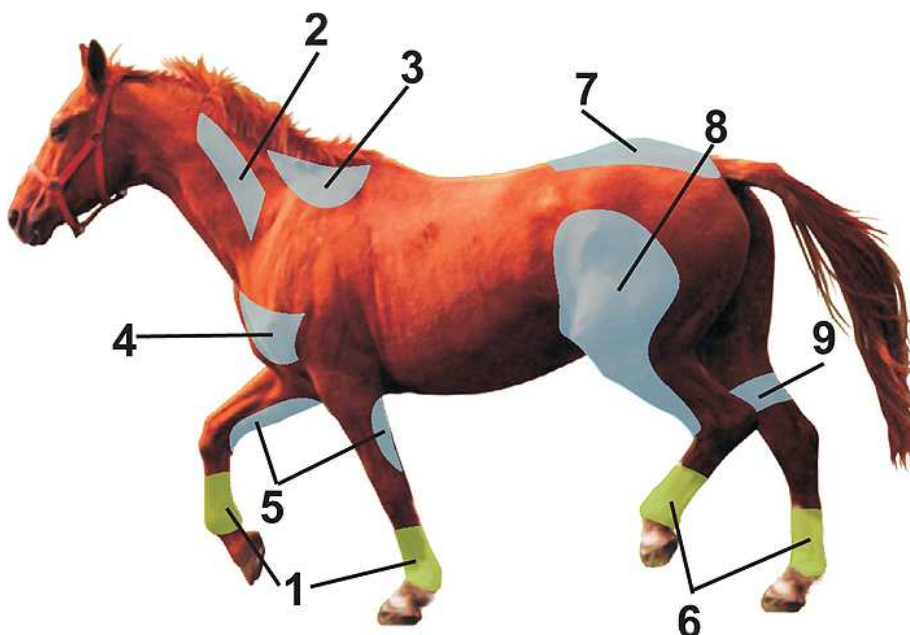


Fig.16. Zones of the ZooDENS Device action in traumatic injures of hind limbs fetlocks.

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