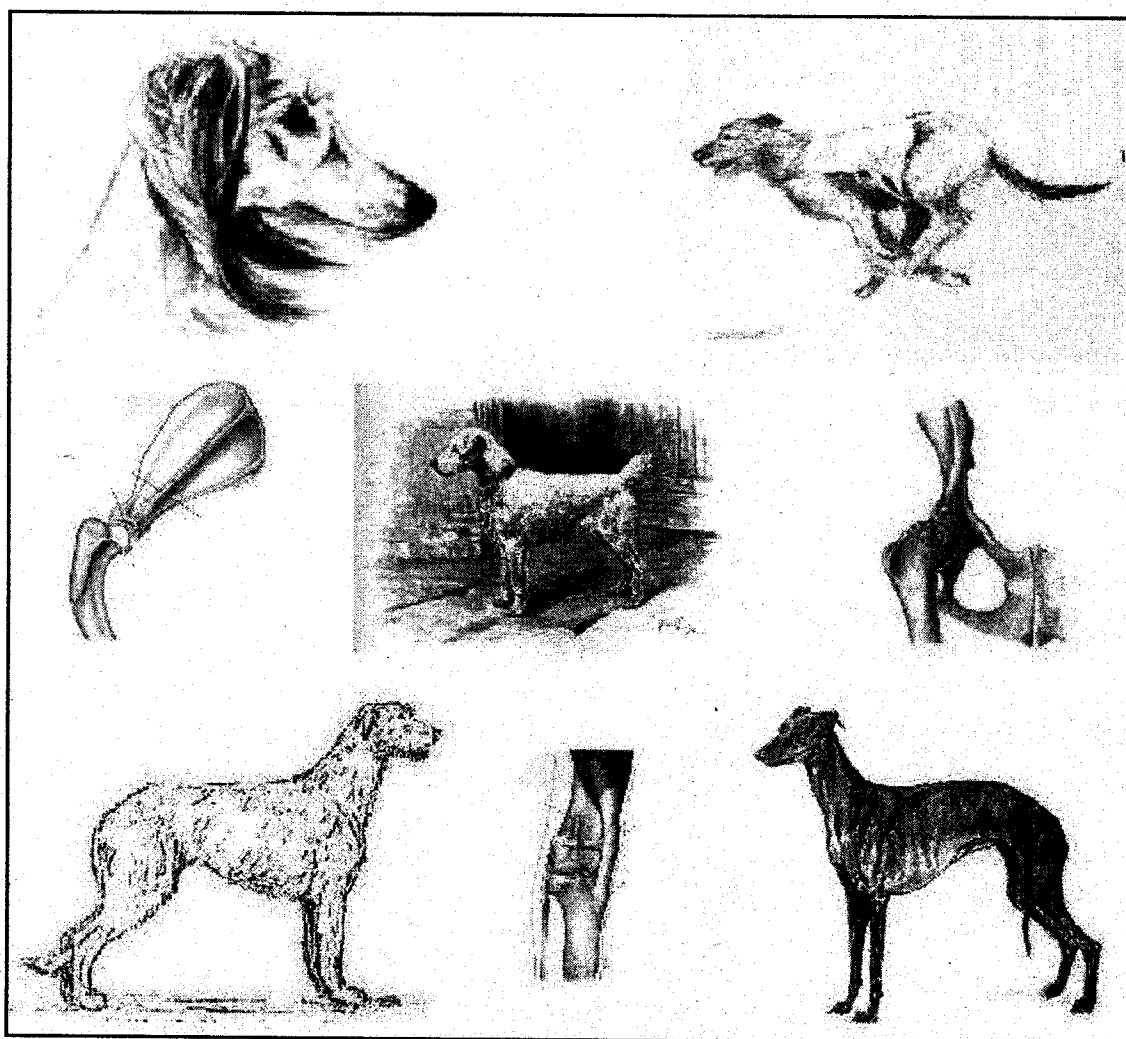


***Physiotherapy for dogs,
still an unknown factor***



***Josy Donné -Laumen
Sighthound World Congress
10-5-2002***

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1. Foreword



Dog owners, whose animals receive treatment from a physiotherapist, all too often tell us that people around them make fun of them when it becomes known that they are using an animal physiotherapist to take care of their dog.

However, it doesn't prevent a lot of people from making a trip, often a long one, with their dog. In the meantime, they learn which positive results they can get thanks to this therapy. And the dogs always come back happy, wagging their tail, happy to follow the treatment.

Indeed physiotherapy for animals hasn't really become an everyday feature of life. Of course, the cause of this phenomenon is that too many people, dog owners as well as vets, still don't know enough about the possibilities of physiotherapy for animals.

And the lack of knowledge about physiotherapy makes it unpopular.

That's why we have prepared this contribution.

*Josy Laumen
Physiotherapist for people and animals.*

2. What is physiotherapy for dogs ?

*Physiotherapy for dogs is the **whole combination of treatment possibilities** aimed at **avoiding** or **suppressing** the disorders of the **locomotor apparatus** in the animal.*

The locomotor apparatus of the dog (or the human) is made up of a certain amount of structures which enable the body to move. It comprises:

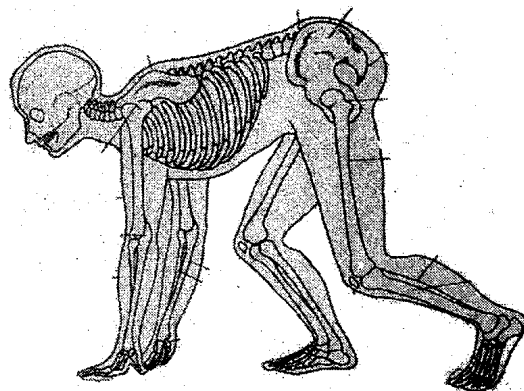
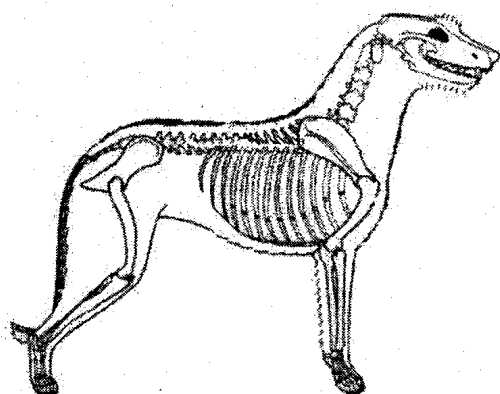
- **bones** which form the skeleton; these bones give form and solidity to the body;
- the places where bones meet; they are called **joints**;
- the muscles which hold bones together and can set them in motion;
- the nerves which transmit the stimuli from the brain to the rest of the body.

The locomotor apparatus forms a whole entity, which allows small networks to act on each other, or should do.

When a disorder or a lesion occurs in one of those structures, it has an immediate influence on the movement pattern of the dog, on the way the animal moves. In all these cases, a physiotherapist can be very useful for you and your dog.

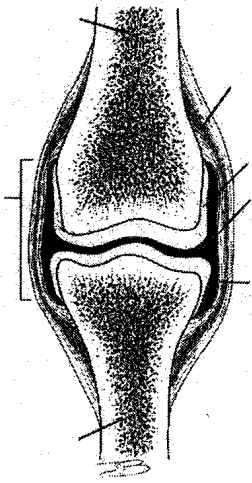
2.1. The skeleton

- The bones especially give form and solidity to the body.
- They protect the delicate parts such as the heart, the brain and the organs.
- Every dog, big or small, always has the same number of bones. It's the framework of the dog. However, the number of caudal vertebrae is often different.
- The length of the bones is not always the same from one breed to another. For example, the Irish Wolfhound has a rather different appearance from the Dachshund.
- The main differences between the canine and human skeleton are the following: the dog has no collarbone, it has got more vertebrae and the shape of the thorax is different because, in dogs, the shoulder blade is on the side of the thorax. Humans are plantigrade, dogs are digitigrade.



2.2. The joints

The place where two or more bones meet is called a joint.



There are several types of joints depending on the movement required. For example, we talk about hinge joints (the elbow), mobile joints (the hip).

A joint is made up of two or more bones.

These bones are covered with cartilage which is designed to absorb shocks. Serous bursas are present in order to lubricate the joint and to keep it supple. An articular capsule holds the whole together correctly.

The articular ligaments serve to reinforce the joint and work as a brake on movements. Elements such as the meniscus or the sesamoid bones sometimes contribute to this reinforcement.

2.3. The muscles

The whole body of the dog is covered with muscles. Their main function is to make movement possible.

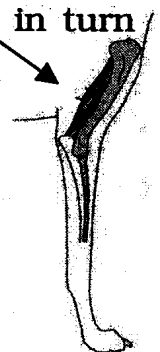
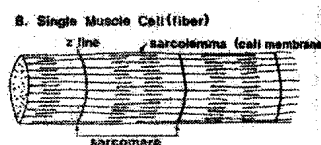
We know muscles from everyday life, we call them meat. There are however different types of meat, not only red meat but also, for example, stomach, heart, etc. Not all muscles have the same appearance; anyway, they don't have the same function.

We can classify them in the following way:

- according to their structure: striated or skeleton muscles, smooth or organ muscles and myocardium tissue;
- according to their shape: round muscles, flat muscles;
- according to the number of attachments: biceps, triceps, quadriceps (two-, three- or four-headed muscles).

The muscles of the skeleton are the main muscles which are responsible for movement.

Every muscle is made up of an initial tendon, a muscle belly and a terminal tendon. The muscle belly is composed of muscle fascicules which are in turn made up of fascicules of muscle fibres.

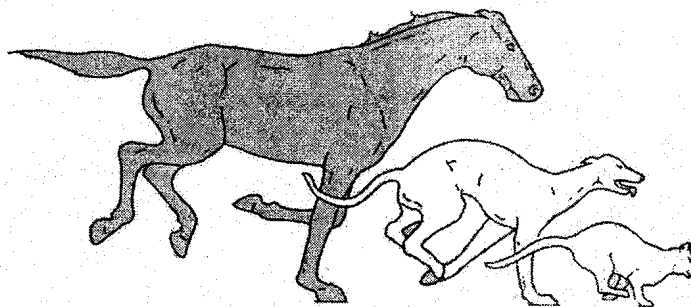


2.4. The nerves

You can look at the nervous system as a big computer centre. The whole system for controlling the organism lies in this centre. All the necessary orders to ensure that the body functions properly come from this system, including the stimuli necessary for movement.

Mobility, movements are controlled by:

- the brain, where all the stimuli for movements come from;
- the cerebellum which is mainly responsible for balance and the co-ordination of movements;
- the spinal cord which serves as the conduit to muscles;
- the peripheral nervous system, which can be seen as an enormous network of threads, and which constitutes a connection between the brain and the rest of the body.



***Bones, joints, muscles,
tendons and nerves all combine together to make up
the locomotor apparatus.***

Disorders sometimes occur in these structures.

A dog can also break a bone, sprain a joint, have backache, tear a muscle, become paralysed,...

In order to treat these complaints in humans, physiotherapy has become essential. For about ten years you have also been able consult a physiotherapist for animals when these problems occur with your dog.

3. What are the ailments to be taken into consideration for treatment by means of natural medicine?

Locomotor apparatus ailments which go hand in hand with troubles of the normal movement pattern are an indication that treatment by means of natural medicine is required. They can be sub-divided into different groups.

3.1. Orthopaedic ailments

Here, we think of arthrosis, arthritis, periostitis, hip dysplasia, patella luxation, rheumatism, cramps, muscular dystrophy, tendinitis and tendovaginitis.

- Older dogs who have difficulties in getting up. They often leave their basket very stiff. They first have to stretch and their first steps are stiff. Sometimes they have difficulties standing on their paws. They may have muscular or articular stiffness.
- Dogs which limp after a fall, an accident or a fight with another animal. They may have a sprain or a muscular injury.
- Animals who limp because they are hurting. They try to handle their painful paw carefully. This is often noticed in young dogs whose joints are not yet completely developed. For instance, in cases of hip dysplasia or cases of elbow or shoulder problems.
- Dogs which, when they are playing or running, suddenly lift up a paw that they can't use anymore. This may be caused by an articular ligament rift or a sudden cramp in the muscles.
- There are dogs which limp, but in which the cause of the limp is unknown. Sometimes they limp after having made an effort, other times after having rested. That limp sometimes affects one paw, sometimes another. There is no anomaly to be noted on the X-ray. Dogs stay quiet and receive sedatives, but are still limping. During our study we often noted that a muscular knot (a contracted part of the muscle) was the basis for hazy and muddled limps.
- Dogs which suddenly have difficulties getting into a car, or running up the stairs. It's often a hip problem or a pain in their lower back.

For all these problems, we may call on a person who practices natural medicine for animals.

For some ailments, such as arthrosis or hip dysplasia, we are unable to solve the problem on our own, but tissue ailments may often be handled successfully.

3.1. Pre - and post-operative treatments

Dogs may undergo different types of surgery, for instance after a ligament tear at the knee, or after a fracture. Young animals which are operated on their elbow or shoulder joint.

For all operated animals, convalescence goes faster with physiotherapy. The swelling of the operated part, the trouble or limited movement of the operated paw is shorter when dogs receive the right treatment.

3.3. Neurological ailments

When there are neurological ailments or ailments of the nervous system, we think especially of slipped discs and identical ailments.

Some of these dogs do not always recover all their faculties. In the end, a slipped disc may appear as a spinal cord lesion: animals are incontinent and paralysed.

However, there are hernial patients who are affected by just some of the symptoms: they are weak and have less strength in their hindquarters or forequarters. After the initial hours when medicines are essential and surgery may have to take place, therapy, assistance and convalescence are particularly important.

We also treat paralyses where the cause is not located in the back. We'll cite here a paralysed paw, often after an accident with a car. The results of these treatments depend on the location of the injury and on the condition of the patient on its arrival.

3.4. Patients with injuries

We are able to speed up the injury healing with physiotherapy, with massages as well as by using an appliance.

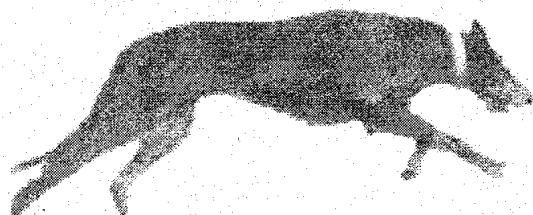
In such instances, we're thinking particularly about injuries to toes or tails which are difficult to treat.

3.5. Patients with a reduced capacity

Some dogs are used for performance, such as police dogs, racing dogs and hounds.

If your dog's performance starts to diminish, due to a reduced condition, it can take advantage of physiotherapy. Through specific exercises and a training programme, your dog will quickly recover its former level.

Learning how to do muscle stretching is important in order to avoid injuries.



4. When would you go to an animal physiotherapist yourself?

When your dog is ill or has got a problem, you take it to the vet who makes a diagnosis with the help of a clinical examination. If necessary, he also carries out blood tests, X-rays or other supplementary examinations. Thanks to the results, the vet makes a diagnosis and suggests a treatment. Medication is often prescribed.

When we have to deal with an ailment of the locomotor apparatus, it is possible to ask for the animal physiotherapist's help or to take the patient along to this person.

Physiotherapists for animals are physiotherapists for human beings who have also undertaken additional paraveterinary training.

They work in collaboration with veterinary surgeons who send the patients to them.

Sometimes a patient may come directly to the physiotherapist, who will contact the vet in order to decide with him which treatment to begin.

At the end of a series of treatments, the veterinary surgeon who sent the patient to the specialist always receives a report detailing his patient's state of health.

5. What happens during the first consultation with the physiotherapist?

For most dogs and their owners, this is always a new experience, and they feel somewhat ill at ease when they are sent to a physiotherapist.

To begin with, they get to know each other. In the ordinary run of things, the dog is free to walk around. While the animal explores the surgery and discovers each smell, the physiotherapist takes note of its case history. The owner is questioned about the history of the problem. How long has the animal been complaining, when did the troubles appear, are they constantly present, do they get worse after walking, etc?.

A physiotherapeutic examination follows in order to try to determine the origin of the problem. The articulation mobility and muscle strength are checked. Then the owner is asked to walk a bit with his dog to be able to judge the gait of the animal.

At each examination, the symmetry of movements, the balance and co-ordination are checked. If necessary, the reactions are also verified.

The physiotherapist discusses the examination results with the owner and presents possible treatments to him.

Of course, the breed, the age and the activities of the dog always have to be taken into account. It's obvious that a 10-year-old dog suffering from severe arthrosis doesn't have the same prognosis as that of a young dog. But it doesn't mean that we are not able to help that old dog.



6. Possible physiotherapeutic treatments.

As far as physiotherapy is concerned, we have treatment possibilities that can be divided into three groups: massage, medical gymnastics and physiotherapy.

6.1. Massage

For millennia, massage has played a fundamental role in the treatment of human beings. One instinctively rubs a painful place to relieve pain.

In ancient times, the classic massage was already being used to improve athletes' performances. At the time, Hippocrates was already describing athletic massage. Not only did the Greeks use massage as a therapy, other people such as the Egyptians, the Persians, the Romans, the Japanese and the Chinese did the same thing.

The massage concept comes from the Greek word "massein" and means to knead. The Latin term "manus" or hand is also related to massage.

Massage for dogs has probably been used since the day the animal was domesticated, which means for millennia. Some moves are so natural that we unconsciously apply them to the dog when, for instance, we stroke or pat them.

Massage has only recently been considered as part of a physiotherapeutic treatment and still constitutes a new field of veterinary medicine.

By massage, we mean making selective manipulations on the body with a preventive or curative aim.

Massage concerns delicate parts such as skin, muscles, tendons, articular capsules and ligaments.

The effects of massage are the following :

- reducing muscular tension;
- provoking a drainage of tissues, reducing swelling;
- promoting blood irrigation, which allows a better intake of oxygen and nutrients and speeds up excrement evacuation;
- soothing pain;
- having an influence on the subcutaneous fatty tissue or on the connective tissue;
- allowing the dog to relax and to rest psychologically speaking.



The kind of techniques applied depend on the ailment.

Rigid muscles (hypertonia) are calmly massaged for relaxation. Conversely, relaxed muscles (hypotonia) are massaged for stimulation.

Besides these light manipulations, massage through pressure points is also practised. These are applied at rigid places in the muscular tissue. This technique relieves pain and brings deep relaxation.

On the level of badly irrigated tissues, such as tendons and ligaments, friction is applied. The techniques applied at skin level work to eliminate adhesions of skin and subcutaneous connective tissue, such as old scars which reduce movement possibilities.

Moreover, special techniques can also be used, such as lymphatic drainage whose main aim is to drain the liquid in tissues.

Touch techniques may act upon the behaviour of the dog and are mainly applied to nervous and anxious dogs.

The massage intensity is weaker for animals than for humans, because animals are more sensitive to contact and pain.

The visible reactions brought about by massage are a complete relaxation and the tendency to fall asleep. We often note that the nose becomes damp.

The coat does not prevent massage; we don't use massage lotions. Finally, massage is applied as much as possible in the direction in which the hair grows.

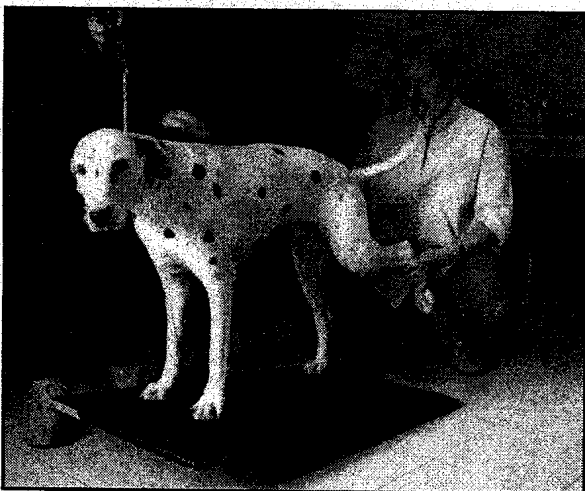
6.2. Medical gymnastics

Physiotherapy or medical gymnastics means doing appropriate movements with a therapeutic aim.

The purpose is to improve muscular strength, physical condition, co-ordination and mobility, and to stimulate the body in order to get it going again.

The distinction has to be made between passive and active exercises.

Passive exercises are applied when the animal is no longer able to make active movements or when it appears to have a muscle shortening or toughening. The main aim is to increase articulation mobility.



Within the framework of active exercises, we allow the dog to make the movements. In this case, there is a different approach between animals and humans. For instance, we can ask a human to bend or to stretch out an arm. It's impossible to do so with a dog. We provoke movements and use small elevators to obtain the desired movements. By pressing some places, the animal develops a counter-pressure and so uses some muscles. Or, by making a dog lose its balance, it uses specific muscles to recover

that balance.

Here, we can use different objects such as a rocking board, a moving walkway, and sticks or obstacles which the dog jumps over.

At each session, the owner also receives tasks. He is taught how to carry out exercises with his dog. He often receives a lot of advice. This can concern diet (loss of weight) but also the requirement for rest and the movements necessary for the dog's optimum recovery.

A suitable programme is developed and is discussed with the owner.

6.3. Physiotechnique

By physiotechnique we mean treatment by means of appliances.

Its aims are:

- to improve blood irrigation;
- to relieve pain;
- to stimulate weakened muscles;
- to fight against swelling.

The choice of the appliance is determined by several factors such as the nature and location of the trouble, the size of the affected area and when the lesion occurred. An old injury generally requires a different approach and adjustment of the appliances from those for a recent injury.

We do not choose an appliance at random. What may be beneficial for treating one ailment may have no effect, or even be harmful for another. For instance, the use of ultrasound is effective for treating an injury to tendons, but may prove to be particularly dangerous in the case of a recent hernia.

• **Ultrasound**

Using ultrasound means resorting to sound oscillations with a frequency higher than 20,000 Hz. This technique is often used in cases of muscular lesions, sprains, articular ligament injuries, haematomas, tendon ailments, etc.

Ultrasound with a high frequency cannot pass through the air, which means we have to use a gel. For this, some of the hair has to be shaved. Or we may also apply the treatment under water.

Ultrasound works as a kind of micromassage. Its action is based on the stimulation of local blood irrigation and the improvement of the metabolism of the different tissues.



- **Laser**

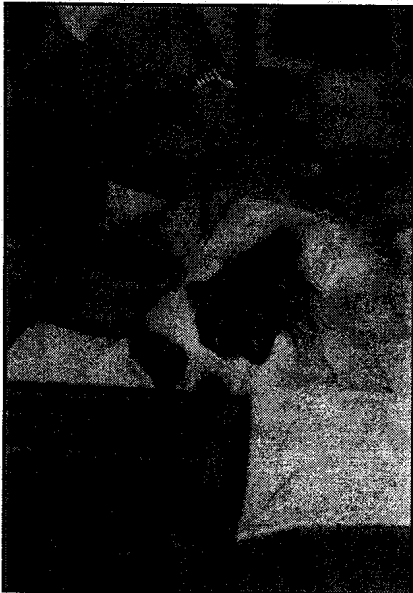
Nobody can have missed the very important role that the Laser technique has played in many medical disciplines during the last ten years.

Concerning the use of Laser in medicine, a distinction has to be made between what might be called "powerful lasers" and "lasers with a weak capacity". These "powerful lasers" are aimed at destroying tissues and are mainly used in dermatology, gastroenterology, etc.

However, "lasers with a weak capacity" play an important role in physiotherapy as well as in general medicine.

In fact, the concept of Laser is based on its acronym "Light Amplification by Stimulated Emission of Radiation".

This means that by using a technique called stimulated emission, we are able to reinforce light, in other words to produce light that can carry a huge amount of energy. The light of the Laser is a thin infrared light beam that can penetrate deep into tissues.



The therapeutic effects can be detailed as follows:

- anti-inflammatory effect: faster improvement in cases of inflammation, such as tendinitis;
- anti-oedematous effect: reduction of swelling;
- vasodilatory effect: improvement of blood circulation;
- healing effect: wounds heal faster;
- painkilling effect.

The Laser is particularly used in cases of muscular lesions, tendinitis, bruises, articular lesions and, of course, in instances of wounds that are healing badly. The treatment can also be given at acupuncture points.

- **Electrotherapy**

Low frequency electrotherapy is mainly used for muscular stimuli on weakened or paralysed muscles.

Muscular movements are induced by electric stimuli that tense the muscles. It is a kind of electrogymnastics. Even paralysed muscles are able to tense up. So blood irrigation in the muscle is stimulated and the muscle condition is improved.

6. Irish Wolfhound's ailments

Arthrosis, arthritis, hip dysplasia, spondylosis, O.C.D., front ligament rift of the knee joint and puppy paralysis are ailments that often affect Irish Wolfhounds and which can be treated through physiotherapy.

6.1. Arthrosis

Arthrosis affects all breeds and all joints.

The cause may simply be a "wearing effect of age", but the ailment may also arise after an accident or arthritis.

In cases of arthrosis, we note that the articular cartilage becomes thinner and that bone proliferations often appear along joints.

The symptom accompanying arthrosis is pain, particularly at the beginning of the movement. That is why this ailment is also called starting pain.

As soon as the joint loosens up, movement becomes easier and pain disappears. We often hear a little crack (crepitus).

Arthrosis is insidious. The first symptoms express themselves as early morning stiffness and after rest periods. The dog has difficulties getting out of its basket. But after a few steps, it moves forwards easily. And with its first movements, we feel or we hear a little crack.

After a while, the joint is not just stiff but will also hurt and will sometimes be accompanied by a swelling.

Later, a dull and persistent pain will appear. Most dogs will limp continually.

As we can't treat arthrosis itself, the treatment focuses mainly on relieving pain and reinforcing the muscles located around the affected joint.

This is achieved through massages, light stretching and medical gymnastics.

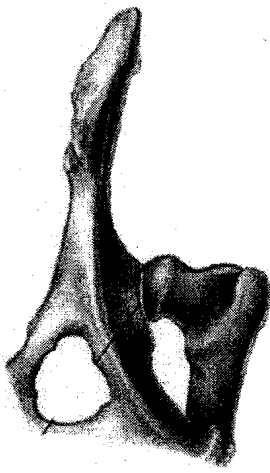


6.2. Arthritis

Arthritis is a group of joint ailments which go hand in hand with inflammation.

6.3. Hip dysplasia

The term hip dysplasia or HD represents an abnormal development or a malformation of one or more hip articulation(s).



Predisposition to hip dysplasia is hereditary. Being aware that the dog is destined to contract the disease and to what extent depend, among other factors, on the diet and on how much movement it has, especially during growth. In case of HD, the thighbone's round head doesn't fit correctly together into the hollow cavity of the pelvis. The head is often oblate and the cavity not hollow enough. So the joint isn't a tight fit, which makes dislocation easier. Due to the pain in the hip joint, the dog will use its hindquarters less readily so that the hindquarter muscles will underdevelop, causing a larger gap in the hip joint. The hip head then regularly hits the cotyloid cavity wall.

Bone proliferations gradually appear afterwards on the cotyloid cavity wall and on the cotyloid head neck, which in turn causes pain.

The physiotherapeutic treatment will focus particularly on strengthening the hindquarter muscles and also rest.

A training programme is also given.

As far as young dogs are concerned, particular attention has to be paid to diet and movements.

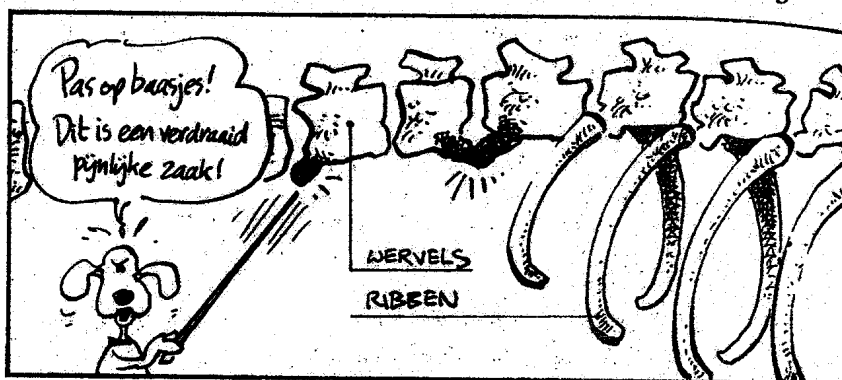
Overeating and stagnation have to be prevented, especially during growth.

Rough games with other dogs or with a ball on slippery ground, during a period in which the dog is growing too quickly and has underdeveloped hindquarters, create problems.

Through recurrent injuries to the epiphysis, to the articular cartilage and to bones which have not yet totally ossified, the growth of certain parts of the hip joint is sometimes slowed down, while other parts develop normally. The consequence is a bad hip joint; in other words, hip dysplasia.

6.4. Spondylitis

Spondylitis is a slow numbness of one or more intervertebral joints.



We can see on an X-ray that small cuneiform bone bridges begin to join the vertebrae together so that movements become painful or even impossible.

It is also not uncommon to note a weak hindquarter, hampering conduction in the spinal nerves.

This abnormality is often noticed in older dogs.

Most patients suffering from spondylitis only present some of the ailment's symptoms.

The dog's back hurts and the animal is no longer able to jump or climb.

It prefers lying but has difficulties in lying down properly. Sometimes it has a stoop. The buttock muscles weaken (atrophy).

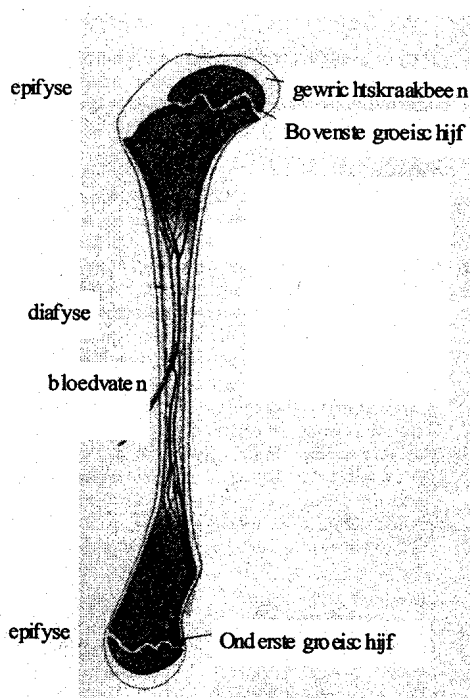
Its hindquarters weaken: it falls because its hind feet become numb. Its nails drag along the ground.

Spondylitis is an ailment which can't be cured, but of which some symptoms may be treated.

Physiotherapeutic treatment essentially focuses on rest, loosening up the joints and muscular strengthening of the hindquarters.

6.5. Osteochondrose and osteochondritis dissecans (OCD)

Osteochondrose is an ailment that appears in young dogs due to troubles in the bone development.



Apart from the cranial bones, all the bones in a dog have a cartilaginous preliminary stage which temporarily plays the role of the skeleton. Afterwards, this cartilage changes into bony tissue. This bone formation begins in the late foetal stage, about 3 or 4 weeks before birth. At the birth of the puppy, bone formation is already partially underway.

The diaphysis or the central part of the bone has already changed into real bone, but the tips or the epiphysis are still completely made up of cartilage. The bone formation at the bone tips occurs during the first four months after birth.

Some bone parts remain cartilaginous until the dog has completely developed. These parts determine bone length, and are made up of different coats of cartilaginous cells. These are the epiphyses that remain during the entire growth period, although their size gradually diminishes.

The bone tips are also covered with a thin cartilage coat called articular cartilage.

What happens during bone formation?

The cartilaginous cells under and on the epiphyses slowly change into bone cells. The thin coat of cartilage gets smaller and smaller and the bone part grows.

In cases of osteochondrose, the cartilaginous cells are not sufficiently converted into bone cells, which thicken the articular cartilage and the epiphyses.

Bad blood irrigation of the cartilage occurs, generating an insufficient content of nutritive substances. The consequence is that the articular cartilage disappears and that small parts of cartilage appear.

Through this disappearance, the articular cartilage develops holes, which allows the articular liquid to drain into the bone. This can result in inflammation.

On the other hand, small parts of cartilage fall into the articular cartilage. They irritate the articular cartilage of the other bone in the joint and provoke a new inflammation.

We talk about OCD or Osteochondritis Dissecans when there is inflammation. OCD mainly appears in the shoulder joint but also in other joints such as those in the elbow, the wrists or the heel.

The exact causes of this trouble are not completely known. However, some high-risk factors are known:

- fast growth and increase in weight;
- hereditary characteristics;
- overfeeding: feeding excessive amounts of egg whites, calories, calcium and vitamins increase the risks.

Symptoms: most dogs with OCD present the first symptoms of the ailment when they are between 7 and 8 months old:

- lameness of the affected paw and/or stiffness after resting. The lameness may increase after movement;
- pain when the joint is manipulated;
- shoulders and elbows may be affected, even if the dog is just limping on one paw.

As well as drugs to stop the inflammation and eventually surgery, physiotherapeutic treatment may be very useful. This treatment focuses particularly on rest, the reduction of tension in the surrounding muscles and muscular reinforcement.

6.6. Front ligament rift of the knee joint

The front ligament is one of the 5 most important articular ligaments which keep the knee joint stable. When the ligament tears, totally or partially, the dog will limp and will later develop a knee joint arthrosis.

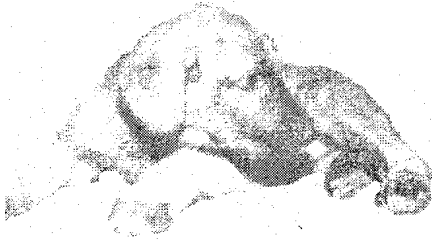
Symptoms:

- The main symptom is limping which may appear suddenly or gradually. The dog is often very stiff after resting and the limp may become worse after training. Weakening of the buttock muscles is also frequent.

When ligaments are completely torn, surgery is necessary. The physiotherapeutic treatment is then post-operative and is aimed at diminishing swelling, relieving pain, strengthening muscles and allowing the dog to use its operated paw again. The importance here is to be aware that the dog may develop a knee arthrosis. When we use physiotherapy, we make sure that muscles are strengthened and trained so the dog has fewer problems in the joint, and consequently the appearance of arthrosis may be postponed.

6.7. Puppy paralysis

Puppy paralysis is an ailment in which a puppy of between 4 and 16 weeks is suddenly affected by an acute paralysis of one or both hind legs and, in more serious cases, of the whole body.



The cause may, for instance, be that the puppy lands on its back by falling off a chair or by stumbling over a hard object.

But, in most cases, nothing explains this ailment. A sleeping puppy wakes up paralysed, without any apparent explanation. The paralysis appears suddenly, now and then, and doesn't become worse with the time. So it's not progressive.

No change is to be seen in an X-ray of the paralysed puppy's spinal column. Even a myelography doesn't give a definitive answer.

In veterinary medicine, we talk about a spinal cord infarct although that is an ailment which usually occurs in older dogs.

In cases of spinal cord infarct, a piece of intervertebral disc or cartilage gets into the vessel. It provokes an obstruction in the spinal cord blood irrigation, followed by an infarct and finally paralysis. The cause of that detachment remains unknown.

Today we still do not know if puppy paralysis is hereditary. However, we have seen that this ailment appears all over the world, in large or small kennels, among the most but also the less experienced breeders.

The treatment is the same as for a spinal cord lesion in human beings. At the beginning, medicines are administered. This treatment is immediately followed by massages, medical gymnastics and electrostimulation in order to maintain the blood irrigation level in the paralysed muscles.

If an improvement appears quickly, the prognosis is favourable. Of course, it also depends on the degree and extent of the paralysis. Most puppies get better very quickly in the first ten days. If no improvement appears after these ten days, the prognosis will be very bad. Most Irish Wolfhound puppies recover up to 90% of their abilities.

