**Chiropractics and Functional Neurology**

**The performance dog**

Whether you have bred or acquired a puppy, with the idea that he will be a utility or any other type of performance dog, it is important that you provide the optimal conditions for him to grow and develop into an athlete.

You will need to socialize and teach him in a positive manner, which allows him to develop confidence and a desire to work.

His body will need the correct nutrition to enable him to grow and develop properly. In order to grow strength and stamina, he will need sensible/gentle and varied exercise which should be carefully adjusted to age and physical development.

If care isn´t taken to ensure a balanced exercise for growing puppies, many owners will face shattered dreams, if the puppy suffers an injury at an early age, or if he simply doesn’t meet the expectations.

**The Anatomy and Physiology**

The topline (spine) consists of more than 100 joints. Individually, these joints optimally (ideally?) have 100% mobility. Each joint is encased in muscles, whose job is to move the bones in relation to each other, within their range of motion. A body in motion is comparable to a carefully conducted symphony orchestra of muscles, which alternately work and relax as needed, in relation to other muscles, enabling the orchestra to operate as one organism. Muscles which work together by directly contracting a body part are called agonists, while muscles that work opposite each other are called antagonists. This means that in order to move a limb forward, there are muscles which have to contract in the front of the leg, while the opposing muscles on the back of the leg have to relax in order to enable the completion of the movement.

If you have a dog exhibiting a compensating pattern during locomotion such as pacing, it is a strong indication, that the orchestra is not conducted properly. It is not unusual to see animals/ dogs, that resort to pacing, however it is not a normal movement pattern, it is a compensatory pattern, which signifies that the dog is neuro-muscularly dysfunctional. If you see a dog moving in pace and not diagonally, you know it has a neuromuscular dysfunction. Pace is unfortunately not unusual to see, but it is not normal.

**Functional neurology**

***Functional Neurology Description***

*Functional Neurology has developed from basic neuroscience principles and an understanding of how the most recent scientific research can be applied to patient care. Through careful assessment, a Functional Neurologist can not only determine which areas of a person’s nervous system are weak, but also devise an appropriate treatment to improve the quality of how their nervous system functions. The man often credited with the origin of this premise is Dr. Ted Carrick, who has been researching and teaching this model since the mid-1970s.*

*Source: Functional Neurology Society http://functionalneurology.ca/*

When a message from the brain is to be delivered to the muscles, it travels through the neural pathways in the spinal canal, and from there onward it travels through peripheral nerves to the particular muscles. The peripheral nerves are known as motor nerves, while the nerves which communicate signals from the body to the brain are called sensory nerves. A central problem (in the brain), in the spinal canal or in the motor nerves may cause muscles to lack tonus, which will prevent them from performing correctly

In the case where there is a dysfunction in the motorical nerves, this is easily detected in a small number of muscle groups. If there is a problem located in the spinal canal, it can be detected locally such as in the sciatic nerve region or in the loin, while issues further up the spine, may be due to a central problem i.e. impairment in the brain: The latter may manifest itself as a one-sided dysfunction of the body.

When the *brain to body* as well as the *body to brain* communication is impaired, the risk of injury increases; in other words, the better the neuro-muscular communication, the lower the risk of injury. This is precisely why chiropractic treatment is the foremost form of treatment for the acute trauma as well as in long term prevention of injuries.

**The Neurological Examination**

During a neurological examination one must test the function of each of the 12 cranial nerves. Every one of the nerves has particular functions, which can guide the practitioner in assessing functionality of the various areas of the brain.

In case of a dysfunction in the nerve system, one must bear in mind, that the patient does not have the optimal body control.
The following point would be to check the dog´s reflexes, and the muscle tone which will provide valuable information about the nervous system (including the autonomic). In other words, aided by a thorough neurological examination, the practitioner will be able to accurately pinpoint, which region of the body/nerve system causes the problem or if we are dealing with an issue of a more generalized character.

**Gait analysis**

***A gait is defined as a regularly repeated sequence of movements. During the walk, phases of two-legged support alternate with phases of three-legged support. In trot the body is supported by one diagonal limb pair at a time. During gallop the limbs are placed on the ground either in a clockwise or anticlockwise pattern. Touchdown of the leading hind limb is followed by that of the trailing forelimb on the same side.***

***Pace is a common seen gait, indeed very common, but it is NOT a normal pattern of gait, but a sign that the body is compensating. The motor system is a window to the neuromuscular function, meaning that by doing a gait analysis, you get important information about the brain. When watching the dog moving, you look for the pattern of gait, does it look normal in pattern, rhythm and is it a easy mover or heavy on the ground. Get an idea about the topline: head and neck , back and pelvis is the biomecanics prober. A body cannot have pain in a limb without creating a stiff back, or have a dysfunction in the back without getting lame, its just a matter of time.***

**How chiropractic treatment works**

Counter to popular belief, it is not possible to “move or rearrange bones”, nor is it possible to “pop them back into place.” Chiropractic treatment entails stimulation of the nervous system, or more precisely the brain which is directly stimulated to re-activate normal functions of the body. Surrounding all joints, and in all muscles, which are in control of joint movement, we find a vast number of specialized neurons (nerve cells) called proprioreceptors or mechanoreceptors. It is their job to inform the brain of the position of a given joint and the current functionality of the relevant muscles. The brain responds to the information by sending nerve impulses back to the muscles which are in charge of moving the joint. In other words, the brain is dependent on this feedback of information in order to continuously steer and control the body correctly.

If a joint has been fixated over an extensive amount of time, the *body to brain* and *brain to body* communication will seize to work, and the dog will start to compensate.

When performing chiropractic treatment, there is a reference to bones, however this is simply because every joint is formed between two bones. The chiropractor applies a controlled force in the direction of movement of the impaired joint, which no longer is able to activate the mechanoreceptors; in this case the treatment stimulates the brain into re-establishing the normal *body to brain* and *brain to body* function. This triggers a neurogenic reflex arch, which normalizes the mobility of the joint as well as it eliminates tension and pain in the surrounding tissue. Realizing asymmetry in one or more areas of the body, it has been caused by long time compensation for an impaired function, because bones are where the muscles bring them. Of cause, it is important to ruled out fracture, trauma or other form of pathology.

**Exercise**

Exercise is not just important for strengthening the body; muscles also play an important metabolic role both physically and mentally. Only active muscles are able to metabolize the sugar in the blood, in other words; if muscles are inactive, they are unable to break down sugars, and instead it will be stored in fat deposits causing the dog to gain weight.

However, exercise is not *just exercise* where more equals better. It is of paramount importance that body mass and conditioning is built up carefully, rather than broken down by overdoing the training. We have to acknowledge that the dog isn´t capable of comprehending the consequences of over exercising. When the owner realizes that the dog appears tired, it is actually at a point where his muscles have been building up lactic acid for quite a while. If you regularly push your dog to this limit in exercising, he will never gain fundamental overall body strength. It is all about exercising a bit but doing it often, and only gradually increasing intensity, as in interval training. The short intervals walking improves the muscle oxygen uptake and prevents lactic acid build up. Over time you can increase the trotting sequences, while maintaining the shorter walking sequences. Basically this would be a maximum of 10 minutes for puppies (5 months and up for wolfhounds), 15 minutes for young dogs and about 20-30 minutes adult hounds in good condition. If this is done 3 – 4 times a week, your dog will be able to maintain a good basic condition.

The greater the variation of the exercise you provide for your dog, the better the overall body strength he will obtain. Swimming is a fantastic supplementary exercise for dogs. Swimming strengthens different muscle groups from those trained through running. Just like running, swimming should be in the form of interval training in tempered water; since cold muscles are more accident prone.

Finally body strength can also be obtained through balance training on an air-madras, balancing boards and with various balancing equipment developed specifically for dogs.

Any exercise which excites the dog, such as throwing balls and sticks are NOT wise choices of exercise, it actually only increases the risk of injury.

**Conclusion**

If we look at the human world of sports, we will find that all serious athletes follow a thoroughly designed training program. Included in such a program is also correct nutrition, which again is adjusted according to periods of training, peak performance and restitution.

Regardless of whether you are a soccer player, cyclist or a swimmer; just to mention a few, you will spend countless hours in the gym, in order to gain the basic strength and conditioning.

All competitive human athletes are constantly monitored and treated by chiropractors, sports-masseuses or physical therapists. The athletes know all too well, what it takes to maintain a well functioning and lasting body. They are also acutely aware, that in the event of an injury, healing time is directly proportional with body function. A well balanced body that is regularly attended to by health professionals heals much faster than a body which has been dysfunctional over a long period of time.

The question remains: How many performance dog owners do condition their dogs correctly, step by step before the actual training begins? How many dog owners apply warm up exercises to their canine athletes, before training begins. Skipping any of these points would be completely unheard of in the human world of sports.

It is about time that we, as dog owners acknowledge, that our dogs are athletes, which should be treated as athletes.

Finally we can enjoy, that working with our dog, is beneficial for our own body and general condition as well, as long as we set obtainable goals.