**Dr. W. v. Kerkhoven about “knuckling over” in young dogs**

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***Problems during the growth period in puppies – what to do ?***

Knuckling over (bowed limbs) is the main problem normally seen and is not genetic, it happens to all breeds, large or small and it is due to how you are managing your dogs dietary needs and the flooring you are keeping them on to develop. Poor quality diet or too much of a good food, poor footing/slick floors with no rugs, and missing trace minerals. All things that contribute to this problem. If caught early enough it can be reversed with no problem. If left, it causes permanent damage. Knuckling over is first noticed in the area of front leg on a puppy, or the growth plate (wrist or carpal but also shoulder; the dog can be lame) area due to a lack of integrity in the muscle, tendon and ligaments. It is due to uneven growth pattern between the bone and tissue/muscle of the puppy. A diet can cause uneven growth patterns between muscles, ligaments, tendons and bones. They are all developing at different rates – the end results are severe knuckling over and this grotesque deformation can be permanent if not taken care of a proper diet in the early stages. Under 8 weeks of age, it is not a problem and very common because the large and giant breeds grow quickly during the early stages of development. Usually resolves itself within days due to the puppy’s rate of growth.