

Sport-Training for Puppies and Concerns about Growth

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Animal owners and their health care practitioners should be aware of a few growth issues that could potentially impact the long-term health of a young canine athlete. Many owners that engage in dog sports acquire puppies and begin to train in aspects of their specific sport at a very young age. From the aspect of motor skill acquisition, this can be a very desirable process (Helton 2007), however other aspects should be considered.

It has become a known factor that a greater percentage of dogs that rupture their cranial cruciate ligament are altered dogs of both sexes (Slauterbeck 2004; Powers YM 2005). It has additionally been shown that early spay and neutering is a significant risk factor for development of excessive tibial plateau angles in large breed dogs with cruciate ligament disease (Duer et al 2007). Another recent study showed that dogs spayed or neutered before 5 ½ months had a significantly higher incidence of hp dysplasia than those spayed or neutered before 5 ½ months of age (Spain 2004). Since an athletic dog is destined to put more forces and strain on it's body, it may be prudent for the informed veterinarian to discuss the risks mentioned above with owners who participate in dog sports, or at the least to support the sporting dogs' owners' decision to delay spaying or neutering.

Growth plates are susceptible to repetitive stress in children. A review of human literature revealed that growth plate injuries have been reported in the proximal humerus in throwers and a badminton player, and in the proximal tibia of a runner (DiFiori 1999). In gymnastics, repetitive loading of the wrists can injure the distal radial growth plate. It appears that metaphyseal ischemia inhibits mineralization within the zone of provisional calcification, prolonging chondrocyte life. This, together with continued division of chondrocytes in the proliferative zone, results in widening of the growth plate. Physeal injuries may produce partial or complete growth arrest. Hence advice on adequate, and not excessive training in young athletes is important, however guidelines to provide justification for appropriate recommendations do not yet exist. A recent series of postings on an animal rehab chat group revealed many suggestions based on personal experiences and opinions:

- **PLAY:** should be limited to small amounts of free exercise regularly and that play should be with same age puppies or calm adult dogs (who do not play aggressively). The thought is that the puppy will self-monitor its own activity level under these parameters.
- **EXERCISE:** no forced exercise, endurance, or aerobic activities (i.e. running, jogging, hiking) until the growth plates are close (<14 months and not until 18 months if the animal was neutered prior to 6 months of age). So as not to inadvertently over-exercise puppies, owners need to pay attention to the exercise variables (speed, duration, frequency, difficulty, and complexity). Specifically training a puppy with proprioceptive exercises can be important.

- SPORT TRAINING / AGILITY TRAINING: before the growth plates are closed, limit training to low impact ground training, recalls, start-line, lowered obstacles, weave poles split, movements on the flat (following instruction), low jumps (no higher than carpal height), and general strengthening. After growth plates are closed, jumps can be increased to elbow height.

There is still much to be learned about exercising juvenile dogs. As such, it is important to make your exercise suggestions by being evidence-informed and applying as much common sense as well as conventional wisdom until such time as research can guide our prescriptions more effectively.

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