

Bone Mineral Density in the Performance Dog

Since Sue Ann lets me write whatever I want in MY column (NOT!), I just had to share this exciting new research proposal. Many of you have listened to me preach about building sound, solid, healthy foundations for athletes. I feel this is one of the most important responsibilities in raising a Saluki - providing them the opportunity to run and safely exercise as they are growing, making sure they have a sturdy structure on which to build, then continuing the process throughout their life. When I read Dr. Rosenstein's proposal it really hit home. If I were closer, all our hounds would be in her study (especially the new babies). I only hope it is successful and maybe branches out to West Coast research someday. Please give her the support she deserves.

Thank you!

Vicky Clarke

by Diana Rosenstein, DVM, MS

In athletic dogs, a schedule of routine activity and competitive performance may help to strengthen the skeleton and maintain a healthier body. The skeleton provides essential structural support to the body for locomotion and strong, healthy bones are essential in all species to withstand the forces of athletic activity. Normal bone responds to the forces of exercise by remodeling and reshaping to accommodate the stress through gradual, simultaneous processes of bone formation and resorption. A bone that is increasing in strength is generally increasing in thickness, density or both. In contrast, weak, porous bones are inadequate for handling the forces of activity and break easily. The condition of abnormally decreased bone mineral density is called osteoporosis and it is a common cause of vertebral, pelvic and long bone fractures in older people. While extensive research is underway in humans to learn about prevention and treatment of osteoporosis, the impact of bone density on animal athletic performance is not as well understood.

Several diseases cause osteoporosis by altering the body's metabolism or calcium balance. The only non-disease related cause of osteoporosis is the lack of exercise. The absence of pressure or stress on a healthy skeleton, due solely to bed rest, causes a measurable decrease in bone density while, in contrast, exercise is known to increase bone production. Therefore it is proposed that performance dogs, that are actively training or competing, have a higher average bone mineral density than non-athletic dogs. The stronger skeleton of these more active dogs should result in fewer musculoskeletal injuries as

compared to the weaker skeleton in the non-athletic dogs. If this is true, then it may be concluded that a program of regular exercise would help to build and maintain a strong musculoskeletal system and decrease the likelihood of injury.

The measurement of bone density and the correlation of bone density with animal athletic performance are topics of great interest at the Michigan State University College of Veterinary Medicine. Through radiography (x-rays) and computed tomography (cat scans) the dimensions and density of bones may be determined without any invasive procedures. The long-term goal of this research is to provide the performance dog community with information on training of the performance dog and rehabilitation of an injured athlete. For the non-performance pet owners, this research may provide an incentive to keep their animals active. In order to investigate the correlation between bone density and exercise, the researchers are looking for owners of performance dogs who are willing to have their animals participate in a research project. There is a need for representatives of various breeds, various ages and various levels and types of athletic activity. This brief article is an introduction and initial request to the canine performance community to ask about your level of interest and cooperation in such an endeavor. I would like to know if this is a topic of concern to your organization and whether or not you are interested in learning more about bone density research. I look forward to your comments. Please address correspondence to:

Diana Rosenstein, DVM
College of Veterinary Medicine
Michigan State University
East Lansing, MI 48895