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## Some Recently Published Papers

# Dogs fed a reduced-calorie diet live longer

By Stephen Bradt

A 14-year study of canine diet and health has found that dogs fed a calorie-restricted diet live a median 1.8 years longer than dogs allowed to eat more and are slower to develop chronic diseases such as osteoarthritis.

The findings add to the growing body of evidence that caloric restriction in a wide range of species significantly boosts longevity. Dogs are the only large mammals—and the closest human relatives—for which a diet-restriction study has been completed. Similar studies involving primates are ongoing.

The results, from scientists at the Penn's School of Veterinary Medicine, Nestle Purina PetCare Company, University of Illinois, Cornell University and Michigan State University, was the subject of a Sept. 20-21 symposium in St. Louis. Partial results were published in May in the *Journal of the American Veterinary Medical Association*.

The study involved 48 Labrador retrievers from seven litters. Littermates were paired, with one dog fed 25 percent fewer calories than its sibling starting at 8 weeks of age. The researchers found a median life span of 13 years among dogs whose food intake was reduced, while dogs in the group fed a diet higher in calories were uniformly overweight

and had a median life span of 11.2 years.

"Impressive as they are, the life span figures are only part of the story," said **Gail K. Smith**, professor of orthopedic surgery and chair of the Department of Clinical Studies at the School. "The study also showed that lean body conformation forestalls some chronic illnesses, most notably osteoarthritis, and that diet can either mitigate or exacerbate the expression of genetic diseases.

"This study should reinforce for dog owners the importance of keeping their dogs lean, with palpable ribs and an obvious waistline," Smith said. "Avoid giving dogs too many high-calorie treats and consider a brand of balanced dog food formulated to be low in caloric content while providing a sense of satiety."

Smith said that while simply reducing a dog's food intake, as in this study, can also be effective in maintaining a healthy weight, this approach often leads to begging -- a behavior that many owners find themselves unable to resist in their canine companions.

The team of researchers has reported previously that the onset of osteoarthritis, an often painful and occasionally debilitating condition for many large-breed dogs, was delayed significantly by reduced food intake. Overall frequency of the condition was also reduced: At age 2,

only one of 24 calorie-restricted dogs had developed radiographic osteoarthritis of the hips, compared to six of 24 dogs in the unrestricted group. By age 10, six restricted dogs (42 percent of that study group) and 19 unrestricted dogs (79 percent of that study group) had hip osteoarthritis.

"Dogs in the calorie-restricted group didn't require treatment for osteoarthritis until a mean age of 13.3 years, fully three years later than the dogs in the control group," Smith said. "Because osteoarthritis is painful, this deferral represents a substantial boost in quality of life."

Caloric restriction also significantly delayed the onset and severity of other ailments. Dogs on a restricted diet who developed such conditions were 2.1 years older, on average, than their overfed counterparts.

Dietary restriction has been shown to have a positive effect on the life span of rodents and invertebrates. Research spanning decades has found that dietary restriction is the only nutritional change that consistently extends the life span of animals.

Smith was joined in the study, funded and conducted by Nestle Purina PetCare, by Darryl N. Biery at Penn; Richard D. Kealy, Dennis F. Lawler and Joan M. Ballam at Nestle Purina; Elizabeth H. Greeley and Mariangela Segre at Illinois; George Lust at Cornell; and Howard D. Stowe at Michigan State.

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## Some recently published papers

C. Weisse, K. Schwartz, R. Stronger, J. Monschein, J.A. Solomon. Transjugular coil embolization of an intrahepatic portosystemic shunt in a cat. *Journal of the American Veterinary Medical Association* 2002;221(9):1287-1291.

T.J. Britt, C. Weisse, E.S. Weber, Z. Matzkin, A. Klide. Pneumocystoplasty in a Ryukin Goldfish. *Journal of the American Veterinary Medical Association* 2002;221(5):690-693.

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A. Zwingenberger, A. Parks and M. Downs. Lateral ear canal resection and segmental pinnal excision in a horse to remove a sarcoid. *Equine Veterinary Education* (2002) 14 (5) 230-233.