

**EFFECT OF INTRATESTICULAR INJECTION OF ZINC GLUCONATE
NEUTRALIZED BY ARGININE ON REPRODUCTIVE PARAMETERS AND
TESTOSTERONE LEVELS IN MALE DOGS**

Min Wang, MD; Brian Corbett; Byron Maas, DVM
Ark Sciences, New York, New York, USA

Zinc gluconate neutralized by arginine (ZeuterinTM/EsterilsolTM) is an FDA-approved non-surgical sterilant for male dogs three to ten months of age, delivered via intratesticular injection. Surgical castration reduces testosterone production 96-99%. Testosterone, the male androgen, is essential for the development and maintenance of specific reproductive tissues such as testes, prostate, epididymis, seminal vesicle and penis. Physiological functions such as increased muscle strength, joint development and bone mass are also maintained by testosterone. This is the first study where testosterone levels were followed in dogs injected with Zeuterin. Using a single breed-specific dataset, the objective was to examine the effect Zeuterin had on dogs followed for two years in a clinical setting. Forty six-month-old beagles were placed into four groups of ten animals, each by random distribution according to testicular width. Each group received intratesticular injection treatments as follows: Group 1 – bacteriostatic water (control); Group 2 – 25 mg zinc/arginine; Group 3 – 30 mg zinc/arginine; and Group 4 – 35 mg zinc/arginine.

This report provides relevant data from a study conducted as part of the FDA approval trial. The body weight of all dogs increased; there was no clinical effect on rectal temperature; complete blood count and blood chemistry. At two years, blood testosterone levels for dogs in Groups 2-4 averaged 41-52% of the levels for dogs in Group 1. Relative to Group 1, dogs in Groups 2-4 had significantly reduced sizes of testes, epididymis, and prostate; histological examination revealed evidence of nonfunctional testes, and absence of sperm in the epididymis. Progeny tests resulted in pregnancy for seven dogs in Group 1, and zero dogs in Groups 2-4. Semen was collected on a monthly basis for 21 months post – injection for dogs in Groups 2-4. No sperm were found in the ejaculate of 29 of these 30 dogs; one dog from Group 2 had sperm in the semen, but displayed severe oligospermia, low volume of ejaculation, as well as low sperm motility. Injection of Zinc gluconate/arginine effectively reduces testosterone levels achieving sterility while maintaining normal body function.