EFFECT OF SURGICAL AND CHEMICAL STERILIZATION ON CANINE TESTOSTERONE LEVELS

Raphaël Vanderstichel[1], Elena Garde[2], Guillermo Pérez[2], María J. Forzán[3], and James A. Serpell[4]

[1] Department of Health Management, Atlantic Veterinary College, University of Prince Edward Island, Charlottetown, PE, Canada
[2] Veterinarians without Borders/Veterinarios sin Fronteras-Canada, Latin America Regional Office, Pasaje Los Arrayanes 333, Valdivia, Chile
[3] Canadian Cooperative Wildlife Health Centre, Department of Pathology and Microbiology, Atlantic Veterinary College, University of Prince Edward Island, Charlottetown, PE, Canada
[4] Department of Clinical Studies, School of Veterinary Medicine, University of Pennsylvania, Philadelphia, PA, USA

Sterilization campaigns are used to control free-roaming dog populations. Chemical sterilization has been proposed as a practical option to surgical castration when the latter is impractical or socially unacceptable. Evaluation of the effects of sterilization, surgical or chemical, on the physiology and behaviour of large numbers of dogs are few and usually focus on single or few variables. As part of a comprehensive study on the effects of sterilization on free-roaming dogs in a rural community in Chile, we examined testosterone levels pre and post-sterilization and evaluated its association with intrinsic factors (age, weight, time of day, season, body condition and testicle size) and home-range size. A total of 118 dogs were recruited: 43 controls, 39 surgically castrated and 36 chemically castrated (EsterilSol™). Testosterone levels were measured at six months pre-sterilization, at sterilization, four and six months post-sterilization (times -6, 0, 4+ and 6+, respectively). Intrinsic factors were recorded at times -6 and 0, home range was calculated at -6 and 4+. Testosterone levels were not significantly associated with any intrinsic factor. Home range increased proportionally to testosterone in dogs with levels ≥5ng/ml. Surgical castration significantly reduced testosterone at times 4+ and 6+. Chemical castration generally did not affect testosterone levels as most dogs remained similar to their baseline (-6 months), although 24% and 31% of dogs at 4+ and 6+ months, respectively, mimicked the reductive effect seen in the castrated group. Sterilization per se, whether surgical or chemical, had no effect on home-range size.