

## Effect of the Castration on Not Wanted Behaviours in Dogs

Alejandro Córdova-Izquierdo, Mary Silvia Córdova-Jiménez, Silvia D. Peña Betancourt,  
 Cristian Alejandro Córdova-Jiménez, Saúl Cortés Suárez, Jorge A. Saltijeral Oaxaca,  
 Gustavo Ruiz Lang and Víctor M. Xolalpa Campos  
 Departamento de Producción Agrícola y Animal. Universidad Autónoma Metropolitana Unidad  
 Xochimilco, Cuerpo Académico: Salud Animal, Reproducción Animal Asistida y Protección  
 Ambiental, Calz. Del hueso 1100 Col. Villa Quietud C.P. 09970, México, D.F.

**Abstract:** In this study, they were used 7 dog of different race, age, size and weight to value the effect of the castration not have more than enough behaviors wanted in mature dogs with proprietor. The surgeries were carried out during one month, in clinical of the city of Mexico. A questionnaire was applied before the surgery: Does it leave to the street their dog?: alone, with somebody, c/s belt, does Their dog behave aggressive with other dogs?: no, sometimes, very frequent; Is their dog alone or does he cohabit with other dogs?: is it alone, do I have more dogs; How does their dog behave when you see a female?: does he smell it, does he bark him, does it mount it, does it attack her, doesn't he take it into account, is it submissive; Had noticed that their dog mounts other dogs, objects or people?: yes, not. After the surgery: The anxiety of the dog to leave to the street increase or do I diminish?: did it increase, did it diminish, does it continue equally; Is it aggressive with other dogs or people?: no longer, does it continue aggressive, now it is aggressive; How does their dog behave when you see a female?: does he Have interest, doesn't he pay him attention; Does their dog continue mounting other dogs, objects or people?: yes, not; Does their dog continue marking with urine some parts of his house?: yes, not. The surveys carried out before the surgery, determined that 6 dogs presented inadequate sexual behavior, 5 had behavior of territorial marking inside the house and aggressiveness toward people y/o dogs and for travelling, it was observed 5 of them. One month after the surgery; 66% modified the behavior of sexual desire, 40% diminished the behavior of territorial marking, the aggressiveness it didn't present effect and the travelling it was presented in 40% of the animals. The castration, it can be an effective treatment for some behaviors problem; however, it is necessary to value the long term adverse effects.

**Key words:** Mature dogs, castration, not wanted behaviors

### INTRODUCTION

The most common form of altering the control of the behavior of the company animals is the castration, which diminishes the sexual desire of the males. This practice was carried out for the first time in ovinos, caprinos and bovine, it was included as a practice of cattle handling. Through the time, it has been observed that this method has presented a reduction in the serious problems of aggressiveness toward the humans, it is for it that at the moment is carried out in company dogs, since it not prevents behaviors wanted by the proprietor, for 25 years he/she has become one he/she practices very common in dogs<sup>[1-3]</sup>.

The castration in dogs is one of the most common surgeries in the veterinary medicine, being a very simple, sure, effective and definitive technique. The reasons of their realization include the elimination of the not wanted behaviors, dependent processes of the androgens, testosterone, mainly and the control of the fertility<sup>[4,5]</sup>.

According to Correa *et al.*,<sup>[6]</sup>, as well as Fukuda and Iida<sup>[7]</sup> the castration is a method where the birth of not wanted puppies is prevented, controlling this way the canine population and reducing the libido from 90 to 95%. The removal of the testicles, particularly in the dog, it is one of the most frequent surgeries in the small species, since the hormones testiculares have effect on the behavior of the animal. T his surgery, attempts the

**Corresponding Author:** Alejandro Córdova-Izquierdo, Departamento de Producción Agrícola y Animal. Universidad Autónoma Metropolitana Unidad Xochimilco, Cuerpo Académico: Salud Animal, Reproducción Animal Asistida y Protección Ambiental, Calz. Del hueso 1100 Col. Villa Quietud C.P. 09970, México, D.F.

modification of the behavior in the dogs, which includes: the vagabondage, the territorial aggressiveness, the dominancia aggressiveness, the territorial marcaje and it mounts it of dogs, people or inanimate objects. The pattern of sexual behavior of the dog is influenced strongly by androgens like the testosterone, which is produced by the interstitial cells of Leydig in the testicles. These androgens have an apparent effect on the brain and it induces it to that the animal shows male's typical behavior, presenting morphological and physiologic developments, as the maintenance of processes bigger anabólicos of muscles and metabolic effects of hepatic enzymes, where the castration shows it influences direct on these processes.

On the other hand, Chardarong<sup>[8]</sup> and Stone<sup>[3]</sup> they observed some benefits when carrying out the castration, such as: prevention of sexually transferable illnesses, you fight among males, prevention of cysts prostáticos for hormonal effects, abscesses and infections; as well as decrease in the presence of other types of dependent tumors of the hormones like adenomas, adenocarcinomas and problems like hernias perianales. Neilson *et al.*,<sup>[5]</sup>; Topál *et al.*,<sup>[9]</sup> they indicated for separate that the non alone castration is carried out to correct behavioral problems, but rather also, it is carried out to diminish the presence of dependent illnesses of the testosterone like the expansion prostático and balanopostitis; these dysfunctions are very common in dogs<sup>[2,9]</sup>.

Wasmer and Roger<sup>[10]</sup> as well as Wells and Hepper<sup>[11]</sup> they indicated to take in consideration that the animals of sought-after and patient races with high risks to the anesthesia are not candidates to the surgery. It has been observed that during the general anesthesia, you can present a depression in the miocardio and a vasodilatación that alter the renal function for the decrease in the sanguine volume.

Among some of the problems associated with the castration they are the inactivity and the increase of weight, which are not related with this surgery, but rather they are due to the exercise lack, hipotiroidismo and

sobrealimentación. In contrast Maaschalkerweerd *et al.*,<sup>[4]</sup> they indicated that the problems of increase of weight and inactivity, they are directly provoked effects for the castration.

Neilson *et al.*,<sup>[5]</sup> they indicated that the extirpation of the testicles should be carried out in dogs prepúberes smaller than 6 months of age, to not prevent the behaviors wanted in adults. However, Howe *et al.*,<sup>[12]</sup> they didn't approve the castration in animal puppies, to exist long term adverse effects, like a bigger susceptibility to infectious illnesses in animal prepúberes and adults. On the other hand, Neilson *et al.*,<sup>[5]</sup> they indicated that the early castration predisposes to problems urogenitales and orthopedic.

Fukuda and Iida<sup>[7]</sup> they observed that the loss or decrease of the levels of sexual hormones as the testosterone are cause of osteoporosis in dogs. These same authors, indicated that the relationship testosterone-calcium has not still been completely clarified for the prevention of this problem in castrated dogs, even that it is advisable to supplement the diet with calcium.

The effects more studied on the sexual behavior after the castration they include: it mounts it, the penetration and the ejaculation. In most of these studies one has seen an early and evident answer in it mounts it; however, the first behavior that gets lost is the ejaculation, followed by it mounts it and the little interest for the female<sup>[1,5]</sup> these events happen between the 2a and 5a later weeks to the castration. The males show more undesirable behaviors than the females, especially the aggression to other males, sexual problems and tendency to the vagabondage. Is considered that 90% of the dogs has undesirable behaviors that you/they go from problems without importance like to be pursued the line, until more serious problems as the aggression or the destruction<sup>[10,11]</sup> as those that are presented in the Table 1 and 2.

The objective of this study was to value the effect of the castration it not has more than enough behaviors wanted in mature dogs.

Table 1: Categories of behavioral problems in dogs

| Categoría | Problema                      | Definición                                                                                                 |
|-----------|-------------------------------|------------------------------------------------------------------------------------------------------------|
| 1         | Anxiety for separation.       | Destructive behavior, excessive barks, to urinate and/or to defecate, when the dog is alone in the house.  |
| 2         | Lack of training              | The owner or somebody of the family cannot control the dog.                                                |
| 3         | Agresión to other dogs.       | Abnormal aggressive behavior on other dogs.                                                                |
| 4         | Aggression toward the owners. | Aggressive behavior on the proprietor or somebody of the family.                                           |
| 5         | Aggression toward strange.    | Aggressive behavior toward people.                                                                         |
| 6         | Urinate or to defecate.       | Urinate or to defecate inside the house.                                                                   |
| 7         | Anxiety in general.           | Anxiety at a level that causes problems for the same dog and the owner.                                    |
| 8         | Phobias.                      | A neurotic fear, the dog expresses fear to some thing that it is ignored him (thunder).                    |
| 9         | Children.                     | Problems or disturbances of the direct behavior toward the children and/or of the children toward the dog. |
| 10        | Others.                       | Any problem that doesn't enter in another category.                                                        |

Adapted of<sup>[10,11]</sup>

Table 2: Percentage of behavioral problems in dogs

| Behavioral problem           | No. of dogs | %    |
|------------------------------|-------------|------|
| Excessive fear               | 203         | 53.4 |
| Excessive activity           | 142         | 37.4 |
| Destructive                  | 93          | 24.5 |
| Territorial marcación        | 81          | 21.3 |
| Vagabondage                  | 51          | 13.4 |
| Coprofagia                   | 49          | 12.9 |
| Bark in excess               | 43          | 11.3 |
| Aggression toward other dogs | 34          | 8.9  |
| Aggression toward human      | 21          | 5.5  |
| Sexual problems              | 13          | 3.4  |

Adapted of<sup>[10,11]</sup>

Table 3: Identification of not wanted behavior

|    |                                                                            |                                   |                     |
|----|----------------------------------------------------------------------------|-----------------------------------|---------------------|
| 1. | ¿ It leaves to the street their dog ?<br>Alone                             | With somebody, c/s belt           |                     |
| 2. | ¿ Their dog behaves aggressive with other dogs?<br>Not                     | Sometimes                         | Very frequent       |
| 3. | ¿ Su perro está solo o convive con otros perros?<br>This alone one         | Has more dogs                     |                     |
| 4. | ¿ How their dog behaves when you see a female?<br>Smells it<br>La arremete | Barks Him<br>No la toma en cuenta | Mounts<br>Es sumiso |
| 5. | ¿ Had noticed that their dog mounts other dogs, objects or people?<br>Yes  | Not                               | Sometimes           |
| 6. | ¿ Their dog urinates marking some parts of his house?<br>Si                | No                                |                     |

Adapted of<sup>[1,3]</sup>

Table 4: Changes of not wanted behavior

|    |                                                                                     |                              |                      |
|----|-------------------------------------------------------------------------------------|------------------------------|----------------------|
| 1. | The anxiety of the dog to leave to the street ¿ Increase or diminish?<br>Increase   | Diminish                     | Continues equally    |
| 2. | ¿ Is it aggressive with other dogs or people?<br>Not anymore                        | Continues aggressive         | Now it is aggressive |
| 3. | ¿ How their dog behaves when you see a female?<br>Has interest he/she Tiene interés | It doesn't pay him attention |                      |
| 4. | ¿ Their dog continues mounting other dogs, objects or people?<br>Yes                | Not                          |                      |
| 5. | ¿ Their dog continues marking with urine some parts of his house?<br>Yes            | Not                          |                      |

Adapted of<sup>[1,3]</sup>

Table 5: Identification of behaviors not wanted before of the castration

| Raza          | Libido | Marcación territorial | Agresividad | Vagabundeo |
|---------------|--------|-----------------------|-------------|------------|
| French poodle | +      | +                     | +           | -          |
| Creole        | +      | +                     | -           | +          |
| Bull terrier  | -      | -                     | +           | +          |
| Creole        | +      | -                     | -           | +          |
| Creole        | +      | +                     | +           | -          |
| Creole        | +      | +                     | +           | +          |
| Maltes        | +      | +                     | +           | +          |
| Total         | 6      | 5                     | 5           | 5          |

(+) It presents the behavior. (-) It doesn't present the behavior

## MATERIALS AND METHODS

Seven mature male dogs of different races were used in good state of health and with proprietor. The castration was carried out with general anesthesia in private clinics of the Mexico City, D.F. before the castration of the animals, a questionnaire, was applied Table 3<sup>[4,5]</sup>.

Later to the castration, the questionnaire was applied that is presented in the Table 4<sup>[1,5]</sup>.

For the analysis of the results, the information was used that is presented in the Table 5.

## RESULTS

In the Table 5, the results of the behavior identification are not presented wanted before the castration.

Table 6: Change of later behavior to the castration

| Raza          | Libido | Marcación territorial | Agresividad | Vagabundeo |
|---------------|--------|-----------------------|-------------|------------|
| French poodle | *      | +                     | +           | -          |
| Criollo       | +      | +                     | -           | +          |
| Bull terrier  | -      | -                     | +           | *          |
| Criollo       | *      | -                     | -           | +          |
| Criollo       | +      | +                     | +           | -          |
| Criollo       | *      | *                     | +           | *          |
| Maltes        | *      | *                     | +           | +          |
| Total         | 2      | 3                     | 5           | 3          |

(\*) It changed the behavior. (+) It presents the behavior. (-) It doesn't present the behavior

The results of the changes in the not wanted behavior of the later animals to the castration, are presented in the Table 6.

### DISCUSSION

Neilson *et al.*,<sup>[5]</sup> they indicated that in mature dogs, behaviors cannot be presented wanted as vagabondage, aggressiveness, mounts and territorial marcaje. The results of this study show decrease in the not wanted behavior of the animals.

In this study, the sexual behavior diminished in 60 later% to the castration; Neilson *et al.*,<sup>[5]</sup> they indicated 57% decrease in this behavior, mainly the intent of it mounts people. On the other hand, Hart and Hart<sup>[1]</sup> and Neilson *et al.*,<sup>[5]</sup> they indicated for separate that the behavior more affected after the castration it is the vagabondage.

About the aggressiveness any change was not observed, that which can be related with that indicated by some authors like Hart and Eckstein<sup>[13]</sup> and Topál *et al.*,<sup>[9]</sup> they indicated in the same year that the established behavior pattern per years in mature dogs, no longer changes. In contrast Maaschalkerweerd *et al.*,<sup>[4]</sup>; Neilson *et al.*,<sup>[5]</sup> they confirmed for separate 52% and a 10 to 15% in their decrease, where three aggression types were valued: aggression to other dogs, aggression toward owners and aggression toward strange.

In a study carried out by Hart and Hart<sup>[1]</sup> they indicated that the marked one territorial inside of and outside of the house, later to the castration, it was of 50%; data that agree with Neilson *et al.*,<sup>[5]</sup> who indicated a decrease in this behavior from 50 to 90%. In this study, it was presented in 40% of the animals, in second place after the sexual desire.

As for the behavior of aggressiveness, any change was not presented; according to Fukuda and Iida<sup>[7]</sup> they indicated that this is due to the drop in the concentration of circulating testosterone. The behavior of vagabondage diminished in 40% of the total of the animals, these results

were low in comparison with those obtained by Hart and Hart<sup>[1]</sup> who indicated 90%; while Neilson *et al.*,<sup>[5]</sup> they have indicated from 50 to 90%.

### CONCLUSION

In concussion, you can indicate that the castration is an effective treatment to not correct certain behaviors wanted in mature dogs; however, it is necessary to value long term, the effects of the castration in dogs.

### REFERENCES

- Hart, B.I. and L.A. Hart, 1997. Selecting, raising and caring for dogs to avoid problem aggression. *J. Amer. Vet. Med. Asso.*, 210: 1129-1134.
- Johnston, S.D., K. Kamolpatana, M.B. Root-kustritz and G.R. Johnston, 2000. Prostatic disorders in the dog. *Anim. Reproduct. Sci.*, 60-61: 405-415.
- Stone, R.W., 2000. More on ear cropping and neutering. *J. Amer. Vet. Med. Asso.*, 216: 174-175.
- Maaschalkerwerd, R.J., N. Eendenburg, J. Kirpensteijn and B.W. Knol, 1997. Influence of orchietomy on canine behaviour. *Vet. Rec.*, 140: 617-619.
- Neilson, J.C., R.A. Eckstein and B.L. Hart, 1997. Effect of castration on problem behaviors in male dogs with reference to age and duration of behavior. *J. Amer. Vet. Med. Asso.*, 211: 180-182.
- Correa, G.A., H.A. Scherer, I. Breitsameter, I. Gaiga, M. Lamberts, 1998. Controle reproductivo e sanitário de caes e gatos no município de porto alegre e redondeza nos anos de 1996 e 1997. *Arq. Fac. Vet. UFRGS.* 26: 65-70.
- Fukuda, S. and H. Iida, 2000. Effects of orchidectomy on bone metabolism in beagle dogs *J. Vet. Med. Sci.*, 62: 69-73.
- Chardarong, K., 1995. Prepubertal neutering in dog. *J. Vet. Med.*, 25: 89-96.
- Topál, J., A. Miklósi and V. Csányi, 1997. Dog-human relationship affects problem solving behavior in the dogs. *Anthrozoos.* 10: 214-224.

10. Wasmer, M.I. and K.S. Rogers, 1996. Pharmacologic androgen deprivation. *The Compendium*, 18: 267-277.
11. Wells, I. and P.G. Hepper, 2000. Prevalence of behaviour problems reported by owners of dogs purchased from an animal rescue shelter. *Appl. Anim. Behav. Sci.*, 69: 55-65.
12. Howe, I.M., M.R. Slater, H.W. Boothe, H.P. Hobson, J.I. Holcom and A.C. Spann, 2001. Long-term outcome of gonadectomy performed at an early age or traditional age in dogs. *J. Amer. Vet. Med. Asso.*, 15: 217-21.
13. Hart, B.I. and R.A. Rckstein, 1997. The role of gonadal hormones in the occurrence of objectionable behaviours in dogs and cats. *Appl. Anim. Behav. Sci.*, 52: 331-344.