# THE EFFECT OF EARLY CASTRATION ON WEIGHT GAIN IN MALE RABBITS

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**Abstract** - The study was conducted to test the effectiveness of early castration on weight gain of male rabbits. Twenty male rabbits (initial body weight, 0.942-1.283 kg) were used in this experiment. They came from ten litters (two per litter) and they were assigned into two groups : one was control group, and the other was test group. The rabbits of the test group were early castrated (55-65 days). Other treatments of the two groups were the same. T-test showed that castration resulted at the end of the 60 days of experiment, in increasing of average body weight (2392 g *vs* 2200 g) and improving of feed efficiency (1÷3.8 *vs* 1÷4.7).

## INTRODUCTION

In the past, the reports on the effectiveness of castration in rabbits were different. Some ones considered that the body weight gain was not obvious. In order to find out the effectiveness of castration, increase economic efficiency, prevent rogues from prevailing and improve the quality of rabbit population. We conducted a early castration fattening experiment in Tai-Hang male rabbits which were not used as sires.

## MATERIAL AND METHODS

### Materials

Twenty Tai-Hang male rabbits were used in this experiment. The initial body weight was 0.942-1.283 kg. They were 50-60 days old and their testes had not dropped into the scrotums (the testes were still in the abdomens).

According to the body weight and difference of litters, using pairing method, the twenty rabbits were assigned into two groups, one was control group, the other was test group (those of similar body weight and came from different litters when in the same group). By T-test, the body weight was not significantly different between the two groups ($P > 0.05$).
The preliminary test period was five days. During this period, pre-observation measures were carried out. When there were no diseases with the rabbits, the formal experiment began.

### Methods

*Weight and experimental period* - Before experimental period, the body weight was measured. Then, it was measured every five days before morning feeding. This experiment was carried out in the rabbit farm of Hebei Agriculture University. The experimental period was sixty days, from April 7, 1992 to June 7, 1992.

*Surgical castrating method* :

1. Prepare operation knife, iodine alcohol, chemical cotton, etc.
2. Make the rabbit's belly up and fix the rabbit on the fixing frame.
3. Apply iodine to the operation region.
4. Use knife gently to cut the skin and hypodermis open between the two testes. The opening should be small as long as the testes could be squeezed out.
5. Squeeze out the two testes through the opening and put them down. Then, apply iodine to the wound and take the rabbit back into the cage.

*Diet* - The formulation of diet was as follow : corn meal 25 %, soybean 8 %, salviniale meal 16 %, wheat bran 30 %, grass meal 17 %, bone meal 3 %, salt 1 %. Every rabbit was fed 100-150 g each day. A day was divided into three feeding periods. The feeding schedule was : morning 5:30-6:30 ; noon 12:30-1:10 ; evening 6:30-7:00. In the morning and evening, provide more stuffs than at noon, and supply some green feed at noon.

*Raising and management* - The rabbits were fed in herds, raised in cages, and illumined by natural light. The windows were opened at daytime and closed at night. The environments inside and outside the house were almost identical.

## RESULTS

### The changing of appetite.

Within the 2-3 days after castrating, the rabbits' appetite was lost a little, the food intake was slow. They were afraid of persons and stayed obtusely in the corner. After seven days, the wound was completely healed, the feed consumption increased gradually. The feed consumption of the test group was significantly higher than that of the control group (Table 1).

According to the table, we could calculate out that the rabbits of the control group ate 111.5 g feedstuff/day/rabbit and the rabbits of the test group ate 135.2 g feedstuff/day/rabbit.

**Table 1 : Statistical Table of Feed Consumption**

| time | feed consumption | control group | | | | test group | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | morning | noon | evening | total | morning | noon | evening | total |
| 5.21 | feeding | 60 | 30 | 60 | 150 | 60 | 30 | 60 | 150 |
| | surplus | 12 | 7 | 23 | 42 | 10 | 2 | 5 | 17 |
| 5.22 | feeding | 60 | 40 | 50 | 150 | 60 | 40 | 50 | 150 |
| | surplus | 10 | 10 | 12 | 32 | 5 | 2 | 5 | 12 |
| 5.23 | feeding | 60 | 30 | 60 | 150 | 60 | 30 | 60 | 150 |
| | surplus | 15 | 5 | 20 | 40 | 8 | 2 | 5 | 15 |
| 5.24 | feeding | 60 | 30 | 60 | 150 | 60 | 30 | 60 | 150 |
| | surplus | 17 | 5 | 15 | 37 | 8 | 2 | 5 | 15 |
| average | feeding | | | | 150 | | | | 150 |
| | surplus | | | | 38.5 | | | | 14.8 |

### Group raising habit

Within thirty days after castrating, the rabbits of the two groups were all tempered, there were no fighting phenomena. After thirty days, the rabbits of the control group became active gradually, and the fighting phenomena began to appear, but the rabbits of the test group were constantly quiet.

### The changing of body weight

After thirty days, the average body weight of the test group exceeded that of the control group. When the experiment ended, the average body gain of the test group was 1288 g, while that of the control group was 1050 g. The difference was 238 g. By t-test, the average body gain between the two groups were significantly different (Table 2).

From table 2, we could conclude that the body weight gain of the test group was more than that of the control group. (The abnormal data on the twentieth day resulted from disease. The disease was rapidly eradicated).

**Table 2 : Statistical table of body weight gain**

| average body weight (g) / group | initial body weight | The days between the time weighing and that of the begining of the experiment 5 | 10 | 15 | 20 | 25 | 30 | 35 | 40 | 45 | 50 | 60 | total body weight (g) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| control group (CG) | 1150 | 1232 | 1318 | 1390 | 1567 | 1625 | 1730 | 1817 | 1933 | 2033 | 2075 | 2200 | 1050 |
| test group (TG) | 1104 | 1202 | 1317 | 1405 | 1493 | 1604 | 1704 | 1860 | 2037 | 2188 | 2250 | 2392 | 1288 |
| the body weight of TG-that of CG | - 46 | - 30 | - 1 | + 15 | - 74 | - 21 | - 26 | + 43 | + 104 | + 155 | + 175 | + 192 | + 238 |

## DISCUSSION AND ANALYSIS

Before this experiment, we had done an early castration comparing experiment using young male our-rabbits cross-bred by Californian rabbits, New Zealand White rabbits and Western German Angora rabbits. The conclusion was that the body weight gain of the castrated group was more that that of the control group. The difference was approximately 0.25 kg. It proved that early castration could promote fattening in various species.

The feed consumption of the test group was more that that of the control group. This was one of the reasons resulting in more body weight gain of the test group. By calculating, the food efficiency of the test group was 1:3.8, while that of the control group was 1:47. Therefore we could infer that early castration could make the male rabbits grow more rapidly and could improve the feed efficiency.

After the male rabbit is castrated, the relation between its hypophysis and its testes is broken up. The gonadotropic hormone coming from prehypophysis has no effect on the testes. The testes can not produce enough androgen. Then, the physiological effect resulted from androgen was lost. So, the rabbit has no male behaviour. On one hand, the rabbit has a good appetite, eating more feedstuff, and the store of nutrition is increased. On the other hand, the consuming of the nutrition is decreased. The assimilation exceeds disassimilation, the fattening rate is increased.

The method of early castration is simple and can be practised easily. In actual practice, except a few numbers of fine rabbits are used as sires, all other male rabbits should be early castrated and be used for fattening. This skill can not only prevent rogues from prevailing, and avoid crossbreeding in disorder and inbreeding, etc., but also increase economic efficiency immediately.