



Effect of frequent weighing on the performance of growing rabbits

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ABSTRACT

The aim of the experiment was to study the effects of frequent weighing on the performance of Pannon White growing rabbits. Rabbits were weaned at 21 (n=108) or at 35 days of age (n=108). Both groups were halved. One part of the rabbits was weighed weekly (frequently) and the others were weighed only at the beginning and at the end (70th day of age) of the experiment (control). There were no significant differences between the frequently weighed and control groups in body weight, feed intake and feed conversion. The mortality was independent of the treatments and it was higher in the control group in case of 21d weaning and among frequently weighed rabbits weaned at 35 days. Experimental results show that the frequently weighed rabbits reach identical performance with control group.

(Keywords: rabbits, weighing, body weight, feed intake, mortality)

ÖSSZEFOGLALÁS

Gyakori mérés hatása a növendéknyulak termelésére

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A kísérlet célja a gyakori mérés növendéknyulak termelésére gyakorolt hatásának vizsgálata volt. 21 és 35 napos korban választott (n=108 és 108) Pannon fehér nyulakat két csoportba osztották. Az egyik felét hetente, a másik felét csak a kísérlet elején és végén (70 napos korban) mérték. A takarmányfogyasztást és az elhullást hetente feljegyezték. A gyakoribb mérés nem befolyásolta a testsúlyt, a takarmányfogyasztást és a takarmányértékesítést. Az elhullás független volt a kezeléstől, 21 napos választásnál a kontroll, 35 napos választásnál a gyakran mért csoportban volt magasabb. Az eredmények szerint tehát a gyakoribb mérésnek semmilyen negatív hatása sincs a növendéknyulak termelésére.

(Kulcsszavak: növendéknyúl, gyakori mérés, testsúly, takarmányfogyasztás, elhullás)

INTRODUCTION

Under experimental conditions animals are caught, occasionally treated, and according to the aim of the study, they are weighed frequently or just occasionally. Consequently the question arises whether this disturbing has an influence on the production. Should this effect have any provably harmful impact on the production, the trueness and practical adaptability of experimental results may be broken.

In the past few years the relationship between human contact and fear reaction has been extensively studied (Pongrácz and Altbäcker, 1999; Bilkó and Altbäcker, 2000;

Pongrácz et al., 2001; *Csatádi et al.*, 2005). It was found that kits caught around the suckling event show lowered fear reaction against humans, they become more conformable. In theory the opposite of this condition may also occur: the frequent weighing of rabbits not used to humans may induce stress, leading to lower production. This would lead to a systematic bias in all the experiments where rabbits are frequently removed from their cages, investigated, treated or weighed.

The aim of this experiment was to compare the production of rabbits in different groups with frequent or without weighing.

MATERIALS AND METHODS

The experiment was carried out at the experimental rabbit farm of the University of Kaposvár, on Pannon White rabbits. Half of the rabbits were weaned at the age of 21 days (n=108), while the other half was weaned at the age of 35 days (n=108).

Rabbits were housed in cages of 300×400 mm (3 animals/cage), by trees. Rabbits were fed a commercial diet (DE: 10.3 MJ/kg, crude protein: 16,5%, crude fibre: 15,5%) *ad libitum*, while water was provided from nipple drinkers also *ad libitum*.

All animals were weighed at the beginning (i.e. at the age of 21 or 35 days) and at the end of the experiment (70 days of age). In addition, the treated group was weighed weekly, while the control group was not. With the aim of additional comparison possibilities (not only on the basis of the body weight at the end of the trial), feed intake was measured and mortality recorded weekly.

Experimental data were evaluated by two-way analysis of variance and χ^2 method, by means of the software SPSS 10. The significance of between group differences were analysed by the Duncan test.

RESULTS AND DISCUSSION

According to the summarized production data in *Table 1*, the body weight gain, the body weight at the age of 70 days, the feed intake and feed conversion was totally identical in the weekly weighed group and in the control. Differences were not detectable even on a tendency level, independently of the condition whether rabbits were weaned at the age of 21 or 35 days of age.

By the feed intake, as measured weekly similar findings were found as described above. In spite of minor alterations, in the frequently weighed and in the control group identical feed intake was measured on a weekly basis. By the rabbits weaned at the age of 21 days, the feed consumption was very low in the interval between the 21st and the 28th days. This was attributed to the fact that the nipple drinkers were a little too far from the vertical wall of the cage, therefore, the drinking was slightly harder for the rabbits.

The only trait where the control group exceeded the other one was the mortality of the rabbits weaned at the age of 35 days (*Table 1*). In this experiment only one animal died at the last week in the control group, which can be characterized as a quite good result that is highly uncommon in the practice. In the frequently weighed group weaned at the age of 35 days, the expected, first peak in mortality fell earlier than it occurs regularly (*Figure 1*).

Although in the frequently weighed and in the control group (weaned at the age of 21 days) no significant difference was found in the mortality, both the mean mortality and the mortality curve tended to be higher in the control. This is the opposite of that experienced by the group weaned at the age of 35 days.

Table 1

**Effect of frequent weighing on the performance of rabbits,
weaned at 21 or 35 days of age**

| Traits | Weighed (1) | Control (2) | Prob. |
|-------------------------------------|-------------------|-------------------|-------|
| | Mean \pm se (3) | Mean \pm se (3) | |
| Weaned at 21 days of age (4) | | | |
| Body weight, g (6) | | | |
| at 21 days (7) | 453 \pm 6.2 | 445 \pm 7.1 | NS |
| at 70 days (9) | 2212 \pm 40 | 2222 \pm 52 | NS |
| Weight gain, g/day (10) | | | |
| between 21-70 days (11) | 35.9 \pm 0.8 | 36.2 \pm 1.0 | NS |
| Feed intake, g/day (13) | | | |
| between 21-70 days (11) | 88.1 \pm 6.1 | 90.1 \pm 10.6 | NS |
| Feed conversion, g/g (14) | | | |
| between 21-70 days (11) | 2.48 \pm 0.16 | 2.51 \pm 0.3 | NS |
| Mortality, % (15) | | | |
| between 21-70 days (11) | 27.8 | 37.0 | NS |
| Weaned at 35 days of age (5) | | | |
| Body weight, g (6) | | | |
| at 21 days (8) | 941 \pm 11 | 938 \pm 15 | NS |
| at 70 days (9) | 2259 \pm 20 | 2259 \pm 34 | NS |
| Weight gain, g/day (10) | | | |
| between 35-70 days (12) | 37.7 \pm 0.5 | 37.8 \pm 0.1 | NS |
| Feed intake, g/day (13) | | | |
| between 35-70 days (12) | 110.8 \pm 3.0 | 108.9 \pm 3.0 | NS |
| Feed conversion, g/g (14) | | | |
| between 35-70 days (12) | 2.93 \pm 0.05 | 2.88 \pm 0.04 | NS |
| Mortality, % (15) | | | |
| between 35-70 days (12) | 16.7 | 1.9 | ** |

**Difference is significant at $P < 0.01$ level (*a különbség $P < 0,01$ szinten szignifikáns*)

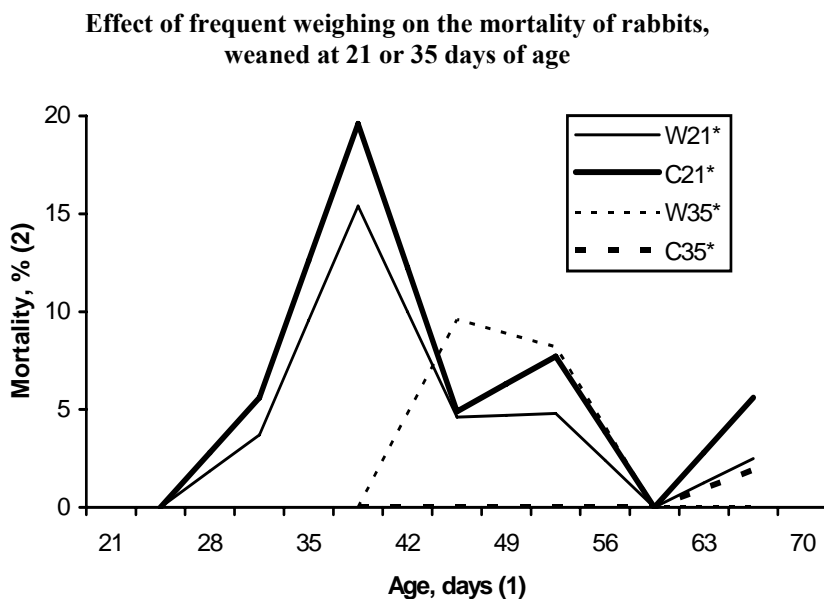
1. táblázat: A gyakori mérés hatása a 21 és a 35 napos korban választott nyulak termelésére

Gyakran mért(1), Kontroll(2), Átlag(3), 21 napos korban választva(4), 35 napos korban választva(5), Testsúly(g)(6), 21 napos(7), 35 napos(8), 70 napos(9), Súlygyarapodás (g/nap)(10), 21 és 70 nap között(11), 35 és 70 nap között(12), Takarmányfogyasztás (g/nap)(13), Takarmányértékesítés(14), Elhullás (15)

It can thus be supposed that differences found in the mortality were not induced by the frequent weighing. The total mortality of the rabbits weaned at the age of 21 and 35 days was 22.3 and 19.4% in the frequently weighed and in the control group, respectively. The high mortality (32.4%) in the groups weaned at 21 days of age was associated with the early weaning.

Rafay (1997) removed the rabbits three times a day for the investigation of the effects of frequent treatment. This resulted higher feed intake on some weeks of the study, though the manipulation had no influence on the growth of the rabbits.

Figure 1



*W21 and W35: frequently weigh, weaned at 21 or 35 days of age. (*W21 és W35: gyakran mért nyulak, 21 vagy 35 napos elválasztással*); *C21 and C35: control group, weaned at 21 or 35 days of age (*kontroll csoport, 21 vagy 35 napos elválasztással*)

1. ábra: A gyakori mérés hatása a 21 és a 35 napos korban választott növendéknyulak elhullására

Életkor(nap)(1), Elhullás(%) (2)

CONCLUSIONS

Experimental data proved it effectively that frequent weighing of experimental rabbits does not mean a risk factor and it does not reduce the production. It is therefore not necessary to accept experimental data with critics; they can be a proper source to draw practical conclusion form.

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