



POSTER PRESENTATIONS

Following posters originally presented at:
IAT Congress 2024

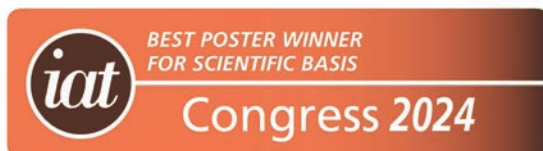
Can a rabbit-human habituation programme reduce stress and aggressive behaviour?

KARLA ESPARZA¹, ANAÏS LEAL², BENJAMIN RABANY³, EDWARD MARDSEN⁴
and KÉVIN DHONDT⁵

¹ Charles River Netherlands

^{2,3,4,5} Charles River France

Correspondence: Karla.Esparza@crl.com



Goal: reducing stress in rabbits to improve scientific research

Rabbits (*Oryctolagus cuniculus*) (Picture 1) are considered a stress-sensitive species.¹ Stress can impact the human-rabbit relationship and compromise the quality of scientific research.^{2,3} To reduce handling induced stress⁴ and promote rabbit welfare we implemented a rabbit-human habituation programme at our breeding facility.



Picture 1. Rabbits.
Photo by Charles River gallery

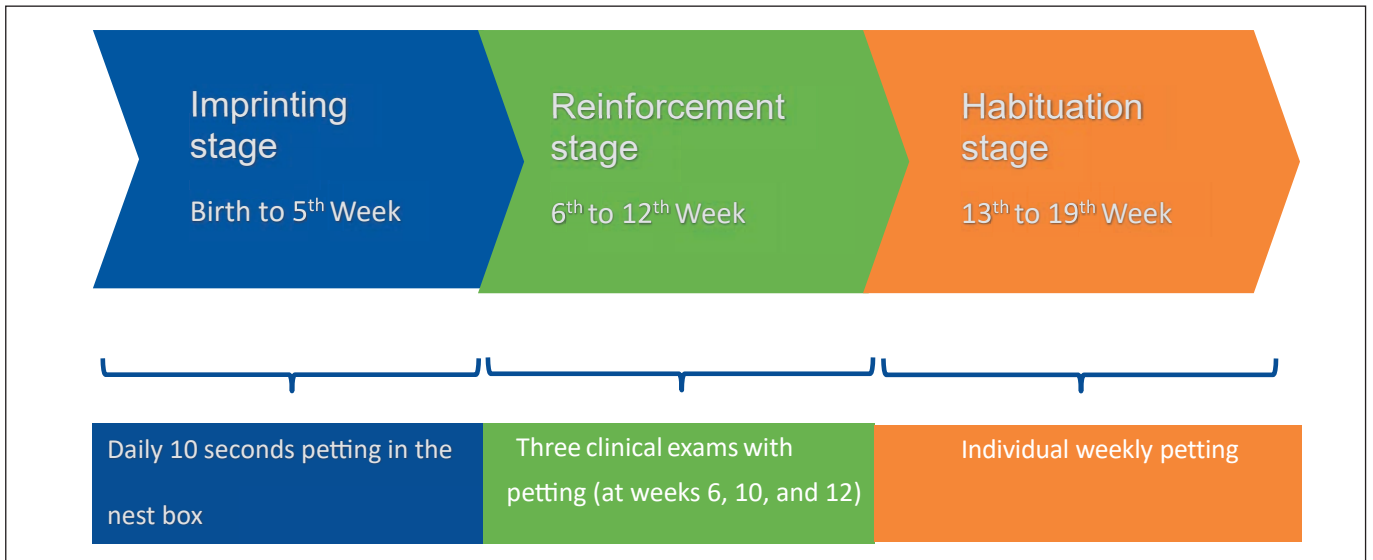


Figure 1. Rabbit-human habituation programme timeline.

Plan: a holistic approach for positive human-rabbit bonding

The habituation programme consisted of three stages:

- Imprinting stage (birth to 5 weeks of age).
- Reinforcement stage (6 to 12 weeks of age).
- Habituation stage (13 to 19 weeks of age).

The programme activities are detailed in Figure 1.

Method: a 2-year double blinded randomised study at client facility

To measure the efficacy of our habituation programme, we worked closely with a rabbit client who performed

a randomised study. The rabbits evaluated came from 4 different breeding rooms of which only room ZE78 implemented the habituation programme. Animals were evaluated for multiple clinical stress signs (Figure 2) during their acclimatisation period (7-14 days), once at the client’s facility.

The presence of a clinical sign was ranked with a grade ranging from 1 to 3, based on the severity of the sign. Scores were added at the end of the acclimatisation period resulting in a stress score for each rabbit.

A stress score of 0 would be considered ideal, as it meant no clinical signs associated with stress were observed. The highest stress score recorded during the study was equal to 5. The percentage of rabbits with stress score > 0 for each breeding room was calculated.

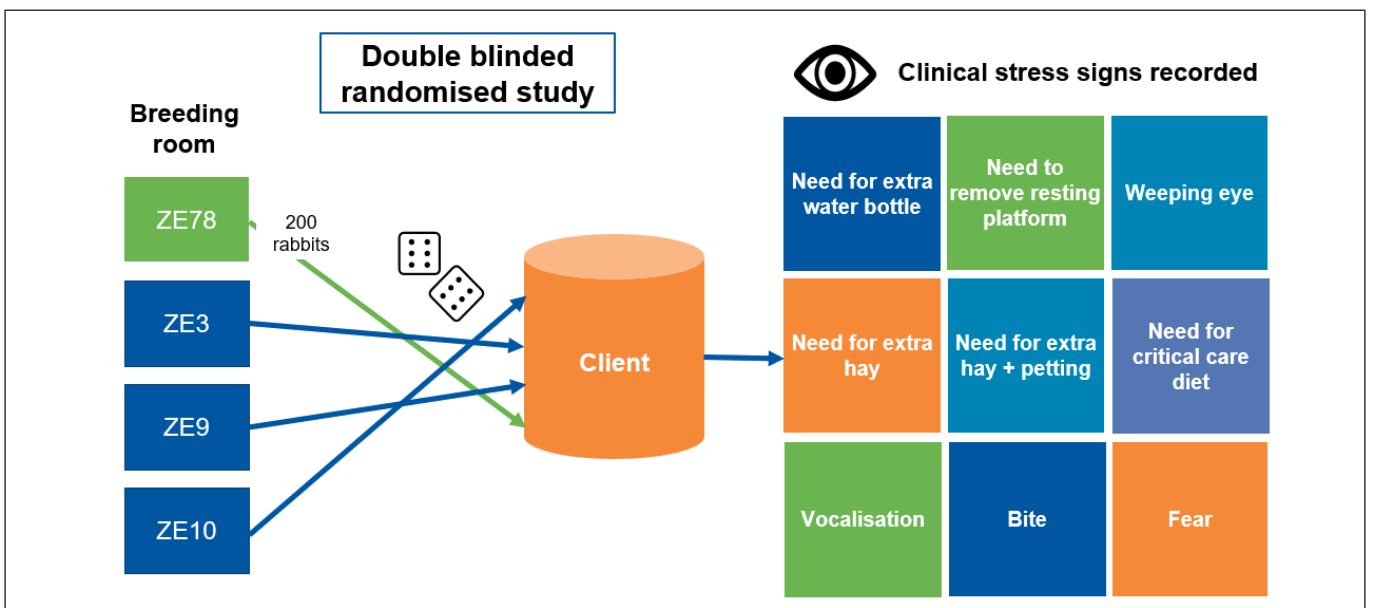


Figure 2. Diagram of the experimental design.

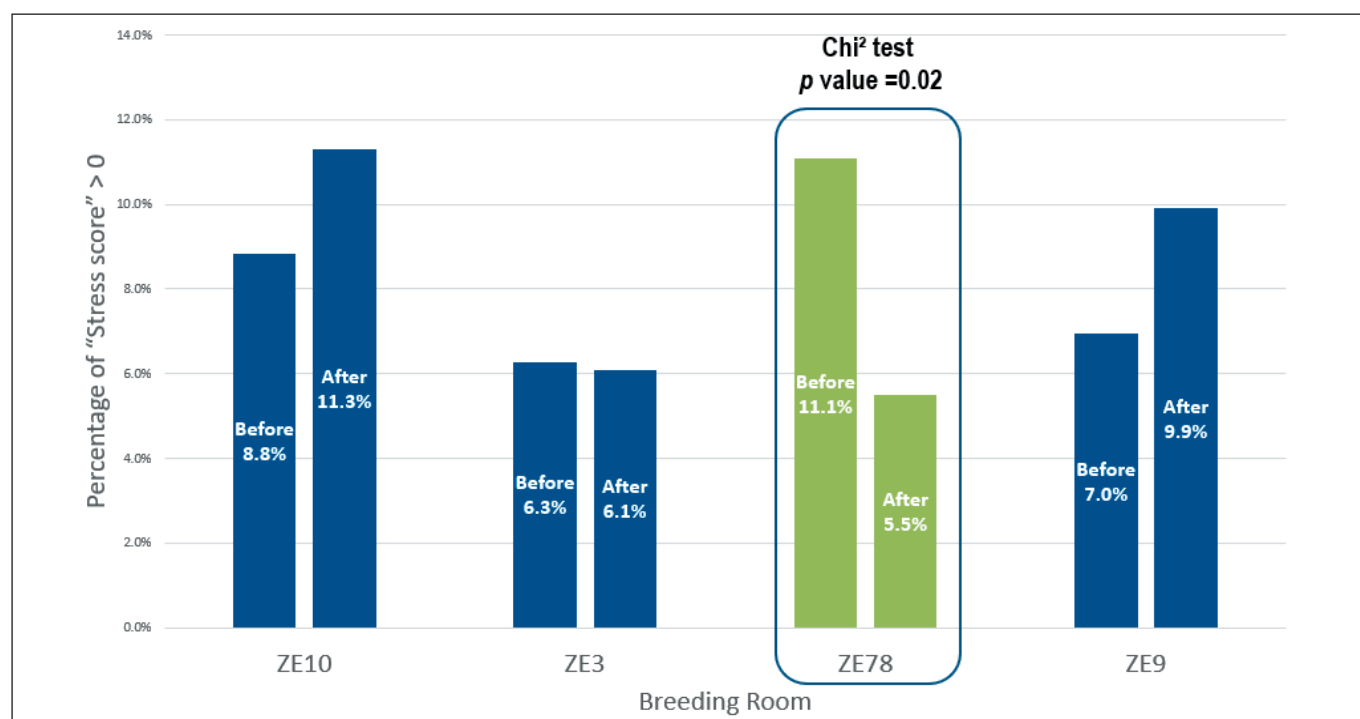


Figure 3. Stress score percentage by breeding room before (n=1281) and after (n=787) the implementation of the habituation programme.

A baseline measure for the stress score, was obtained by retrospective analysis of information collected by the rabbit client in years prior to the implementation of the habituation programme, assessing a total of 1,281 rabbits. For the habituation programme data, we established a target to evaluate 200 rabbits from room ZE78. In total, 787 rabbits from the 4 breeding rooms were scored during this phase.

To compare the percentage of stress scores > 0 before and after the implementation of the habituation programme, a Chi² test was conducted and significance established at $p = 0.05$.

Results and conclusions

Results showed a significant reduction in the percentage of stress score > 0 in rabbits bred in room ZE78 before (11.1%) compared to after (5.5%) the implementation of the habituation programme. For the other 3 breeding rooms, no statistically significant differences were found (Figure 3).

When examining the qualitative characteristics of the stress score in rabbits bred in room ZE78 (Figure 4) we noted:

- Shift towards lower scores.
- Absence of score 5 after the implementation of the habituation programme.

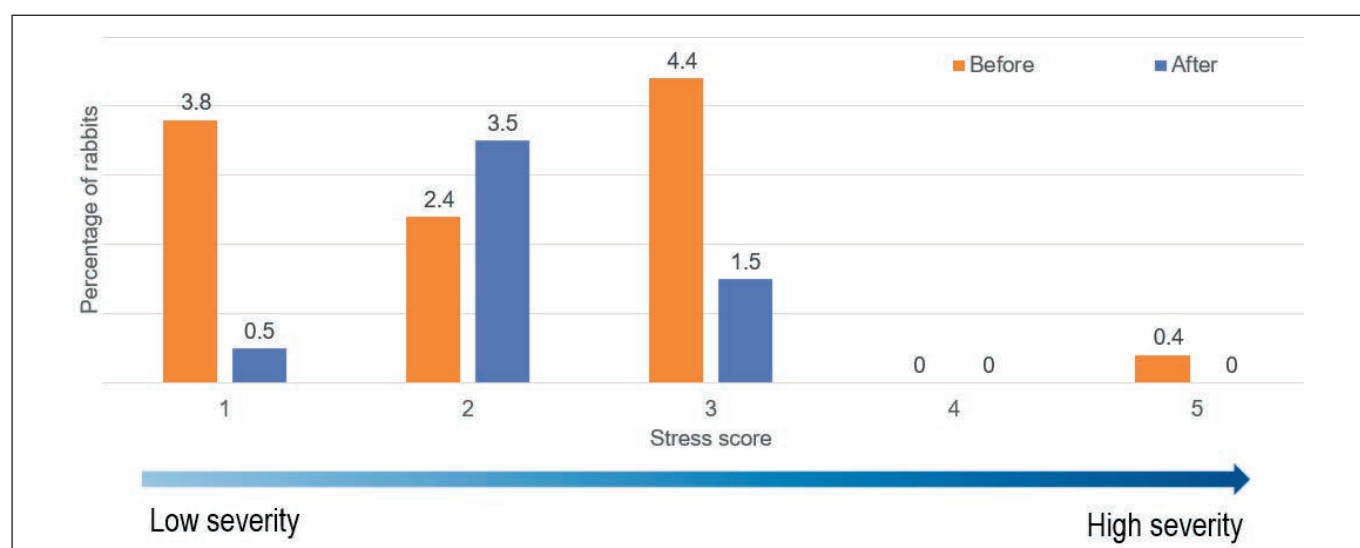


Figure 4. Stress score severity in room ZE78 before and after the implementation of the habituation programme.

Complete absence of the following clinical signs associated with human induced stress.



In conclusion, the habituation programme implemented improved rabbit welfare by reducing the clinical signs associated with stress observed at the client's facility.

References

- ¹ **Bilkó, Á., & Altbäcker, V.** (2000). Regular handling early in the nursing period eliminates fear responses toward human beings in wild and domestic rabbits. *Developmental Psychobiology: The Journal of the International Society for Developmental Psychobiology*, 36(1), 78-87.
- ² **Swennes, A.G., Alworth, L.C., Harvey, S.B., Jones, C.A., King, C.S., & Crowell-Davis, S.L.** (2011). Human handling promotes compliant behavior in adult laboratory rabbits. *Journal of the American Association for Laboratory Animal Science*, 50(1), 41-45.
- ³ **Verga, M., Luzi, F., & Carenzi, C.** (2007). Effects of husbandry and management systems on physiology and behaviour of farmed and laboratory rabbits. *Hormones and Behavior*, 52(1), 122-129.
- ⁴ **Zucca, D., Redaelli, V., Marelli, S.P., Bonazza, V., Heinzl, E., Verga, M., & Luzi, F.** (2012). Effect of handling in pre-weaning rabbits. *World Rabbit Science*, 20(2), 97-101.