

## Optimizing the refinement tools, housing, and handling of laboratory rats – search for a harmonized solution

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The acceptability of the use of animals for scientific purposes is under scrutiny in society and there is increasing concern about the welfare of these animals. The legal and ethical demands for minimized harm and better welfare create the need to continuously reassess our current housing and handling practices and encourage looking for better refinements. Especially the size and height of the legally acceptable standard rat housing has been challenged. The size limits the refinement possibilities and may restrict rats' abilities to perform normal behaviours. The concept of Culture of Care, where we aim to improve the welfare of both animals and people working with them, should lead to better well-being by lowering the stress levels and creating a positive circle in the interactions between humans and animals. On the other hand, there is an increased concern about the quality of research. How are we able to replicate and translate our research better? Rats with good welfare and without negative stress, who can perform natural behaviours, should be the obvious answer. Do we have sufficient knowledge of what is optimal for the laboratory rats in the research setting to harmonize? How to optimize and harmonize so that all aspects are in balance? The size and weight of the cage will affect the workload of the animal caretakers. Some enrichment solutions may increase negative interactions in groups or cause effects to results. We need research to find better solutions for housing, refinements, and handling which will lead to better research quality and welfare.