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Clinical pathology and cardiovascular parameters are not influenced by housing rats under increased environmental complexity

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Abstract

Since the release of the revised Appendix A from the Council of Europe for housing of laboratory animals there have been claims that laboratory animals should be housed under more complex conditions; known popularly as enrichment. A number of studies have expressed concerns that this may increase uncontrollable variation in the animals, thereby creating the need for greater numbers of animals. Within neurobiology there would appear to be a scientific basis for such concern. However, even though this may be used as an argument for denying the animal environmental enrichment, it is unclear whether there is any basis for concern within other research areas. The aim of this study, therefore, was to explore whether clinical pathology and cardiovascular parameters were influenced by housing rats under environmentally enriched conditions. Male, Sprague-Dawley rats were housed under three different regimes: non-enriched, standard-enriched (according to the guidelines of the Council of Europe) and extra-enriched with a shelf and higher cages. All housing forms were based upon commercially available, standardised equipment. A total of 41 different parameters were monitored via clinical pathology, telemetry and coagulation tests and virtually no differences were observed in relation to the manner in which the rats were housed. The uncontrollable variation observed in our study was compared to within-strain variation data supplied from the breeder and was relatively low in all three types of housing. We conclude, based upon our studies in male, Sprague-Dawley rats, that so far there is no basis for concern that enriched housing will lead to increased group sizes when using animals for research within this field and, as such, there is no reason not to enrich the environment of such rats.

Keywords: *animal welfare, clinical pathology, environmental enrichment, housing conditions, rats, telemetry*