Regenerative Therapy 11 (2019) 73–74

Contents lists available at ScienceDirect

Regenerative Therapy

journal homepage: http://www.elsevier.com/locate/reth

Letter to the editor

A cage cleaning method for researchers without a cage-washing machine or cage-washing staff

Keywords:
Cage wash
Cleaning
Rat

Sir: Although cage-cleaning is necessary for a hygienic environment for rats [1], weekly cage-cleaning results in excessive physical and mental stress for researchers who also maintain a clinical practice, do not have a cage-washing machine, and do not have a dedicated cage-washing staff. Because of the number of rats per study and the long-term housing required, this physical and mental stress is exacerbated for investigators who study nerve regeneration [2–7]. To improve this work, a fast and efficient rat cage-cleaning method was developed. In conventional methods, cages (size: 23 cm width × 40 cm length × 20 cm height) (Natsume Seisakusho, Tokyo, Japan) were washed with a brush with cleaning solution and rinsed with water as the first step. These cages were then sprayed with 0.2% sodium hypochlorite and rinsed with water. In our improved method, as the first step, (1) the inner and outer surfaces of the cage were washed with a brush with cleaning solution and rinsed with water as usual. After the inner surface was washed, the water with cleaning solution that remained in the cage (approximately 1 cm in depth) was transferred into the second cage. The first cage was temporarily stored in the sink without rinsing. (2) The inner surface of the second cage was washed with a brush, and the remaining water with cleaning solution was transferred into the third cage. The outer surface of the second cage was washed with a brush with cleaning solution, and stacked into the first cage. (3) These washing steps were repeated for a total of 6 cages and the water with solution was discarded after the 6th cage. Together, all cages were rinsed in a water shower. (4) This process was repeated for subsequent cages in sets of 6 (Fig. 1). The mean consuming times for washing 12 cages with our method and the conventional method were 589 ± 16 sec and 673 ± 13 sec, respectively ($n = 7$, unpaired t-test, $p = 0.0017$), indicating that our method was significantly faster than the conventional method ($p < 0.01$). This difference will be more significant and noticeable as the number of cages being washed is scaled up (e.g., washing thirty cages). Additionally, this method required less water and cleaning solution compared with the conventional procedure. Moreover, this method has the potential to reduce the physical and mental stress associated with the conventional washing method. Our method will contribute to the reduction of stress for researchers having to wash a large number of cages without a cage-washer or a cage-washing staff.

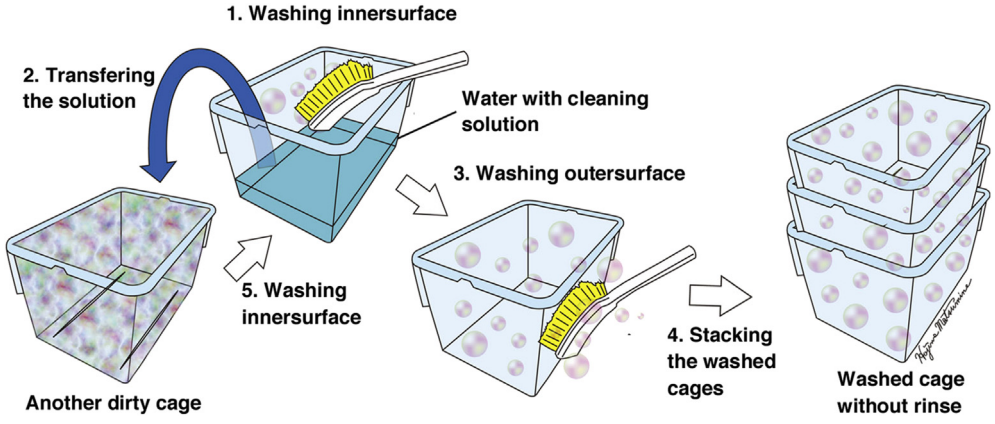

Fig. 1. Schematic diagram of the cage cleaning method.

Peer review under responsibility of the Japanese Society for Regenerative Medicine.

https://doi.org/10.1016/j.reth.2019.05.005

Conflicts of interest

The authors declare no conflicts of interest.

Acknowledgements

We are indebted to Ms. Hallie Thorp, University of Utah, for technical review.

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10 April 2019