

Improving Employee Safety: Mobile Equipment Management in a Multi-Facility Animal Program

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OBJECTIVES

The *Guide for the Care and Use of Laboratory Animals (8th ed.)*, requires that a comprehensive occupational health and safety program, including strategies that minimize employee risk, be developed.

In accordance, we:

- Evaluated retroactive employee injury reports
- Modified equipment to minimize hand injuries
- Developed a castor management program to minimize muscle strain injuries.

EQUIPMENT MODIFICATION



Figure 2. To minimize hand contusion injuries, we modified shelving units by installing ergonomic handles, with sufficient margin from the exterior edges of the equipment.

EXPERIMENT 1

Efficacy of High Temperature and General Purpose Grease

Methods: Shelving unit castors were greased with either a high temperature or general purpose grease. The pull force required to move the units was then measured once weekly, following rack washer sanitization.

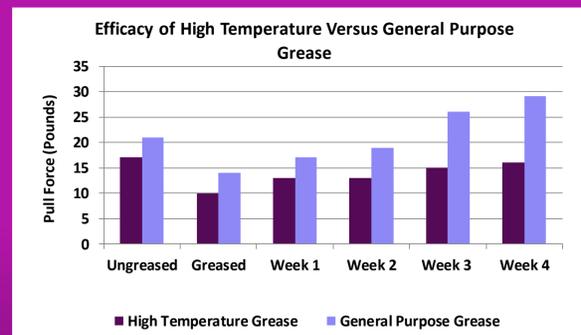


Figure 3. Immediately following greasing, there was no significant difference between the pull force required to move shelving units treated with high temperature versus general purpose grease. At week 3, however, the high temperature grease was significantly more effective ($t(9) = 2.26, p < .05$).

EXPERIMENT 2

Longevity of Castor Grease

Methods: Following initial castor greasing, the pull force required to move shelving units was tested once per week, after rack washer sanitization.

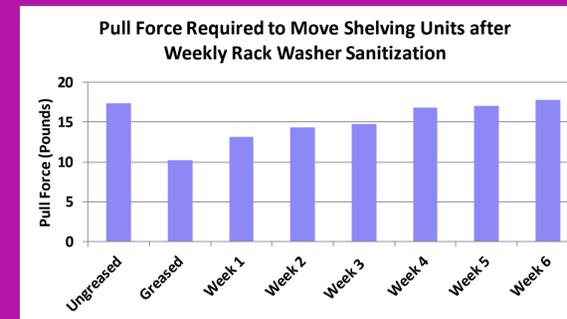


Figure 4. There was no significant difference in the pull force required to move shelving from the time of the initial greasing, until week 4 ($t(9) = 2.58, p < .05$).

Methods: Following initial castor greasing, the pull force required to move non-human primate (NHP) and rabbit caging was tested after rack washer sanitization, every two weeks.

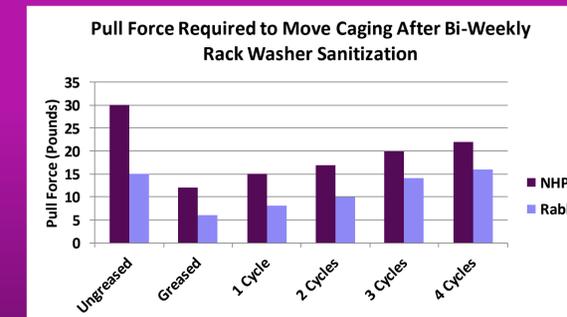


Figure 5. Both NHP and rabbit caging required greater than 15 lbs. of pull force after two sanitizations, and one month of use.

CONCLUSIONS

1. All shelving unit castors must be greased at least monthly, as pull force significantly increased after one month without greasing (see Figure 4).
2. All shelving unit castors must be re-greased following autoclaving, as both high temperature and general purpose grease demonstrated reduced efficacy in our pilot tests.
3. NHP and rabbit caging are now greased at least monthly to minimize potential staff muscle strain injuries (see Figure 5).
4. Rabbit caging returned to baseline pull force faster than the heavier, NHP caging. We believe that the acid wash soak in the rack washer cycle accelerates grease degradation. Pre-soaking caging before rack washing may improve grease longevity.
5. Although high temperature grease cost \$0.94/oz. more than general purpose grease, the longevity of the high temperature grease resulted in a 31% savings in castor maintenance labor costs.

OUTCOME

Between 2010 and 2011, we observed a 40% reduction in contusion and muscle strain injuries.

INJURY PREVALENCE

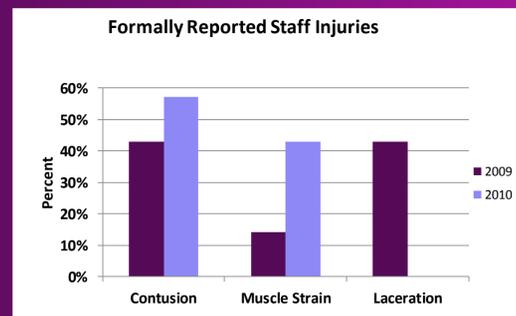


Figure 1. In 2009-2010, most injuries formally reported to Employee Health Services, occurred during equipment transport. In 2012, when surveyed, 52% of husbandry staff reported that they sustained injury while moving equipment.