Bone Whitening for Bone Articulation

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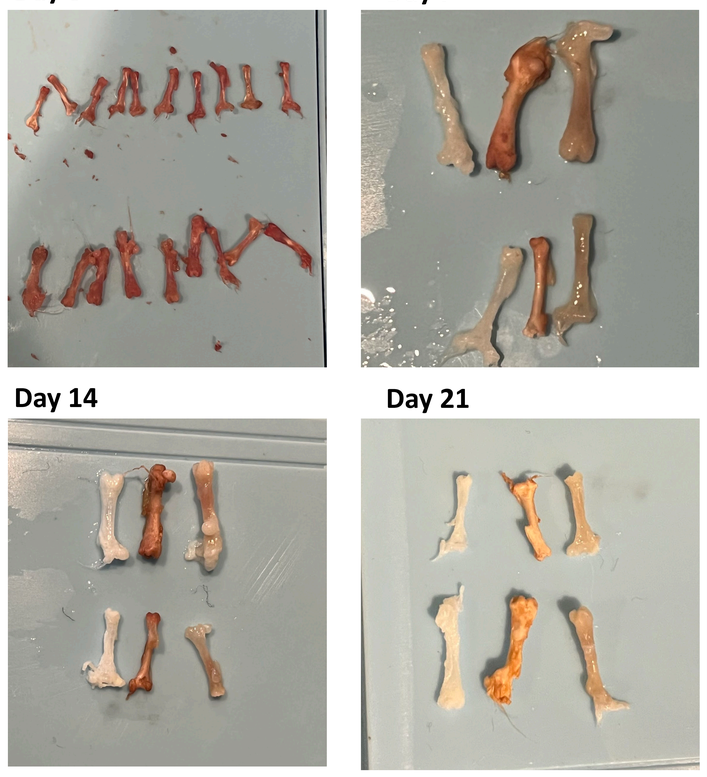
Introduction

Skeleton articulation is the process of cleaning and rearticulating the bones from a deceased animal to recreate its skeleton. These models can be used as learning resources in classrooms or for display purposes in museums or houses. In order for the skeleton to look presentable, it should look clean, so it is usually white. Hence, the whitening step in the process is highly important. Most articulated skeletons are created by hobbyists. The goal of this short-term observational study is to see which common household chemical is effective in whitening bones.

Methodology

1. Isolated 9 mouse femurs and 9 mouse humeri from frozen large adult mice.
2. Soaked 3 of each bone in 100mL of soapy water (created using ½ teaspoon of clear Dawn dish soap to 100mL water), 100mL of 3% Hydrogen Peroxide, or 100mL of acetone in mason jars.
3. Removed the bones from the jar and observed the whiteness of the bones after 7, 14, and 21 days.
4. Compared whiteness to the true white color of #FFFFFF on a color scale.

Results



Day 0 shows the bones before soaking in any solution. Day 7, 14, and 21 show the femur and humerus soaking for their respective number of days. In each picture, the bone on the left was soaking in hydrogen peroxide. On the right the bones were soaking in soapy water. The bones in the middle were soaking in acetone.

Conclusion

3% Hydrogen Peroxide whitens bones the fastest, then soapy water, then acetone. Peroxide shows a significantly whiter bone color just by comparing the bones to one another. When comparing it to the tree white color (#FFFFFF) on a color scale, the bones soaked in 3% hydrogen peroxide were quite similar to that color too. The peroxide also cleaned off any excess flesh that was on the bone, which helped enhance the whiteness. The soapy water did that as well, and I think it did a better job the longer the bone was soaking in it. The acetone did not seem to effectively clean off extra flesh from the bone. Future studies can look at the strength of the bone from soaking in these chemicals. It was observed during this study that the bones soaked in peroxide cracked easily when being removed from the jar after 7, 14, and 21 days. However, the bones soaking in acetone and soapy water were never brittle or softened.

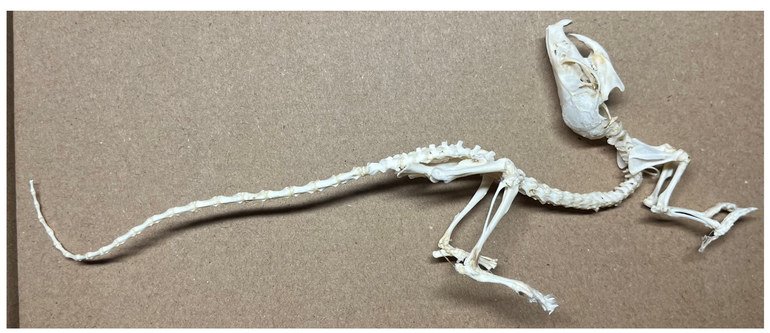


Image 1. Skeleton articulation of a rat