

Light Exposure and Radish Seedling Growth: Lab Report Review

Undergraduate Introductory Biology · Scientific Report Style · 418-word excerpt

Portfolio demonstration: This educational sample was created to show service quality. It is not customer work and should not be submitted as a student's assignment.

Simulation notice and report context

This portfolio demonstration uses a simulated classroom dataset; it does not report a real experiment or customer submission. Three groups of radish seedlings were assigned to four, eight, or twelve hours of daily light for 14 days. Each simulated group contains 12 seedlings. The example focuses on how an editor distinguishes the reported data from conclusions the design cannot support.

Simulated group summaries: four-hour group, mean height 3.8 cm (SD = 1.1); eight-hour group, mean height 6.4 cm (SD = 1.3); twelve-hour group, mean height 6.1 cm (SD = 1.5). No inferential test output was supplied with the draft.

Original results wording — intentionally flawed

The results proved that eight hours of light is the perfect amount for radish plants. The eight-hour plants grew much better than all the other plants, while twelve hours damaged growth because too much light is bad. The hypothesis was correct, and the experiment was successful.

Editor diagnosis: the paragraph replaces measurements with conclusions, uses causal language that the supplied analysis does not justify, and describes the eight-hour mean as definitively different without an inferential test. It also introduces a damage mechanism that was never measured.

Revised results section

After 14 days, the eight-hour group had the highest mean seedling height ($M = 6.4$ cm, $SD = 1.3$), followed by the twelve-hour group ($M = 6.1$ cm, $SD = 1.5$) and the four-hour group ($M = 3.8$ cm, $SD = 1.1$). The mean difference between the eight- and twelve-hour groups was 0.3 cm, whereas both groups exceeded the four-hour mean by more than 2 cm.

Because no inferential test results were provided, these descriptive differences should not be labeled statistically significant. The results section reports the observed group summaries without claiming that the light schedule caused the differences or that eight hours is optimal.

Revised discussion and limitations

The simulated pattern is consistent with the prediction that seedlings receiving four hours of daily light would show less growth than seedlings receiving longer exposure. However, the eight- and twelve-hour group means were similar relative to their within-group variability. The available summaries therefore support a cautious conclusion: longer light exposure was associated with greater mean height than the four-hour condition in this dataset, but the evidence does not establish an optimal duration.

Several limitations narrow the interpretation. The sample is small, seedling height is only one measure of growth, and the design summary does not report randomization, temperature, water control, lamp distance, or inferential testing. A stronger follow-up would predefine those controls, report individual observations, and analyze whether group differences exceed expected sampling variation.