Angling Energy for Vitamin D3 Synthesis Efficiency

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Purpose / Need: To create a variable UVB light fixture. Procedure: Light fixture prototype build: Cut 101.6 cm x 5.08 cm x 2 cm piece of wood as a base. Cut 2 101.6 cm x 20.3 cm x 0.75 cm pieces as flaps. Drill 3 consecutive holes with diameter of 0.5 cm 20.32 cm from edge of flaps. Drill holes half way through base 20.32 cm from edge of each side. Secure both flaps to base with screws and hinges. Drill 2 holes 3 cm in diameter 5.08 cm from each edge of top of unhooded fixture. Secure unhooded fixture. The prototype was tested for size, cost, weight, ease of use, and adjustable UVB light intensity. The prototype was redesigned multiple times to fit the criteria best. Conclusion: Design #5 scored the highest on the decision matrix, proving to be the best design. In Designs #1-3, the redesigns were focused on meeting the criteria for adjustable UVB light intensity. Design #3 determined the best reflective surface that could increase or decrease the UVB light intensity with flaps at different angles. Designs #4 and #5 did not need to be tested for the adjustable UVB intensity criteria. Designs #4 and #5 focused on the weight, cost, and ease of use criteria.

Awards Won: