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Título	Exploring New Ways to Analyze Data on the Spontaneous Physical Activity of Rodents Through a Weighing Balance
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Resumo	<p>Abstract: Background: Weight-based methods can be cost-effective and practical for measuring spontaneous physical activity (SPA) in laboratory animals, but their adoption and exploration of analyses remain limited. Methods: We demonstrate the construction of a balance using accessible components (iron plates and open-source Arduino® electronics) and provide detailed instructions to enable others to build their own systems. Additionally, we propose new analytical strategies, such as using the Mean of Weight Changes (MWC), assessing the dispersion of weight changes, and classifying SPA into domains, to enhance data interpretation. Results: The construction of the weighing balance using accessible components proved to be feasible, and the balance demonstrated sensitivity in distinguishing high SPA under experimental conditions known to modulate it (dark/light phases and small vs. large cages). Regarding the analyses, we were able to confirm that MWC analysis is a valid measure of SPA. Furthermore, the coefficient of variation in weight changes could be used as a complementary analysis to MWC. The proposed SPA domains also proved to be valid, as they aligned with the understanding that rodents spend a greater proportion of time in the higher SPA domains during the dark phase, while lower SPA domains predominate during the light phase. Conclusions: Our findings reinforce the robustness and validity of our weighing balance, designed using a low-cost setup based on iron plates and open-source Arduino® electronics.</p>
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