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The role of fundamental motor skills and abilities: A novel anticipation time measurement system

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Background
Success in sports is intrinsically linked to athletes' ability to perform fundamental motor skills with efficiency and precision. These skills, underpinned by perceptual-motor and physical competencies, play a critical role in achieving high performance. Among these, anticipation time—the ability to predict the trajectory and endpoint of moving objects—has been recognized as a key determinant in sports performance.
Materials and methods
Despite its importance, existing tools for measuring anticipation time, such as the Bassin Anticipation Timer, present limitations in flexibility and adaptability. This project introduces the design and development of a programmable, wireless anticipation time measurement system tailored for talent identification and skill assessment.
Results
The proposed device addresses key limitations of its predecessors by incorporating advanced features such as adjustable panel dimensions, multi-directional LED stimuli, and customizable configurations. Notably, it will allow for the integration of various shapes, colors, and dynamic stimuli, enhancing its applicability across diverse sports contexts. Additionally, the device will support vertical and horizontal measurement orientations and operates efficiently under varying lighting conditions.
Conclusions
The innovative features of this system will provide more accurate, versatile, and context-specific assessments of anticipation time, contributing to a more precise identification and development of athletic talent. This tool will represent a significant advancement in sports science, with potential applications in training, evaluation, and talent selection.