

Going through the motions improves dance performance

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Expert ballet dancers seem to glide effortlessly across the stage, but learning the steps is both physically and mentally demanding. New research suggests that dance marking—loosely practicing a routine by "going through the motions"—may improve the quality of dance performance by reducing the mental strain needed to perfect the movements.

The new findings, published in *Psychological Science*, a journal of the Association for Psychological Science, suggest that marking may alleviate the conflict between the cognitive and physical aspects of [dance](#) practice, allowing dancers to memorize and repeat steps more fluidly.

Researcher Edward Warburton, a former professional ballet dancer, and colleagues were interested in exploring the "thinking behind the doing of dance."

"It is widely assumed that the purpose of marking is to conserve energy," explains Warburton, professor of dance at the University of California, Santa Cruz. "But elite-level dance is not only physically demanding, it's cognitively demanding as well:

Learning and rehearsing a dance piece requires concentration on many aspects of the desired performance."

Marking essentially involves a run-through of the dance routine, but with a focus on the routine itself, rather than making the perfect movements.

"When marking, the dancer often does not leave the floor, and may even substitute hand gestures for movements," Warburton explains. "One common example is using a finger rotation to represent a turn while not actually turning the whole body."

To investigate how marking influences performance, the researchers asked a group of talented dance students to learn two routines: they were asked to practice one routine at performance speed and to practice the other one by marking.

The routines were relatively simple, designed to be learned quickly and to minimize mistakes. Yet differences emerged when the judges looked for quality of performance.

Across many of the different techniques and steps, the dancers were judged more highly on the routine that they had practiced with marking—their movements on the marked routine appeared to be more seamless, their sequences more fluid.

The researchers surmise that practicing at performance speed didn't allow the dancers to memorize and consolidate the steps as a sequence, thus encumbering their performance.

"By reducing the demands on complex control of the body, marking may reduce the multi-layered cognitive load used when learning choreography," Warburton explains.

While marking is often thought of as a necessary evil—allowing dancers a "break" from dancing full out—the large effect sizes observed in the study suggest that it could make a noticeable difference in a dancer's performance:

"Marking could be strategically used by teachers and choreographers to

enhance memory and integration of multiple aspects of a piece precisely at those times when dancers are working to master the most demanding material," says Warburton.

It's unclear whether these performance improvements would be seen for other types of dance, Warburton cautions, but it is possible that this area of research could extend to other kinds of activities, perhaps even language acquisition.

"Smaller scale movement systems with low energetic costs such as speech, sign language, and gestures may likewise accrue cognitive benefits, as might be the case in learning new multisyllabic vocabulary or working on one's accent in a foreign language."

Provided by Association for Psychological Science

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