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## Exercising to Piano Music Appears to Help Reduce Falls among Older Adults

*Introducing a music-based multitask exercise program for community-dwelling elderly people may lead to improved gait (manner or style of walking), balance and a reduction in the rate of falling, according to a report posted online November 22 that will be published in the March 28 print issue of Archives of Internal Medicine.*

"Each year, one-third of the population 65 years and older experiences at least one fall, and half of those fall repeatedly," the authors write as background information in the article. "Exercise can counteract key risk factors for falls, such as poor balance, and consequently reduce risk of falling in elderly community-dwelling individuals."

As a large proportion of falls in elderly people occur during walking, Andrea Trombetti, M.D., of University Hospitals and Faculty of Medicine of Geneva, Switzerland, and colleagues conducted a randomized controlled trial of a six-month music-based multitask exercise program to determine if such a program would lead to improvements in gait and balance, and reduce the risk of falling in community-dwelling older adults. The study included 134 adults who were older than 65 and at an increased risk of falling. The average age of participants was 75.5 years, and 96 percent were women.

During the study, adults were randomly assigned to either a music-based multitask exercise program, or a delayed intervention control group. For the first six months, adults in the intervention group participated in a one-hour weekly exercise program led by an instructor. The class featured multitask exercises, including a wide-range of movements that challenged the body's balance control system, which gradually became more difficult over time. These exercises included walking in time to the piano music, and responding to changes in the music's rhythm. During the second six months of the study, the delayed intervention control group participated in the same exercise class program, while adults in the intervention group returned to normal exercise activities.

Overall, balance and functional tests improved in the intervention group when compared to the control group. There were fewer falls in the early intervention group, as well as a lower rate of falling. Among the early intervention group (n=66), there were 24 falls (rate of falls, 0.7 per person per year), whereas among the delayed intervention group, there were 54 falls (rate of falls, 1.6 per person per year). Adults in the delayed intervention control group experienced similar changes during the second six-month period when they were enrolled in the exercise class program.

The authors found that under the single-task condition (performing one task at a time), adults in the intervention group increased their usual gait velocity (walking speed) and their stride length, compared with the control group. The stride time variability also improved in the intervention group. In the dual-task condition (performing multiple tasks at the same time), adults in the intervention group increased their stride length, and decreased their stride length variability compared to the control group. Additionally, the benefit of the intervention on gait variability was still apparent six months later.

This study shows "that participation in music-based multitask exercise classes once a week over a 6-month period can improve gait performance under single and cognitive-motor, dual-task conditions, as well as improve balance, and reduce both the rate of falls and the risk of falling in at-risk elderly community-dwelling adults," the authors conclude. "Our findings suggest that this program may be useful for fall prevention and rehabilitation in community-based setting such as senior centers."