

Elderly adults' mobility decreased by more than three times the normal amount during the COVID-19 pandemic

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Credit: AI-generated image ([disclaimer](#))

Studies have shown that elderly adults experienced significant health effects during the COVID-19 pandemic, including decreased physical activity due to stay-at-home orders, decreased lower extremity function, and progression of frailty. However, as these were subjective studies

based on questionnaires conducted with elderly adults, the actual nature of specific functional decline was not fully known.

Professor Tomohiro Okura of the Faculty of Health and Sports Sciences, University of Tsukuba and his colleagues investigated changes in various measures of physical fitness in [elderly adults](#) during the pandemic using data from physical fitness tests conducted annually before and during the pandemic, from 2016 to 2020 (107 men and 133 women living in Kasama City, Ibaraki Prefecture; mean age 73.2 years).

They found that in a normal non-pandemic year, time taken to complete the Timed Up & Go fitness test, a composite measure of mobility, increased by 0.05% in men and 0.12% in women on average, indicating a decrease in function. In contrast, it increased by 0.7% (+0.42 s) in men and 0.36% (+0.22 s) in women during one year of the pandemic, between 2019 and 2020.

This means that during the pandemic, mobility decreased three times more than the normal change after one year of aging. Similarly marked declines in physical fitness were observed for the 5-meter habitual walk (walking ability) and sit and reach test (flexibility) in both men and women, as well as for grip strength (upper extremity muscle strength) and the hand working with pegboard (finger dexterity) in women alone.

This study suggests that programs aimed at maintaining and improving physical fitness to promote healthy aging must be prioritized in preparation for the shift to the endemic era of COVID-19.

Study background

Two full years have passed since the World Health Organization (WHO) declared the spread of the new coronavirus (COVID-19) to be a pandemic, and there has been much discussion about the nature of daily

life in the coming shift to the endemic era. Studies have shown that elderly adults experienced significant effects on their health and lifestyle during the pandemic, including decreased [physical activity](#) due to stay-at-home orders, decreased lower extremity function, and progression of frailty.

However, as many of these were subjective studies based on questionnaires conducted with elderly adults, the actual nature and extent of specific functional decline was not fully known. In this study, functional decline was assessed objectively by [fitness test](#) results and patients were tracked before and during the pandemic to determine the effects of the pandemic on functional decline after one year of aging, as well as differences in functional decline between men and women.

Study details and results

Since 2009, the city of Kasama in Ibaraki Prefecture has run the "Kasama health checkup for longevity" program, a follow-up survey of a medium-sized group of elderly adults focusing on their health, physical fitness, and physical activity. This study analyzed data from community-dwelling program participants (107 men and 133 women, mean age 73.2 years) over the four-year period between 2016 and 2020.

Physical fitness (i.e., physical function) decreased significantly during the COVID-19 pandemic compared to the normal changes observed after one year of aging. Among the physical fitness tests, significant worsening of performance was observed for the Timed Up & Go test (a composite measure of mobility), 5-meter walk test (walking ability), and sit and reach test (flexibility) in both men and women.

Time taken to complete the Timed Up & Go test increased by 0.03 seconds in men and 0.07 seconds in women on average over a normal year of aging, indicating a decrease in function. During one year of the

pandemic (2019 to 2020), in contrast, times increased by 0.42 seconds in men and 0.22 seconds in women.

Time taken to complete the 5-meter walk test decreased by 0.04 seconds in men and 0.01 seconds in women over a normal year, indicating that function is normally maintained despite aging in both sexes. During the pandemic-era year, in contrast, times increased by 0.19 seconds in men and 0.15 seconds in women.

Even for the sit and reach test, flexibility was maintained during a normal year in both men (+0.33 cm) and women (+0.84 cm), but decreased by -2.89 cm for men and -4.37 cm for women during the pandemic-era year.

In other words, elderly adults' mobility decreased by over three times, and flexibility by over five times during the pandemic compared with normal changes observed after one year of aging. In addition, women's [grip strength](#) (upper extremity muscle strength) decreased by three times, and 48-hole peg test performance (finger dexterity) by four times more than normal during the pandemic. The above results show that mobility and flexibility decreased in both men and women, and that upper extremity muscle strength and finger dexterity decreased in women alone.

These findings suggest a need to prioritize programs that promote healthy aging by maintaining and improving both men's and women's ability to perform composite movements and flexibility in situations like the COVID-19 pandemic where daily activities are restricted. Upper extremity muscle strength and finger dexterity must also be targeted in women.

Future outlook

This objective longitudinal study demonstrated the effects of the COVID-19 pandemic on the physical function of community-dwelling elderly adults using data from physical fitness tests. However, only changes in the average physical fitness of the population were investigated, not factors such as the susceptibility of individual members to the [pandemic](#)'s effects.

In a future study, questionnaire data will be cross-referenced to determine the characteristics and background factors of participants who experienced significant decline in physical function in order to formulate specific approaches to improving [physical fitness](#) in elderly adults.

More information: Changes in the physical fitness of elderly people in the COVID-19 pandemic An examination using performance test, *Japanese Journal of Geriatrics*, [DOI: 10.3143/geriatrics.59.491](https://doi.org/10.3143/geriatrics.59.491)

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