

PRESS RELEASE

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Subject line: **Strenuous daily exercise may shorten, not prolong, longevity**

(Tokyo, June 19 2020) **By analyzing longevity data for professional Japanese traditional artists, researchers at Tokyo Institute of Technology (Tokyo Tech) have found that *Kabuki* actors, known for their vigorous movements, surprisingly had shorter lifespans compared with other traditional arts performers who lead mostly sedentary lifestyles. The findings suggest that job-related strenuous exercise throughout life may not necessarily extend longevity.**

Frequent exercise is often touted as key to leading a long and healthy life. But few studies have delved into comparisons in longevity between those who partake in vigorous physical activity and those who lead mostly sedentary lifestyles as a result of their occupation throughout their lives.

Now, Naoyuki Hayashi and Kazuhiro Kezuka of Tokyo Tech's Institute of Liberal Arts have conducted an unusual study that calls into question the idea that vigorous daily exercise positively correlates with longevity.

They compared the lifespans of four different groups of Japanese traditional arts performers by examining data from a total of 699 professional male artists, both living and dead, whose birth and death records are all publicly available. They hypothesized that *Kabuki* actors would lead longer lives owing to the high-level physical activity involved in their theatrical performances, compared with *Sado*, *Rakugo* and *Nagauta* practitioners, who are known to perform tea ceremonies, recount comic stories and play musical instruments while sitting, respectively.

Using a method called Kaplan–Meier analysis¹, they found that contrary to expectations, the lifespan of *Kabuki* actors was shorter than that of the other three types of traditional artists. (See **Figure 1.**)

The researchers postulate that one reason for the shorter lifespans of *Kabuki* artists could be that excessive endurance training and physical activity overwhelms the beneficial aspects of regular physical exercise. Another reason might be that in the past, *Kabuki* actors have often worn *oshiroi* (white powder used for make-up) containing lead, which carries a significant health risk. The use of *oshiroi* was only banned in Japan in 1934.

The researchers point out their study is not without limitations. For example, the data examined male-dominated professions only, and therefore does not give a portrayal of population-wide longevity including females.

Further work would be needed to evaluate the optimal amount of exercise for protecting health. The possibly beneficial effects of “non-exercise” activities such as speaking, singing and playing musical instruments would also need further exploration.

Overall, the researchers say their study represents “a novel way of extracting information from publicly available data” and “contributes to the global trend in addressing reproducibility in science.”

Image preview:

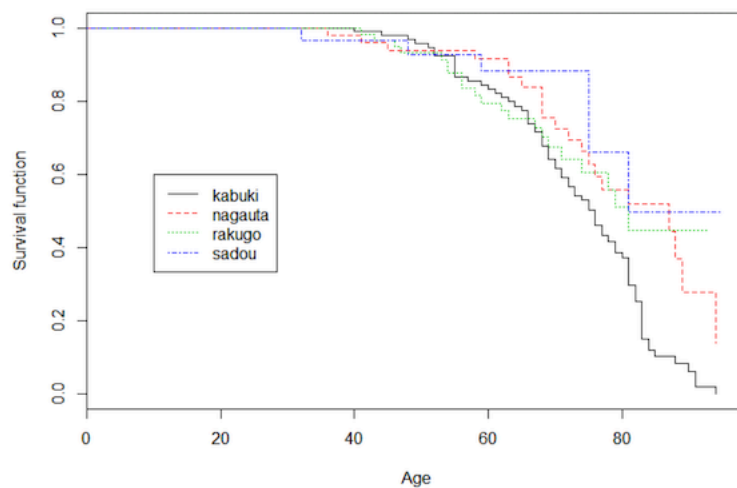


Figure 1. Survival function of traditional arts performers born after 1901

Kabuki artists showed lower survival compared with the other three types of traditional arts performers (based on data of Hayashi and Kezuka, Lifespan of Japanese traditional artists Harvard Dataverse, V1, 2020).

Technical terms

¹ Kaplan–Meier analysis: A method of investigating the probability of survival over time for a given group of subjects. In medical settings, it is used to determine the fraction of patients surviving for a certain amount of time after treatment.

References

Hayashi, N.^{1,2} and Kezuka, K.^{1,2} The influence of occupation on the longevity of Japanese traditional artists. *Palgrave Communications* 6:98 (2020).

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