



A Square Stepping Exercise system involves memorizing footwork patterns.

OILING THE WHEELS OF AGE

University of Tsukuba researchers study how **ANTI-INFLAMMATORY FOODS, STEP-MEMORIZATION EXERCISES AND SLEEP** contribute to health in older people.

Researchers from the University of Tsukuba are delving deeply into how food, exercise and sleep combinations contribute to healthy ageing. “We are trying to establish new, simple strategies,” explains Hiroko Isoda, director of the university’s R&D Center for Tailor-Made QOL, which was set up in 2019 to accelerate the health agenda of Hokkaido University’s Center of Innovation (COI).

Among the Tsukuba centre’s key focusses are the molecular mechanisms of maslinic acid, the main constituent of olive pomace, a byproduct of olive oil. In 2015, Isoda and his colleagues reported that maslinic acid could help suppress the expression of genes and proteins involved in inflammatory activities, the destruction of synovium in knee joints, as well as alleviate symptoms, as such arthritic

pain. A 2018 double-blinded, placebo-controlled, randomized intervention study by a team led by the centre’s Jieun Yoon then suggested maslinic acid consumption and low-intensity exercises might help increase knee muscle function in older adults with osteoarthritis. NIPPON, Isoda’s main corporate partner, has been selling maslinic acid-containing products, such as a jelly drink, under the Japan’s food with functional health claims labelling system.

Meanwhile, the centre’s Tomohiro Okura is elucidating the effect of a Square Stepping Exercise (SSE), a programme he developed 25 years ago. On a mat of 40 green 25 cm x 25 cm squares, instructors demonstrate one of more than 500 varieties of step pattern, which participants memorize and replicate. “It’s a multitasking

exercise, but the great feature is that the elderly people enjoy exercising as a group and socializing. Otherwise, they become isolated and frail at home,” Okura explains.

In a 2008 randomized, controlled trial of adults aged between 65 and 85, Okura showed that SSE may be more effective than walking for improving functional movement, reducing the incidence of falls by roughly a third. SSE is rapidly spreading outside Japan, including in Singapore, Taiwan, the United States and Europe.

Okura will soon also publish a study on the effects of SSE in combination with weight-bearing exercises and two protein building amino acids on older women with low BMI.

The centre’s Jaehoon Seol is looking at the link between exercise and sleep. Earlier this year, his team reported

that low-intensity aerobic exercise in the evening improved polysomnographic measurements (e.g. brain waves and blood oxygen levels) and the self-reported sleep quality in elderly women, compared with measurements after performing housework. He is now investigating how SSE impacts sleep quality compared to other simple types of aerobic exercise.

Although the six-year COI programme ends in March 2022, researchers at the University of Tsukuba will continue their projects for another decade under the university’s new initiative, the Tsukuba Digital Bio International Center. ■



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