

# Walking on an incline could help people suffering from knee problems

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Incline walking on a treadmill could benefit people with knee osteoarthritis or knee replacements, says a new study from Ball State University.

for these individuals."

Provided by Ball State University

A research team led by Henry Wang, a Ball State exercise science professor, studied 15 volunteers at the university's Biomechanics Laboratory to find that [walking](#) on an incline treadmill reduces stress on the [knee](#) joint while strengthening lower limb muscles.

"Walking is a daily activity and a common exercise for all age groups and can provide many benefits, including reducing the risk for Type 2 diabetes, cardiovascular disease and obesity," Wang said. "Despite its benefits, fitness walking also involves risk factors, including increased frontal plane knee loading, which may lead to cartilage degeneration."

Several national studies estimate that 41 percent of the adult population have varus knee alignment, which gives a bowlegged appearance and increases the risk of [knee osteoarthritis](#).

Despite the popularity of incline walking, there is limited research describing the effect on knee joint mechanics, Wang said.

Study participants walked in the center of the treadmill at 5, 10, 15 and 20 percent gradients while maintaining consistent speed for three-minute bursts. Researchers conducted 3-D motion analysis to study movement and impact on the knee joint.

Researchers found that frontal plane knee moment decreased as the [treadmill](#) gradient increased. They recommend that as leg muscle strength improves, clinicians should introduce steeper gradients in 5 to 10 percent increments.

"Incline walking can strengthen leg muscles while introducing less joint load or pressure to the knee," Wang said. "Therefore, it can be an ideal exercise

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