

# Study Shows How This Type of Exercise Can Slow Parkinson's

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## STORY AT-A-GLANCE

- › Engaging in the gentle exercise of tai chi may be a simple way to manage the symptoms of Parkinson's disease and slow disease progression over time
- › Tai chi's potential to improve muscle strength, balance and flexibility, along with cognitive problems, may be particularly useful for people with Parkinson's
- › Parkinson's patients who engaged in tai chi had slower disease progression and reduced need for medications
- › Improvements in gait, imbalance, sleep and cognition were also noted in the tai chi group while Parkinson's symptoms were reduced
- › In terms of Parkinson's disease and other nervous system disorders, the popular Yang style of tai chi, which involves big, exaggerated movements that are slow and controlled, may be ideal

Engaging in the gentle exercise of tai chi may be a simple way to manage the symptoms of Parkinson's disease and slow disease progression over time. While drug treatments are typical first-line treatments, nondrug options, including physical exercise, may improve quality of life while resulting in less need for prescription drugs.<sup>1</sup>

Not only is tai chi more economical than drug therapy, researchers noted in the *Journal of Neurology, Neurosurgery and Psychiatry*, but long-term use of Parkinson's drugs may cause both motor and non-motor complications – risks that don't occur with tai chi. It's

also not certain whether drug treatment delays Parkinson's disease progression, making tai chi worthy of attention as a potential intervention.<sup>2</sup>

## Long-Term Tai Chi Benefits Parkinson's Patients

Tai chi is a form of physical activity that uses slow, flowing movements to improve physical and mental health. In addition to improving strength, balance and postural alignment, tai chi offers benefits to concentration, relaxation and breath control.<sup>3</sup> Tai chi's potential to improve muscle strength, balance and flexibility, along with cognitive problems, may be particularly useful for people with Parkinson's.

The condition involves gait and posture disorders, tremors and muscle stiffness, which progresses to frequent falls, problems with balance, gait dysfunction and loss of postural stability. The symptoms can make carrying out normal daily activities difficult, and even with drug treatment, loss of independence, reduced quality of life and increased mortality often occur.<sup>4</sup>

Researchers set out to determine if long-term tai chi training can lead to improvements in Parkinson's disease patients. Two groups were followed from January 2016 to June 2021. One group of patients practiced tai chi twice a week for an hour, while the other group did not.<sup>5</sup>

Those engaging in tai chi had slower disease progression and reduced need for medications. While 83.5% of those not doing tai chi needed to increase their medication in 2019 – and over 96% did in 2020 – this was lower in the tai chi group, with only 71% and 87.5% increasing their medication in 2019 and 2020, respectively.<sup>6</sup> Parkinson's symptoms were also significantly lower in the tai chi group, including:<sup>7</sup>

Dyskinesia (involuntary movements)

Dystonia

Hallucinations

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Mild cognitive impairment

Restless legs syndrome

Falls

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Improvements in gait, imbalance, sleep and cognition were also noted in the tai chi group, with the researchers explaining:<sup>8</sup>

*"Our study has shown that Tai Chi retains the long-term beneficial effect on PD [Parkinson's disease], indicating the potential disease-modifying effects on both motor and non-motor symptoms, especially gait, balance, autonomic symptoms and cognition.*

*PD can worsen motor function and non-motor symptoms progressively with time, resulting in disability and influencing the quality of life. The long-term beneficial effect on PD could prolong the time without disability, leading to a higher quality of life, a lower burden for caregivers and less drug usage."*

## **Other Research Links Tai Chi to Parkinson's Improvements**

A systematic review and meta-analysis involving 17 trials also found tai chi is beneficial for Parkinson's, leading to improvements in gait velocity, general motor function, bradykinesia and balance.<sup>9</sup>

With a protocol that involves ankle sway and weight shifting to improve walking ability and postural control, tai chi is useful for enhancing balance and neuromuscular rehabilitation, the team noted.<sup>10</sup> Another study of 500 patients with Parkinson's disease compared tai chi, performed for 80 minutes three times a week for two months, with 90 minutes of routine exercise three times a week for two months.<sup>11</sup>

While both exercise groups had improvements in "timed up-and-go," 50-foot speed walk and functional reach, the improvements were greater in the tai chi group. Likewise, falls were decreased in both groups, but more so among those doing tai chi.

Further, 9% of those in the tai chi group were able to stop levodopa drug treatment at the end of the study follow-up, while those still taking medications were able to decrease

their dose. "Tai Chi had the potential to slow down the progression of symptoms of Parkinson's disease and delayed the introduction of levodopa," according to the researchers, who added:<sup>12</sup>

*"The results of this study supported that Tai Chi was an effective meditation technique for people who have mild to moderate Parkinson's disease. The incorporation of Tai Chi in the daily life of Parkinson's disease patients allowed them to stay functionally and physically active."*

## **Which Type of Tai Chi Is Best for Parkinson's?**

There are five main styles of tai chi – Chen, Yang, Wu, Sun and Hao. The Chen style is characterized by explosive movements such as jumps, kicks and strikes, the Yang style involves big, exaggerated movements that are slow and controlled.

The Wu style involves more forward and backward leaning, while the Sun style emphasizes mobility. Hao, the least popular style, focuses more on internal movements designed to control the body's qi, or internal force.<sup>13</sup>

In terms of Parkinson's disease and other nervous system disorders, the popular Yang style may be ideal. A systematic review published in Evidence Based Complementary and Alternative Medicine explains:<sup>14</sup>

*"For Parkinson's disease, Yang style Tai Chi can improve balance and motor function and enhance the health-related cognitive ability of patients. Practicing 12-form Sun style Tai Chi can alleviate disease symptoms and improve the quality of life and physical function of patients with Parkinson's disease.*

*Two other studies have demonstrated that a 12-week, 3 times a week, 60-minute moderate-intensity Tai Chi exercise can improve the functional status of Parkinson's patients ...*

*In summary, Tai Chi is a safe and effective way to improve the lives of patients with nervous system diseases such as Parkinson's disease, dementia, and sleep*

*disorders. For these patients, a 12-week or longer, 2-3 times per week, 60-minute Yang style Tai Chi practice is the most used exercise prescription."*

## Tai Chi Is 'Meditation in Motion'

Exercise interventions geared toward Parkinson's should target both physical and psychological effects, as the disease has mental effects as well. It's estimated that 20% to 70% of Parkinson's patients may suffer for depression, for instance.<sup>15</sup> Tai chi offers this mix of mind-body benefits, and its gentle movements are suitable for Parkinson's patients who may have limited mobility.

Tai chi, which is often referred to as "meditation in motion," involves movements in which your muscles are relaxed,<sup>16</sup> your breathing is slow and deep, and your mind is focused on the present moment. It also has demonstrated benefits on brain health and may improve cognitive function and alleviate symptoms of mild cognitive impairment in older adults.

Along with activating the expression of signals in different brain regions and altering their connectivity, tai chi may increase brain volume and modulate brain-derived neurotropic and inflammation factors, according to research published in *Frontiers in Aging Neuroscience*.<sup>17</sup>

Further, despite its low intensity, tai chi has been found to benefit a range of diseases beyond Parkinson's, including:<sup>18</sup>

Cognitive capacity in older adults	Dementia	Depression
Insomnia <sup>19</sup>	Osteoarthritis	Chronic obstructive pulmonary disease
Cardiac and stroke rehabilitation	Fall prevention	

# Parkinson's Disease May Originate in Your Gut

While Parkinson's disease is often said to be of idiopathic origins, meaning there's no known cause, research published in the journal *Neuron* suggests that it may actually originate in cells in the gut and travel to the brain via the vagus nerve, the tenth cranial nerve that runs from your brain stem down to your abdomen.<sup>20</sup>

Alpha-synuclein is a type of protein naturally found in the human body. When the proteins are misfolded, they may clump together and cause damage to nerve cells that lead to areas of dead brain matter called Lewy bodies.<sup>21</sup> These areas of dead brain cells lead to Parkinson's disease symptoms such as problems with movement and speech.<sup>22</sup>

In 2003, research by German neuroanatomist Heiko Braak first suggested that Parkinson's disease may originate in the gastrointestinal tract.<sup>23</sup> More recently, researchers injected misfolded alpha-synuclein into the guts of healthy mice, then tracked it to see where it ended up.<sup>24</sup>

One month later, it had turned up in the brainstem, while after three months it had traveled to the brain's amygdala and midbrain. Within seven and 10 months, it had turned up in even more regions of the brain.

Next, the researchers injected the misfolded proteins into the guts of mice that had a severed vagus nerve. After seven months, no signs of cell death were present in the mice brains, and it appeared that the proteins were not able to advance to the brain.

Problems with motor control, memory and anxiety also appeared in the intact vagus nerve mice that received the misfolded proteins in their guts, which were not seen in the other groups of mice. "This study supports the Braak hypothesis in the etiology of idiopathic Parkinson's disease (PD)," the researchers concluded.<sup>25</sup>

Gut microbiome is also involved in the effectiveness of Parkinson's drugs. Levodopa's effectiveness, in particular, may depend on the composition of the patient's microbiota. In some people, gut microorganisms may metabolize the medication before it has a chance to cross the blood-brain barrier, rendering it ineffective.<sup>26</sup>

Further, in May 2023, researchers from the University of Helsinki linked a strain of **Desulfovibrio bacteria** as a causative agent of Parkinson's disease.<sup>27</sup> Researchers hope this breakthrough will enable screening for and removal of the bacteria from the gut and potentially prevent the disease. So, while engaging in tai chi may be useful for slowing down Parkinson's progression, optimizing your gut health may be a viable strategy toward prevention.

In addition to seeding your gut with beneficial bacteria by eating traditionally fermented foods and supporting those bacteria with prebiotic fiber, it's also important to avoid things that disrupt or kill your microbiome. These include:

- Antibiotics, unless absolutely necessary
- Conventionally raised meats and other animal products, as these animals are routinely fed low-dose antibiotics, plus genetically engineered and/or glyphosate-treated grains
- Processed foods (as the excessive sugars feed pathogenic bacteria)
- Chlorinated and/or fluoridated water
- Antibacterial soap and products containing triclosan

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