

In Touch Newsletter

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New Discovery Could Slow Parkinson's Disease

Scientists at Florida International University have developed a promising new compound that could slow the progression of Parkinson's disease by targeting a key process inside cells.

The research centres on dynamin-related protein 1 (DRP1), which helps control how mitochondria – often described as the powerhouses of cells – divide and function. When DRP1 becomes overactive, it can lead to impaired mitochondrial function, inflammation and cell damage linked to disease.

In preclinical tests the compound, CTS2444-32, reduced DRP1 activity by up to 45%, helping limit damage in brain disease models.

Kim Tieu, a professor of environmental health sciences at FIU Robert Stempel College of Public Health & Social Work, has spent years studying DRP1's role in Parkinson's, a disease marked by tremors, stiffness and the loss of brain cells.

"DRP1 plays an important role in mitochondrial division," Tieu said. "But when it gets too active, it causes the mitochondria to split more than they should, which can lead to mitochondrial dysfunction, inflammation and cell death – key factors in how Parkinson's disease progresses."

Reduced inflammation

In Parkinson's models, CTS2444-32 reduced inflammation in the brain and lowered levels of toxic proteins such as alpha-synuclein, which are closely linked to the disease.

"Unlike current treatments that simply replace the missing chemical to relieve symptoms, this compound has the potential to actually protect brain cells and slow down how Parkinson's disease progresses," Tieu said.

The compound was identified by screening a library of 35 million compounds. Researchers said the compound could have even broader potential.

The team has secured a patent and is now working to refine the compound so it can be safely used in humans. Additional studies are underway, including testing in larger animals to meet FDA requirements. Clinical trials could begin within a year.

If successful, the treatment could improve outcomes for patients. People with Parkinson's may see slower disease progression.

Source:

[South Florida Hospital News](#)

Three positive coping skills for living with Parkinson's

Mary Beth Skylis shares tips she encourages her father to implement.

Degeneration is painful to witness, but even more painful to experience. The tasks one might previously have been able to tackle become difficult or impossible.

It's not uncommon for those with a degenerative disease like Parkinson's to experience changes to their memory and difficulty in staying focused. But it's often the physical symptoms like tremors and stiffness that can make a person feel like they're degenerating.

While loss is a part of this disease, there are three coping mechanisms I encourage my dad, who has Parkinson's, to implement to provide him emotional relief from the disease.

1. Consistently communicate: The loved ones of people living with Parkinson's don't always understand why certain choices are made. In my dad's case, he tends to be more resistant to going to social gatherings at this stage of his disease, and I often struggle to understand why. But it helps me see the situation from a place of empathy when he explains that he's worried about his medications kicking in or about being seen in public in his current state.

Communicating with loved ones not only helps folks know where the other person is coming from, but it also might make the person with Parkinson's feel less alone in their experience.

2. Engage in mindful movement: There's a lot of research showing that exercise is good for us. But it's especially important in the battle against Parkinson's. When it comes down to it, exercise not only might slow the disease's progression, but it also can provide the body with feel-good chemicals and make it stronger. This makes it an indispensable tool for battling despair. Exercising might look like practicing yoga, cycling, or joining a non-contact boxing class.

3. Create structure: As Parkinson's disease becomes increasingly demanding, it can be easy to become apathetic. But apathy doesn't feel good, and it doesn't help anyone manage the disease to the best of their ability.

For this reason, it can be helpful if a person creates some type of structure to motivate them to get up in the morning, even if they don't want to. This could be anything from caring for a dog to supporting a spouse. It could also mean going to the same exercise class every week, regularly meeting a friend for lunch, or sticking to a daily routine.

The brain really likes routine, which can provide a little bit of relief when a person living with Parkinson's is struggling with the massive challenges that it brings to their life.

Source:

[Parkinson's News Today](#)

Brain pathway shows potential for slowing Parkinson's, but only in females

Researchers at Texas A&M University have identified a protective brain pathway — one linked to receptors responsive to nicotine but not requiring the tobacco plant chemical itself — that may be targeted to slow the progression of Parkinson's disease.

In a mouse model of Parkinson's, boosting the number of nicotine-responsive receptors in the brain prevented the death of dopamine-producing neurons, the nerve cells whose loss marks the neurodegenerative disorder. These protective effects, however, occurred solely in female mice.

Still, the scientists say that targeting this pathway could potentially help in strengthening the brain's own dopamine-producing nerve cells and slowing Parkinson's progression.

"Every additional year that these neurons remain functional matters," Rahul Srinivasan, PhD, associate professor of neuroscience at Texas A&M University's College of Medicine and study lead, said.

"If we can strengthen protective brain pathways early, we may be able to meaningfully slow Parkinson's progression and improve the quality of life of patients with Parkinson's," Srinivasan said.

The study, "[Genetically encoded constitutive upregulation of \$\beta\$ 2 subunit containing neuronal nicotinic acetylcholine receptors is neuroprotective in female parkinsonian mice](#)," was published in the *Journal of Neuroscience*.

Parkinson's is caused by the progressive loss of neurons that produce dopamine, a nerve signalling molecule, or neurotransmitter, that plays a key role in coordinating movement. Available therapies work by replacing dopamine or mimicking its effects, but they don't prevent the ongoing neuronal death.

Investigating brain receptors responsive to nicotine

Studies suggest that smokers and tobacco users have a lower risk of developing Parkinson's. Further, the main addictive compound in tobacco, nicotine, has been shown to reduce neuronal death and brain damage.

In previous work, Srinivasan's team showed that cytisine, a drug used to help people stop smoking, protected dopamine-producing neurons in female mice at low doses. Cytisine activates so-called neuronal nicotinic acetylcholine receptors (nAChRs), which also bind nicotine. More recently, the researchers found that estrogen, a female sex hormone, [enhanced the neuroprotective effects of cytisine](#) in female Parkinson's mice.

"Despite the nicotine connection, these receptors exist to serve normal brain function," Srinivasan said. "Nicotine just hijacks a receptor system that's already there."

Because nicotine and nicotinic ligands can increase the number of nAChRs and confer neuroprotection against Parkinson's, Srinivasan and colleagues now set out to determine whether this protective effect is driven by receptor activation with a drug such as cytisine or by the number of receptors available.

The team engineered mice to express higher levels of beta-2, a receptor subunit in a class of nAChRs. This was done without exposing the mice to nicotine or any nicotine-like drug. The mice were then exposed to the chemical 6-OHDA, which selectively damages the same dopamine-producing neurons that are lost in people with Parkinson's.

To assess neuroprotection, the team measured levels of surviving dopamine neurons, a marker of cell death, and GFAP protein in astrocytes, a type of neuron-supporting cell whose elevated activity signals tissue damage. A behavioral test was also used in which the drug apomorphine causes mice with one-sided dopamine loss to rotate.

Across all four assessments, female mice with elevated nAChR levels showed significant neuroprotection, whereas male mice with the same genetic modification showed no protective effect.

"The protective pathway was clearly engaged in females and absent in males," Srinivasan said.

The mouse line developed in this study is also expected to serve as a research tool for studying the role of nAChRs in other neurological conditions, including addiction, anxiety, depression, and dementia, per the team.

"Our [newly] developed transgenic mice provide a valuable tool to study the role of nAChRs in other major neurological disorders," the researchers wrote. The model here has shed new light on possible Parkinson's treatments.

"Our findings suggest that inducing [beta-2] nAChR upregulation alone may be a viable therapeutic strategy for [Parkinson's]," the researchers wrote.

Srinivasan added that “this work is about keeping neurons alive longer. If you can preserve dopamine-producing cells, you have a real opportunity to slow the rate at which the disease advances.”

Source:

Original article by Steve Bryson, PhD

[Parkinson's News Today](#)

How diet can help you manage Parkinson's symptoms

If you have Parkinson's, you may find that simple changes to your eating and drinking habits help you manage your symptoms more effectively and can improve your general health and wellbeing.

Constipation

Constipation is a common problem in Parkinson's. You can ease constipation by drinking more fluid, keeping active, and eating fibre-rich foods. If these don't help, your doctor may suggest laxatives that don't interact with your Parkinson's medication.

Low blood pressure

People with Parkinson's can experience changes to their blood pressure, sometimes related to their medication. Low blood pressure symptoms include feeling dizzy, weak or confused and are more likely after large meals (as blood goes to your stomach for digestion) or when you're dehydrated.

You may find it helps to avoid large meals and reduce your carbohydrate intake (especially sugary foods). Stay hydrated by increasing your fluid intake and reducing the amount of alcohol you drink.

Poor bone health

Many people with Parkinson's have poor bone health and low levels of vitamin D.

You can improve bone health by increasing your intake of calcium and vitamin D. Much of your vitamin D comes from the sun but you can boost it by eating oily fish, cereals, eggs and red meat.

Maintaining a healthy weight

Swallowing problems and dyskinesia can lead people with Parkinson's to be underweight. Try to eat three meals a day and snacks in-between. You can also add extra cream, butter or honey to foods.

Some people with Parkinson's find that it's harder to be active and so they gain weight instead. Try boiling, grilling, baking or steaming foods rather than frying and

cut down on high fat, sugary foods. Your GP or dietitian can advise on a suitable diet for you.

Protein and medication

Protein can interfere with some Parkinson's medications, such as levodopa.

You can avoid this by taking your medication 30-45 minutes before or after eating a large meal.

Source:

[Parkinson's UK](#)

Take 5

A monthly review of the top five issues raised in calls to the Parkinson's NSW InfoLine team (call 1800 727 567).

1. Pain in Parkinson's – You don't have to put up with it

Pain is one of the most common but often overlooked symptoms of Parkinson's. It can be caused by rigidity, muscle cramps, dystonia, poor posture, or changes in movement patterns. Many people assume pain is simply something they have to accept, but support is available.

Managing pain often requires a holistic approach. This may include stretching, physiotherapy, exercise, heat or cold therapy, medication reviews, and in some cases referral to a pain management specialist. If pain is affecting your quality of life, it's important to discuss it with your medical team rather than trying to manage it alone.

2. Panic Attacks – Understanding and Managing Them

Panic attacks can be frightening and may feel similar to some Parkinson's symptoms, including shaking, sweating, dizziness, or a racing heart. The good news is that they are common and support is available.

Strategies such as slow breathing, grounding exercises, mindfulness, and identifying triggers can help manage symptoms. If anxiety is becoming a regular concern, speak with your GP about a Mental Health Care Plan, which may provide access to subsidised psychological support. Parkinson's NSW also offers counselling services and can help connect you with additional supports.

3. Support Groups – What are they and who are they for?

Many callers ask what Parkinson's support groups actually involve. Support groups provide an opportunity to connect with others who understand the challenges of

living with Parkinson's. They offer friendship, shared experiences, practical tips, guest speakers, and a sense of community.

Groups are available for people living with Parkinson's, carers, and those newly diagnosed. Many people tell us that simply talking to others who "get it" helps reduce feelings of isolation and builds confidence in managing the condition.

4. Red Light Therapy – What do we know?

Interest in red light therapy continues to grow, with many people asking whether it can help Parkinson's symptoms. While research is ongoing more high-quality studies are needed before clear recommendations can be made.

If you're considering red light therapy, it's important to discuss it with your healthcare team and view it as a complementary therapy rather than a replacement for prescribed treatments. Our InfoLine team can provide information about current evidence and help you make informed decisions.

5. Hydration – Are you drinking enough?

Staying hydrated is particularly important for people living with Parkinson's. Dehydration can contribute to constipation, fatigue, dizziness, low blood pressure, confusion, and an increased risk of falls.

Many people find it helpful to keep a water bottle nearby, set reminders throughout the day, or link drinking water with regular activities such as taking medication. If you're experiencing symptoms that may be related to dehydration, speak with your medical team. Small changes in fluid intake can sometimes make a significant difference to daily wellbeing.

For information or personalised guidance on any of these topics, please contact the Parkinson's NSW InfoLine on 1800 727 567. We're here to support you every step of the way.

Managing restless legs syndrome with Parkinson's

Restless legs syndrome, sometimes called Willis-Ekbom disease, is a condition that causes an overwhelming urge to move your legs. This can cause discomfort. People with Parkinson's have described it as a 'creepy-crawly' feeling, or that it feels like they have fizzy water in their veins.

Here are some tips for managing restless legs syndrome.

Get a good night's sleep

Establish a regular sleeping pattern and make sure you have a cool and comfortable sleeping environment. Try to avoid heavy blankets or clothing.

Warm your legs up

Have a warm bath or try a hot (but not too hot) or cold compress on your legs.

Stimulate your legs

Try massaging your legs, going for a walk and gently stretching your muscles.

Manage your diet with a dietitian

Not having enough iron in your body can cause restless legs syndrome. Your healthcare professional can check your iron levels for you.

You could try an iron supplement or eating iron-rich food such as red meat, fish or certain fruit like prunes. Talk to an accredited dietitian to get support before making changes to your diet.

Yoga and restless legs syndrome

Some new studies suggest that yoga might help ease symptoms of restless legs syndrome, but research is ongoing, so there isn't enough evidence yet to understand the full benefits. We do know that people with Parkinson's tell us that yoga is useful for managing their Parkinson's in general.

Physiotherapist Bhanu Ramaswamy explains in more detail:

"We know from anecdotal stories, and from research evidence, that yoga can help lessen slowness and stiffness, improve balance and flexibility (especially in hips and ankles), and increase muscle strength and power. There are lots of different forms of yoga, and specific poses can work on different parts of the body.

"Some research has also shown the benefits of yoga in helping to reduce the symptoms of restless legs syndrome, especially if done with slow stretches combined with breathing techniques. So overall, yoga might be a great all-round activity for people with Parkinson's to ease a number of issues and improve day to day life."

Source:

[Parkinson's UK](#)

Korean Hospital Develops AI to Detect Early-Stage Parkinson's Disease

Korean researchers have developed artificial intelligence (AI) capable of detecting Parkinson's disease in its early stages, when the condition shows no clear symptoms and diagnosis is typically difficult.

Samsung Seoul Hospital's AI Research Center announced that it has confirmed the potential for early diagnosis and prognosis prediction of neurodegenerative diseases, including Parkinson's disease and Parkinson-plus syndromes. The team utilised

multimodal AI technology that analyses brain imaging tests such as MRI and PET scans alongside various clinical data including gait and voice patterns.

Parkinson's disease is a neurodegenerative disorder in which dopamine-producing neurons in the brain's substantia nigra are destroyed, causing movement impairment. It is considered one of the three major geriatric brain diseases along with dementia and stroke.

Early symptoms are often unclear, frequently delaying diagnosis. By the time patients experience trembling hands and feet, muscle stiffness, slowed movement, and gait abnormalities, the disease has likely already progressed significantly.

Even specialists find it difficult to distinguish early-stage 'Parkinson-plus syndromes' – conditions such as progressive supranuclear palsy and multiple system atrophy that present similar symptoms but have different causes.

AI capable of detecting subtle patterns

The research team, led by Professor Cho Jin-hwan of the Neurology Department and Professor Chung Myung-jin of the Radiology Department at Samsung Seoul Hospital, found a solution in AI capable of detecting subtle pattern differences invisible to the human eye.

Over four years, they collected gait, voice, and brain imaging data from approximately 500 patients, including 363 with Parkinson's disease, 67 with progressive supranuclear palsy, and 61 with multiple system atrophy. The data was standardised to build an integrated database.

Based on this foundation, the team developed a gait data-based fall risk prediction model, a voice test-based Parkinson's classification system, and an MRI-based automated brain structure analysis model.

Clinical evaluation showed the voice-based severity classification model achieved an accuracy (AUC) of 0.96, while the MRI-based disease differentiation model recorded 0.91. The fall prediction model combining gait and brain imaging analysis also demonstrated strong performance with an accuracy of 0.84.

The newly developed AI does not simply produce results – it also presents the basis for its judgments. The researchers enabled automatic selection of gait stability indicators, brain structural changes, and voice characteristics to serve as diagnostic evidence.

Additionally, because the system was built on a dedicated data storage and analysis system (NAS) within the hospital's internal network, AI analysis is possible without external transfer of medical data. This secures both privacy protection and research efficiency.

Earlier detection, more effective treatment

"The earlier Parkinson's disease is detected, the more effective drug treatment becomes, and rehabilitation can slow its progression," said Professor Cho Jin-hwan. "AI will help with early diagnosis by rapidly synthesising multiple test results and contribute to developing personalised treatment plans for each patient."

Professor Chung Myung-jin said, "Based on this research, we will expand applications to other neurological diseases such as dementia and develop multi-institutional collaborative studies to help more patients."

Through this research, Samsung Seoul Hospital's AI Research Center has published 27 SCIE-level papers and filed 45 patents. The developed technologies are being utilised for follow-up research across more than 10 clinical departments, including emergency medicine, ophthalmology, and rehabilitation medicine.

"We plan to continue building an integrated AI research platform, developing disease-specific AI models, and pursuing open innovation with global companies and research institutions," said Yang Kwang-mo, Director of the AI Research Center. "We will lead the practical application of AI across various fields."

Source:

Original article by Ahn Kyung-jin, Medical Correspondent, *Seoul Economic Daily*

For evidence-based information and advice call the Parkinson's NSW InfoLine

1800 727 567

Parkinson's NSW InfoLine

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