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Intro: You're listening to audio from one of our Ask the MD videos. In this series a movement disorder specialist at The Michael J. Fox Foundation addresses common questions about living with Parkinson's disease.

Rachel Dolhun, MD: I'm Dr. Rachel Dolhun, a movement disorder specialist and vice president of medical communications at The Michael J. Fox Foundation for Parkinson's Research. Today I'm talking about stem cells and Parkinson's. Researchers are using stem cells to learn about Parkinson's and to develop treatments for the disease. Early clinical trials are testing stem cells in people with Parkinson's and more trials are anticipated in the near future.

Four facts can give you a foundation to keep up with the research in this area. First, researchers can make stem cells. There are different types of stem cells. Embryos, or fertilized eggs, contain stem cells that can become any type of cell in the body. Adults also have stem cells in certain body parts such as the skin, fat and blood. Unlike embryonic stem cells, adult stem cells can't become any type of cell, but they can make more of the same type of cell, so skin stem cells can make more skin cells and blood stem cells can make more blood cells.

In the lab, though, researchers can reprogram adult stem cells to become new and different types of cells. These are called induced pluripotent stem cells. Using specific techniques, they can direct skin stem cells, for example, to become brain cells.

Second, scientists use stem cells to learn more about disease. Induced pluripotent stem cells are not only a potential therapy, they're also a research tool. Scientists can use these cells to better understand Parkinson's by studying genetic and environmental factors that contribute to disease. They also can use them to test the impact of potential treatments.

Third, therapies from stem cells are promising, but in early stages. As with any new therapy, clinical trials have to prove the safety and benefits of stem cells before they could be a widespread treatment option. Researchers have to figure out the right number of cells to inject and exactly how and where to put them in the brain. They also have to make sure the cells stay alive and don't cause significant side effects. Clinical trials on stem cells in Parkinson's are ongoing, but much work remains before these therapies could be approved.

Outside of clinical trials, there are clinics that offer to cure or improve Parkinson's symptoms with stem cells, often for a considerable fee. Many of these clinics take a person's skin or fat cells, treat them with certain factors, and then infuse them back into the blood. Clinical trials have not evaluated the safety or potential benefits of this treatment and side effects can occur.

Importantly, these treatments differ from those in trials for Parkinson's where researchers aim to create brain cells that make dopamine and put them directly into the brain.

Lastly, stem cell therapies may only treat some symptoms. If approved, stem cell therapies may lessen movement symptoms such as tremor, slowness and stiffness, and decrease medication needs. But because the current stem cell trials mainly intend to replace the brain's dopamine cells which are responsible for movement, they may not help non-movement symptoms such as mood, memory, or sleep changes. They also may not slow or stop disease progression.

I hope you find this information helpful. You can learn more about stem cells and other topics in Parkinson's by visiting our website.

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