

Michael J. Fox: This is Michael J. Fox. Thanks for listening to this podcast. Learn more about The Michael J. Fox Foundation's work and how you can help speed a cure at michaeljfox.org.

Intro: Welcome to a recap of our latest Ask the PhD video. Listen as scientists at The Michael J. Fox Foundation break down the latest Parkinson's research projects in the search for the next big breakthrough. Learn more about Parkinson's disease research. Free resources like this podcast are always available at michaeljfox.org.

Maggie Kuhl: I'm Maggie Kuhl on the communications team at The Michael J. Fox Foundation. Our mission is to advance cures for Parkinson's and better treatments for people living with the disease today. We're investing millions in new technologies that can help patients manage some of the most hard to treat symptoms. Here to tell me more about these projects and their potential is our on-staff scientist, Dr. Jamie Hamilton. Hi, Jamie.

Jamie Hamilton: Hi, Maggie, how are you?

Maggie Kuhl: Good. So in 2019, we granted \$3 million to eight projects looking at gait and balance technologies. Why are those symptoms priorities?

Jamie Hamilton: Well, we know that gait and balance can be a huge challenge for individuals with Parkinson's. And we find that existing therapies seem to not really address these kinds of motor manifestations. In one of our online studies, we found that gait and balance continued to be one of the top two symptoms that individuals really express were most bothersome. So we thought it was really a unique opportunity for the foundation to make a strategic investment and funding projects really focused on gait and balance challenges.

Maggie Kuhl: And this portfolio includes some really cool projects. So why don't you tell us about a couple of them and how they might work?

Jamie Hamilton: Well, there's a concept in science called cueing, and this can be a signal or a sound. It could even be visual. But we find that this can actually help people manage or mitigate some behaviors such as freezing of gait. We're currently funding eight investigators from around the world, really exploring the utility of different kinds of cues to help people disrupt this freezing of gait behavior.

And as we know that freezing and unbalanced gait can really lead to potential risk of falls and injury. And so, if we can support projects that could potentially compliment existing care, this could really have a huge benefit in our PD population.

Maggie Kuhl: So tell us about a couple of those projects.

Jamie Hamilton: So we have one group out of the Netherlands that's actually looking at the utility of a vibrating sock to see if that kind of tactile or electrical cue can actually disrupt some of this freezing of gait behavior. We have another team in Virginia looking to potentially help mitigate some of those freezing behavior challenges.

Maggie Kuhl: So a foot massage that also gets you moving. I like it.

Jamie Hamilton: That would be wonderful.

Maggie Kuhl: And some of the projects include larger devices. Tell us about those.

Jamie Hamilton: So there's a team, this is out of Ohio State, and partnering with Honda, to actually see if an exoskeleton that kind of sits around hips and waist can help people walk more confidently. And then we have another one out of Chicago, another research team that developed a wearable airbag. The idea is for the device to kind of inflate to prevent falls. But hopefully if a fall does occur, it could lessen the risk of injury. So, really exciting.

Maggie Kuhl: When might we know about the results of some of these projects? When would they be available for patients?

Jamie Hamilton: Well, we find that for the projects that we currently are funding, we should have results in early 2021. And the idea is that some of the products and technologies will be available a few years after that. Really exciting time.

Maggie Kuhl: And patients are always at the heart of what we do. Why don't you tell us about how they played a central role?

Jamie Hamilton: It was really a unique opportunity of the foundation to incorporate the patient voice in our review meeting proceedings. And we were really pleased to have two patients weigh in on some of the projects that we ultimately funded. And really just getting their take on would these devices be used? Would it be something that they would want to use? Is it something that's cumbersome or another thing that they have to kind of contend with in the beginning of the day? And so that feedback was instrumental to really deciding the projects and the kinds of projects that we funded for this.

Maggie Kuhl: And that was so successful that we're funding three additional projects for other symptoms. Why don't you tell us about that?

Jamie Hamilton: Well, we got such a positive response from our gait and balance research funding announcement that we thought it would really be important to not just focus on motor symptoms, such as balance and gait, but to also expand our focus to think about the other symptoms that may really challenge individuals, such as non-motor symptoms.

And so currently we're funding three more projects. One that's focused on swallowing. As we know, swallowing is a huge challenge for individuals with Parkinson's, and really can lead to high risk of choking. So this particular device sits comfortably around the neck and sends a kind of a tactile or kind of a tap to the throat area to promote swallowing.

Another particular device is actually combining kind of the vibratory sock and pairing it with in-clinic kind of behavioral or cognitive and motor functioning training, to actually see if pairing in-clinic training with the vibratory sock can help people kind of mitigate falls and freezing of gait behaviors.

Maggie Kuhl: And the third one is really interesting. It's sending heat waves into the brain. Tell us about that.

Jamie Hamilton: Well, the idea is that if you're sending heat waves or heat through the ear canal, that it can potentially disrupt connections in the brain that are involved in motor function and movement. This small study was done and found that this approach actually had benefit, not only in motor function, but also in fatigue and moods.

Maggie Kuhl: Would we fund any more innovative projects like this?

Jamie Hamilton: Yes, the foundation's actually really interested in funding other novel technologies and approaches that can really help individuals manage their symptoms a little bit better.

Maggie Kuhl: Innovative projects, really helping some of the most hard to treat symptoms for folks.

Jamie Hamilton: Absolutely.

Maggie Kuhl: Yeah. We'll keep everyone updated on the progress of those projects. Thanks, Jamie.

Jamie Hamilton: Thanks for having me.

Maggie Kuhl: And thank for your support of Parkinson's research. Visit michaeljfox.org to learn more about these projects and how you can play a role in speeding new treatments for Parkinson's disease.

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