

# PROGRESS

The research magazine of Parkinson's UK | Summer 2023

## From the lab to clinical trials

Can a chemical derived from the liver of dogfish sharks slow the progression of Parkinson's dementia?

P4

## Research gets creative

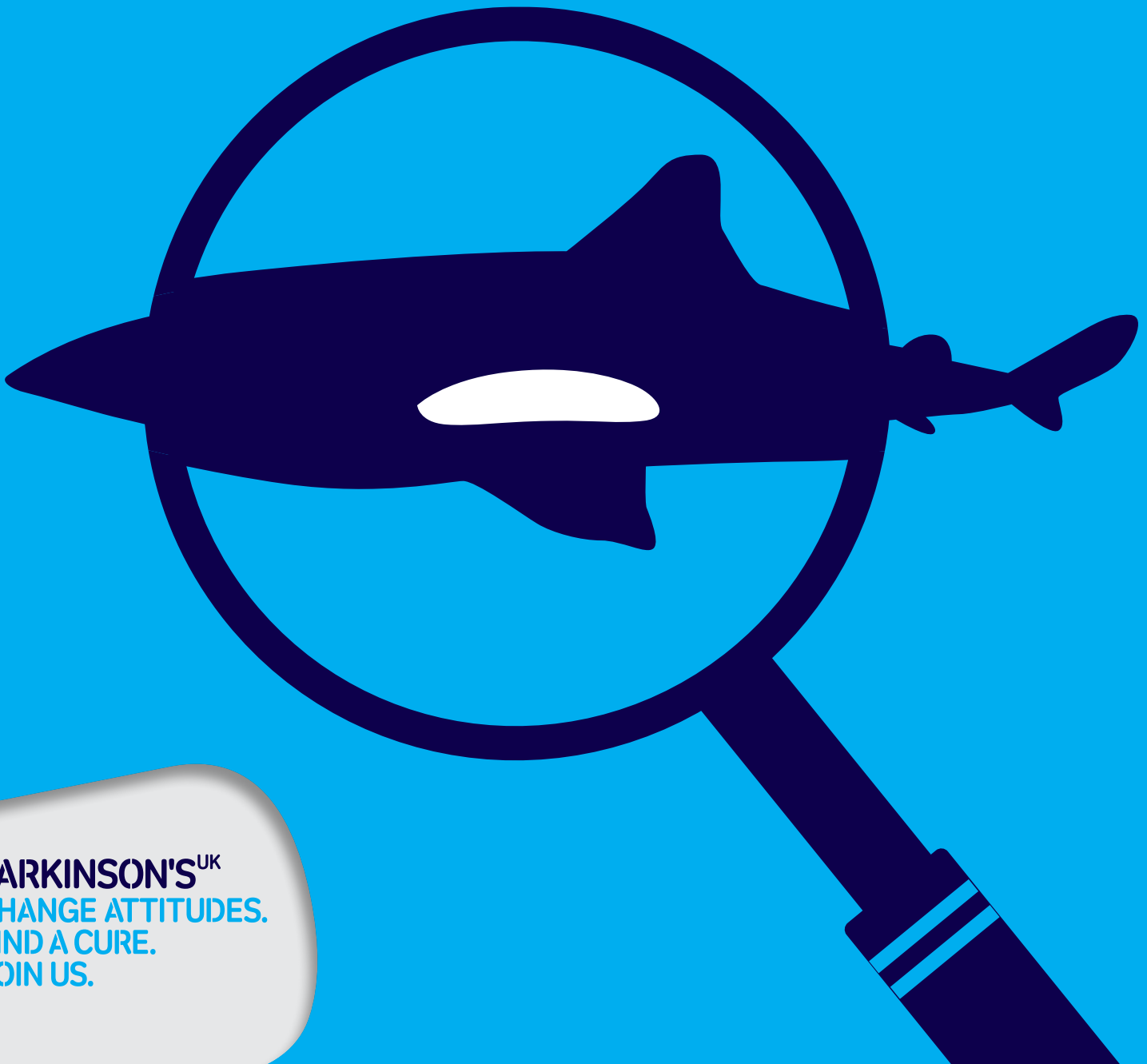
What can art, ballet or music tell us about Parkinson's?

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## Research update

Thanks to your support, we have funded 10 new research projects in the last year

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**PARKINSON'S<sup>UK</sup>**  
CHANGE ATTITUDES.  
FIND A CURE.  
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Drug development is a long process as there are many steps involved. We explain the drug discovery process, using ENT-01 (a chemical derived from the liver of dogfish sharks) as an example.

## P10 | Research gets creative

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# WELCOME

Hello and welcome to Progress magazine. I'm Dr Kevin McFarthing. The focus of this issue of Progress is on how we can treat Parkinson's in different ways.

Hope is an essential commodity when living with Parkinson's. Among the many things we hope for, the development of new therapies that will keep us feeling better for longer is pretty close to the top of the list, such as the research advancements outlined in Progress. That's why, soon after I was diagnosed in 2012, I started to compile a list of potential drugs in development. It started off as a simple list, but has eventually evolved into the Parkinson's Hope List. This is a structured spreadsheet stratified by stage of development (research or clinical), together with a list of all the projects that didn't make it.

At the last count, there were 236 projects in the research stage, 169 in clinical, and 295 that failed. This represents a phenomenal investment in time, money and scientific talent.

To read the Parkinson's Hope List, visit the full database at [bit.ly/ParkinsonsHopeList](https://bit.ly/ParkinsonsHopeList).

This edition of Progress magazine tells the story of one of the most exciting candidates in the Hope List, ENT-01, from Enterin in the US. It was initially tested for its ability to ease constipation in Parkinson's, a very common non-motor symptom, with a successful phase 2 trial. Two new phase 2 studies are due to start this year, for Parkinson's psychosis and dementia. So, I was delighted to learn of the collaboration between Enterin and Parkinson's UK, which is described on P4.

Of course, drugs aren't the only way we can feel better for longer. The article on P10 shows how creativity can help us change the way we think about research in Parkinson's.

As many of you know, Parkinson's UK is actively funding a wide range of projects aimed at finding new therapies and ways to improve quality of life. Also, whilst many of us have taken part in clinical trials, most of us haven't and it can be quite daunting when considering an opportunity to join a new trial. The article on P20 explains why it is important to take part, alongside two opportunities to take part in.

Finally, we have a Q&A section with answers from experts covering nutrition, apathy and depression, and red light therapy.

There are many reasons to be hopeful about our futures, this magazine covers a small proportion of them. I hope you like it.

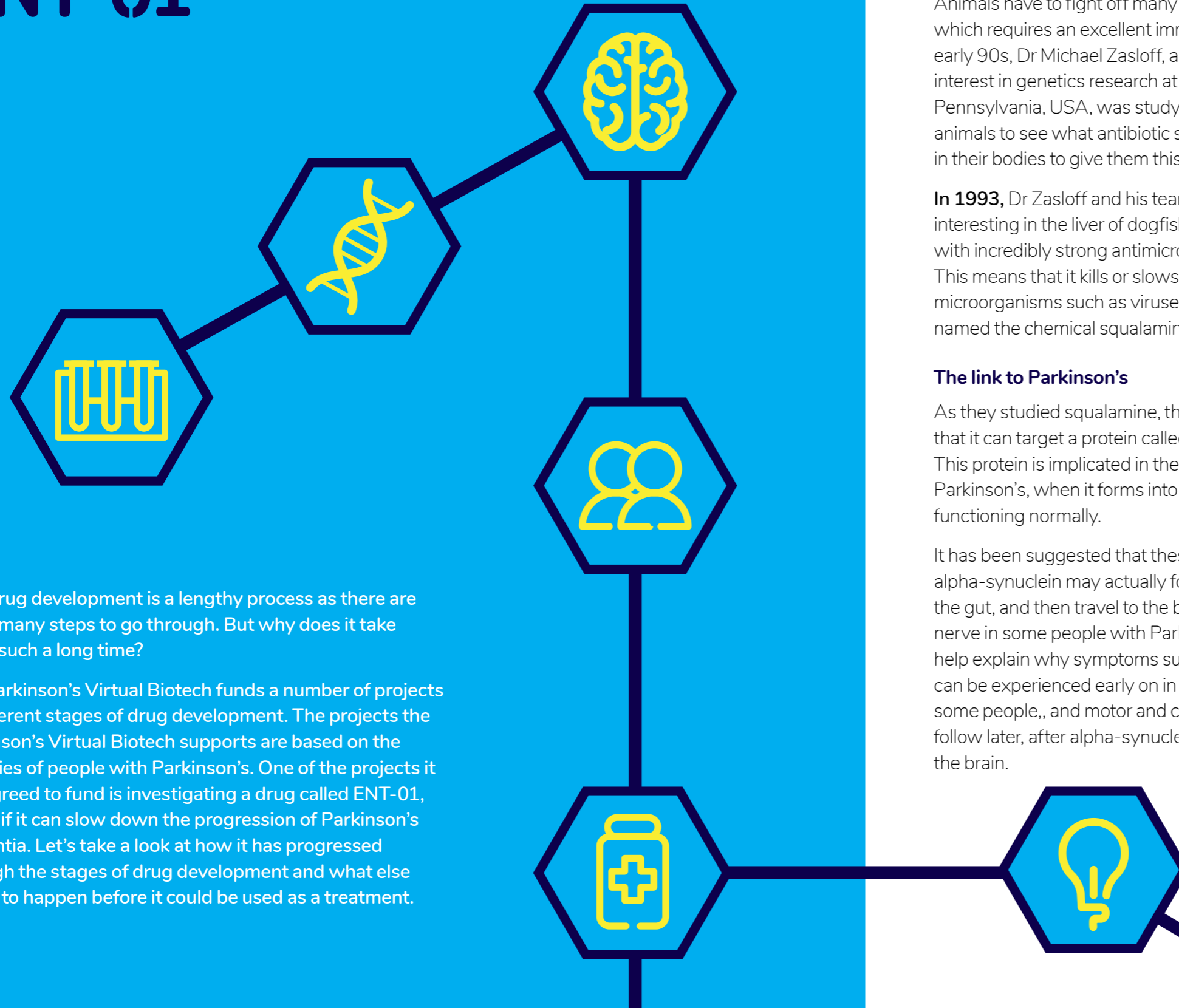
**Kevin McFarthing**

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# FROM THE LAB TO CLINICAL TRIALS - ENT-01



**D**rug development is a lengthy process as there are many steps to go through. But why does it take such a long time?

The Parkinson's Virtual Biotech funds a number of projects at different stages of drug development. The projects the Parkinson's Virtual Biotech supports are based on the priorities of people with Parkinson's. One of the projects it has agreed to fund is investigating a drug called ENT-01, to see if it can slow down the progression of Parkinson's dementia. Let's take a look at how it has progressed through the stages of drug development and what else needs to happen before it could be used as a treatment.

## What is ENT-01?

ENT-01 is a man-made chemical being studied for the treatment of Parkinson's dementia. The story starts with the liver of a dogfish shark.

### Clues in the immune system

Animals have to fight off many microbes to survive, which requires an excellent immune system. In the early 90s, Dr Michael Zasloff, a clinician with an interest in genetics research at the University of Pennsylvania, USA, was studying many different animals to see what antibiotic substances they had in their bodies to give them this protection.

**In 1993**, Dr Zasloff and his team found something interesting in the liver of dogfish sharks: a chemical with incredibly strong antimicrobial properties. This means that it kills or slows the spread of microorganisms such as viruses and bacteria. They named the chemical squalamine.

### The link to Parkinson's

As they studied squalamine, they also found out that it can target a protein called alpha-synuclein. This protein is implicated in the development of Parkinson's, when it forms into clumps and stops functioning normally.

It has been suggested that these clumps of alpha-synuclein may actually form in nerve cells in the gut, and then travel to the brain via the vagus nerve in some people with Parkinson's. This could help explain why symptoms such as constipation can be experienced early on in the condition in some people, and motor and cognitive symptoms follow later, after alpha-synuclein has travelled to the brain.

### Discovering treatment possibilities

After lots of further research, a man-made version of squalamine called ENT-01 was designed and developed. Since ENT-01 might be able to slow down or even prevent the formation of toxic clumps of alpha-synuclein in the gut, the team thought that it may be able to reduce constipation.

In initial trials, some participants saw other effects of ENT-01 too. They noted that they experienced fewer memory and thinking problems while they were taking the drug. And so the team decided to run a new trial, looking at the potential of ENT-01 to treat Parkinson's dementia.

ENT-01 was developed by a biotech company called Enterin. With support from the Parkinson's Virtual Biotech, they are planning a phase 2 clinical trial to investigate the effect on cognition and dementia. To read more about the Parkinson's Virtual Biotech, head over to **P19**.

Let's take a look at the stages of drug development, and the progress of research into ENT-01 so far.

### It's not one size fits all

Before we go on, it's important to know each drug is slightly different. Sometimes it won't follow the order step-by-step, other times there are big gaps in time between each of the stages.

A good example of this is if a drug has already been approved for use to treat another symptom or condition. This is called drug repurposing. Drug repurposing can save significant time and expense, as it will already have undergone some testing, and we know it is safe for people to take. This is an area which is undergoing lots of study, with researchers actively testing approved drugs to see if they can be of benefit in other conditions.

## The development of ENT-01

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### Stage 1 Discovery and Development

Drug development starts with identifying new molecules that could be used as treatments.

Researchers use libraries of thousands of existing synthetic molecules, ingredients and natural products, and test combinations on cells grown in a lab to see if they have an effect.

Once the best molecule or combination is found, it goes through rigorous testing.



### Discovery and development of ENT-01

In **1993**, after looking for antibiotic molecules in animals, Dr Michael Zasloff and his team discovered squalamine in the liver of dogfish sharks.

In **1995**, researchers worked to make an artificial, or synthetic, copy of squalamine. This allowed the research team to make large quantities of the molecule, and even tweak it to make it fit the potential job better.

Between **2008 and 2011**, the team continued to research synthetic squalamine and how it worked in a lab. They found out that it likes to bind to the walls of nerve cells, and when it does this, it kicks off other proteins that are already bound to them.

So over the next few years, they researched which proteins squalamine could compete with to bind to the walls of nerve cells.



2

### Stage 2 Preclinical research

Preclinical research describes the tests a potential drug must go through before it can be given to people.

The purpose of preclinical research is to find out as much as possible about the drug, including how it works, possible side effects, how long it stays in the body and how much might be the best amount to use.



### Preclinical research of ENT-01

In **2016**, the team showed how squalamine could interact with clumps or tangles of proteins associated with neurodegenerative conditions such as Parkinson's and Alzheimer's.

This research showed that squalamine sticks to nerve cells better than alpha-synuclein does, making it harder for alpha-synuclein to clump together. In research they completed in worms, this reduced damage to nerve cells and prevented paralysis.

After the results from 2016, Enterin developed the oral drug, ENT-01, to have the same properties as synthetic squalamine. ENT-01 went through the remaining steps of preclinical research, which showed it was effective at relieving constipation, so they moved on to clinical trials in humans.

### Clinical trials – key definitions

Before we start talking about clinical research, here are some key terms:

**Placebo-controlled** A dummy drug, or placebo, looks, tastes or feels exactly the same as a drug, but doesn't have any effect. In placebo-controlled trials, some of the participants are given a dummy drug to check that any changes that are recorded are due to an effect of the drug, and not something else.

**Randomised** The people who receive the test drug and the people who receive the dummy drug aren't chosen for any specific reasons. It's completely random who gets what drug.

**Single blind** The participants don't know whether they have received the drug or the dummy drug, but the investigators do. This makes the study more accurate, as the knowledge won't impact anything they report back to the investigators.

**Double blind** Neither the participants nor the investigators know who receives the drug or the dummy drug. This makes the study more accurate, as the investigators don't have any knowledge that may affect how they view the results.

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**Stage 3  
Clinical research**

Clinical research can be split into 3 phases before the drug is licensed. Each phase has a different purpose and involves a different number of people.

ENT-01 started with clinical trials measuring safety and effectiveness in treating constipation. These clinical trials were called RASMET and KARMET.

While the goal of these studies was to look at constipation, participants on the trial also showed improvements in sleep, cognition, depression, and Parkinson's dementia. This inspired the researchers to hold a new trial to explore the link between ENT-01 and Parkinson's dementia further.



**Phase 1**

This phase involves fewer than 100 healthy volunteers or people with the condition. It investigates how safe a drug might be and if there are any potential side effects. The length of the trial is less than a year.

**Finding a safe dose of ENT-01 to treat constipation**

PLACEBO-CONTROLLED   RANDOMISED   DOUBLEBLIND

**RASMET:** In 2019, 10 people with Parkinson's were given ENT-01 as a tablet over 12 weeks to find an amount of medication that had an effect on constipation without causing too many side effects. They found an appropriate dose and moved on to the next phase.

**Phase 1 safety data for ENT-01 in people with Parkinson's already exists**

As ENT-01 had already undergone a clinical trial in constipation, a phase 1 trial wasn't needed for its use to treat Parkinson's dementia, as safety data already existed for use in people with Parkinson's.

**Phase 2**

This phase involves hundreds of people who have the condition to investigate effectiveness, safety of the chosen dosage, what the side effects are and how to manage them. This takes place over months to years.

**Testing the amount of ENT-01 for safety and efficacy in treating constipation**

PLACEBO-CONTROLLED   RANDOMISED   DOUBLEBLIND

**RASMET:** In 2019, 40 people with Parkinson's took part in the phase 2 trial. Each participant's dose was increased daily to find how much was needed to relieve constipation for them. The trial lasted 10 weeks and it showed there was an increase in bowel movements.

**KARMET:** In 2022, 150 people with Parkinson's who experienced constipation received either a high amount of ENT-01, low amount of ENT-01 or a placebo. The results showed that ENT-01 was safe and constipation improved in those who were treated with ENT-01. There were some side effects, primarily nausea, diarrhoea and dizziness.

The trial also showed **improvement in dementia, memory and thinking problems** so they decided to do a trial focusing on these.

**Where is ENT-01 now?  
Investigating ENT-01 as a treatment for Parkinson's dementia**

PLACEBO-CONTROLLED   RANDOMISED   DOUBLEBLIND

The Parkinson's Virtual Biotech will be partnering with Enterin Inc. for a phase 2 trial investigating ENT-01 for Parkinson's dementia. The trial will take place across the US and UK to find a suitable amount of medication and measure improvement on dementia, memory and thinking problems.

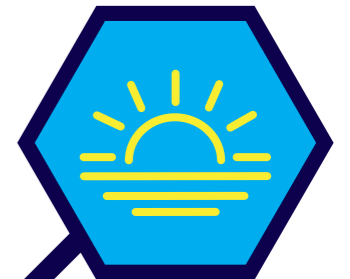
The study aims to recruit 236 patients, who will either receive ENT-01 or a placebo over 15-20 weeks.

**Phase 3**

This phase involves thousands of people with the condition. It investigates rare side effects and whether the drug is able to improve symptoms or have a demonstrable effect on the condition. This takes place over a number of years.

**The potential future of ENT-01 as a treatment for Parkinson's dementia**

Phase 3 trials start when there is enough evidence from previous trials that a drug is safe and suggests it is effective. Once Enterin complete their phase 2 trial, they will analyse the results and if ENT-01 is shown to be safe for people with Parkinson's and effective for treating Parkinson's dementia, they will progress to a phase 3 trial.



Although it may seem like treatments are a long way away, as the process takes so long, there are drugs in different stages of their development at all times and always more on the horizon.

Read more about some of the clinical trials Parkinson's UK are funding on **P16**, which are all in different stages of development.

# RESEARCH GETS CREATIVE

**W**hen you read the word 'research', what images come to mind? A lab coat perhaps? Or cells in a petri dish?

It's unlikely that the first thing you think of is a ballet class, an orchestra, or an art gallery. And yet, all of these creative activities have been used to help us get a better understanding of Parkinson's, and what it means for the people who live with it.

These more creative studies are not only helping us change the way we think about research. They can also provide useful insights to guide new ways of improving daily life for people with Parkinson's.

## What do we mean by creative research?

All research needs to be creative to some degree, in order to identify a problem, and work out ways to solve it. But some Parkinson's research is taking it one step further, using art, music and physical activity to explore some of the symptoms that people with Parkinson's experience, and how they can be improved. Or even trying to understand how Parkinson's develops.

## Putting paint to paper

People with Parkinson's are at a higher risk of developing memory problems such as dementia. And yet it's often not brought up, even by healthcare professionals, until the symptoms start to appear.

Dr Rimona Weil is a neurologist at University College London Hospitals, with an interest in Parkinson's research. Her work focuses on understanding how Parkinson's might affect thinking and memory, as well as trying to identify risk factors that could make someone more likely to develop these symptoms.

In her latest study, Dr Weil and her team are exploring the barriers to discussing Parkinson's dementia. The project aims to understand how to initiate earlier conversations between family, friends and healthcare professionals on the topic.

Dr Weil's team knew it would be important to conduct this research in an environment where people felt as comfortable as possible.

Dr Weil had an idea. In 2019, she was part of a project that invited people with Parkinson's and their loved ones to take part in art workshops in London. Painting, dance and textiles were used as activities to help explore perceptions and open conversations about the individual experiences of people with Parkinson's.

They also made collages or drew comics that they felt represented them, in their own words or images. After the workshop, the artworks were displayed in a gallery open to members of the public. This helped encourage further conversation about Parkinson's, and also provided a resource to help researchers understand the kind of language that should be used when designing their trials and research resources.

## Happening now

For this new project, Dr Weil will use similar art techniques to encourage conversation between people with Parkinson's and their families about memory loss or dementia. They hope to use this to create new resources that will help healthcare professionals, and people with Parkinson's and their loved ones, have open conversations about symptoms of dementia, and seek the correct support as early as possible.



## Feeling the music



Dr Dawn Rose is a music psychologist working as a senior researcher at the Lucerne University of Applied Sciences and Arts in Switzerland. In 2022, she led an international study, supported by

Parkinson's UK, to explore how people with Parkinson's use music in their daily lives. Here she describes the study, and her next steps.

### How did you come up with the idea behind this research?

As a music psychologist, I'm interested in how people use music in their lives every day. I'm also a professional drummer, so anything rhythmic or involving some kind of music excites me!

One of my ongoing research projects involved conducting an online survey of people with Parkinson's, to understand how they listen to or play music, and help develop a new music therapy group. Thanks to a network grant from Parkinson's UK, we put together some workshops after collecting the survey results. People with Parkinson's were paired with researchers in order to discuss music on an equal footing.

During the workshops, people told us they found typical dissemination of research very boring and difficult to understand, especially graphs and charts. As our research team are all musicians as well as scientists, we thought we could do better. So, taking on the idea of a playlist some people at the workshop told us about, we made a plan to put on a concert to share our findings.

### Who was involved in the project?

This was a truly collaborative project. Apart from the invaluable insight from our working groups of people living with Parkinson's, the study involved input from many different research groups.

Dr Ellen Poliakoff at the University of Manchester and Dr Will Young from the University of Exeter are both clinical research scientists, and helped design the study. Dr Michelle Phillips and Fiona Stuart from the Royal Northern College of Music helped bring the concert orchestra together. And we were lucky that the Arnold Bentley New Initiatives Fund helped us finance the concert. Collaboration brings together different perspectives to develop a research study that considers different avenues.

### What did you find out during this study?

Overall, we found people with Parkinson's use music because they like music, as most people do! But this is important because Parkinson's is a condition associated with a loss of dopamine. Dopamine is a brain chemical associated with pleasure, so if people are using music in their everyday lives, we can assume it's because their condition has not got to a stage where they cannot engage in pleasurable activities.

We were surprised by three things:

- how important music was for general motivation, from getting up in the morning to getting through a workout. This differs from how people typically use music, which tends to be more connected to regulating our emotions
- how important music is for helping people with Parkinson's relax, although we need further research to understand this more clearly
- how few people with Parkinson's are currently using music to help them walk, even though there is evidence to suggest this might help.

We held 'Playlist for Parkinson's LIVE!', a concert with the Royal Northern College of Music orchestra, in Manchester. This allowed us to disseminate the findings from our study in a more interactive way, along with interviews with participants in the study.

## PLAYLIST FOR PARKINSON'S LIVE!

Music to Get Me Going:

**SHOTGUN**

George Ezra

Music for Everyday Tasks:

**MR BLUE SKY**

ELO

Music for Exercise:

**HAPPY TOGETHER**

The Turtles

Music for Walking:

**RADETZKY MARCH**

Johann Strauss II

Music for Transcendence:

**CARUSO**

Lucio Dalla

Music for Relaxing:

**ADAGIO FOR STRINGS**

Samuel Barber

Music as a Personal Anthem:

**I WILL SURVIVE**

Gloria Gaynor

Music for Happiness

(SING-ALONG):

**WITH A LITTLE HELP**

**FROM MY FRIENDS**

The Beatles



### Why does music have such a powerful influence over our mood and movement?

Music has two properties that can help. We refer to these as organisational and affective properties.

In terms of organisational properties, we mean that music has a beat that can help improve gait, or walking, because people can synchronise to the beat and move in time with the music.

In terms of affective properties, music can help us get up and do things. Like how, in the Rocky movies, the song "Eye of the Tiger" gets him going! People with Parkinson's can use music for motivation in the same way that athletes do, but it can also help while relaxing. Participants in the study said it helped them to calm down after a stressful outing, or helped them to relax enough to sleep. Like many people in general, participants with Parkinson's told us that music helps them to connect to others. We think this is especially important in light of the isolation still experienced by many since the pandemic.

### How can creative research help us understand new things about Parkinson's?

Creative research can mean different things to different people, but to us it means being open to finding ways to address questions that are important and directly relevant to people with Parkinson's. This entire research agenda was initiated because people with Parkinson's asked us which music should they listen to, when and how? Our team of researchers and people with Parkinson's has developed a new group music and movement programme, which launched in March 2023. 'Songlines for Parkinson's' will help us discover what works, and what doesn't.

### What are the next steps for your research?

We are currently repeating the survey in Switzerland in German, French and Italian, to try to understand more about cultural factors that might impact how people use music. We've also started work on a new interactive website called Playlist for Parkinson's, as a resource that people can use to share their playlists.

## Put on your dancing shoes

In 2010, the English National Ballet developed a new programme called Dance for Parkinson's, encouraging people with Parkinson's and their loved ones to join specialised dance lessons with members of the Ballet. The sessions have been hugely successful and now take place in six centres across England and Wales, as well as being available to stream online from home.

The lessons provided space for people living with Parkinson's to do something different, meet in a social group, and move their bodies. But it's hard to know whether the ballet was really having an impact on their condition. That's where research comes in.

### Benefits for Parkinson's

In collaboration with King's College London, the English National Ballet is now running a study looking at the benefits of dance for people with Parkinson's. The research study is the first of its kind. This is being coordinated by Professor K Ray Chaudhuri, Director of Parkinson's Foundation Centre of Excellence at King's College London, who will be monitoring the dance class participants at his clinic.



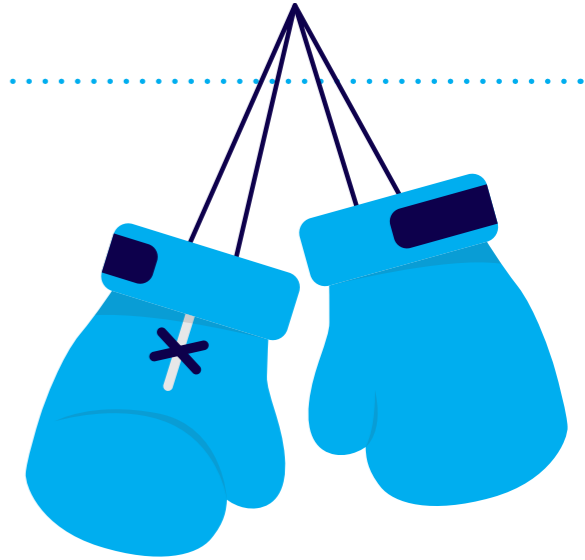
The trial will study a group attending weekly ballet classes, with specialist English National Ballet dance artists and musicians, and compare them with a control group who are not taking part. Everyone taking part in the study will be asked to wear a device on their wrist, called a personal kinetograph, around the time of their assessments. This will help monitor their motor and non-motor symptoms so that researchers can easily analyse and compare results between each participant.

Another unique aspect of this study is that all participants will be offered the opportunity to be part of research looking at the brain. The team will use small electrical pulses, similar to those used with monitoring the heart in an ECG, to investigate any changes to the cells in the brain as a result of the dancing. This could help the researchers link the test results and what participants tell them, to specific areas in the brain.

The team hope that the results of this study might show some clear benefits of dance on the progression of Parkinson's for the first time. The trial is still ongoing, but will hopefully start publishing results towards the end of 2023.

## If the thought of ballet doesn't enthruse you, how about a boxing ring?

Researchers in Chicago found that people who were regularly taking part in boxing therapy classes twice a week were less likely to experience falls. But their risk increased when they stopped attending as regularly.





# PARKINSON'S UK RESEARCH FUNDING UPDATE

**A**t Parkinson's UK, we fund and invest in research and drug discovery projects that have varying goals in the treatment, management and understanding of Parkinson's. We're chasing down a cure, but also funding new ways to manage symptoms and improve quality of life, right now.

Since our last issue of Progress, we've funded new projects which will help bring us closer to the new treatments we so desperately need. Funding for all of these projects is only possible thanks to the incredible generosity of our supporters.

Keep reading to find out more about the new projects.

Find out how you can get involved in research on **P20**.

## Getting to the heart of complex problems

We tackle major Parkinson's research challenges with groundbreaking studies. This includes funding for projects that span the whole research journey, from understanding the causes of Parkinson's, to spotting early symptoms, and developing new treatments and therapies.

### Targeting alpha-synuclein in the gut

- Lead researcher: Professor Maria Grazia Spillantini
- Cost: £241,067
- Location: University of Cambridge

Previous research has suggested that early signs of Parkinson's might be found in the gut before they can be seen in the brain. Using mice, Maria Grazia and her team are investigating how clumps of alpha-synuclein might travel from the gut to the brain in some people with Parkinson's. The aim is to see whether it could be possible to use this to monitor how Parkinson's progresses and to ultimately inform ways to slow or stop the condition.

### Can healthy mitochondria in astrocytes protect brain cells?

- Lead researcher: Dr Gavin Hudson
- Cost: £324,406
- Location: Newcastle University

In Parkinson's, communication between different types of brain cells becomes more difficult, as dopamine is lost over time. Gavin's team will compare brain tissue samples from healthy people and people with Parkinson's to look for differences in a certain brain cell called astrocytes, which are known to help support communication between cells.

This research could help improve understanding of how different types of brain cells are impacted in Parkinson's, and help find new avenues for new treatments.

### The link between the cell recycling system and communication between brain cells

- Lead researcher: Dr Dayne Beccano-Kelly
- Cost: £324,695
- Location: Cardiff University

Communication between brain cells is needed for all parts of the body to carry out their functions such as speaking, moving, thinking and feeling. To make sure that brain cells can communicate, cells are kept free of waste products through a cell recycling system.

Using human brain cells made from human skin cells in a dish, the team will compare how well this cell recycling system works in people with and without Parkinson's. The researchers want to understand how problems with cell recycling can affect messages being sent between brain cells.

## Treating Parkinson's without drugs

While we need to work towards treatments that could slow or stop Parkinson's, we also recognise that we need to find ways to improve daily living for people with Parkinson's now. We launched the non-drug approaches grant scheme in 2020, to focus on helping people take control of their Parkinson's. Examples of projects are living aids, exercise and therapies.

### An exercise programme for balance and strength

- Lead researcher: Dr Gill Barry
- Cost: £101,832
- Location: Northumbria University

Loss of balance is a common and serious problem in people with Parkinson's, contributing to walking impairments, fear of falling, reduced independence, and increased fall risk.

Keep On Keep Up (KOKU) is an NHS approved app that has been designed to engage older people in safe and effective balance, strength and fall prevention exercises. But this has not been tested specifically in people with Parkinson's.

The project aims to explore and develop the use of the KOKU programme for people with Parkinson's.



### Improving balance by measuring brain waves during exercise

- Lead researcher: Dr Qadeer Arshad
- Cost: £198,360
- Location: University of Leicester

Physical activity can be beneficial for people with Parkinson's in a number of different ways. Qadeer and his team are interested in how a specific exercise regime may be able to help improve balance and reduce falls, for people with Parkinson's. They'll do this by measuring brain activity using a non-invasive device, as people take part in a game specifically designed to help improve balance.

Previous studies have shown that exercise and brain activity training can be used to improve balance. Changing your own brain activity is a skill that can be learned, like controlling your breathing to lower your blood pressure.

### Mental health support for the needs of people affected by Parkinson's

- Lead researcher: Dr Jennifer Foley
- Cost: £199,165
- Location: Institute of Neurology, University College London

Parkinson's can be associated with mental health issues such as anxiety or depression, which can severely impact people's quality of life. There are currently not enough people who are qualified to deliver mental health support for people with Parkinson's.

Jennifer and her team are developing a treatment programme that can be delivered by non-experts to address mental health issues, along with booklets for those who attend the sessions. They will do this by working with people with Parkinson's and non-specialist health professionals, to allow more people to be able to receive support.

### Funding the next drug advancement

We fund research that aims to accelerate promising new research to a place where it can enter full scale drug discovery.

#### Boosting the brain cell's recycling process

- Lead researcher: Dr Robin Ketteler
- Location: University College London
- Cost: £44,384

Robin and his team have already identified some compounds that can boost the cell recycling process, and get rid of old, unwanted or faulty materials. This prevents a build up of unwanted protein, and protects the brain cells. In this research, they will see if they can learn more about these compounds and how they work, and find out which has the most promise to potentially develop into a new drug to be investigated for Parkinson's.

### The Parkinson's Virtual Biotech

The Parkinson's Virtual Biotech is the drug discovery and development programme driven by people with Parkinson's, not profit. Collaborative and agile, it adapts successful methods from the business world to deliver new treatments, faster. We have now committed to invest in 13 projects within the Parkinson's Virtual Biotech.

#### Using a cough medicine, ambroxol, to slow the progression of Parkinson's

- Co-partners: Cure Parkinson's, The Van Andel Institute and John Black Charitable Foundation
- Location: UK and Israel
- Parkinson's Virtual Biotech investment: £1.1m

GCase is a protein which breaks down alpha-synuclein. GCase has decreased activity in people with Parkinson's, which can lead to the build up of defective alpha-synuclein. Research has shown that ambroxol, a medication commonly used as a cough medicine, can increase the activity of GCase.

The phase 3 clinical trial will investigate whether ambroxol can slow or prevent the worsening of motor and non-motor symptoms for people with Parkinson's, and confirm how safe it is.

Whilst past trials have shown promise, there is still more research needed to show if ambroxol can be a safe and effective treatment for Parkinson's. This includes safe testing of dosages and frequencies. Parkinson's UK does not recommend you take any medications without a prescription.

### Treating Parkinson's dementia with a compound originally found in sharks

- Partner: Enterin Inc.
- Location: US and UK
- Parkinson's Virtual Biotech investment: £2m

ENT-01 is a man-made version of a compound originally found in dog-fish sharks. In previous trials studying the effect on constipation, there were also possible improvements in depression, cognition, hallucinations and sleep problems.

The phase 2 clinical trial will evaluate the safety and tolerability of ENT-01. It will also measure the beneficial effects of ENT-01 on cognition and dementia as well as some motor symptoms.

[Read more about ENT-01 on P4.](#)

### Reducing inflammation in the brain in people with a sleep disorder

- Partner: Pharmaxis Ltd.
- Location: UK and Australia
- Parkinson's Virtual Biotech investment: £2.9m

Studies estimate that as many as 70% of adults who experience a sleep disturbance called Isolated Rapid Eye Movement Sleep Behaviour Disorder (iRBD), will go on to develop symptoms of Parkinson's. iRBD can cause people to vocalise or act out their often unpleasant dreams, such as kicking or punching in their sleep.

Pharmaxis Ltd. has developed a drug which may decrease inflammation and improve motor symptoms in those with iRBD. In a phase 2 clinical trial, they will evaluate how safe and tolerable the drug is. They'll also assess how effective it is at reducing inflammation and treating motor symptoms such as tremor and slowness of movement. This could help tackle some of the earliest symptoms of Parkinson's, and slow progression of the condition.



# GET INVOLVED WITH RESEARCH

## What is clinical research?

Clinical research is the study of the safety and effectiveness of advances in treatments. Taking part in a clinical research study can come in many forms, from questionnaires to trialling new treatments. For research to have the most impact, we need people living with Parkinson's to be involved at every stage of the process.

Want to read more about how clinical research fits into the journey from an idea in the lab to a new treatment? Turn to P4.

“Research is vital for Parkinson's, as there is no cure yet. If I could be part of a project to find a cure or a treatment to slow down the progress of the condition that would be the best thing to do for the Parkinson's community. I may not benefit from the study, but maybe future generations will.”



Tincy Jose,  
Member of our Race Equality  
in Research steering group

## What does it mean to take part in research?

Parkinson's is a complex condition that can impact people in completely different ways.

Thanks to more than 50 years of Parkinson's research, we understand more about the condition than ever before. But researchers are still piecing together the clues as to what is causing Parkinson's and the best way to treat, monitor and measure the progression of the condition.

The only way to accelerate this knowledge and investigate potentially groundbreaking new treatments, devices and therapies, is through research. Everyone can play a part.

## How can you help shape the future of Parkinson's research?

People with Parkinson's are the experts on the condition. It is important that Parkinson's UK, researchers and pharmaceutical companies make a collective effort to ensure their voices are heard in research. There are a number of ways you can contribute and share your experiences.

Patient and Public Involvement (PPI) is when researchers and people affected by conditions work in partnership to plan, design, implement, manage, evaluate and disseminate research. As a PPI volunteer you'll work alongside researchers to design and shape Parkinson's research – improving the quality and relevance of research into the condition.



## We need you

We're keen to hear from people from all backgrounds in the role of a PPI volunteer. You don't need a degree or a scientific background to help inform and strengthen Parkinson's research. You don't have to have the condition yourself. You could be a partner, family member, close friend or healthcare professional. Your personal experience is what matters.

We will provide you with training which will give you more information about the PPI role and how the clinical research process works, so you can feel comfortable sharing your thoughts.

“People with Parkinson's have to guide research. How else can researchers know what is important to us and how we feel?”



Laurel Miller,  
Member of our Participation  
Steering Group

Find out more and apply to be a PPI volunteer on our website at:  
[volunteer.parkinsons.org.uk/opportunities](https://volunteer.parkinsons.org.uk/opportunities)



## Get it on time: Parkinson's medication management while in hospital

Medications prescribed for Parkinson's must be taken on time, and medication schedules are particular to an individual, based on their symptoms. When people with Parkinson's attend hospital, they may not be given the opportunity to manage their own medication, even when they are able to.

The researchers aim to determine whether missed or delayed medication while people are staying in hospital can lead to health problems and unnecessarily extended hospital stays.

**Who?** 350 people with Parkinson's who are taking Parkinson's medication, and have recently attended, or will soon attend a hospital.

**What?** You will be asked to complete one survey per month for six months following a hospital visit.

The surveys can be completed online or by post and will take 30-40 minutes to complete.

### Interested?

For more information get in touch with Chesney Craig, Senior Research Associate at Manchester Metropolitan University

email: [c.craig@mmu.ac.uk](mailto:c.craig@mmu.ac.uk)

or phone: 0161 247 5538

## PD Frontline – Identifying genes in people with Parkinson's

The aim of the research is to identify a large number of people who may have small genetic alterations in genes such as LRRK2 or GBA, which are known to be associated with Parkinson's.

These people may be invited to take part in future clinical trials of drugs that target these specific genes.

**Who?** 4,000 people diagnosed with Parkinson's who live in the UK.

**What?** You will need to register on the PD Frontline website where you will be asked to complete an online consent form and a short 10-minute survey. Upon completion, you will be sent a saliva sample collection kit which will be posted to you with return pre-paid packaging.

### Interested?

For more information visit our Take Part Hub, or get in touch with the PD Frontline team:

email: [pdf frontline@ucl.ac.uk](mailto:pdf frontline@ucl.ac.uk)

phone: 0208 016 8413

or visit: [parkinsons.org.uk/identifying-genes](https://parkinsons.org.uk/identifying-genes)



# QUESTION TIME



Answering some of the common questions from you, our readers

**Q** What is the difference between apathy and depression in Parkinson's?



**Dr Kinan Muhammed, Clinical Lecturer in Neurology and Neurosciences at the University of Oxford and Chief Medical Officer at Neu Health, said:**

Apathy and depression are common non-motor symptoms of Parkinson's. Apathy refers to a lack of motivation while depression is characterised by feelings of sadness and a loss of pleasure, known as anhedonia.

These conditions often overlap, which makes diagnosis harder, but they can also appear separately to each other in Parkinson's. Using research imaging and studies of behaviour, differences have been revealed in the brain regions and the mechanisms involved for each condition.

Apathy is linked to a lack of 'wanting' which leads to being less motivated.

For example, the desire for food when you are hungry encourages you to get up and make a meal. Depression and anhedonia may be associated with a loss of 'liking'. In this comparison, the feeling of satisfaction and pleasure when you finally eat the meal. Another characteristic of apathy is less interest in rewarding outcomes in the future. Research is being conducted to better understand these mechanisms further.

Both apathy and depression can significantly impact quality of life, but they may respond differently to treatment in Parkinson's. Depression is typically treated with antidepressants and talking therapies, while goal setting and drugs targeting dopamine or acetylcholine may be considered for apathy.

**Q** Does research suggest one particular diet or supplement I should be using to manage my Parkinson's?



**Richelle Flanagan, Registered Dietitian, Co-Founder My Moves Matter, said:**

While there is no one diet that fits all, current research suggests that the Mediterranean style diet is in the lead in terms of potentially helping to manage Parkinson's. There are several types of Mediterranean diet, as individual cultures and farming practices vary between the different Mediterranean regions.

They do, however, share fundamental characteristics. Some of these appear to be beneficial in the health of people living with Parkinson's. One key common characteristic is reducing the intake of highly processed foods, such as sugary snacks or drinks, baked goods, and

processed meats high in saturated fat and salt. Instead, they tend to include a primarily plant-based diet with plenty of unprocessed cereals, especially whole grains, fruits and vegetables, pulses, nuts, seeds, herbs and spices. Olive oil is often the main source of fat, and there is only moderate consumption of fish and seafood, poultry, eggs and dairy products. Some Mediterranean diets place particular importance on berries and leafy greens, which early research has suggested may have specific advantages for people with Parkinson's.

**Q** What is the latest information about red light therapy for treating Parkinson's?



**Dr Becky Jones, Research Communications Officer at Parkinson's UK, said:**

Near-infrared, or red light therapy, is based on the concept of using light to change the activity of cells, to potentially improve various symptoms of Parkinson's. This might involve using a handheld device, or a helmet, to administer red light to the body. There is some evidence that light therapy might be beneficial in Parkinson's, but at the moment there is very little clinical evidence to support this, as research, to date, has largely been done in animal studies.

There have been limited investigations of near-infrared light therapy in clinical trials in people with Parkinson's. A trial involving 135 people with Parkinson's has been looking at potential benefits of using a helmet or a device inserted into the nose, and results should be ready to share later this year.

Although light therapy is regarded as safe, it is unclear what methods of light therapy, and in what dose, might be beneficial to people with Parkinson's. We need to see the results of these bigger studies to understand whether this will be a useful treatment..

**Got a question about research?**

Email [research@parkinsons.org.uk](mailto:research@parkinsons.org.uk) with the word "Progress" in the subject line.

# GET YOUR COMMUNITY INVOLVED IN RESEARCH



## Are you enthusiastic about Parkinson's research and getting more people involved?

We're looking for Research Champions to help us share Parkinson's research updates and opportunities with more people across the UK.

Research Champions play a vital role in connecting more people affected by Parkinson's to research, in their local area. The more people who get involved in research, the faster we'll get to better treatments and a cure.

### In this role you could be:

- encouraging people to join our online Research Support Network and receive our e-newsletter
- sharing our 'Get involved in research' leaflets in your local area
- putting together research newsletters to share at Parkinson's UK local support group meetings or by email
- organising research speakers and local research project visits.

This role is for everyone, including people with Parkinson's, carers and other members of the public. You don't need to have taken part in research or have scientific knowledge. We will provide all the information and resources you need, and can help you to connect with a local group.

The time commitment for the role can be as flexible as you want it to be depending on your availability.

### Find out more

Contact Alex Edwards, Research Participation and Engagement Officer  
 email: [aedwards@parkinsons.org.uk](mailto:aedwards@parkinsons.org.uk)  
 or call: 0207 963 9384



## WE WANT TO KNOW WHAT YOU THINK

For information on how we use your personal information, please visit [parkinsons.org.uk/privacy-policy](https://parkinsons.org.uk/privacy-policy)

Our magazine is produced in partnership with our volunteer editorial board. But we'd also really appreciate your feedback. You can complete this short survey: **Online at [parkinsons.org.uk/summerprogress-2023](https://parkinsons.org.uk/summerprogress-2023)**

Or

Return this page by post to:

Research team, Parkinson's UK, 215 Vauxhall Bridge Road, London SW1V 15J

The responses will remain anonymous, please do not include your name.

### 1. On a scale of 1 to 5, how interesting do you find Progress magazine? (please mark one option)

(Not interesting)

(Extremely interesting)

1    
  2    
  3    
  4    
  5

### 2. How do you feel after reading Progress? (please tick all that apply)

Hopeful    
  Inspired    
  Frustrated  
 Confused    
  Informed    
  Disheartened

Other (please specify):

### 3. How could we improve Progress magazine and what would you like to read about in the future?

\_\_\_\_\_

\_\_\_\_\_

### 4. What is your connection to Parkinson's?

I have Parkinson's    
  I am a Parkinson's UK volunteer  
 I am a partner, family member, friend and/or carer of a person with Parkinson's    
  I am a health or social care professional (doctor, nurse, therapist, social worker, etc)  
 I am a bereaved partner, carer, family member or friend of a person with Parkinson's    
  I am a researcher and/or a student with an interest in Parkinson's

### 5. After reading our magazine, how likely are you to get involved in research?

For example, take part in a study, join an event or volunteer. (please mark one option)

(Not likely)

(Extremely likely)

1    
  2    
  3    
  4    
  5

### 6. Are you signed up to receive our regular research emails through our Research Support Network?

Yes    
  No    
 I am going to sign up now at [parkinsons.org.uk/rsn](https://parkinsons.org.uk/rsn)    
 I don't know



We are Parkinson's UK.  
Powered by people.  
Funded by you.  
Improving life for everyone  
affected by Parkinson's.  
Together we'll find a cure.

**PARKINSON'S<sup>UK</sup>**  
**CHANGE ATTITUDES.**  
**FIND A CURE.**  
**JOIN US.**

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