

# The Current

Bionics Institute Newsletter

AUTUMN 2026



OUR NEWEST  
Ambassador  
**Neil Balme**

Vagus nerve stimulation:  
*explained*

PULSE OF POSSIBILITY FOR  
**Parkinson's disease**



Bionics  
Institute

Pictured is Bionics Institute researchers A/Prof Sophie Payne,  
Dr Tomoko Hyakumura and AFL legend Neil Balme.



## A Word from our CEO

### Welcome to the Autumn 2026 edition of The Current.

A great deal has already happened this year, and we are pleased to share several important milestones from across the Institute. A major focus in the coming weeks will be our Giving Day for epilepsy on 10 March, bringing our community together to support research that has the potential to change lives. We are delighted to have Neil Balme join us as our Giving Day ambassador, helping to raise awareness of epilepsy and the urgent need for improved treatments.

Research into epilepsy continues to progress well, including work exploring abdominal vagus nerve stimulation as a potential new therapy for people whose seizures are not adequately controlled by existing treatments. This approach builds on our long-standing expertise in neuromodulation and reflects our commitment to pursuing innovative solutions for complex neurological conditions.

We are also thrilled to celebrate a major milestone for Epiminder, the company translating the Minder® medical device for epilepsy, originally developed by engineers here at the Bionics Institute with founder Professor Mark Cook, into clinical reality. Following FDA approval for Minder® in April 2025 Epiminder officially listed on the Australian Securities Exchange (ASX) in December, marking a significant step toward delivering this life-changing technology to more people worldwide. It's incredibly rewarding to see our research make this journey from lab to market.

Collaboration remains central to our work, and in this edition, we announce a new strategic alliance with Swinburne University of Technology. The partnership brings together the cutting-edge facilities, scientific expertise, and resources of both organisations to accelerate the development of life-changing medical devices and progress innovations into the clinic for the benefit of patients worldwide. You'll also find an explanation of our abdominal vagus nerve stimulation, alongside an update on an exciting project investigating peripheral sensory stimulation to help people with Parkinson's disease walk more safely and confidently, addressing gait difficulties that current treatments do not fully resolve.

As always, thank you for your invaluable support, and I look forward to welcoming you to the Institute or seeing you at an event very soon.

Best wishes,

**Robert Klupacs**  
Bionics Institute CEO

## Support Epilepsy Awareness in March with Bionics Institute Giving Day

During Epilepsy Awareness Month, we will be holding our third Bionics Institute Giving Day on 10 March! Giving Day is more than just a single day of giving, it's a chance for our community to come together, celebrate progress and support the work that truly matters.

Support groundbreaking research this Giving Day and watch your gift grow! With matching donations from generous supporters, every dollar you give will be doubled.

Together, we can drive meaningful change and help advance medical innovation that improves lives.

### RESEARCH SPOTLIGHT

#### Abdominal vagus nerve stimulation to treat epilepsy

Globally over 50 million people live with epilepsy. For 30% of these individuals, medications just don't work, and people continue to experience often debilitating seizures. A new way to treat this devastating condition is urgently needed.

Vagus nerve stimulation at neck level is an approved therapy for drug-resistant epilepsy, but can lead to unwanted side effects, such as coughing and shortness of breath limiting its use in people with respiratory or heart conditions.

Our researchers are investigating how the Bionics Institute's abdominal vagus nerve stimulation device, currently in clinical trials for Crohn's disease and rheumatoid arthritis, could be developed to potentially reduce seizures in drug-resistant epilepsy and rapidly translate this innovation into the clinic to benefit people with this debilitating condition.

# From AFL glory to advocacy

## Neil Balme's journey with epilepsy



**AFL great Neil Balme is sharing his personal journey with epilepsy to raise awareness and support our Giving Day on March 10.**

Neil experienced his first seizure in 2020. "My wife thought I was done," he recalls. The seizure led to weight loss, memory struggles, and a difficult recovery.

*"Living through Neil's seizures diagnosis journey was frightening. Supporting research that could help others gives us hope."*

- Carmel, Neil's wife

Neil is determined to speak openly about epilepsy and help reduce the stigma surrounding it. He hopes to inspire others to support research and raise awareness, giving people living with the challenges of epilepsy a brighter future.



*"If my epilepsy drugs weren't working, I'd try vagus nerve stimulation for sure. This research is fantastic."*

- Neil Balme



## What is vagus nerve stimulation?

The vagus is a major nerve that runs from the brain to the gut and is often referred to as the body's superhighway, as it branches to almost every organ, including the brain, heart, lungs, liver and gut.

It controls and responds to many processes in the body, including the body's natural anti-inflammatory response, and connects to many key areas of the brain involved in memory, learning and other behavioural responses, which are linked with neurological conditions including epilepsy and Parkinson's disease.

Vagus nerve stimulation applied at neck level is an approved treatment for neurological disorders such as drug-resistant epilepsy. However, stimulation of the vagus nerve at neck level has unpleasant, sometimes serious side effects on heart rate and breathing.



To overcome this limitation, Bionics Institute researchers have developed a device that stimulates the vagus nerve at the abdominal level, below the diaphragm, without side effects on the heart and lungs. This technology is called the abdominal Vagus Nerve Stimulation (aVNS) System, and the device is made up of an electrode array implanted on the vagus nerve via keyhole surgery that stimulates and records nerve activity.

Powered by a battery implanted at the hip level and turned on by the device recipient to stimulate the nerve, stimulation levels are monitored and changed via a clinician app. For those with the medical condition the device has the potential to remove the need to worry about taking medication – making it a set-and-forget treatment.

## Leaving a legacy to medical research

Graeme Selby's journey with the Bionics Institute began after receiving a cochlear implant to address his hearing loss. Inspired by the impact of his treatment, Graeme chose to leave a gift in his Will to support future medical breakthroughs.

*"I want to help the Bionics Institute continue its incredible work so that future generations have access to transformative treatments."*

- Graeme



We are incredibly grateful for the generosity of people like Graeme, whose legacy will ensure that groundbreaking research continues for years to come. Your Will, your choice, our future: a gift in your Will to the Bionics Institute is a powerful way to leave a lasting legacy. You could support research that could change lives for generations.

Find out more about leaving a gift in your Will and making a difference in advancing medical science for a healthier future.

Download our Legacy Pack here



# Bionics Institute News



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## Bionics Institute x Swinburne alliance

The Bionics Institute has partnered with Swinburne University of Technology in a first-of-its-kind collaboration to accelerate the development of life-changing medical devices.

By combining cutting-edge facilities, scientific expertise, and resources, the alliance aims to fast-track innovations from the lab into the clinic, improving patient outcomes worldwide while ensuring BI retains its independence. Together, we are creating a seamless pathway for research, development, and translation into clinical practice.

Swinburne Vice-Chancellor and President Professor Pascale Quester says:

*“Swinburne and the Bionics Institute are united by a bold vision: to transform lives through innovation.”*

Back by popular demand –

our Golf Day returns!

After the tremendous success of our inaugural Golf Day in 2025, we're thrilled to bring it back for another fantastic day on the greens.

Join us at **Box Hill Golf Club** on **30 March 2026** for a 9-hole Ambrose game starting at **3pm** followed by a delicious **BBQ buffet**.

Whether you're an experienced golfer or just in it for the fun, it's a great opportunity to network, enjoy a beautiful day outdoors, and contribute to life-changing research.

**Don't miss out, get your tickets now!**



As CEO Robert Klupacs said, “I haven't experienced many moments like this in my career in med tech, and I'm proud that the Institute has been a part of the story from the very beginning.” This milestone highlights the Institute's commitment to turning innovative research into real-world solutions that improve the lives of people living with epilepsy.



## Listening first: Consumers shaping our device research

The Bionics Institute is putting consumers at the centre of innovation. Partnering with Crohn's & Colitis Australia and Arthritis Australia, we are engaging people living with the conditions we research to guide medical device development, with additional plans to engage with the Epilepsy Foundation and develop our relationship further.

By incorporating real-world experiences and expertise from consumers, our research will focus on outcomes that matter most to those living with the condition.

Consumer contribution will influence device and clinical trial design, and ensure technologies are practical and impactful. This approach accelerates the creation of devices that could truly improve lives.

# Stepping forward: tackling Parkinson's gait challenges with sensory stimulation

## Understanding Parkinson's disease

Parkinson's disease (PD) is a chronic, progressive movement disorder that occurs when nerve cells essential for normal movement and coordination stop working properly. These nerve cells communicate through a chemical messenger called dopamine, and when dopamine levels decline, the characteristic symptoms of Parkinson's appear. PD affects over six million people worldwide.



## Walking difficulties in PD

Walking disturbances in PD are very common and can result in increased falls and injury. Walking impairments include reduced walking speed and step length, impaired rhythm of walking, inability to initiate walking and 'freezing of gait' - the inability to move feet forward despite the intention to walk. Walking impairments worsen as the disease progresses and markedly affect an individual's independence and quality of life.

## The need for new treatments

Despite the prominence of walking impairments in PD, few therapeutic options are available. Medication can help but often does not return walking to where it should be. Similarly, deep brain stimulation (DBS), a form of surgery, can improve some gait disturbances but can also cause worsening of others.

Walking difficulties and the risk of falls remain major obstacles to independence, highlighting the urgent need for new interventions that improve walking and quality of life.

## Innovative research at the Bionics Institute

At the Bionics Institute, A/Prof Mehrnaz Shoushtarian and her collaborators (Prof Robert Iansek and Dr Anna Murphy) at Kingston Centre, Monash Health are exploring peripheral sensory stimulation as a novel approach to Parkinson's gait. This method involves delivering stimulation in the form of mild electrical pulses or vibration to the feet, aiming to disrupt abnormal brain activity associated with PD and help better regulate walking.

A/Prof Shoushtarian and her team have begun a clinical trial to assess the effect of stimulation on walking impairments in PD. By combining clinical expertise with cutting-edge technology, the Institute seeks to develop practical, evidence-based solutions that enhance mobility, independence, and overall quality of life for people living with this condition.



Associate Professor Mehrnaz Shoushtarian says:

*"Our aim is to develop a stimulation device that is easy to use for patients and can transform the management of walking disorders in PD."*



Learn more here



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[bionicsinstitute.org/donate](https://bionicsinstitute.org/donate)

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