Rotary Clubs of Palmerston North & Awapuni
Presidents: Dave Gaynor and Norelle Ward

Rotary Bulletin – 11 May 2026

Youth Music Festival
23 May 2026. Contact Steve Paterson.

Circus Quirkus
28 May 2 shows at PNBHS. Contact Mike.

Next Brew Union
29 May 2026, Friday 5.00 pm.

Lifting the Lid
$12k allocated to support Lifting the Lid at $2k to Wellington Rotary to support a Global Grant and $10k for Freyberg High. All Rotary Clubs in PN are committed to support Lifting the Lid. To know more or to help, contact Nick Kaspers.

Robot Assisted Surgery
$20k from PN Rotary and $50k from Awapuni going to support this programme. $2m raised so far!!

Merging of Trusts
The process of merging the two PN Rotary Trusts into one has been approved by both Trusts. The funds in both will be managed separately within the same Trust. It is required that youth-oriented funds are accounted for separately.

Kahuterawa Bush
Bridge foundations are being built by Telcospec and track gravel delivered by Telcospec has been spread along tracks by a team from Corrections Community Services. Nigel, Aaron and Dave sprayed tradescantia and blackberry last Friday.

Monday lunchtime 11 May 2026
Guest Speaker: Steve Deans

"U23 NZ Softball Coach to World Cup in Columbia"

President	President Dave
Intro/Thanks	President Dave
Sergeant	John Freebairn
Corporal	Nick Kaspers
Parting Thought	Philip Boulton
Bulletin Editor	Dave Gaynor
Attendance	Stu Schwartz

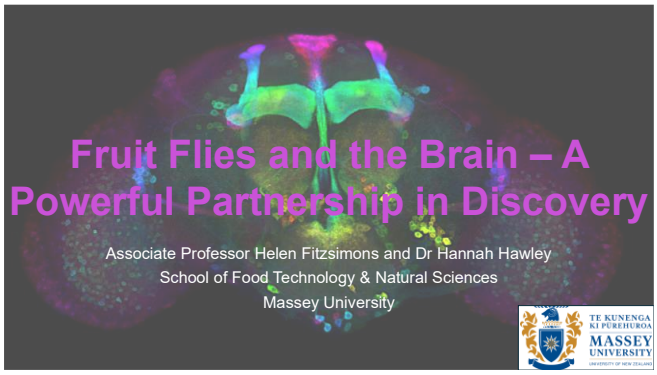
Summary of the Speech by
Helen Fitzsimons and Hannah Hawley
Natural Sciences, Massey University.

"Fruit Flies and the Brain: A Powerful Partnership in Scientific Discovery"

Helen Fitzsimons and Hannah Hawley's talk explained how studying fruit flies helps scientists understand how the brain works, how memories are stored, and what goes wrong in neurodegenerative diseases like Alzheimer's.

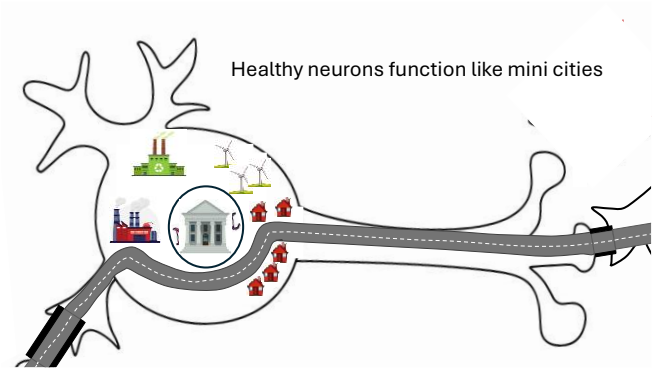
Associate Professor Helen Fitzsimons (brain basics + Alzheimer's overview)

- Introduced her background (gene therapy work overseas, now an associate professor at Massey) and introduced Hannah as a former PhD student from her lab.

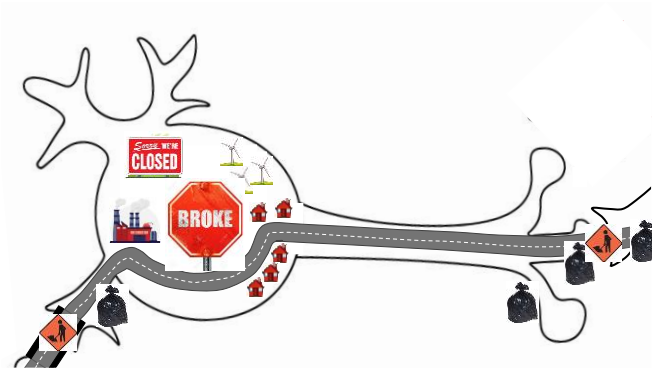


- Explained why the brain is extraordinary: it controls vital functions and also enables

uniquely human capabilities (memory, creativity, compassion, language).
- Highlighted a key vulnerability: neurons usually last a lifetime and aren't easily replaced, so losing them has lasting consequences.
- Used a "neuron as a city" analogy:
  - DNA/nucleus = city council/blueprints; ribosomes = factories; microtubules = road network; mitochondria = power plants; proteasome/autophagy = recycling/waste management.
  - Even though proteins are constantly replaced, memories persist because they rely on stable networks of synaptic connections.



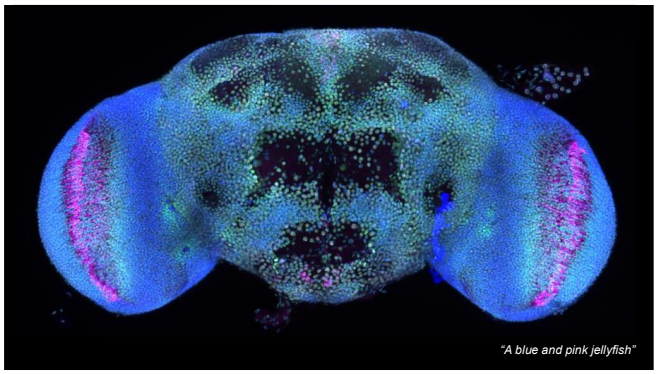
- Described Alzheimer's mechanisms in accessible terms:
  - Beta-amyloid can build up into toxic clumps (like uncollected rubbish).
  - A protein called tau becomes abnormal, damaging the "roads" (microtubules) and forming tangles that disrupt communication.
  - Result: circuits fail and memory/brain function deteriorate.



- Noted evidence-based ways to support brain health: exercise, social interaction, and a balanced diet (fruit/vegetables), which may reduce vulnerability and inflammation.
- Handed over to Hannah to explain why their lab uses fruit flies.

Dr Hannah Hawley (why fruit flies + what their research measures)

- Explained why fruit flies (Drosophila) are powerful neuroscience models:
  - They have a brain and complex nervous system (~200,000 neurons).
  - About 75% of human disease-causing genes have fly equivalents, enabling disease modelling.
  - They're fast, practical, and genetically modifiable compared with humans.
- Described their lab workflow:
  - Maintaining many genetically modified fly lines in a containment fly room.
  - Using CO_2 to anaesthetise flies and microscopes to sort them.
  - Dissecting fly brains (tiny—under 1 mm) and staining them with fluorescent markers for high-end imaging.



- Showed how they detect neurodegeneration:
  - In healthy brains, structures are intact; in degeneration, holes/vacuoles appear—signs of cell loss and broken neural connections (also seen in human ageing/disease).

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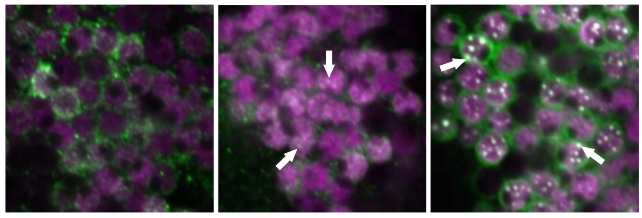
What causes bad changes in brain function?



Purple = nucleus

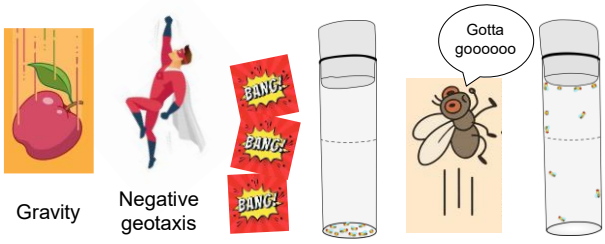
Hawley et. al., 2025

What are they doing????

- Presented her PhD research focus on a specific protein that:
  - Is normally outside the nucleus, but in unhealthy brains moves into the nucleus and forms spots/clumps.
  - These spots correlate with shorter lifespan, impaired movement, and memory loss in flies.
  - Similar clumps are observed in brains of people who died with Alzheimer's (in certain regions), suggesting relevance.
  - Live imaging showed spots can move and merge (coalesce) into larger ones, potentially increasing damage—pointing to possible intervention strategies.
- Explained behavioural tests linking brain changes to function:
  - Negative geotaxis (climbing) assay for motor decline with age/degeneration.

Measuring motor function in flies

The negative geotaxis (climbing) assay



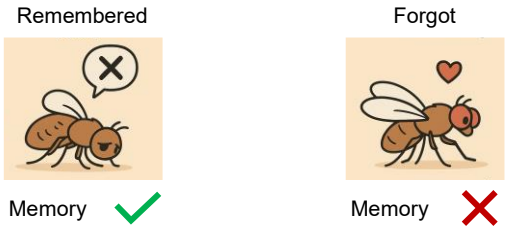
Gravity

Negative geotaxis

  - Memory assays including courtship suppression, where a male's ability to "learn" rejection reflects memory integrity.

Measuring memory in flies

Testing



- Closed with next steps: testing whether these protein spots appear across Alzheimer's and other neurodegeneration fly models, and whether preventing spot formation reduces harm; acknowledged funding support (Neurological Foundation).

Parting Thought:

Ron and Rae Dobson:

"Next time a fruit fly is hovering around your kitchen, just remember – you may be looking at one of neuroscience's most productive research assistants."

"Today we learned that a creature with a brain smaller than a poppy seed has still contributed more to science than most people on social media."

"So, if anyone leaves today feeling intellectually intimidated by a fruit fly, apparently that's not entirely unreasonable."

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