

# A new way of looking at Prader-Willi Syndrome

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An Australian study reveals that people with the rare genetic disorder known as Prader-Willi Syndrome may have an impaired autonomic nervous system. This discovery opens up a new way of looking at the insatiable appetite experienced by all sufferers, as well as their very high risk of cardiovascular disease.

The [autonomic nervous system](#) controls our inner organs, including our gut, heart, liver and blood vessels. It is a finely tuned, dynamic system, responding moment-by-moment to the body's needs.

Researchers from Sydney's Garvan Institute of Medical Research, including Drs Alexander Viardot and Lisa Sze, Professor Lesley Campbell and Louise Purtell, undertook meal studies, comparing 10 adults with Prader-Willi Syndrome with 11 healthy matched obese people and 9 healthy lean people.

Their findings, now published online in the international journal *Clinical Endocrinology*, showed that [heart rate variability](#), an indicator of autonomic nervous system function, was not normal in people with Prader-Willi Syndrome.

In a healthy person, the time between one heartbeat and the next varies considerably during a meal because the autonomic nervous system is very actively regulating the body's response to food and blood flow.

In people with Prader-Willi Syndrome, the study found, heartbeats were far too regular after a meal. This allowed the researchers to infer autonomic nervous system impairment.

"This is the first study to show that the response of the autonomic nervous system to [food intake](#) is abnormal in Prader-Willi Syndrome," said [endocrinologist](#) Dr Alex Viardot, one of the [principal investigators](#).

"A range of abnormalities we see in Prader-Willi patients could be linked to it – including how the body secretes appetite suppressing gut hormones, and also controls appetite through the [central nervous system](#)."

"We believe the finding introduces a fresh perspective on the pathophysiology of this disease, potentially leading to alternative treatments in the future."

Study leader Professor Lesley Campbell agreed, emphasising the fact that the researchers matched obese people very closely with Prader-Willi patients in order to establish exactly what is intrinsic to Prader-Willi. "As a result of that close matching, we believe we are seeing the actual defect induced by the syndrome," she said.

"The autonomic nervous system is very hard to assess – and previous Prader-Willi studies have tended to look at the grosser autonomic nervous functions, such as pupil function, which has its limitations."

"To measure a very finely regulated thing like heart rate is a sensitive and reproducible way of measuring autonomic nervous function. This is the benefit of our study – it's a reliable test."

Provided by Research Australia

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