

# Chemo shown to upset gut microbes in cancer patients

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New research from SAHMRI and Flinders University has shown myelosuppressive chemotherapy destabilises gut microbiome in patients with solid organ cancers.

The study led by infectious diseases expert and clinical microbiologist, Dr. Lito Papanicolas, assessed the gut health of men and women who

underwent conventional [chemotherapy](#) on cancers, such as breast and [lung cancer](#), without exposure to antibiotics.

"We know that myelosuppressive chemotherapy reduces white blood cell count significantly during the first seven to ten days of treatment, making the body more vulnerable to infection," Dr. Papanicolas said.

"In this study we focused on how much the individual's microbiome changed over this period, when the bacteria are most likely to cause infection."

Analysis of participants' [gut microbiome](#) prior to and during chemotherapy revealed significant changes. This included an increase in bacteria that can cause serious and even potentially life-threatening, infections in [cancer patients](#).

While the trial demonstrated that microbiome was clearly altered, Dr. Papanicolas says further research is needed to determine whether this disruption is in fact necessary for treatment to be effective.

"It could be that what we're seeing is actually a good thing, because there's a possibility that the change in microbiome triggers the body's [immune response](#) to fighting cancer," Dr. Papanicolas said.

The findings have made a significant contribution to our ability to predict how an individual's microbiome is going to respond to chemotherapy before it happens.

The SAHMRI Microbiome & Host Health laboratory, in collaboration with the Flinders Centre for Innovation in Cancer, will soon begin a larger study to examine whether changes in the gut [microbiome](#) during chemotherapy are linked to a patient's risk of

infection or response to treatment.

This research could allow clinicians to better tailor therapy to individual patients in order to improve treatment outcomes.

**More information:** Lito E. Papanicolas et al, Conventional myelosuppressive chemotherapy for non-haematological malignancy disrupts the intestinal microbiome, *BMC Cancer* (2021). [DOI: 10.1186/s12885-021-08296-4](https://doi.org/10.1186/s12885-021-08296-4)

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