

*Mini-review*

## Radiation and SARS-CoV-2 effects on the microbiota, immune system and health

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This study aims to review the effects of radiation and SARS-CoV-2 infection on the gut microbiota, and the relationship it forms with the immune system and body axes. The intestinal microbiota is established after birth, reaching its greatest diversity in adulthood. It can be altered by factors which will depend on the host and the microorganisms. This work reviews how radiation and SARS-CoV-2 infection impact the microbiota, along with the connections established with body axes and immune system. The gut microbiota has important implications in health due to its role in multiple metabolic, physiological, and immune functions. The interaction with non-pathogenic microorganisms is beneficial; however, can cause diseases like cancer, obesity, diabetes or intestinal bowel disease. Recently, a direct relationship between microbiota and exposure to radiation in cancer patients, SARS-CoV-2 infection or different distal diseases induced via several corporal axes have been described. Microbiota acts as an independent organ, performing physiological, metabolic and immune functions; being beneficial or harmful to host.

**Keywords:** Dysbiosis, Ionizing radiation, Covid-19, Immune response, Corporal axes