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**Probiotic administration in the treatment of antipsychotic induced weight gain: A focus on the role of akkermansia muciniphila****Francesca Bertossi***Giuliano Isontina University Health Authority, Italy*

Second-generation antipsychotics, such as olanzapine, risperidone, quetiapine, and aripiprazole, are primarily used in both the acute and long-term treatment of major psychiatric disorders. Although better tolerated than first-generation antipsychotic drugs, they can frequently induce weight gain and metabolic disorders through the receptor blockade mechanisms and by modifying gut microbiota and inducing dysbiosis.

Gut microbiota can contribute to host metabolism by altering endocrine and satiety signalling, modifying the capacity for energy harvest, influencing the gut and systemic inflammation mechanism and modifying lipidic metabolism modulation. Antibiotic administration in mice models can reverse body weight gain and insulin resistance altered by olanzapine, one of the drugs more likely to induce these side effects. Probiotic administration has been tested in some RCT on mice models and on clinical population, but their role in weight reduction is still controversial. In the clinical population multiple strain probiotics, alone or together with fibre and vitamin d, have shown to significantly improve metabolic impairment and reduce weight gain, though the reduction was not significant in most of the studies.

Akkermansia Muciniphila gut concentration is decreased in patients with diabetes, obesity, metabolic syndrome, chronic inflammatory diseases, and it is reduced in patients with bipolar disorder treated with second-generation antipsychotics and in mice administered with olanzapine. Akkermansia Muciniphila was administered in one RCT on mice treated with olanzapine with positive but not significant results on weight loss and significant improvement of insulin resistance, inflammation, and gut barrier function, showing to intervene on the very parameters and pathways altered by olanzapine. Although we do not yet have trials in the psychiatric population, this probiotic may be a complementary approach to treating olanzapine-induced weight gain and metabolic side effects.

**Biography**

Francesca Bertossi works as a psychiatrist in a Centre of Mental Health in Trieste (Italy) where she studied medicine and psychiatry. She has got a specialization in Gestalt psychotherapy and in Systemic psychotherapy. She is interested microbiota and has completed the second level master in Psychoneuroendocrinology in Aquila University (Italy). She practices meditation since many years.