

# The effect of lactobacillus gaseeri THT 031301 supplementation on the body composition and inflammation in adults: pilot study

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Human guts are occupied with 100–1000 microbial species which plays a significant role in the host health and disease<sup>(1)</sup>. Lactobacillus species have shown a paradoxical effect in relation to body composition. Clinical trials using lactobacillus gaseeri (*L. gaseeri*) have demonstrated an anti-obesity effect, exhibiting significant reductions in visceral and subcutaneous fat, body weight, body mass index (BMI), and waist and hip circumferences<sup>(2)</sup>. Moreover, *L. gaseeri* has contributed to the regulation of abdominal obesity and showed a potential immunomodulatory effect in infants as well as boosting the immune system of healthy adults<sup>(3, 4)</sup>. Rodent models have found an association between the presence of *L. gaseeri* and positive outcomes in relation to weight loss, fasting blood glucose (FBS)<sup>(5)</sup>, and inflammation<sup>(6)</sup>. The aim of this study to look at the effect of 4 weeks of supplementation with *L. gaseeri* THT 031301 on obesity, glycaemic, and inflammatory markers.

This is a single centre, double-blind, randomised, placebo-controlled pilot study that recruited fourteen adult subjects with BMI > 25 kg/m<sup>2</sup>, who were randomly assigned to receive either a supplement containing *L. gaseeri* THT 031301 (n = 6) or a placebo (n = 7). Pregnant and lactating women, subjects on anti-diabetic medications, and subjects who have undergone heart surgery have been excluded. Consented subjects were asked to consume 2 capsules per day continuously for 4 weeks. *L. gaseeri* THT 031301 daily dosage was approximately 6x 10<sup>9</sup>cfu. Alterations in obesity markers were assessed using BMI and waist-to-height ratio (WtHR), and inflammatory markers were measured using enzyme-linked immunosorbent assay (ELISA). FBS level, HbA1c, and insulin measured to indicate the glycaemic markers. Each marker measured at baseline and after 4 weeks.

After 4-weeks supplementation, a significant reduction in waist circumference (WC) (P = 0.022) and (WtHR) (P = 0.035) was identified in the THT 031301 compared to the placebo. Within-group comparisons attributed this finding to a significant increase in WC (93.4 ± 10.1 vs 94.6 ± 9.5, P = 0.040) and WtHR (0.55 ± 0.04 vs 0.56 ± 0.04, P = 0.047) in the placebo group. THT 031301 identified a small increase in the anti-inflammatory cytokine IL-10; however, this was not statistically significant. No changes were identified with the glycaemic markers HbA1c, fasting blood glucose, or insulin.

The current pilot study suggests a potential anti abdominal obesity effect of *L. gaseeri* THT 031301 on the glycaemic markers in healthy adults, but this effect needs to be investigated in a large adequately powered RCT. The study did not find a significant effect of *L. gaseeri* THT 031301 on the glycaemic markers. Future studies might recruit obese and overweight subjects or subjects with diabetes to confirm the anti-obesity, anti-diabetic and anti-inflammatory effect of *L. gaseeri* THT 031301.

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## References

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