

# INFECTIOUS DISEASES

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## Microbiota in healthy Saudi males with various degrees of obesity

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**Background:** Obesity is a major modern global problem that is facing humanity. It is associated with major health complications and is a risk factor for diabetes and cardiovascular diseases (CVD). There is an alarming rate of increase in obesity among the Saudi population, placing a huge burden on health and economic resources in the country. Gut microbiota (GM) has been recently reported to be involved in the pathogenesis of many metabolic disorders and diseases including obesity, diabetes, and CVD.

**Objective:** The objective of this study was to identify obesity-associated GM dysbiosis and their relationship to body mass index (BMI) among healthy Saudi males with various degrees of obesity.

**Methodology:** A total of 48 healthy males with different degrees of obesity were recruited for this study. All those filled out a questionnaire related to their nutritional habits, health conditions and demographics. Their height, body weight, hip and waist circumference were measured (BMI and age). Stool samples were collected and genomic DNA was extracted from those samples. The DNA samples were sequenced via 16s rRNA next generation sequencing (MiSeq), sequencing reads were trimmed, analyzed and filtered and assigned to taxonomic units.

**Results:** The results indicated the presence of various bacteriological groups in the GM of individuals with different degrees of obesity. There were 37 species (found in small numbers) which were found only in the underweight, 46 in the normal, 17 in the overweight and 31 in the obese. However, at the family level the following were found: Desulfovibrio, prevotella and mesorhizobium in the underweight in the obese Lactobacilli and *Loktanella*. In the normal most *Bifidobacterium* and *Leuconostoc* and finally in the overweight the most present is *Nesternkononia*.

**Conclusion/Recommendations:** The results indicated that a variety of bacterial strains and microbiota populations were present among our study participants. Final goal is to use the data obtained from this study as biomarkers for early prediction, progress and for treating obesity in Saud Arabia.

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