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Obesity and microbiota among healthy Saudis with various degrees of obesity

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Background: Obesity is a modern global epidemic and is a risk factor for diabetes and cardiovascular diseases (CVD). The prevalence of overweight and obesity in Saudi Arabia is on the rise, placing a huge burden on health and economic resources. Recently, gut microbiota has been 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 gut microbiota dysbiosis and their relationship to body mass index (BMI) among healthy Saudis with different degrees of obesity.

Methodology: A total of 56 healthy individuals with different degrees of obesity were recruited. 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 next generation sequencing (MiSeq), sequencing reads were quality trimmed, analyzed and assigned to taxonomic units using 16S Meta genomics app (Illumina Base Space). One way ANOVA was used to find whether there is a significant between BMI in relation to microbial species

Results: The results indicated the presence of various bacteriological species. *Porphyromonas circumdentaria*, *Fervidobacterium islandicum* and *Desulforhopalus singaporensis* were found in the underweight group, while *Lysobacter soli*, *Anoxybacillus eryuanensis* and *Anoxybacillus flavithermus* were present in the obese group.

Conclusion/Recommendations: The results indicated that 1538 species were detected. There is some difference among the different species in relation to BMI. Work is in progress to include more human subjects and find the bacteria involved with obesity.

Biography

Steve Harakeh received his BSc and MSc from the American University of Beirut (AUB). He was awarded his PhD degree in Microbiology from the University of Surrey, UK. He spent two years as a Postdoctoral Research Fellow in the Microbiology and Immunology Department, School of Medicine at Stanford University, USA, and then he was appointed as a Research Associate (Research Assistant Professor) in the same department. He joined the Linus Pauling Institute for Science and Medicine where he worked and published with Professor Pauling who is the only holder of two unshared Noble prizes in the world. After that he was appointed as a Professor of Microbiology at the AUB. Then he worked as a Research Professor at Dr. Rath Research Institute in California, USA. Currently, he is a Professor at the Special Infectious Agents Unit – Biosafety Level 3 (SIAU). He is the Vice Chairman of the KFMRC Quality Control and Biosafety Committee, member of infectious disease research group. He has recently been appointed as a member of "Yousef Abdullatif Jameel Research Chair for Prophetic Medicine" and is already engaged with them in several ongoing research projects. He is the recipient of several awards and research grants and published over seventy papers in peer reviewed journals and contributed to publishing chapters in many international scientific books.

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