

Is our microbiome involved in decision making processes?

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The human body is home to a highly diverse bacterial community. Next generation sequencing-based technologies have revolutionized our knowledge on the human microbiome drastically; now we see both together as unit called meta-organism. More than thousand different species in abundances up to 10^{11} per gram colonized our gut, and recently was found that placenta — an organ the fetus shares with the mother — is colonized by healthy bacteria but also with those responsible for preterm birth. As this example showed we learned from the human microbiome that it involved in much more diseases than recently thought including heart diseases, cancer, autism, adipositas etc. While the impact of the microbiome on human health is accepted, little is known about the impact on our behavior. However, two examples are well studied: i) the impact of our gut microbiome on the decision what we want to eat and ii) the impact of our skin microbiome of the selection of our sexual partner. There is evidence that the brain and the gut brain are well-connected — via this connection bacteria send molecular information to decide what we want to eat. It is very difficult for us to change this behavior as studies with adipositas patients showed. The decision, which partner we select is very important for healthy children. The immune system is one of our most difficult organs, and it determined the composition of our microbiome. Moreover, it determines our personal smell (via bacterial volatiles). People with different smell are much more interested in each other than those with similar smells, which help to maintain and develop our immune system for further generations. These two examples show that our microbiome is involved in essential decision making processes. Advantages in our understanding of the human-microbiome interplay will identify new impacts. Moreover, I would like to postulate that our microbiome take part in this factor, which we currently call intuition.