**Humans Emit an Identifiable Microbial Cloud**

Scientists have recently discovered that humans are capable of emitting identifiable microbial clouds. It’s a well-known fact that humans carry bacteria and can pick up bacteria from the environment or from others. This is how people get sick with infectious diseases and why the development of antibiotics and antiseptics are so popular. Bacteria is everywhere in the environment: in food, on other humans, on hard surfaces, in water, and even in the air. These bacteria collect on humans and transfer between humans and the environment, with each leaving their trace on the other. Science is still researching and learning about human-environment microbial interactions.

Recently, a group of researchers from the University of Oregon studied these human-environment interactions. Whenever someone touches ink and then touches paper, it leaves behind a fingerprint on the paper. The same concept applies to bacteria. When someone touches a surface, it picks up that bacteria and carries it to the next surface. Not only does it carry it to the next surface, this recent development has proven that humans emit this bacteria in what is called a microbial cloud. This means that the bacteria you pick up, the bacteria on your clothes, the bacteria on your hair, and the bacteria on your saliva that you breathe out can be emitted into the air immediately around you. In a way, it’s like you emit a force-field of microorganisms just simply by existing at an area for a certain period of time.

The University of Oregon team has also found out that even in a crowded room, each person present emitted their own microbial cloud that was unique and could only be traced back to them. The cloud is unique to each person, because each person has different hygiene habits, came from different areas, interacted with different objects, and has been active in different environments. No other person emits the same microbial cloud, it is just as unique as a fingerprint. In the study, by using air filters and collecting particles on sterile objects near where subjects were sitting, the researchers were able to pick up specific microbial traces from each subject. For example, one subject who sat in a sterile environment (sterilized furniture surrounded by air filters to make sure any bacteria present in the air came from the subject and not elsewhere) left identifiable traces of *Dolosigranulum pigrum.* Another subject left identifiable traces of *Lactobacillus crispatus* which originated from the human vagina or gut. The researchers were able to detect these microbes in the air surrounding the subjects.

Furthermore, not only do humans emit a microbial cloud into the surrounding environment, the cloud stays in the same location even after someone has left. So an uninhabited space, like a brand new home for example, has completely different bacteria present than when after a person moves through the environment and inhabits that space. A person has not left their mark just by physical contact, but just by existing in a space.

The findings of this research have big implications in multiple scientific fields like forensics and epidemiology. Knowing that a person can be identified by their microbial trace they leave behind can give more insight into when a person was at a location and what they did there, thus leaving room for more development in forensics. This also leaves room for research in diseases and epidemiology on how long a microbial cloud with bacteria lingers after a person leaves and exactly how much of that bacteria is left lingering in the air that could potentially infect others. This then leads to growing research on how far these microbes linger in the air and how far pathogens can be detected in air.

Works Cited

Meadow, J. F., Altrichter, A. E., Bateman, A. C., Stenson, J., Brown, G., Green, J. L., & Bohannan, B. J. (2015). Humans differ in their personal microbial cloud. *Draw Science*. doi:10.18516/0002