

AN INTRODUCTION TO YOU AND YOUR DIGESTIVE TRACT'S ECOSYSTEMS—A NEW WAY TO THINK ABOUT DIGESTIVE HEALTH AND DISEASE

Introduction

You're more than just you. More than one half of your body is made up of cells that come from different kingdoms of life, your microbiota (bacteria, viruses, fungi, protozoa, and archaea). Without these microorganisms you could not survive. They are responsible for multiple critical functions that support your existence and have 100 times more genes than the number that exist in the cells of your body. (See reference 5--*Things Our Microbes do for Us*).

The microbiota live in multiple communities in and on the body known as ecosystems.

Human health and well-being are highly dependent on the relationship between these microbes and body cells in these ecosystems.

- If humans are exposed to a physical or chemical alteration such as surgery, chemotherapy, radiation treatment, and more, the ecosystems are affected.
- Furthermore, if humans are exposed to disease producing microorganisms, the ecosystems are affected.
- Finally, if humans alter the density or diversity of microorganisms living within them by taking antibiotics, consuming alcohol, taking acid reducing medications, smoking tobacco, or using recreational drugs, their ecosystems are affected.

Ecosystems Relate to Each Other

Ecosystems are found throughout the body with the digestive tract containing some of the most complex. They are found in the oral cavity, esophagus, stomach, small intestine, and colon. Likewise, the accessory organs that adjoin these digestive organs including the nose, middle ear, facial sinuses, lacrimal glands, salivary glands, lungs, bile ducts, and pancreas, have their own ecosystems that contribute secretions to the composition of other ecosystems.

What happens in one ecosystem affects what happens in an adjoining ecosystem or another ecosystem that may be further “upstream” or “downstream.” For example, the condition of the ecosystem in the oral cavity will have a direct effect on the ecosystems in the nose, sinuses, middle ear, esophagus, lungs and perhaps even more distant in the stomach, heart and brain.

No illness can be fully understood without first considering the components that exist within each ecosystem. Those components include but may not be limited to, the following:

- **Body cells**
- **Microorganisms in the ecosystem**
- **Nutrients in the ecosystem**
- **Non-nutrients (xenobiotics) in the ecosystem**
- **Body secretions including enzymes, digestants and hormones found in the ecosystem**
- **Multiple layers of protective immune mechanisms in the ecosystem**
- **Nerve networks that carry bidirectional communications between body and brain and between microbes and body in the ecosystem.**

Solutions

The solutions for returning intestinal ecosystems to their beneficial state will focus on the following:

- **Understanding the benefits of a healthy microbe community within the body, how to nourish these microbe populations, and how to avoid destroying them.**
- **Emphasizing the recognition of an imbalance particularly of the oral cavity ecosystem with emphasis of good oral hygiene measures, frequent dental assessments and cleanings. (See references under “Oral Health”)**

- **Recognizing which non-nutrients have the potential for most destructive tendencies which may include antibiotics, antacids, alcohol, and over the counter supplements. (See reference 1 under “Polypharmacy”)**
- **Recognizing non-nutrient components of the environment that may interact in a detrimental fashion with the body’s ecosystems including such things as, air pollution, contaminated drinking water, recreational drugs and tobacco exposure.**
- **Recognizing the value of the body’s natural body secretions such as gastric acid, tears, saliva, bile and mucus and how to avoid altering them.**
- **Understanding the importance of the protective immune layers in the digestive tract that help prevent exposure of the body to toxins, pathogenic microbes, undigested food antigens and additives in the food supply.**
- **Understanding the role of the intestinal tract infrastructure of nerves and their bidirectional communication with the brain and with microbes in the intestine. (See reference 5 under “Diet”)**

A clearer understanding of digestive health and disease can be achieved once we accept the notion that we exist as two separate and unique, but codependent universes of life where both must be cared for.

The reader is invited to review other references in the section on Suggested References where more in-depth studies of digestive ecosystems can be found.

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