

# Unusual relations or a delicate balance?

## Microbes, gut, obesity, inflammation, brain function

### And the impact of good and not so good lymphatic drainage

By Neil Piller

#### Introduction

The gut is a tube. Its contents and its innermost layer (the mucosa) are the external environment. The gut and its wall is like the skin—a barrier between our internal and the external environment. Most often all is well and the barrier is structurally sound and functions as it should, however, sometimes things can go wrong and these aberrations can become chronic. The skin as a barrier its part of our general and nonspecific defence system. It's seven layers protect what lies beneath (the muscles, bones, organs and their supply structures).

As we know the skin is not an impermeable barrier. Many things need to cross it to ensure our optimal health: for instance, evaporative fluid loss and core temperature regulation through vasodilation and constriction. At the same time, however, large changes such as when we have a serious wound involving the epidermis, the dermis and other layers can lead to uncontrolled blood loss, which allows the entry of uninvited bacteria leading to subsequent infection. Diseases and disorders of the skin like psoriasis, acne, eczema, shingles, rosacea, hives, cold sores, etc. also lead to chronic long term changes to the skin and affect our body's

ability to defend its self against bacteria virus, parasites etc.

The gut is similar to the skin in this way! Its layers (like those of the skin) can be damaged or dysfunctional and for the body this can be just as serious for the health of the person affected.

This dysfunction can (also like the skin) be local, general, acute and chronic.

This article may help make us think about the importance of the gut as a barrier and what can go wrong, along with what we may be able to do to bring it back to normal function range. Although it's not all based on strong RCT type of evidence and it is not always based on human studies, this article combines what



we know of the gut, the microbiome, the lymphatic system and its role and brain function—and what a lymphedema practitioner might do to remediate some of these changes or prevent them from worsening.

References are included where appropriate, as many of the statements made in this piece can be considered common knowledge. If you are reading this as an immersive expert in one of the fields covered here, you may see errors, deviations from the norm and omissions. The intent of this article is to get us to think openly and holistically so we can move to enhance and enrich our knowledge and make a difference to patient outcomes, hopefully through the necessary clinical trials, keeping in mind that this is not the only information source that can help us achieve this. (Piller, 2018).

#### Context

The gut has many functions. Closely integrated to these are the lymph vessels and nodes. Their roles, nature and specific



**Professor Neil B Piller**, is Vice-Chair of the International Lymphoedema Framework, an editorial board member of *Journal of Lymphoedema*, Lymphatic Research/Biology and Lymphology. He is director of the Lymphoedema Clinical Research Unit at Flinders and Patron of the South Australian Lymphoedema Support Group.