

# What is the gut?

## A two-part feature for manual therapists

The words gut, belly, tummy, stomach, and core mean many things to many people. These words can mean something to exercise, something to dislike about ourselves, something to feed, something that hurts, or something to be in awe about. This two-part feature will examine how the belly is built and some of its unique functional attributes, as well as how manual therapy can optimise many critical functions of the digestive and reproductive systems.

**B**elly wall - There are 6+ layers of tissue here depending on whether you start at the front, sides, or back. This means 6+ layers of distinct densities, functions, communication methods, architecture, and vibrations that move, protect, warm, and keep all of the internal organs in place.

The belly wall wraps us up like a package to be shipped with skin (the wrapping paper), a layer of insulating fat (superficial fascia + adipose), muscle layers attaching ribs, spine, and pelvis (the shipping box / rectus abdominis and obliques).. Other aspects of the belly wall include various shaped tendinous and fascial attachments (the packing tape / thoracolumbar and abdominal aponeuroses), and an inside bag that contains all of the contents (parietal peritoneum).

### Organs

Within the parietal peritoneum are many of the famous organs of digestion, elimination, and reproduction. These are all held together and suspended by a complex network of connective tissues (fascia, visceral ligaments and mesenteries). Also, the hollow organs, like the stomach, small and large intestines, and urinary bladder naturally expand to fill any empty spaces because of the difference in pressure inside the organs vs. outside the container. Think of steam rising and expanding off the stove, or a helium balloon floating in the air. Our belly wall, respiratory and pelvic diaphragms, and skeleton thankfully keep this expansion of the hollow organs in check.

Since the hollow organs are constantly expanding, moving, and nudging up against each other, the 'skin' of the organs (visceral peritoneum) secretes serous fluid to keep things lubricated. This serous fluid also serves to attract and hold the organ walls close to each other. Think of water between two pieces of glass where the water actually holds the two layers together when you try to pry them apart. This phenomenon of expansion and fluid attraction allows the organs to move as a 'system' with the breath, movement of the spine, and ambulation.

The next time you jump rope, run, or do yoga

ask yourself why are all of my organs still in the right place? Why isn't everything laying on my bladder and pelvic floor? How do we hold everything up despite the ubiquity of gravity?

### Nervous system

The nervous system that powers the organs and manages complex communications is called the *enteric nervous system* (ENS). This nervous system is sometimes referred to as the 'second brain', and can work nearly autonomously from the rest of the central and peripheral nervous system. The ENS contains more nerve cell bodies than the entire peripheral nervous system. Only the brain and spinal cord have more discrete nerve cells.

What this means for us is the workings of the guts are independent of conscious control. We digest our food; secrete enzymes, manage sugar, pH, and water; and move waste products without having to think about how things are going. It would be a very busy day if we had to do all of this work consciously!

### Exhaust systems

The metabolic workings of the gut have a number of waste elimination pathways. Like many important functions in our body, waste elimination is also redundant. Without a redundant 'exhaust system', we would quickly poison ourselves.

The best known eliminative organ in the belly is the large intestine which eliminates food waste by way of stool. This is not the only one. The stomach kills unwanted bacteria in our food by secreting hydrochloric acid (pH between 1.5 and 3.0) strong enough to burn paint off our cars. The liver chemically denatures and dismantles alcohol, pharmaceuticals, and many other toxins that make their way inside our bodies. The kidney filters blood and eliminates via the bladder in the form of urine. The spleen filters the blood, and lymph nodes around all of the organs filter lymph. The small and large intestine contain supportive gut bacteria that help digest food, maintenance our intestinal lining, and kill off non-supportive bacteria and other 'critters' in our digestive system.



### Probiotics

Our supportive gut bacteria are often referred to as probiotics, meaning 'pro life'. In fact, there are more bacteria cells in the body than actual human cells. The entire spectrum of bacteria contained in our gut, hair, mouth, and skin weighs 2-3 pounds. We are truly a walking symbiotic relationship!

The acquisition of probiotics begins at birth with our trip down the vaginal canal. Breast milk, fermented foods in the diet, and supplementation continue this process. A deficiency of supportive gut bacteria slows transit time through the GI tract, creates gas and bloating; challenges immune function; and exacerbates food allergies, yeast infections, and other unpleasant digestive events.

### Muscles - skeletal and smooth

Skeletal muscle attaches bone-to-bone as the name implies, and helps us move, supports the spine, assists with breathing, and provides the container for our organs. These muscles are made of contractile cells, wrapped with membrane-like fascia, supplied with blood, and innervated with sensory and motor nerves.

Smooth muscle wraps around all of the tubes in the body. In the gut, smooth muscle is arranged in two layers around the entire GI tract



(the stomach has three layers), at specific functional transition areas (sphincters), and around all blood and lymph vessels. This way we can move food through our digestive system and eliminate stool (peristalsis), manage the movement of fluid from one container to another, and return blood and lymph to the heart against gravity. We would be in big trouble without smooth muscle!

### Summary

The workings of our belly are truly magnificent! The next installment of this series will discuss how manual therapy can help optimise the function of our organs, fluid dynamics, and nervous system. Stay tuned! TT

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## Women's health resource

**M**arch sees the launch of a new women's health resource designed to meet the needs of both practitioners and women seeking a more informed and proactive approach to their healthcare. Recent decades have seen a rise in the levels of hormonal imbalance; PMS, cycle disturbances, endometriosis and PCOS experienced by women of all ages.

In a time where the standard solution to hormonal issues is suppression of our cycles, we are in danger of losing our natural intuition and knowledge of menstruation, and masking underlying conditions that may undermine future fertility.

Rather than seeing hormonal imbalances as something that should be suppressed, as holistic therapists we are interested in addressing the stressors - whether nutritional, physical or emotional - that created this ecologically appropriate hormonal reaction in the first place.

### Resources available will include:

- ☉menstrual diaries
- ☉fertility awareness charts
- ☉latest gynaecological research and holistic approaches
- ☉women's health links.

The web-based resource will collate recent discoveries in fertility research. For example, the physical mechanisms behind unexplained fertility issues and implantation 'failure' in stimulated cycles. These new insights help to define more clearly how therapies can influence reproductive balance.

We will also record the growing body of evidence showing how stress and internal conflict impacts our fertility and menstrual health, illustrating the value of exploring our beliefs and psycho-emotional history as part of a holistic approach to women's health care.

Our aim is that therapists will contribute to this knowledge bank and help to promote the use of CAM in women's health and fertility in a responsible and effective way. TT

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## Spiritual counselling

**T**he spiritual journey can be blissful and awakening, but it can also be frightening and lonely. Anyone can have a spiritual experience, but holistic Self-realisation is a different matter. To prevent a personal crisis, spiritual development best occurs at the point when the Self-identity is strong. A healthy Self arises from the healing and integration of past traumas, and of Self-awareness.

Spiritual counsellors see that life is innately personal, and individuals want to build their own unique, flowing relationship with its multi-layered and complex mysteries. They take the Soul as the starting point, and from this heart space compassion for Self, and compassion for others, is a core concept for personal growth.

Respecting and encompassing each others' spiritual differences is a core ethos and counsellors need an awareness of the issues around spirituality. The emphasis is on assisting the client to balance and integrate all the dimensions of Self; and the assumption is that human beings are innately motivated towards achieving their highest potential of awareness

and fulfilment. Each situation has a potential for growth, and the counsellor's role is to trust the client and support their process. The counsellor, centred within their inner core-connection, creates an open heart and state of mindfulness, and thereby a holding and sacred space for the personal unfoldment of their clients. TT

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# What is the gut?

This is part 2 of my series on the abdominal organs - better known as our guts. This article will discuss what manual therapy can do in this area of the body. The main tenet here is that many of the same physiological effects of manual therapy applied to muscles, joints, tendons, and ligaments are also at play when applied to abdominal structures.

**T**his is excellent news for manual therapists, and gives us a whole new 'playground' for our work!

**Basics** - Skeletal muscles are controlled by the peripheral nervous system - motor and sensory pathways to and from the spinal cord. The abdominal organs and metabolic systems of the gut are managed by the branch of the autonomic nervous system called the ENS (enteric nervous system). All tissues in the body (including the guts) need an arterial blood supply, access to the venous system for blood to return to the heart, access to the lymph system to clean and detoxify, and a connection to some aspect of the nervous system.

In addition, all of our abdominal organs have a fascial support system called peritoneum - a wrapping suspensory structure that holds that organ and its commensurate blood, lymph, and nerve supply in place. This set up is much like the walls of our home which hold onto utility wires and plumbing pipes.

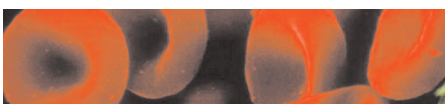
## What does manual therapy do for the organs?

Relaxes the NS - Skillful manual therapy in the belly helps transition the autonomic nervous system from a stressed and contracted state (sympathetic) to a more relaxed and dilated state (parasympathetic). This transition is critical for proper digestion and transit of material through the GI tract. It also helps improve overall blood circulation, decrease fluid stagnation and pooling, and decrease the feeling of bloat and fullness in the belly.

## Enhances blood supply

Better blood circulation to our organs in general means we digest and absorb our food more efficiently, transport nutrients from our small intestine into blood more effectively, and de-stagnate fluid in the peritoneum and portal system.

Improved blood supply to the liver helps with detoxification pathways. Improved blood supply to the kidneys helps to clean our blood more efficiently. More blood to the large intestine assists with peristalsis and the elimination of food waste. Blood is our life fluid, and all of our tissues are dependent on it.



## Improves the function of our reproduction system

The male and female reproductive systems are quite complex, and many of the functions of these systems can be optimised with manual therapy including fertility, prostate gland swelling, erectile dysfunction, dysmenorrhea, and pelvic organ prolapse, to name a few.

## De-laminates adhesion / improves mobility

All of our organs move and slide against each other in response to the movement of the diaphragm with each breath cycle, while walking and moving, and while under the force of gravity. Sometimes these sliding surfaces stick together because of inflammation, post-surgical adhesion syndromes, a general lack of movement, or poor fluid circulation.

Manual therapy can determine where these sticking points are located, and actually de-laminate these hypo-mobile areas. Belly gurgles (borborygmus), changes in breathing pattern, changes in contour, temperature, and texture of the belly wall are all working signs that the nervous system is relaxing and the organs are moving better. All good things!

## Improves immune function

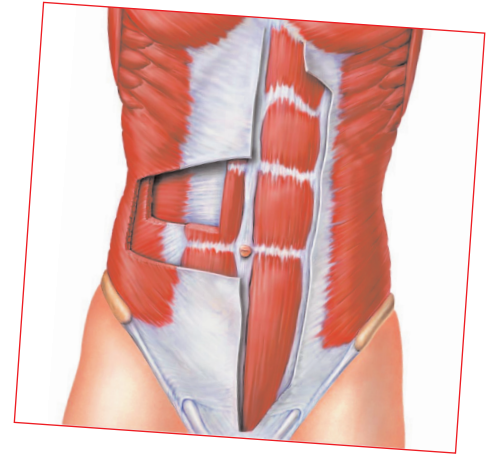
Seventy per cent of our immune response happens in tissue called GALT, or gut-associated lymphoid tissue. This tissue is located in the lumen of the small intestine. Although little is known about manual therapy and GALT tissue function presently, it stands to reason that if fluid circulation and mobility of the small intestine improves, then the function of our GALT will also improve. This will be a fabulous manual therapy research project for down the road. You read it here first!

## Improves affect / mood

Since 95% of serotonin (a neurotransmitter) is made in the small intestine, it only follows that optimizing the function of the small intestine will also improve mood and affect. This is certainly my experience when I receive this work. I also see this in my professional practice and in the classroom setting.

## Improves energy flow

Energy, chi, prana, and life force are all names that various health systems use to explain how we function, what drives our vitality, and what



predicts disease. All of these systems recognise that many pathways of chi flow through the belly.

My clinical experience indicates that working in the belly often creates a flush in the face and chest, a sense of well being and ease, and interesting sensations emanating from the belly to various parts of the body along established energy lines. These chi responses are good working signs that the body is responding to this work.

## Connection

One of the oldest mantras in the manual therapy industry is that we are all connected, and is generally used to describe our complex myofascial matrix. Sadly, we often forget that this also means the belly. The axial skeleton, musculature, and fascial pathways (superficial and deep) all connect to our appendages. Our ubiquitous nervous system and fluid pathways (neurovascular bundles), which are so rich in the belly and trunk; also connect the centre to the periphery.

Touching the belly also means touching the place where we hold emotion. Many researchers, practitioners, and non-professionals agree that our belly holds some aspect of unfinished business and 'undigested' feelings. This is what I love about this work; it gives the opportunity to touch important structures, access amazing functional aspects of the body not residing in the musculo-skeletal system, and touch the emotional body - all at the same time!

Creating connection means touching the body in all of these ways with all of these intentions. Missing the belly means missing an opportunity to connect the whole body and the whole person!

**TT**

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