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TOPIC OF THE MONTH
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A closer look at Janu Sirsasana from the Inside Out

Janu Sirsasana and your Pancreas
Again, I feel the need to better digest the inside out research; again this time on the Janu Sirsasana series. As I learn more through the continued research I need to revisit previous research to integrate more information that I have learned.

Janu Sirsasana Series is about your pancreas. The pancreas is very amazing;
- It is part of both the Endocrine System and the Digestive System

As a gland in the endocrine system (endocrine means in-pouring) the pancreas is responsible for:
- Release of Insulin to help sugar get from your blood stream to your organs
- Release of glucagon to put sugar in your blood stream for use
- Release of somatostatin which inhibits both insulin and glucagon stalling digestion to send sugar to your muscles instead of your organs.
  - See text box at right.

Remember as a child being told to wait to swim a half hour after eating? This is why; if you exercise after eating your energy is diverted from digestion to your working muscles; leaving your food to sit and slosh around in your stomach creating heartburn, and discomfort as it putrefies.

As an exocrine gland in the digestive system (exocrine means out pouring):
- Your pancreas creates enzymes to pour out to the small intestines to help digest and break down food nutrients for use in your body.
- It is also responsible for the bicarbonate solution that buffers the digestive enzyme to your small intestines without burning surrounding tissues.

The digestive enzymes the pancreas creates are so acidic they will burn surrounding tissues; some of the research papers called the pancreas the P-bomb — if your pancreas ruptures during trauma the digestive enzymes will burn surrounding tissues.

The pancreas has more nerves in and out of it than any organ I have studied thus far (one of the reasons pancreas diseases are so painful). As we learned above the pancreas is great at handling opposing activities; when it comes to our nervous system the pancreas continues to balance opposing activities . . . The pancreas connects to both the Parasympathetic (calming) and Sympathetic (stimulating) nervous system:
- The parasympathetic connection is through the vagus nerve. The vagus nerve which is connected to your senses (sight, smell, hearing, etc.) talks to your pancreas to prepare hormones for digestion (glucagon and insulin). You can not digest well if you are stressed out, so the pancreas talks to your parasympathetic nervous system calming down the body to prepare for good digestion. See text box below

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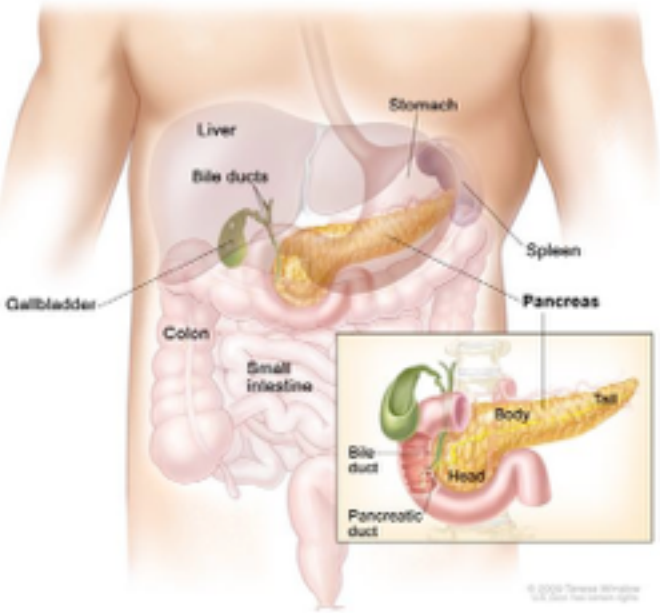
- The sympathetic connection inhibits insulin secretion so somatostatin can be released to send energy to muscles to run and fight.

Due to all these opposing activities you do not want to be poking around your pancreas — And the location of the pancreas also makes it very difficult to poke about.



Your pancreas is located behind your stomach and in front of your kidneys deep in the middle of your body where it is well protected. So instead of wringing out the pancreas to get fresh blood supply in ashtanga yoga we press on nerves to and from the pancreas.

In researching the science behind the Janu Sirsasana series I began to wonder how putting your heel in your perineum controls insulin when your vagus nerve is the nerve communicating with your pancreas for these activities. Your vagus nerve only goes down to your pancreas and upper colon . . . however the pelvic splanchnic nerves (the same nerves we stimulate with our mula bandha) goes from our perineum to our pancreas connecting to the vagus nerve . . .

when your body sees, smells, hears, or tastes food the vagus nerve sends pulses to your pancreas telling it to release insulin. Pay attention to his fact — if you see or smell food without putting it in your mouth your body is already adjusting your blood sugars for food. Understanding nutrition science; this means that fake sugars are not only useless but harmful. Your body has already changed your blood sugars expecting sugar — it does not get it if you ate fake sugars so now your blood sugar is impaired leaving you craving sugar . . . which makes you eat more. Furthermore, fake sugars are neurotoxins and best avoided.

The pelvic splanchnic nerve regulates emptying the bladder and rectum, as well as sexual functions, and the pelvic splanchnic nerves are connected to the parasympathetic nervous system. You can not do any of those above functions when you are stressed out . . . by sitting on your heel Janu Sirsasana B stimulates the splanchnic nerve in lowering stress hormones, and regulating the bladder, rectum, and sexual functions, which is stated in Yoga Mala.

Since the Splanchnic nerve is attached to the rectum, **placing your heel closer to your rectum would seem to be more direct pressure on the specific nerve to stimulate it**. There seem to be varying opinions on how to place your foot and heel (“pointed” (plantar flexion) or flexed (dorsi flexion) . . . whichever position makes your heel press further into your perineum would be the best foot/heel position for you.

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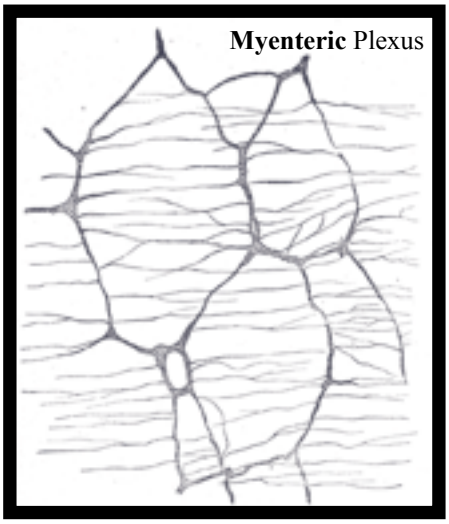
A look at **Janu Sirsasana C and Motility**

Janu Sirsasana C is about helping things move in the body.

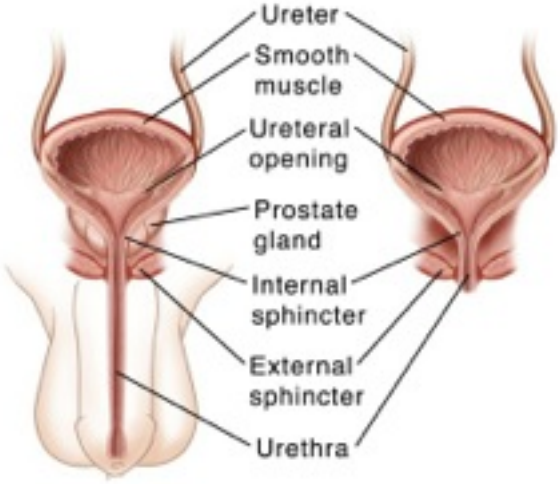
Motility ="Motility" is a term used to describe the contraction of the muscles that mix and propel contents in the gastrointestinal tract. Organs and cells also have a motility function, for example the pancreas secreting insulin into the blood stream is a motility of the pancreas. Sperm has motility as it moves in the body. Cells have a motility in the form of tissue regeneration and embryological development. At a cellular level there are many types of motility; our bacteria — good or bad — is also a form of cellular motility, for example E.coli swims by rotating, amoebas crawl, and other bacteria swarm or glide.

Keeping everything moving in the body is one of the many reasons we do this yoga; motility is an important function. So how does Janu Sirsasana C help with the body's motility?



Through the myenteric plexus, aka Auerbach's plexus. The myenteric plexus is a weave of nerves that line the stomach, esophagus, intestines, and colon. They connect to the smooth muscles (smooth muscles are different from skeletal muscles). Smooth muscles line our intestines, colon, stomach, bladder, etc. and are what contract to move food through our digestive tract, or wastes out of the body, blood through our arteries, etc. The Myenteric plexus which speaks to the smooth muscles, is connected to the Enteric Nervous System (ENS) — the part of our nervous system that controls digestion. **From Wikipedia**:

The events that are controlled, at least in part, by the ENS are multiple and include motor activity, secretion, absorption, blood flow, and interaction with other organs such as the gallbladder or pancreas. These links take the form of parasympathetic and sympathetic fibers that connect either the central and enteric nervous systems or connect the central nervous system directly with the digestive tract. Through these cross connections, the gut can provide sensory information to the CNS, and the CNS can affect gastrointestinal function. ***Connection to the central nervous system also means that signals from outside of the digestive system can be relayed to the digestive system: for instance, the sight of appealing food stimulates secretion in the stomach****.[5]*



Very interesting to note here . . . the ENS connects to the Central Nervous System (CNS) so the entire body can communicate about what needs to move where.

Back to Janu Sirsasana C, by pressing our heel into our gut (or for men into their perineum) we are stimulating the myenteric plexus of the urinary tract or in yoga terms

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the shivani nadi, aka the urethra. Men have a longer urethra which is why they can press on their urethra in their perineum, women have a shorter urethra. Pressing on the urethra stimulates the smooth muscles which in turn stimulates the myenteric plexus, the ENS,and the CNS. Which is why in Yoga Mala Pattabhi Jois says Janu Sirsasana C has a powerful effect on the urinary system, and it stimulates the pancreas to make sufficient insulin.

The side effects of Janu Sirsasana C

There is plenty of information already abounding about the benefits of yoga on your musculoskeletal system so I am not spending much time with this research on the benefits to our muscles an bones, however I do want to share a side effect of janu sirsasana C; one of the lady's who has been coming to our studio for several years attributes Janu Sirsasana C and rolling over her toes in upward dog to healing her neuroma. Since she has been doing yoga consistently the neuroma has disappeared :)