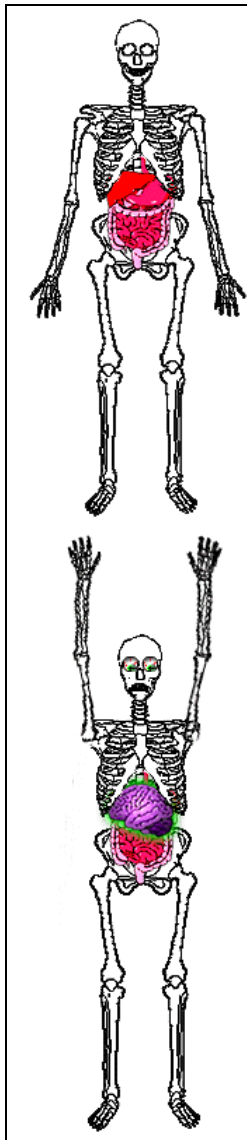


Na'au

Key Science Ideas:

Enteric System - Part of the nervous system, located mostly in the small intestine of all vertebrates



A Hawaiian dictionary gives this definition of the word **na'au** (say "nah-ow"):

- NA-AU, *s.* The small intestines of men or animals, which the Hawaiians suppose to be the seat of thought, of intellect and the affections.
2. The internal parts, i. e., the inwards of animals. The bowels.
 3. The affections; the mind; the moral nature; the heart; the seat of the moral powers.

There are also lots of other Hawaiian compound words which include na'au in them, too, like this one (say "nah-ow-wow"):

NA-AU-AO, *s.* *Naau*, the mind, and *ao*, instructed. An enlightened mind.

But what does this mean? And what does it have to do with science? Does it mean ...

There's a brain in your gut?

Yes! It's a second brain, and modern science has only now proved what ancient science always knew!

Ever wonder why people get "butterflies" in the stomach before going on stage? Or belly-aches before an exam? Diarrhea when you're really scared? How about see a snake barf a beetle when surprised? Maybe not, but there's one reason why this happens.

Hawaiian Anatomy Word Bank

- ♥ appendix – na'aumoa
- ♥ body – kino
- ♥ brain – lolo po'o



- ♥ eye – maka
- ♥ ear – pepeiao
- ♥ heart – pu'uwai
- ♥ intestine – na'au

Your Body Has 2 Brains!

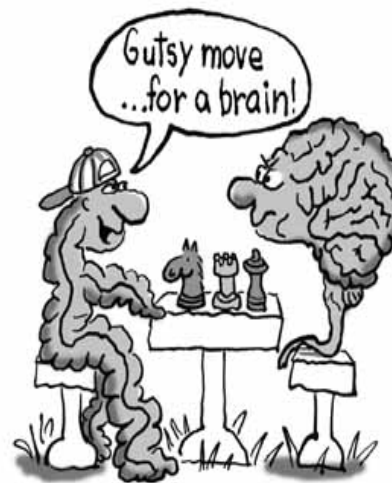
Scientists now say the body has two brains - the familiar one in the skull and a lesser known but vitally important one found in the human gut. Like Siamese twins, the two brains are interconnected - when one gets upset, the other does, too.

The gut's brain, known as the **enteric nervous system**, is located in sheaths of tissue lining the esophagus, stomach, small intestine and colon. It's considered a single entity. It is a network of 100 billion nerve cells (neurons, neurotransmitters & proteins) that zap messages between neurons like those found in the brain and a complex circuit in your gut that acts independently. This system learns, remembers and, as the saying goes, produces "gut feelings."

Experts in the US and Germany believe this belly brain may save information on physical reactions to mental processes and give out signals to influence later decisions. It may also be responsible in the creation of reactions such as joy or sadness.

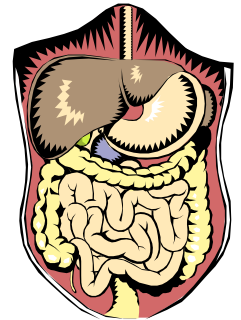
This re-discovery explains certain symptoms we have to diseases and medicines - like why Alzheimer's patients often have constipation or why anti-depressants cause nausea. It also lends great support to the belief that at the higher levels of martial art training, particularly Aikido, one is able to move and/or defend themselves without conscious thought.

About time science caught up to what we always just "knew in our guts" all along!



Retrieved 4/13/06 from www.columbia.edu/cu/21stC/issue-1.4/metaqut.html

- ♥ kidney – pu'upa'a
- ♥ lung – akemāmā
- ♥ liver – ake
- ♥ stomach (or abdomen) - 'ōpū



- ♥ spleen – akeloa
- ♥ throat – pu'u
- ♥ thyroid – 'ā'ipau



