SUGAR FED BAD BACTERIA IN THE GUT CAN TAKE OVER YOUR BRAIN LIKE AN ALIEN PRESENCE
THE GUT BRAIN CAN AFFECT AND CONTROL THE BIG BRAIN, WE MUST BE CAREFUL

THIS IS SCARY BUT TRUE.

THE BAD BACTERIA SEEK TO DRIVE YOU TO EAT FOODS THAT FEED THEM

BAD BACTERIA WILL TAKE CONTROL

THE SUGAR CONTROLLED MASSES LIKE ZOMBIES

MOST BAD SUGAR COMES FROM DRINKS

THE ADDICTED BRAIN

THE HISTORY OF SUGAR IS A HISTORY OF DISEASE, WAR, SLAVERY AND TRAGEDY

THE BRAIN-GUT-MICROBE AXIS

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Gut Bacteria Affects Your Mood?

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Feed Your Bacteria

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Dietary Changes to Gut Bacteria Can Affect Brain Functioning, Study Suggests

SUGAR ADDICTION AND THE HUMAN BRAIN

IF THIS IS YOUR BRAIN

THIS IS YOUR BRAIN ON SUGAR

HOW TO KICK THE SUGAR HABIT

You Can Retrain Your Brain to Prefer Healthier Foods!
We Used to Say:
Always trust your first gut instincts.
If you genuinely feel in your heart and soul that something is wrong, it usually is.

But if you take toooo Many Anti-Biotics or Eat Toooo Much Sugar Bad Bacteria can build up in your GUT and can Reprogram your mind causing Sugar Cravings, Depression, UnSatisfaction with Life, Addiction Behaviour and Disease

Now we know the Gut Feelings can be altered but Bad Bacteria in the Gut. Dextrose White Sugar feeds the Bad Bacteria and then Alters the Brain To Crave More Sugar to Feed the Bad Bacteria Causing Disease

Anti-Biotics, SINthetics, Sugar etc make an excess of bad bacteria in the gut. This bad bacteria can take over your Brain, This is like a zombie movie, World War Z-sugar. But this is true, you have all seen a child go unconscious and stare at sugar like it is all there is in the world. Well here is a short form of the science
THE GUT BRAIN CAN AFFECT AND CONTROL THE BIG BRAIN, WE MUST BE CAREFUL.
Bad Bacteria Develops from Antibiotics, Synthetic Chemicals, Processed Carbohydrates, Sugar

**GOOD**

**BAD**

THIS IS SCARY BUT TRUE.

**Bad Bacteria**

Take over the Brain and Makes you Crave Foods that Feed The Bad Bacteria
THE BAD BACTERIA SEEK TO
DRIVE YOU TO EAT FOODS THAT
FEED THEM
BAD BACTERIA WILL TAKE CONTROL

THE BAD BACTERIA IN YOUR GUT IS USING YOUR BODY AS A RESTAURANT
ZOMBIE COOKIES FOR YOUR GHOULS

THE SUGAR CONTROLLED MASSES LIKE ZOMBIES
MOST BAD SUGAR COMES FROM DRINKS
Never ignore a gut feeling, but never believe that it's enough.
THE HISTORY OF SUGAR IS A HISTORY OF DISEASE, WAR, SLAVERY AND TRAGEDY
This is a fascinating article about the power and importance of the microbes in our gut in communicating with body systems, with intuition, dreams, emotions and much more. It is very exciting to have all of this cutting edge information about our microbes coming to the forefront. I have recently read articles in National Geographic, Scientific American, the New York Times and many more about our amazing biome, or as some have called these micro-organisms our “forgotten organ.” This organ is an organ of perception on very subtle as well as very gross levels.

Last week I observed the infamous raw milk trial. Fraser Health’s top executives and lawyer displayed their blatant old-fashioned, institutionalised and downright ignorant mind-set in regards to microbes. This petty and stubborn refusal to see microbes as anything but a evil terror is incredibly dangerous. This is increasingly given recent breakthroughs on how vital microbes are for our health, happiness and interconnectedness. These people are hired to protect public health and it is irresponsible for them to completely dismiss any information regarding the benefits of probiotics for public health. I just wish they could get their heads out of the sand and take some adult education classes (or simply read a book) on the amazing benefits of probiotics before they continue down this expensive path laid out for them by the big agricultural corporations who simply want total control.

Sorry for that rant, it just really annoys me how corporation-backed mainstream media likes to portray raw milk drinkers and ignorant, religious freaks when most of the people I have met who are involved with raw milk are actually some of the smartest in every way that I have come across. Granted we all may have a certain fundamental belief in the importance of knowing the food web as intimately as possible, since we understand that there is more to nourishing ourselves than simply the physical aspect of food (which is also very important).

Anyway I highly recommend having a look around Jon Lieff MD’s site as he has a ton of fascinating info there about microbes, brain plasticity and more.

GUT FEELINGS: THE BRAIN-GUT-MICROBE AXIS

“I’m not sure I agree with that!”
“I’ve got a funny feeling in my belly.”

“I better watch out!”

Theories of consciousness must run through the body. How integrated are the organs of the human body with the embodied mind? Are specific organs, like the heart and the gut, critical to emotions, unconscious decision-making, memory, and the general function of consciousness?

The gut, the center of gravity of the body, the “core” in athletic training, the focus of life sustaining eating and drinking, has the second largest brain in the human body with the least control from the higher brain centers. This “second brain” has been considered important in intuitive reasoning, intuition commonly referred to as “gut feelings”. The gut has important roles in our experiences of fear, anxiety, anticipation, and other important emotions.

Now, the trillions of microbes in the gut, ten times more cells that the total of human cells, have been called the “forgotten organ.” These microbes with a vast number of genes have great influence in the gut and on the brain.

Recently, the question has become the importance of the Brain-Gut-Microbe axis.

THE SECOND BRAIN
The gut nervous system and the brain are in constant communication. Unlike many parts of the body, the gut has a large, complex, semi-autonomous brain, housing more serotonin neurons than the rest of the brain. It makes the most independent decisions of any part of the anatomy and its endocrine signaling to the entire body is very elaborate.

Communication from the gut to the anterior cingulate, orbitofrontal cortex and the amygdala has important effects on emotions, motivation and cognition. There is increasing evidence that signals from the microbes in the gut also affect memory, emotions and behavior in these same brain regions.
The two major branches of the autonomic nervous system, the sympathetic and parasympathetic, are intimately tied to all the visceral organs, such as the gut, heart, lungs, and the kidneys, and are also very connected to emotions. Only a very small part of this enormous innervation is perceived consciously, such as those circuits used for eating and bowel movements.

While there are 10 trillion total human cells, 100 trillion microbes live in the gut. Microbes in the gut have 150 times the number of unique genes compared with human cells (3.3 million microbe genes in the human), while sending signals inside the human being.

Microbes affect anxiety, mood, cognition and pain. Mechanisms include changes in the types of microbes present in the gut, activation of immune activity (discussed in previous post on Nervous and Immune Systems), nervous system signals through the vagus and sympathetic neurons, and specific metabolic products of microbes and gut cells including neurotransmitters and cell wall sugars.

THE FORGOTTEN ORGAN
The 100 trillion microbes in the gut (most in the lower gut) have been referred to as the “forgotten organ”. Because most of the microbes in the gut are anaerobes, they have not been able to be cultivated in the laboratory for studies,
but are now known to be critical in development of the fetus, as well as the innate and adaptive immune systems. These microbes are involved in regulating gut motility, nutrient absorption, and fat distribution.

Each person has a dominant microbe strain and a balanced composition that appears to correlate with health. The two primary bacteria in normal guts are Bacteroidetes and Firmicutes with smaller amounts of Proteobacteria, Actinobacteria, Fusobacteria.

After a natural delivery when the newborn is essentially germ free, more than 1000 species and 7000 strains of microbes commence living in the baby’s gut. These strains are most often very similar to the mother.

Diet has a major effect on the composition of the microbes. For example, Bacteroides occur with high fat or protein, whereas the Prevotella are associated with high-carbohydrate.

Interestingly, the core microbiota in the elderly has been reported to be different from that of younger adult, and its composition is directly correlated with health outcomes.

**NEURONS IN THE GUT**

While the gut has the largest nervous system outside the brain, with many local ganglion and plexus, there are only a small number of bidirectional neuronal connections between the gut and the brain. As noted above, the major connections are through the autonomic nervous system, that is, the sympathetic and parasympathetic. Both the sympathetic (adrenaline – fight and flight) nervous system and the parasympathetic (rest, dreaming, rebuilding – acetylcholine) are important in emotions and were highlighted in the posts on sleep, dreaming, body consciousness and spiritual experiences. The spinal reflexes and the nerves in the
hypothalamic adrenal pathways are very important in both immune and emotional systems and communicate with the hypothalamus and amygdala.

Brain gut interactions have been associated with eating disorders, chronic gut pain and inflammation disorders. It is now clear that alterations in brain–gut interactions are associated with gut inflammation, and are highly correlated with stress reactions and behavior. There is a high association between stress, anxiety and gut disorders such as irritable bowel syndrome.

**MICROBES AND THE GUT-BRAIN CONNECTION**

Crucially, microbes vitally affect the bidirectional influences of the gut and the brain.

In a previous post, it was shown that microbes from the gut can send factors to the brain, which stimulate BDNF and other signals to make new brain cells, or otherwise. These signals are part of a large network of endocrine cells in the gut sending signals into the blood. These signals can effect the huge vagus nerve and effect changes in the brain. They also regulate local GI function.

Also the immune system is critical in relaying information to the brain (see post on Nervous and Immune Systems). Seventy five percent of the body’s immune cells are in the gut. The immune system is deliberately less responsive the trillions of microbes in residence. But, somehow can become instantly alert when one of these communities changes into an aggressive variant. These interact with the endocrine cells and signals. The cells give a tonic response to the friendly microbes.

**MANY MECHANISMS OF MICROBE INFLUENCE**

The mechanisms of microbes on the Gut-Brain axis are complex.

**Vagus Nerve**

Perhaps the most important nerve in both the connection of gut and brain, and the influence of microbes is the very large, complex vagus nerve. The vagus is bidirectional and regulates gut motility, heart rate and lungs directly, based on sensory signals that are 80% of the vagus fibers. The vagus effect can be anti inflammatory, protecting against microbe blood infections through the nicotinic alpha7 nerves. But the vagus is not responsible for all the effects between gut and brain since elimination of the vagus didn’t stop some effects.

**Immune System**
Both the innate and adaptive systems maintain microbe colonies at the cell surface. Immune systems communicate both ways with nervous system help (see post). Immune cytokines, especially interleukin IL-4 and interferon-gamma are related to depression. In addition, the microbe B longum infantis by stimulating cytokines improves depression related to maternal separation.

**Microbe metabolites**

Of the 3.3 million genes in the bacteria many are able to create psychoactive signals, and some generate neurotransmitters and modulators of neurons. Individual species of microbes produce GABA, noradrenaline, serotonin, dopamine and acetylcholine the major neurotransmitters that effect emotion. Microbes produce tryptophan and kynurine when stimulated by inflammatory factors and steroids. A previous post detailed microbe influences affecting anxiety and depression. Probiotics have significant effects in determining which of these neurotransmitters are produced.

Other microbes influence with cell wall sugars. These sugars are a significant mechanism of probiotic microbes with an outer coating protecting human cells from acids and bile, and shielding microbes from immune response. Cell wall components stimulate epithelial lining cells to release signal molecules that act on primary afferent axons.

**PROBIOTICS**

Increasingly, the dynamic of good versus bad bacteria is critical to all aspects of human functioning and influence gut-brain signaling in many ways. Probiotics are a form of medicine where positive microbes are introduced to fight disease. What is most difficult for research is that many different microbes have very different probiotic effects. These are just now beginning to be catalogued and will undoubtedly lead to many future medical treatments.

Recently, the very dangerous infection clostridium difficile colitis has been treated successfully with probiotics.

Experiments show that they probiotic bacteria compete for dietary ingredients, convert sugars into fermentation products with inhibitory properties, produce vitamins and other growth substances, produce substances toxic to other bacteria, and compete for neurotransmitter binding sites.

Probiotics can improve barrier function in the gut, reduce inflammation, and stimulate immune responses.

Probiotics can influence opioid and cannabinoid receptors, which may affect pain.
Probiotics have been helpful with IBS, anxiety, stress, and improving mood. These appear to work by interfering with the cytokines that create sickness behavior and depression, and anxiety. The vagus nerve also seems to be critical for some probiotic effects.

**SPECIFIC BRAIN-GUT-MICROBE INFLUENCES**

There is a wide range of research findings that are connecting the dots on the bi-directional influences of the brain and microbes.

**Stress**  
The complex mechanisms of stress are just being worked out. We often perceive stress through bowel activity. The stress related signals from the hypothalamus-pineal-adrenal (HPA) axis greatly affect and determine microbe gut composition.

Separation of baby animals from their mothers caused HPA activity and a change in the microbe communities in the gut.

Chronic stress from restraining animals decreased the relative abundance of Bacteroides spp. and increased Clostridium, a more dangerous microbe.

In germ free mice stress reactions decreased with addition of specific microbes Bifidobacterium infantis. The probiotic Lactibacillus helped chronic stress by preventing intestinal barrier leakiness, modulating stress response. In a mouse model of depression where children separated from mothers early in life, a probiotic eliminated the depressed behavior and altered noradrenaline and CRF in the brain. In mice with colitis the same probiotic stopped anxiety and normalized BDNF in the hippocampus.

**Cognition**

There is a critical window of time in children where colonization of microbes has to take place for normal development. Germ free mice had less BDNF and a decrease of important nerves in cortex and hippocampus, as well as cognitive loss and less working memory.

Importantly, when germ free mice were given the specific normal microbes of their strain they showed behavior related to the specific variety of microbes, not their specific species of mice. Other research shows that the individual type of microbe affects susceptibility to anxiety and depression.

**Autism**

Many people with Autism Spectrum Disorders (ASD) have GI disturbance as well. They appear to have altered microbe composition but it is not clear if this is related to antibiotics and special diets. ASD patients also have altered short chain fatty acids, which might affect the brain. Introduction of these fatty acids in animals did show behavioral changes. Children with late onset autism or regressive autism present after age 18 months have altered bowel habits. A variety of different bacteria have been associated with this, but not definitively.

**Confusion from Liver Disease**

The confusion (encephalopathy) that arises from severe liver disease can be reversed with antibiotics to eliminate particular microbes that appear to be responsible for inducing more confusion. Psychiatric diseases also appear to be related to irritable bowel disorder.

**Food**
There are many complex signals in the brain-gut-microbe axis related to food. Spinal cord nerves, the vagus nerve, and endocrine products including products from microbes all send nutrient signals. Gut peptides in the blood reach the hypothalamus and vagal complex. Ingestion of foods elicits pleasure as well as nausea and disgust. Endocrine signals signal satiety. Local immune cells can signal painful discomfort and nausea. Recent research has found causal links in humans between gut microbe colonies and obesity.

**GUT FEELINGS**

Humans have two basic ways of making decisions, one is intuitive, rapid and related to emotions, and the other is slow and analytical. For rapid response, it is necessary to use the intuitive system. To avoid random environmental influence in a conscious decision, the slow, analytical approach might be better.

The intuitive process has often been referred to as “gut decisions” because it is highly connected with bodily sensation related to our experience, which includes motor memories as well as autobiographical memories. It is an open question how much the gut stimulates the “gut reaction,” and how much emotion is related to intuition. However, the gut does appear to be relevant in many emotions, including stress, anxiety and fear, and these do appear to be related to intuition. Another question is the extent that our “forgotten organ,” the trillions of microbes in our gut, affects these gut reactions.

The insular cortex is a critical brain region in a wide range of emotions – negative emotions such as anxiety, fear, agitation, loss of balance, crying, dizziness – positive emotions such as laughter, and empathy. This region of the cortex is highly integrated with internal sensory information about the body, and is influenced by the gut and by microbes. The insula integrates signals concerning the sensations of inflammation – pain, warmth, and physical swelling; heart rate; a full bladder; shortness of breath; swallowing; the ability to speak; disgust from smells; and gut sensations.

This critical cortical center integrates this wide range of physical sensations from body organs, most emotions and is involved in vital decision making. It is also influenced by signals from microbes.

**CONCLUSION**

Recent theories of mind and emotion propose that somatic experiences, and memories of bodily states are critical to emotions, which are critical to decision making and mind.

The two-way communications between body organs and the brain are major signals in this process. Now it appears that our communities of microbes also play an important role through direct signals from the microbes via blood, and also by influencing the immune system with its highly integrated signaling with the nervous system.

The embodied mind cannot be separated from the body’s organs, nor from the microbes.
Gut Bacteria Affects Your Mood?

Feed your Bacteria: 10 Foods for a healthy gut

New studies suggest that probiotics do more than help you digest—they may also boost your mood.

Audrey Anne Sukacz said she started enriching her diet with probiotics—foods that contain beneficial bacteria—in the hope that it would help curb her unpleasant bouts with irritable bowel syndrome. The change in diet, including foods like beet kvass, kefir, sauerkraut, and kombucha, did help settle her stomach. But Sukacz, 39, of Baltimore, Maryland, also experienced an unexpected side effect.

“I noticed an elevated mood,” she says, “a general lift.”

While such research is still in its infancy, studies support Sukacz’s anecdotal experience: Having a gut full of beneficial bacteria seems to promote the production of brain chemicals that ease feelings of anxiety and depression, while an abundance of harmful bacteria may actually trigger these symptoms.

It’s suspected that bacteria are able to send messages to the brain through the vagus nerve, which links the gut to the mind.

Dr. Kirsten Tillisch, a gastroenterologist at the University of California, Los Angeles, says more research needs to be done to understand exactly how the connection works, but she has no doubt the interaction between brain and gut is essential in forming our sense of self.
“Our Western approach to medicine really has taught people to think of our organs like parts in a car, instead of intrinsic parts of ourselves,” she says. “We sometimes forget that how we choose to live and what we put in our bodies changes who we are.”

A recent study led by Tillisch suggested that the kind of bacteria that inhabits our gut affects how our brains handle unpleasant situations. Neurological scans were done on subjects who were shown images of angry faces. Those who had consumed probiotic yogurt twice a day for a month showed a milder response in the brain than those who hadn’t eaten the yogurt.

The finding supports the results of earlier studies, including one that found mice became more bold or more fearful depending on the balance of good and bad bacteria in their guts. An earlier, small study on humans found that subjects’ anxiety symptoms decreased after taking probiotics.

But Tillisch doesn’t advocate swapping your antidepressants for yogurt just yet.

“If we find the right probiotic for the right person, we may be able to intervene in a positive way,” she says. “Just as our current antidepressants aren’t a magic bullet, neither will be the probiotics. The goal is to make as many positive changes as possible to keep people healthy.”

Feed Your Bacteria
In addition to consuming more probiotics, including fermented foods like yogurt, miso, and tempeh, you can promote better gut health by consuming “prebiotics”—carbohydrates that feed the beneficial bacteria in your body. Try these foods suggested by Cleveland Clinic dietitian Gail A. Cresci:

- Slightly green or under-ripe bananas
- Durum pasta or egg noodles
- Sourdough bread
- Boiled rice (especially arborio, S. Andrea, originario)
- Onions, leeks, and garlic (raw or cooked)
- Jerusalem artichokes
- Raw chicory root
- Cooked oats
- Blueberries
- Cooked dried beans (pinto, black)
Immune response to influenza virus infection
Experimental immune encephalomyelitis
Development of the immune system
Inflammatory bowel disease
Mucosal immunity
Obesity
Metabolic syndrome
Insulin resistance
Autoimmune arthritis
Hepatobiliary-pancreatic autoimmune disease
Gut Bacteria May Exacerbate Depression

Microbes that escape the digestive tract may alter mood

Oct 17, 2013 | By Tori Rodriguez

The digestive tract and the brain are crucially linked, according to mounting evidence showing that diet and gut bacteria are able to influence our behavior, thoughts and mood. Now researchers have found evidence of bacterial translocation, or “leaky gut,” among people with depression.

Normally the digestive system is surrounded by an impermeable wall of cells. Certain behaviors and medical conditions can compromise this wall, allowing toxic substances and bacteria to enter the bloodstream. In a study published in the May issue of Acta Psychiatrica Scandinavica, approximately 35 percent of depressed participants showed signs of leaky gut, based on blood tests.

The scientists do not yet know how leaky gut relates to depression, although earlier work offers some hints. Displaced bacteria can activate autoimmune responses and inflammation, which are known to be associated with the onset of depression, lower mood and fatigue. “Leaky gut may maintain increased inflammation in depressed
patients,” which could exacerbate the symptoms of depression if not treated, says Michael Maes, a research psychiatrist with affiliations in Australia and Thailand and an author of the paper. Currently leaky gut is treated with a combination of glutamine, N-acetylcysteine and zinc—believed to have anti-inflammatory or antioxidant properties—when behavioral and dietary modifications fail.

**Causes of Leaky Gut**

- Regular use of painkillers
- Regular use of antibiotics
- Infections (such as HIV)
- Autoimmune disorders
- Alcohol abuse
- Inflammatory bowel disease
- Gluten hypersensitivity
- Severe food allergies
- Radiation therapy
- Inflammatory disorders
- Psychological stress
- Exhaustion

**Ulcer Bacteria Linked to Cognitive Decline**

One type of harmful bacteria escaping the gut might be *Helicobacter pylori*, the main
cause of stomach ulcers. *H. pylori* may contribute to cognitive impairment or Alzheimer's disease, according to a study published in the June issue of *Psychosomatic Medicine*. Compared with uninfected individuals, people who tested positive for *H. pylori* performed worse on cognitive tests, including ones assessing verbal memory. Some laboratory evidence indicates that *H. pylori* cells can escape the gut and sneak into the brain. There the cells aggregate with the amyloid proteins characteristic of Alzheimer's and instigate the buildup of plaque, suggests study co-author May Baydoun, a staff scientist at the National Institute on Aging. The National Institutes of Health estimates that about 20 percent of people younger than 40 and half of adults older than 60 are infected with the bacteria, which can be treated with antibiotics.

### Bugs That Influence the Brain

Preliminary research suggests that these common gut microbes can also affect our thoughts and feelings.

1. **Helicobacter pylori**: Children infected with this ulcer-causing bacterium performed worse on IQ tests, suggesting a possible link between *H. pylori* infection and cognitive development.

2. **Lactobacillus helveticus and Bifidobacterium longum**: Healthy human volunteers who consumed a probiotic mix of these bacteria exhibited less anxiety and depression.

3. **Probiotic bacteria B. animalis subsp. lactis, Streptococcus thermophilus, L. delbrueckii subsp. bulgaricus, L. lactis subsp. lactis**: Healthy women who consumed yogurt containing these bugs showed less activity in brain regions that process emotions and physical sensations. Researchers do not yet know whether these effects were beneficial; they also have not discovered the mechanism underlying the observed shift in brain activity.

4. **Lactobacilli**: Healthy students had fewer of these bacteria present in their stool during a high-stress exam time compared with a less stressful period during the semester. The findings suggest a potential link between stress and gut microbes, but the exact relation remains unknown.
The Neuroscience of the Gut
Strange but true: the brain is shaped by bacteria in the digestive tract

April 19, 2011 | By Robert Martone

People may advise you to listen to your gut instincts: now research suggests that your gut may have more impact on your thoughts than you ever realized. Scientists from the Karolinska Institute in Sweden and the Genome Institute of Singapore led by Sven Pettersson recently reported in the Proceedings of the National Academy of Sciences that normal gut flora, the bacteria that inhabit our intestines, have a significant impact on brain development and subsequent adult behavior.

We human beings may think of ourselves as a highly evolved species of conscious individuals, but we are all far less human than most of us appreciate. Scientists have long recognized that the bacterial cells inhabiting our skin and gut outnumber human cells by ten-to-one. Indeed, Princeton University scientist Bonnie Bassler compared the approximately 30,000 human genes found in the average human to the more than 3 million bacterial genes inhabiting us, concluding that we are at most one
percent human. We are only beginning to understand the sort of impact our bacterial passengers have on our daily lives. Moreover, these bacteria have been implicated in the development of neurological and behavioral disorders. For example, gut bacteria may have an influence on the body’s use of vitamin B6, which in turn has profound effects on the health of nerve and muscle cells. They modulate immune tolerance and, because of this, they may have an influence on autoimmune diseases, such as multiple sclerosis. They have been shown to influence anxiety-related behavior, although there is controversy regarding whether gut bacteria exacerbate or ameliorate stress related anxiety responses. In autism and other pervasive developmental disorders, there are reports that the specific bacterial species present in the gut are altered and that gastrointestinal problems exacerbate behavioral symptoms. A newly developed biochemical test for autism is based, in part, upon the end products of bacterial metabolism. But this new study is the first to extensively evaluate the influence of gut bacteria on the biochemistry and development of the brain. The scientists raised mice lacking normal gut microflora, then compared their behavior, brain chemistry and brain development to mice having normal gut bacteria. The microbe-free animals were more active and, in specific behavioral tests, were less anxious than microbe-colonized mice. In one test of anxiety, animals were given the choice of staying in the relative safety of a dark box, or of venturing into a lighted box. Bacteria-free animals spent significantly more time in the light box than their bacterially colonized littermates. Similarly, in another test of anxiety, animals were given the choice of venturing out on an elevated and unprotected bar to explore their environment, or remain in the relative safety of a similar bar protected by enclosing walls. Once again, the microbe-free animals proved themselves bolder than their colonized kin.

Pettersson’s team next asked whether the influence of gut microbes on the brain was reversible and, since the gut is colonized by microbes soon after birth, whether there was evidence that gut microbes influenced the development of the brain. They found that colonizing an adult germ-free animal with normal gut bacteria had no effect on their behavior. However, if germ free animals were colonized early in life, these effects could be reversed. This suggests that there is a critical period in the development of the brain when the bacteria are influential.
Consistent with these behavioral findings, two genes implicated in anxiety -- nerve growth factor-inducible clone A (NGF1-A) and brain-derived neurotrophic factor (BDNF) -- were found to be down-regulated in multiple brain regions in the germ-free animals. These changes in behavior were also accompanied by changes in the levels of several neurotransmitters, chemicals which are responsible for signal transmission between nerve cells. The neurotransmitters dopamine, serotonin and noradrenaline were elevated in a specific region of the brain, the striatum, which is associated with the planning and coordination of movement and which is activated by novel stimuli, while there were no such effects on neurotransmitters in other brain regions, such as those involved in memory (the hippocampus) or executive function (the frontal cortex).

When Pettersson’s team performed a comprehensive gene expression analysis of five different brain regions, they found nearly 40 genes that were affected by the presence of gut bacteria. Not only were these primitive microbes able to influence signaling between nerve cells while sequestered far away in the gut, they had the astonishing ability to influence whether brain cells turn on or off specific genes.

How, then, do these single-celled intestinal denizens exert their influence on a complex multicellular organ such as the brain? Although the answer is unclear, there are several possibilities: the Vagus nerve, for example, connects the gut to the brain, and it’s known that infection with the Salmonella bacteria stimulates the expression of certain genes in the brain, which is blocked when the Vagus nerve is severed. This nerve may be stimulated as well by normal gut microbes, and serve as the link between them and the brain. Alternatively, those microbes may modulate the release of chemical signals by the gut into the bloodstream which ultimately reach the brain. These gut microbes, for example, are known to modulate stress hormones which may in turn influence the expression of genes in the brain.

Regardless of how these intestinal “guests” exert their influence, these studies suggest that brain-directed behaviors, which influence the manner in which animals interact with the external world, may be deeply influenced by that animal’s relationship with the microbial organisms living in its gut. And the discovery that gut bacteria exert their influence on the brain within a discrete developmental stage may have important implications for developmental brain disorders.
Dietary changes to the bacteria living in our guts could have an impact on brain functioning, a new study suggests.

Researchers at the University of California, Los Angeles, found that regularly eating yogurt with probiotics, which contain "good" bacteria, seems to affect brain functioning in women. They said the proof-of-concept study shows it is possible to impact brain functioning by altering gut bacteria through diet.

The study, published in the journal *Gastroenterology*, was funded by Danone Research, which is the research arm of Danone, a company that produces yogurt and other dairy products. Some of the study researchers are Danone employees, but they had no role in the interpretation or analysis of results.

Researchers noted that past studies have shown a gut-brain connection in terms of the brain sending signals to the gut. But this new study shows that the gut could also send signals to the brain.

"This study is unique because it is the first to show an interaction between a probiotic and the brain in humans," study researcher Dr. Kirsten Tillisch, M.D., an associate professor at the Oppenheimer Family Center for Neurobiology of Stress at the UCLA David Geffen School of Medicine, told Medscape Medical News. "We can't say whether the effects are
beneficial; that will take larger studies with more complex designs. One of the areas this will move to is study of disease groups like irritable bowel syndrome and anxiety."
The study included 36 women between ages 18 and 55, who were split up into three groups and assigned an eating regimen for four weeks. One group ate yogurt with probiotics two times a day, the second group ate a yogurt-like product that didn’t have probiotics, and the third group ate neither. Researchers had the study participants undergo imaging scans before and after the four-week period, as they completed a test where they had to match faces showing a certain emotion with other faces showing the same emotion.

Researchers found that that women who consumed the probiotics had changes in activity and engagement of certain brain regions. For instance, the insula brain region (involved in processing sensations that come from within the body) had decreased activity, and there was increased connectivity between parts of the prefrontal cortex involved in cognition and a part of the brainstem, called the periaqueductal grey.

"Four-week intake of an FMPP [fermented milk product with probiotic] by healthy women affected activity of brain regions that control central processing of emotion and sensation," the researchers concluded in the study.

"There are studies showing that what we eat can alter the composition and products of the gut flora -- in particular, that people with high-vegetable, fiber-based diets have a different composition of their microbiota, or gut environment, than people who eat the more typical Western diet that is high in fat and carbohydrates," study researcher Dr. Emeran Mayer, a professor of medicine at the university, said in a statement. "Now we know that this has an effect not only on the metabolism but also affects brain function."

According to the American Psychological Association, past studies in animals have also shown that altering gut bacteria in animals can produce more anxious or bold characteristics. In a 2011 study in the Proceedings of the National Academy of Sciences, researchers found that probiotics seemed to blunt physiological stress responses of mice, and also lowered their levels of stress hormone, compared with mice not fed probiotics.
"Drugs Are No More Addictive Than Oreos". The specific drugs included in the study were cocaine and morphine, which is what heroin becomes immediately after injection. So the headline also could have been: "Research Shows That Heroin and Cocaine Are No More Addictive Than Oreos." Putting it that way would have raised some interesting questions about the purportedly irresistible power of these drugs, which supposedly justifies using [government] force to stop people from consuming them."  

Jacob Sullum from the October 16, 2013 issue of Forbes (Research Shows Cocaine And Heroin Are Less Addictive Than Oreos)

"Sugar Has a Powerful Influence Over Our Behavior For some people there will be anatomical changes in the brain when exposed to these sorts of foods. In many cases, this can end up in full-blown addiction. I can support this idea with some personal experiences. I am a recovering drug addict who has been to 6 rehabs. I was also a smoker for many years and it was a long battle for me to quit. You could say that I know addiction like the back of my hand. I'm here to tell you that addiction to sugar and junk foods is exactly the same as addiction to abusive drugs like nicotine, amphetamine and cannabis. There is no difference, except the substance of abuse is different and the consequences of relapse aren’t as severe. There is only one thing that consistently works for true addicts to overcome their addiction and that is complete abstinence. This is what worked for me giving up drugs and this is the only way I have ever been able to cut back on my consumption of sugar and other junk foods. Since learning about this, I’ve spoken to several other
recovering addicts and all of them say that they experience cravings for junk foods in the exact same way as they used to crave drugs and alcohol. I personally haven't touched sugar or gluten in about 5 months now. I've lost almost 30 pounds and I never crave these foods anymore."

Kris Gunnars from How Sugar Hijacks Your Brain And Makes You Addicted. Kris is now a personal trainer and medical student, who authors the website, Authority Nutrition.

"Research indicates that chronic drug use induces changes in the structure and function of the system's neurons that last for weeks, months or years after the last fix. These adaptations, perversely, dampen the pleasurable effects of a chronically abused substance yet also increase the cravings that trap the addict in a destructive spiral of escalating use and increased fallout at work and at home."


"How many drinkers do I have? And how many drinks do they drink? If you lost one of those heavy users, if somebody just decided to stop drinking Coke, how many drinkers would you have to get, at low velocity, to make up for that heavy user? The answer is a lot. It's more efficient to get my existing users to drink more."

Jeffrey Dunn, former Coca Cola executive speaking to Tom McKay of NewsMic (What Happens to Your Brain on Sugar, Explained by Science).

"If You Eat Sugar, There's a Good Chance You're Addicted to It" The header from a March 10, 2012 article (The Most Unhappy of Pleasures: This Is Your Brain on Sugar) by Dr. Joseph Mercola

"We're all looking for something to ease the pain." Bryan Adams from 1984's Somebody (Reckless)

I have written several previous articles on SUGAR / CARB ADDICTION. If you have read them, you realize that sugar and the addiction thereof is at the root of scores of health problems. In fact, I have repeatedly suggested that while INFLAMMATION is at the core of virtually all diseases, BLOOD SUGAR DYSREGULATION ISSUES are frequently the root of Inflammation (HERE). I have focused quite a bit on the physical aspect of this addiction (DIABETES, OBESITY, ENDOCRINE PROBLEMS, CANCER, DYSBIOSIS, etc, etc), but the truth is, Sugar Addiction is probably harder on the brain than any other organ in the body. Thanks to newer forms of brain scans, one of the things that we have learned over the past decade or so is that brains that are addicted to sugar look identical (or at least very similar) to the brains of people that are addicted to hard drugs --- particularly COCAINE & HEROIN.
Although these images show the "Obese" brain scan falling somewhere between the brain scans of those on Cocaine and Heroin, I have seen videos of brain scans where you literally cannot tell the difference.

You have to take a moment to understand what is going on in these images. You are looking not just at functional brain changes, but structural brain changes as well. These changes are why it takes that drug (coke, meth, heroin, gambling, sugar) to "feel that feeling". It can quickly become a vicious cycle. The more drugs / sugar you consume, the better you feel (increased levels of dopamine, opioids, and other feel-good molecules made by your brain). By the way, there are actually studies showing that pornography does the same thing to the part(s) of your brain that control sexual pleasure. However, the body can only tolerate so much of these feel-good substances, so it decreases the numbers of receptors. Not only do the lows get lower, but the highs get lower as well. And as you might imagine, so does day-to-day life. What does this do? Of course, it triggers cravings for the drug --- in this case, sugar. Not only that, but it takes increasing amounts of the drug to achieve the same high. Listen to some cherry-picked lines from the abstract and conclusion of a study published in the May 18, 2007 issue of Neuroscience & Biobehavioral Reviews (Evidence for Sugar Addiction: Behavioral and Neurochemical Effects of Intermittent, Excessive Sugar Intake).
"Sugar is noteworthy as a substance that releases opioids and dopamine and thus might be expected to have addictive potential. Components of addiction are analyzed. “Bingeing”, “withdrawal”, “craving”..... These behaviors are then related to neurochemical changes in the brain that also occur with addictive drugs. Neural adaptations include changes in dopamine and opioid receptor binding, enkephalin mRNA expression and dopamine and acetylcholine release in the nucleus accumbens. The evidence supports the hypothesis that.... rats can become sugar dependent. This may translate to some human conditions as suggested by the literature on eating disorders and obesity.

The concept of “food addiction” materialized in the diet industry on the basis of subjective reports, clinical accounts and case studies described in self-help books. The rise in obesity, coupled with the emergence of scientific findings of parallels between drugs of abuse and palatable foods has given credibility to this idea. The reviewed evidence supports the theory that, in some circumstances, intermittent access to sugar [bingeing] can lead to behavior and neurochemical changes that resemble the effects of a substance abuse.

There's not only a lot of meat here, but this study deals extensively with the Nucleus Accumbens -- a specific part of the brain that has to do with motivation, desire, pleasure, reward, and addiction (it is also involved in fear, aggression, and impulsivity). The two neurotransmitters that help make this system go are SEROTONIN & DOPAMINE. ΔFosB (aka Delta FOSB) is the name of one of four variations of the FOS gene, and has been blamed as the chief biochemical component of all known addictions, whetherbehavioral or drug. All known drugs or addictions increase the production of ΔFosB by the Nucleus Accumbens, which is known to both increase Dopamine, while at the same time decreasing Serotonin (key word in this sentence is "all"). Listen to what the authors of The Addicted Brain (the quote from the top of the page) say about this phenomenon as it relates to sugar. "Interestingly, delta FosB is also produced in the nucleus accumbens in mice in response to repetitious non-drug rewards, such as excessive wheel running and sugar consumption." There it is in black and white from two men who would know (at the time the article was written, Dr. Nestler was professor and chair of the department of psychiatry at the University of Texas Southwestern Medical Center at Dallas. Dr. Malenka was professor of psychiatry and behavioral sciences at the Stanford University School of Medicine, after serving as director of the Center for the Neurobiology of Addiction at the University of California, San Francisco. Together they wrote 2001’s textbook, Molecular Basis of Neuropharmacology).

Unfortunately, not only does ΔFosB increase the response of the reward cascade, it heightens (at least at first) the sensitivity of Dopamine itself. This means that not only do you have more of this “feel-good” neurotransmitter in your system, but it actually
works more effectively. But it does not stop there. According to New York's Mount Sinai, Icahn School of Medicine this, "can induce long-lasting changes in gene expression". In case you are not aware of what this quote is implying; take a few moments to read up on EPIGENETICS (and HERE). Epigenetics trumps genetics and simply means that you are not as controlled by your genetic makeup as you have always been taught. Certain behaviors, diet, exercise, STRESS, etc, etc, etc, have the ability to turn genes off or on, depending on the situation. Oh, and because ΔFosB is the most stable of the Fos family, it tends to stay in the Nucleus Accumbens for a long time --- a very long time.

The problem is that sugar not only changes the brain's function (see the PET Scans above), it changes the brain's structure. Probably the most striking example of sugar-related brain changes is seen in scans of people with ALZHEIMER’S DISEASE. Just the other day I had a patient from Texas telling me that as caretaker of their father who had Alzheimer's, he constantly wanted sugar, and when he got it, became so unruly they could barely control him. Do you remember near the top of this post I stated that, "Sugar Addiction is probably harder on the brain than any other organ in the body"? As crazy as it sounds, ALZHEIMER’S DISEASE is so heavily linked to sugar consumption that it is frequently referred to as Type III Diabetes or Psychodiabetes. Take a look at the PET Scans below as they connect the dots between brain function and the Amyloid Plaques which are so characteristic of Alzheimer's, and thought to be intimately related to sugar consumption.
HOW TO KICK THE SUGAR HABIT

The first thing any addict must do, is to admit that they have a problem. If a person does not think they are addicted, they won't realize that they need a solution. If you are wondering whether or not you are a sugar addict, you probably are. HERE and HERE are simple tests you can use to confirm a sugar addiction. The cool thing is that both posts also give you the best ways to go about kicking your sugar addiction (hint; Kris Gunnars boiled this answer down to one word in his quote from the top of the page).

It's not easy, but if you cannot defeat sugar / carbs, you will not only live a miserable life,
you will likely die a miserable (difficult) death. This is because Blood Sugar Regulation Issues are being tied to almost every chronic health problem and disease under the sun (HERE). You owe it to yourself to do whatever it takes to defeat this monster. Don't wait another day! Create a plan, find one or more accountability partners, and get started today.

**You Can Retrain Your Brain to Prefer Healthier Foods!**

*Join the Conversation: Does this news excite you, too?*

If you find it hard to say no to candies, cookies, chips, it may be because your brain is addicted to them, according to a new study.

In short, your brain is actually hooked on junk food, which, of course, leads to weight gain and obesity and other harmful diseases.

But promising news came out recently, which reveals that you can literally ‘reprogram’ your brain so that you not only break your food addictions, but you actually develop a preference for healthier non-fattening foods so you lose weight.

For my part, I'm simply thrilled by this exciting news.

You may wonder, though, is this just too good to be true? Not so!

Some definitive proof this is possible came from a [September 2014 study](#) by scientists at Tufts University and Harvard Medical School. The researchers used functional magnetic resonance imaging to show how the brains of volunteers had been altered during a six-month experiment, during which they forsake high caloric foods for low caloric ones.

Thirteen overweight or obese adults between the ages of 21 and 65 were placed in either an intervention group or a control group. The intervention group received 19 hour-long support group sessions during the 24 weeks in which they were taught how to use portion-controlled menus and recipe suggestions designed for high-satiety. The foods
consumed in this plan were low-glycemic index carbohydrates along with high fiber and high protein (known as the diet.) FYI, these are the foods I recommend, too, as you can discover in *Beyond Sugar Shock*.

These foods" have "a slower digestion profile and reduction fluctuations in blood glucose that could reduce hunger," according to the study. The control group received no such counseling or support.

What's intriguing is that before the experiment began and six months later, on its completion, all study participants underwent the fMRI scans as they were shown 40 food and 40 non-food images. The foods were half high caloric and half low caloric.

While being scanned, the volunteers rated the desirability of the images they saw on a scale of 1 to 4, with 1 being undesirable and 4 being extremely desirable. Those who had gone through the six months of intervention measured significantly less response in the striatum region of their brains (an area governing reward processing) when shown the high caloric foods and more responsivity when shown the low caloric images.

**It was as if the brain charges they previously got from these foods had been disconnected.** They also achieved significant weight loss, whereas the control group lost little weight and still had no control over how their brains craved certain unhealthy foods.

One of the study co-authors, Sai Krupa Das, Ph.D., who is with the United States Department of Agriculture Human Nutrition Research Center, observed how the weight loss program they used with high-fiber, low glycemic foods worked hand in hand with behavior change education to bring about the remarkable changes in weight and brain activity related to cravings.

"The weight loss program is specifically designed to change how people react to different foods, and our study shows those who participated in it had an increased desire for healthier foods along with a decreased preference for unhealthy foods, the combined effects of which are probably critical for sustainable weight control," according to Dr. Das. "To the best of our knowledge this is the first demonstration of this important switch."
Destroys Good Bacteria

1. Antibiotics
2. Chlorinated water
3. Coffee, tea (black pekoe), and soda
4. Sugar
5. Stress

http://indavideo.hu/video/Bad_Gut_Bacteria_make_for_Obeses_Patients
The good bacteria in our gut help us to digest food, absorb nutrients and keep a check on the bad bacteria. If allowed to multiply in an uncontrolled manner, the bad bacteria can cause a range of diseases.

Disease Starts in the GUT

Heal The Gut, Cure The Disease

Clostridium difficile (above) Most harmful following a course of antibiotics when it is able to proliferate.

Campylobacter C jejuni and C coli are the strains most commonly associated with human disease, infection usually occurs through the ingestion of contaminated food.


Bifidobacteria (pictured above) The various strains help to regulate levels of other bacteria in the gut, modulate immune responses to invading pathogens, prevent tumour formation and produce vitamins.

Escherichia coli Several types inhabit the human gut. They are involved in the production of vitamin K2 (essential for blood clotting) and help to keep bad bacteria in check. But some strains can lead to illness.

Lactobacillus Beneficial varieties produce vitamins and nutrients, boost immunity and protect against candida.
'We’ve reached the end of antibiotics':
Top CDC expert declares that 'miracle drugs' that have saved millions are no match against 'superbugs' because people have overmedicated themselves

By SNEJANA FARBEROV
PUBLISHED: 08:30 GMT, 26 October 2013 | UPDATED: 09:17 GMT, 26 October 2013

Health crisis: Dr Arjun Srinivasan, the associate director of the CDC, told PBS' Frontline that misuse and overuse of antibiotics over the years have rendered them powerless to fight infections.

A high-ranking official with the Centers for Disease Control and Prevention has declared in an interview with PBS that the age of antibiotics has come to an end.

"For a long time, there have been newspaper stories and covers of magazines that talked about 'The end of antibiotics, question mark?'; said Dr Arjun Srinivasan. 'Well, now I would say you can change the title to 'The end of antibiotics, period.'"

The associate director of the CDC sat down with Frontline over the summer for a lengthy interview about the growing problem of antibacterial resistance.

Srinivasan, who is also featured in a Frontline report called 'Hunting the Nightmare Bacteria,' which aired Tuesday, said that both humans and livestock have been overmedicated to such a degree that bacteria are now resistant to antibiotics.

'We’re in the post-antibiotic era,' he said. "There are patients for whom we have no therapy, and we are literally in a position of having a patient in a bed who has an infection, something that five years ago even we could have treated, but now we can’t.'

Dr Srinivasan offered an example of this notion, citing the recent case of three Tampa Bay Buccaneers players who
Eat more yogurt! Low levels of healthy gut bacteria could be the cause of mental health issues such as 'anxiety and schizophrenia'

- The average adult carries up to five pounds of bacteria
- Healthy bacteria are known as probiotics, commonly found in yogurt, soy yogurt or as dietary supplements
- Probiotics are also delivered in fecal transplants, in which stool from a healthy donor is delivered like a suppository to an infected patient
- Strep bacterium is linked to OCD
- Gut bacteria regulate dopamine levels
- A build-up of dopamine causes agitation and stress on the body
- Gut bacteria 'talk to the brain' through the immune system or parts of the nervous system

By DAILY MAIL REPORTER

Good bacteria: Gut microbes are being linked to mental health issues

People suffering from anxiety, might just need to eat more 'healthy' bacteria.

Some scientists think there may be a link between our digestive tract microbes and disorders such as anxiety, schizophrenia and autism.
SINthetic AntiBiotics Destroy the Healthy Bowel Flora and this compromises B Vitamin absorption which leads to depression, dermatitis, dementia, and distorted thinking. Then the witless allopath prescribes another SINthetic for the mental abnormality and this will effect the liver leading to another drug, and another drug, and another drug, and another drug, and another drug.
COMMON SENSE IS SO RARE THESE DAYS, IT SHOULD BE CLASSIFIED AS A SUPER POWER

Armed with Clarity Of Mind, Dedication to Truth and the Ability to Leap over a Bigot with a Single Bound 
SUPER DESI fights against the Forces of Greed and Lies for Truth
Justice + the American Gay

All Disease Starts in the Gut
---Heal the Gut
Heal the Disease

Hippokrates of Kos