

Laughter (& Chocolate) is the Best Medicine!



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The value of humor and laughter has been underappreciated in modern medical practice. There is a growing body of scientific evidence that laughter induces many important physiological responses. These include hormones, neurotransmitters, cytokines, and other metabolites that influence the immune response, mood, cardiovascular, pulmonary, and neurological function. This program provides an understanding of the physiology and health benefits of laughter.



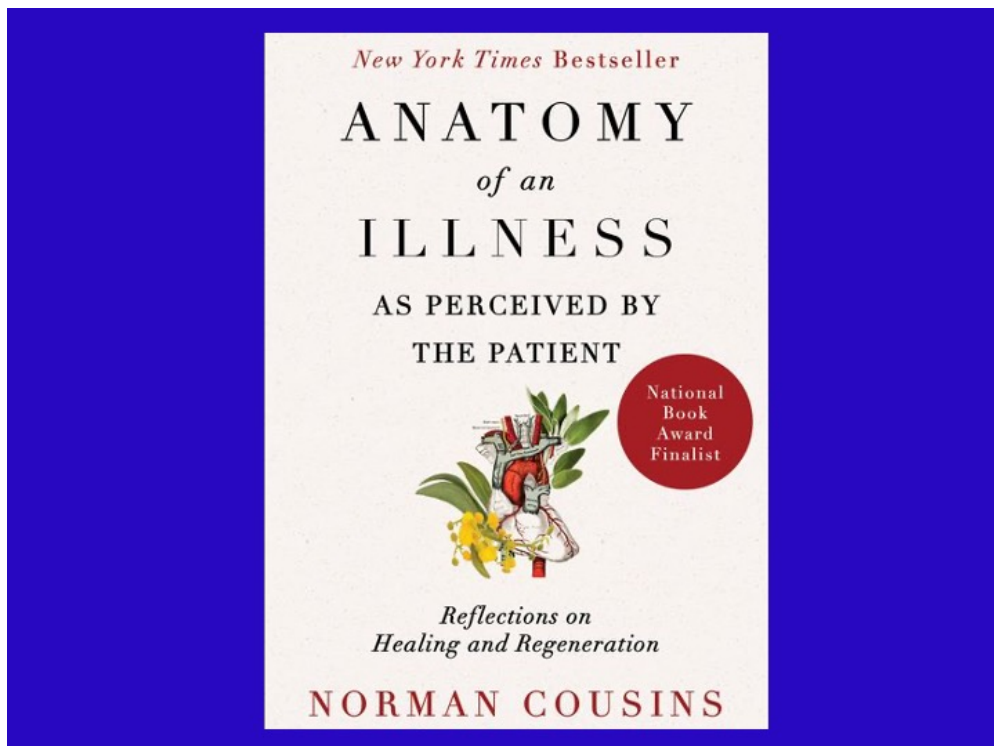
The concept of laughter and humor in medicine has a very long history, but its scientific basis has only recently been elucidated, and this is the focus of the lecture. As background, humorism, or humoralism, is a theory of the physiology of the human body that originated in Egypt or Mesopotamia but was systemized by Ancient Greek and Roman physicians and philosophers. The four basic humors (Greek χυμός chymos juice) of Hippocratic medicine are black bile (Gk. melan chole), yellow bile (Gk. chole), phlegm (Gk. phlegma), and blood (Gk. haima), and each corresponds to one of the traditional four temperaments. A humor is also referred to as a cambium (pl. cambia or cambiums). At around the same time ancient Indian Ayurveda medicine had developed a theory of three humors, which they linked with the five Hindu elements. The humors directly controlled health and personality and if the four basic humors are in balance, known as eucrasia, health is preserved. An excess or deficiency of any of the humors would lead to a dyscrasia of disease, disability, and changes in temperament.

From the time of Hippocrates until the advent of modern medical research in the nineteenth century humorism was the accepted basis of medical practice. Greeks, Romans, Islamic, and subsequent generations of medical approaches adopted and adapted this classical medical philosophy to the theory of the four elements: earth, fire, water, and air. Earth was believed to be predominantly present in the black bile, fire in the yellow bile, water in the phlegm, and all four elements present in the blood. It was believed that each of these humors would wax and wane in the body in part dependent on diet, activity, season, occupation, and local geography. Methods of treatment such as bloodletting, emetics, purges, and physics were administered with the intent of expelling a harmful surplus of a specific humor. Herbs, botanicals, foods, and fluids associated with a particular humor were utilized to counter symptoms of disease. Paracelsus further developed the idea that medicinal substances to affect the humors could be found in herbs, minerals, and in alchemical compounds.

There are still remaining fragments of the theory of the four humors in the current medical language. For example, the term humoral immunity or humoral regulation is still used today when discussing antibodies and hormones in the blood of the circulatory system. The term blood dyscrasia is still used to refer to any blood disease or abnormality. Some of the adjectives used to describe personalities are based on the humoral theory. Theophrastus and others described those with too much blood as being sanguine. Those with too much phlegm were described as being phlegmatic. Too much yellow bile was considered choleric, and those with too much black bile were described as being melancholic.

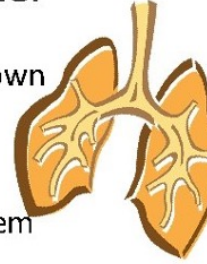
The art of medicine consists of keeping the patient amused while nature heals the disease.
- Voltaire

Even if humor does not add years to your life, it certainly adds life to your years.



Physiology of Laughter

- Moves diaphragm rapidly up and down
- Exercises the respiratory muscles
- Inflates the lungs
- Stimulates the cardiovascular system
- Increases oxygen in the blood



Biochemistry of Laughter

- Stimulates brain to produce catecholamine
- Produces epinephrine and dopamine
- Releases endorphins into the system



Results:

- Increased alertness, and eventually increased sense of well-being.
- Increased lymphocyte production helping to fight pain and inflammation.



Social Benefits:

- *Strengthens relationships*
- *Attracts others to us*
- *Enhances teamwork*
- *Helps defuse conflict*
- *Promotes group bonding*

The New York Times

Laughter May Be Effective Medicine for These Trying Times

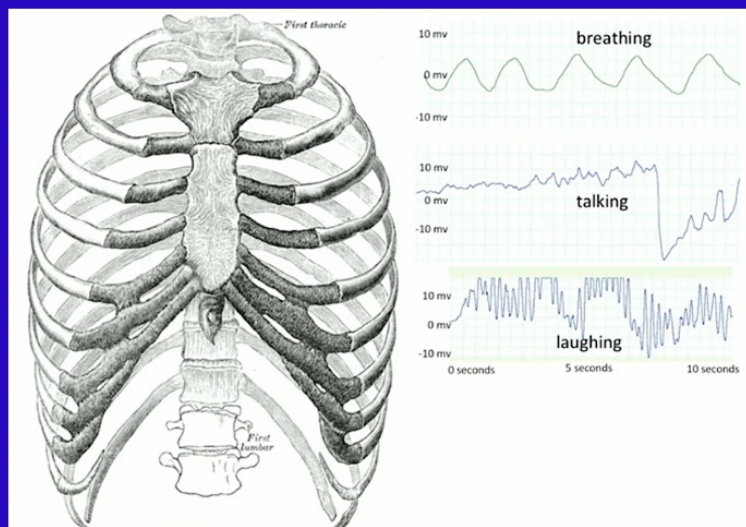
Doctors, nurses and therapists have a prescription for helping all of us to get through these difficult times: Try a little laughter.



Getty Images

By Richard Schiffman

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Humour in your head

These are the regions of the brain involved in our appreciation of jokes, and even the areas associated with specific types of humour

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Primary regions

- Left posterior temporal gyrus
- Left inferior frontal gyrus
- Temporoparietal junction

These regions are fundamental in grasping the relationship between the incongruous elements at the heart of a joke

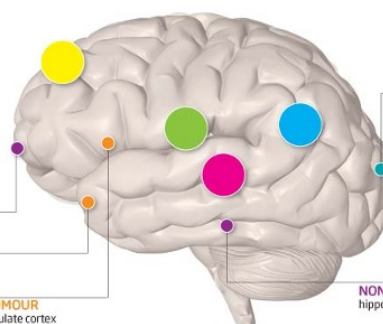
● The ventral striatum

Associated with the pleasurable feeling we get once we appreciate a joke. The greater the activity observed, the funnier the joke is perceived to be

NONSENSE HUMOUR
prefrontal cortex

SOCIAL HUMOUR
frontoinsular cortex

SOCIAL HUMOUR
anterior cingulate cortex



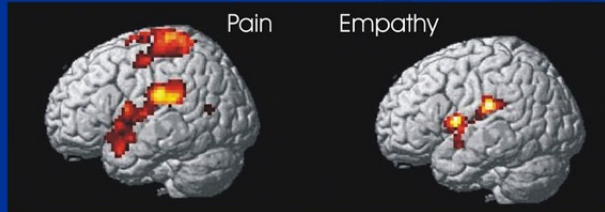
VISUAL PUNS
extrastriate cortex

NONSENSE HUMOUR
hippocampus

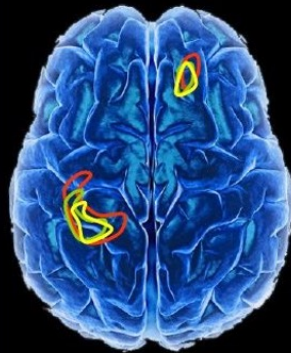
Mirror Neurons

■ Mirror Neurons:

- Frontal lobe neurons that fire when performing certain actions or when observing another doing so
- The brain's mirroring of another's action may enable imitation and empathy



Implications



Response is similar for:

- Performing the action
- Witnessing the action
- Hearing about the action

Mirror Neurons enable:

- Empathy
- Skill building through mimicry
- Vicarious experience

Happiness Chemicals and how to hack them

DOPAMINE

THE REWARD CHEMICAL

- Laughter exercise
- Completing a task
- Doing self-care activities
- Eating food
- Celebrating little wins



OXYTOCIN

THE LOVE HORMONE

- Laughter exercise
- Playing with a dog
- Playing with a baby
- Holding hand
- Helping your family
- Giving a compliment



SEROTONIN

THE MOOD STABILIZER

- Laughter exercise
- Meditating
- Running
- Sun exposure
- Walking in nature
- Swimming
- Cycling



ENDORPHIN

THE PAIN KILLER

- Laughter exercise
- Essential oils
- Watch a comedy
- Dark chocolate
- Exercising



Neuroendocrine Enhancement

- Cortisol -
- Renin -
- Angiotensin -
- Serotonin +
- Dopamine +
- Endorphin +
- Enkephalins +
- Acetylcholine +
- Oxytocin +
- Epinephrine -
- Norepinephrine -
- 3,4-dihydroxyphenylacetic acid (dopac) -
- Growth hormone -
- Brain-derived neurotrophic factor (BDNF) +
- Nitric oxide (NO) "laughing gas" +
- Hypocretin (orexin) -
- Gamma Aminobutyric acid (GABA) +

Humor Health Effects

Muscle Relaxation
Reduction Of Stress Hormones
Immune System Enhancement
Immunoglobulins
Cellular Immunity
Pain Reduction - Release Endorphins
Cardiac Exercise
Lower Blood Pressure
Deeper Respiration
Increased Oxygenation
Increased Free Radical Scavenging
Pulmonary Toilet, Coughing

Muscle Relaxation

Physical Exercise
Progressive Relaxation
Biofeedback
Deep Breathing
Meditation
Massage
Laughter

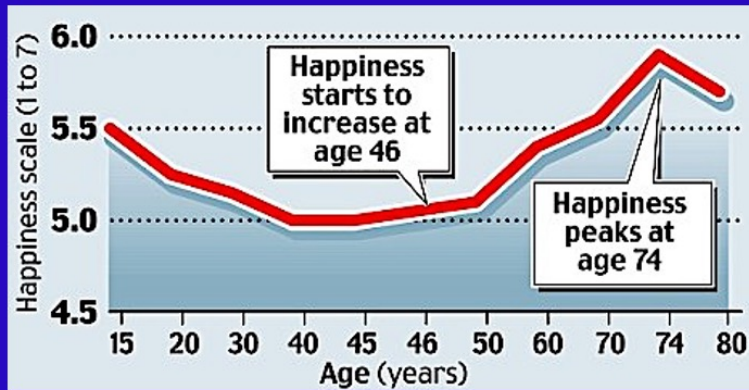
Immune Enhancement

Immunoglobulin A +
Immunoglobulin G +
Immunoglobulin M +
Gamma Interferon +
White Blood Cells +
Complement
Natural Killer Immune Cells +
Helper 'T' Cells +
Cytotoxic 'T' Cells +
B Lymphocytes
T Lymphocytes +
Interleukin 1, 2, 4, 6 -
Tumor Necrosis Factor -
C Reactive Protein (CRP) -



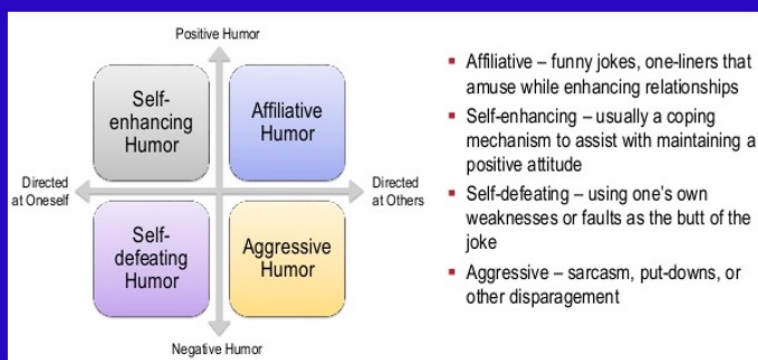
Laughter – Downside

- Cataplexy
- Pseudobulbar palsy
- Multiple sclerosis
- Parkinson's
- Epilepsy (gelastic seizures)
- Bipolar disorder
- Kuru
- Increased hernia protrusion
- Foreign body inhalation
- Asthma
- COPD
- Asphyxiation
- Aneurysm
- Headaches
- CVA
- Arrhythmia
- Syncope
- Pneumothorax
- Dislocated jaw
- Infectious fomites
- Brain tumor
- Dementia
- Cardiac rupture
- Esophageal rupture
- Pontine infarction
- Incontinence



Types of Humor

- Wit / Pun / Wordplay – clever
- Satire – mock person or object
- Slapstick – silly, physical comedy
- Parody/Mimicry – imitate, mock
- Self-Deprecating – mock self
- Sarcasm – camouflaged contempt
- Irony – unexpected
- Sophomoric – juvenile
- Sexual / Scatological – forbidden
- Dark – sinister topic with ironic amusement
- Hurtful / Negative – hate, bigotry



Creating opportunities to laugh



- Watch a funny movie or TV show.
- Go to a comedy club.
- Read the funny pages.
- Seek out funny people.
- Share a good joke or a funny story.
- Check out our bookstore's humor section.
- Host game night with friends.
- Play with a pet.
- Go to a "laughter yoga" class.
- Goof around with children.
- Do something silly.
- Make time for fun activities (e.g. bowling, miniature golfing, karaoke).

Humor Physical Health Effects

Muscle Relaxation

Stress Hormone Reduction

Immune System Enhancement

Pain Reduction – Endorphin Release

Cardiovascular Exercise

Blood Pressure Reduction

Pulmonary Clearing - Respiration Improved

Oxygenation Increased

Free Radical Scavenging Increased

Humor Mental Health Effects

Anxiety Reduced

Fear Decreased

Resilience Enhanced

Joy & Zest Increased

Mood Improved

Stress Reduction

Optimism Improved

Relationships Strengthened

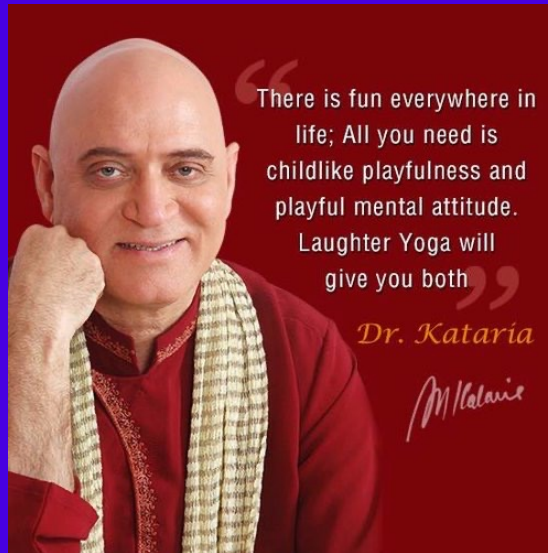
Teamwork Enhanced

Group Bonding Promoted

Conflict Defused

Laughter Inducers

- Alcohol
- Cannabis
- Salvinorin A (hallucinogenic psychoactive photochemical from *Salvia divinorum* sage of the diviners)
- Lacosomide (anti seizure sodium channel blockers)
- Sumatriptan (serotonin agonist)

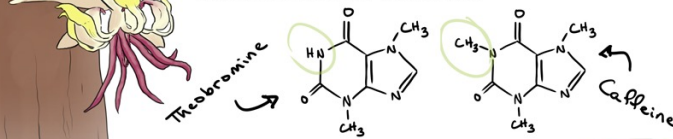


I Love Lucy - The Chocolate Factory



THEOBROMINE

Chocolate is derived from the seeds of the cocoa tree (*Theobroma cacao*). One of its active ingredients is theobromine. This molecule is structurally similar to caffeine and produces many of the same effects when consumed.



Theobromine what makes chocolate dangerous to dogs. They do not metabolize the molecule efficiently, causing symptoms such as vomiting and arrhythmia. Humans can also overdose on theobromine - however, this is uncommon as we metabolize it quickly.



Alithographica

Did You Know?

A 100 gram bar of dark chocolate with 70-85% cocoa contains:

- 11 grams of fiber
- 67% of the RDA for Iron
- 58% of the RDA for Magnesium
- 89% of the RDA for Copper
- 98% of the RDA for Manganese

It also has plenty of potassium, phosphorus, zinc and selenium.



12 Health Benefits of Dark Chocolate

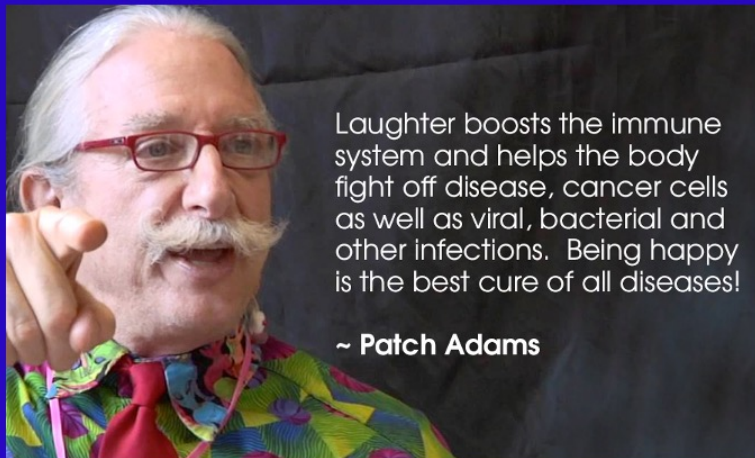


1. Slows the signs of aging.
2. Lowers your blood pressure.
3. Helps control blood sugar.
4. Reduces the risk of diabetes.
5. Rich of vital vitamins and minerals.
6. Increases blood flow to the brain and heart.
7. Contains anti-depressant agents.
8. Prevents heart diseases.
9. Contains antioxidants that can protect your cells.
10. Lowers your cholesterol levels.
11. Improves your mood.
12. Reduces your stress.

The secret to living well and longer is:

“Eat half, walk double, laugh triple,
and love without measure.”

Tibetan Proverb



Laughter boosts the immune system and helps the body fight off disease, cancer cells as well as viral, bacterial and other infections. Being happy is the best cure of all diseases!

~ Patch Adams

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Joseph B. Weiss, M.D. is Clinical Professor of Medicine in the Division of Gastroenterology, Department of Medicine, at the University of California, San Diego. Accepted to university at age fifteen he attended the University of Michigan, University of Detroit, and Wayne State University. Reflecting his broad interests, he majored in Medieval English Literature, Astrophysics, and Invertebrate Zoology. Following his graduation from the Wayne State University School of Medicine in Detroit, Michigan, he completed his internship and residency in Internal Medicine at the University of California, Irvine Medical Center in Orange, California. Under the auspices of the World Health Organization and others, he has pursued interests in Tropical and International Medicine and Public Health with extended stays in Africa, the Middle East, and Latin America. Subsequently completing a clinical and research fellowship in Gastroenterology at the University of California, San Diego, he has remained active on the clinical faculty of the School of Medicine. Dr. Weiss is a Fellow of the American College of Physicians, a Fellow of the American Gastroenterological Association, and a Senior Fellow of the American College of Gastroenterology. Double board certified in Internal Medicine and Gastroenterology, Dr. Weiss has over thirty years of clinical, administrative, and research experience. He has also served on the Board of Directors of the Scripps Clinic Medical Group, Clinical Board of Governors of the Scripps Clinic and Research Foundation, and Chancellor's Associates of the University of California, San Diego

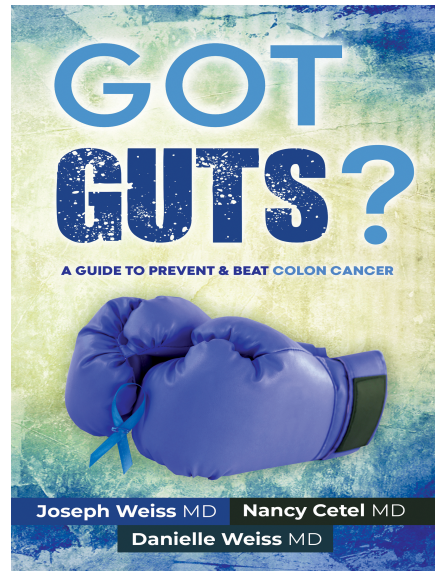
He is the author of more than a dozen books on health (www.smartaskbooks.com) and has had numerous papers published in prestigious national and international medical journals, as well as in the lay press. Dr. Weiss is also an accomplished humorist and professional speaker having given over three thousand presentations nationally and internationally. He has presented at international conferences and conventions, universities, medical schools, hospitals and medical centers, Fortune 500 companies, YPO/WPO, Bohemian Grove, Esalen Institute, Renaissance Weekend, Aspen Brain Forum, IDEA World Convention, international destination spas & resorts (Golden Door, Canyon Ranch, Rancho La Puerta), etc.

The programs offered are continuously updated with cutting edge information. Well-spoken, enlightening, and entertaining the programs are also visually engaging. Frequently requested programs include To 'Air' is Human (intestinal gas), The Quest for Immortality (longevity & vitality), The Scoop on Poop (gut microbiome & scatology), Digest on Digestion (digestive health & nutrition), Medical WisDumb (marketing hype to health advances), Laughter (& Chocolate) is the Best Medicine (humor in health & wellness), Food for Thought (brain-gut-microbiome axis) and others. For further information, contact Dr. Weiss at speakingofhealth@gmail.com or weisscme@ucsd.edu

These colorful, informative, and entertaining volumes are available at www.smarttaskbooks.com, Amazon.com, BarnesandNoble.com, and major booksellers.

"Dr. Joseph Weiss' books provide an informative and entertaining approach to sharing insights about our digestive system and wellbeing." Deepak Chopra, MD

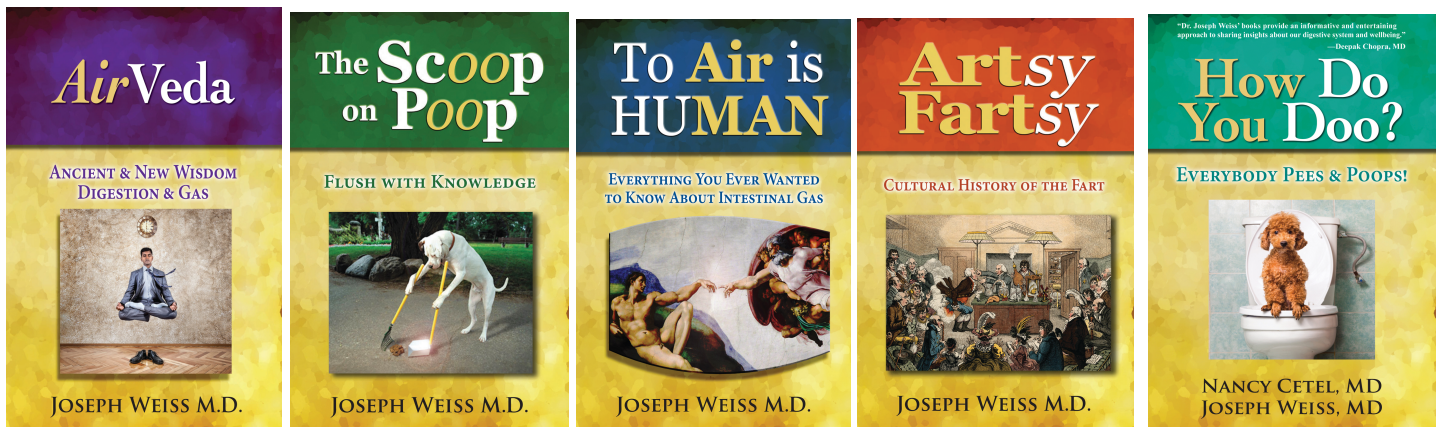
"Joseph Weiss, M.D. has a gift for books that are uniquely informative and entertaining. Jack Canfield
Coauthor of the Chicken Soup for the Soul® series



Got Guts! A Guide to Prevent & Beat Colon Cancer (ISBN:978-1-943760-97-8 Color Pages: 146 Words: 60,935 Images: 15) offers a clear understanding of the importance and value of prevention and screening in colorectal cancer. Written for the general public, it is a practical common-sense guide. Colon cancer is one of the most common and deadly cancers. It is both preventable and curable when found early yet devastating when discovered too late. It begins silently without any signs or symptoms, and rarely gives any warning until too late. In spite of painless, accurate and inexpensive screening tests, too many people mistakenly believe they are safe and fail to protect themselves.

From young movie stars and professional athletes, to world political and religious leaders anyone can get colon cancer. Nearly 50,000 needlessly die in the United States each year from this preventable and curable disease. When it is detected early nearly all of these lives could have been saved. Recently the greatest increase in colon cancer is seen in adults 18 to 49 years of age. In this book you will learn how: your diet, weight, family history, gender, and other significant factors contribute to your potential risk. You will begin to understand the essentials in personalizing your best approach to prevent colon cancer. The multiple options range from one minute painless and inexpensive tests, to the more involved invasive colonoscopy tests that require sedation or anesthesia. Understanding the options available, and selecting wisely based on your personal risk factors, is clearly explained in this potentially lifesaving book.

Written by expert physicians who offer an unbiased and logical approach, *Got Guts!* assists in identifying your best path. This guide may well be the most important book you will read to protect your health now and in the future. All three authors have experienced the hardships that follow a loved one diagnosed with colorectal cancer too late. They are dedicated and compassionate physicians with extensive clinical, academic, and research experience. Don't miss an opportunity to make life-saving decisions for yourself and your loved ones!



The Scoop on Poop! Flush with Knowledge (ISBN: 978-1-943760-00-8 Color Pages: 426 Words: 111,763 Images: 378) is a uniquely informative tastefully entertaining, and well-illustrated volume that is full of it! The 'it' being a comprehensive and knowledgeable overview of all topics related to the remains of the digestive process. It has been provocatively and cheekily retitled as ***You Don't Know Sh*t! Until You Read This Book*** (ISBN: 978-1-943760-04-6 Color Pages: 426 Words: 111,768 Images: 378). Whether you disdain it or appreciate it, it is part of the human (and animal) experience. The purpose of this volume is to share rarely discussed but very important knowledge about the important role of digestion and the gut microbiome in human health and wellness

AirVeda: Ancient & New Wisdom, Digestion & Gas (ISBN: 978-1-943760-10-7 Color Pages: 467 Words: 150,062 Images: 399) covers the remarkable advances in the understanding of digestive health and wellness from Ayurveda to genomics and the gut-brain-microbiome-diet axis. The knowledge gained opens new avenues to optimal health and wellness.

To 'Air' is Human, Everything You Ever Wanted to Know About Intestinal Gas (ISBN: 978-1-943760-02-2 Color Pages: 321 Words: 92,567 Images: 297) covers everything you ever wanted to know about the burp, belch, bloat, fart and everything digestive but were either too afraid or too embarrassed to ask. This volume is overflowing with practical information, fascinating facts, surprising trivia, and tasteful humorous insight about this universal phenomenon. <https://www.amazon.com/Air-Human-Everything-Wanted-Intestinal/dp/1943760020>

Artsy Fartsy, Cultural History of the Fart (ISBN: 978-1-943760-03-9 Color Pages: 322 Words: 79,364 Images: 266) is a fascinating and colorful review of the fart through human culture and history. A cough, sneeze, hiccup, stomach rumble, burp, belch, and other bodily sounds simply cannot compete with the notoriety of the fart. Whether encountered live and in person or through the medium of literature, television, film, art, or music it may leave a powerful and lingering memory.

How Do You Doo? Everybody Pees & Poops! (ISBN: 978-1-943760-06-0 Color Pages: 88 Words: 17,844 Images: 61) A delightfully informative, entertaining, and colorfully illustrated volume with valuable practical insights on toilet training. Tasteful color photographs and illustrations of animals answering the call of nature allows the child to understand that everybody does it! Additional informative relevant content to entertain the adult while the child is 'on the potty' is included.