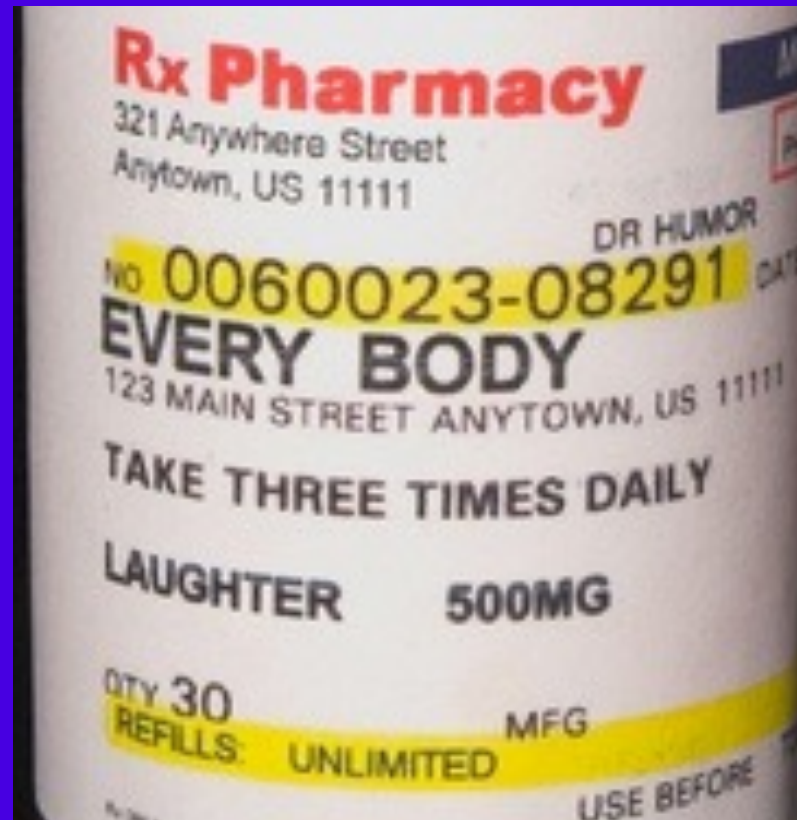


# Laughter is the Best Medicine!



Joseph B. Weiss, MD, FACP, FACG, AGAF  
Clinical Professor of Medicine  
University of California, San Diego

# Disclosures

- No conflicts of interest to disclose.
- The purpose of this program is to inform the audience about scientific evidence supporting the health benefits of humor/laughter and chocolate.

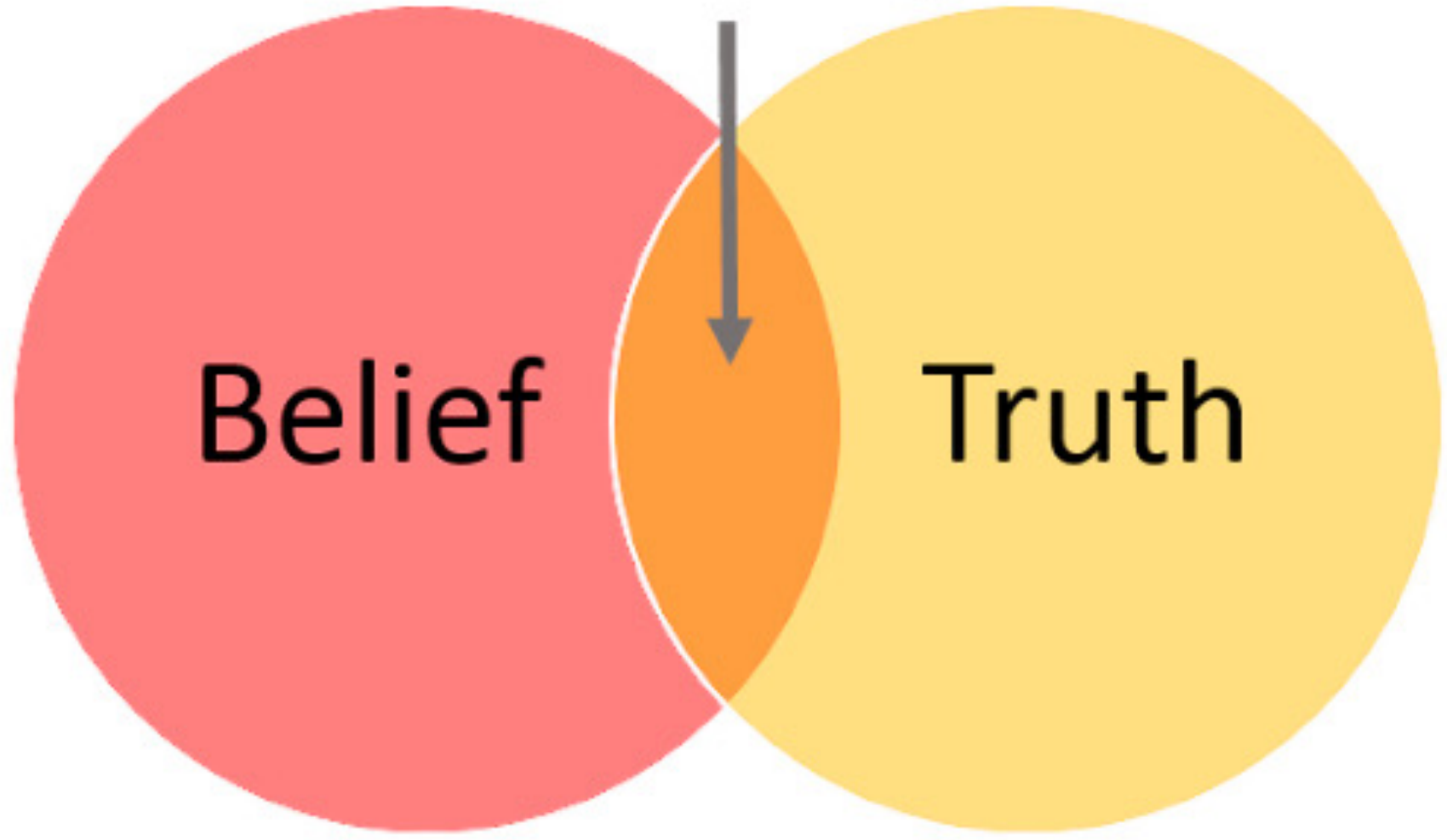


# The Theory of Four Humours

*Human Body in Balance*



# Knowledge



Belief

Truth

Knowledge is knowing a  
Tomato is a fruit!

Wisdom is knowing Not to  
put it into a fruit salad!





Yoga, as a way of life and a philosophy, can be practiced by anyone with inclination to undertake it, for yoga belongs to humanity as a whole. It is not the property of any one group or any one individual, but can be followed by any and all, in any corner of the globe, regardless of class, creed or religion.

— *K. Pattabhi Jois* —

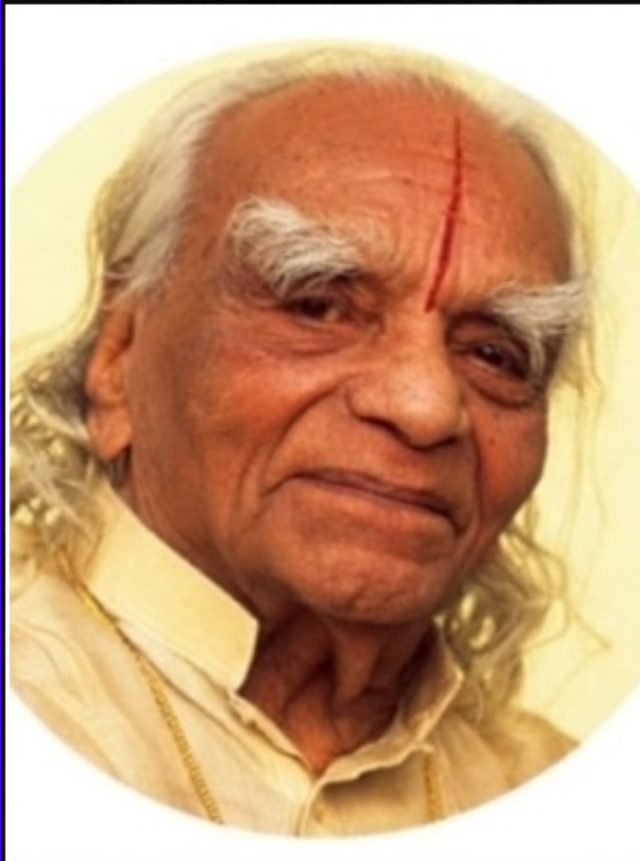
**AZ QUOTES**



Yoga is a philosophy of discipline and meditation that transforms the spirit and makes the individual a better person in thought, action, knowledge and devotion.

— *Narendra Modi* —

**AZ QUOTES**



Yoga is an art, a science and a philosophy. It touches the life of man at every level, physical, mental, and spiritual. It is a practical method for making one's life purposeful, useful and noble.

— *B.K.S. Iyengar* —

**AZ QUOTES**





Yoga stimulates different nerves in your body, especially the Vagus nerve that carries information from the brain to most of the body's major organs, slows everything down and allows self-regulation. It's the nerve that is associated with the parasympathetic system and emotions like love, joy and compassion.

— *Deepak Chopra* —

**AZ QUOTES**

## Evidence-Based Medicine

**“Over two million articles are published annually in the biomedical literature in over 20 000 journals”**



*New York Times* Bestseller

# ANATOMY

*of an*

# ILLNESS

AS PERCEIVED BY

THE PATIENT



National  
Book  
Award  
Finalist

*Reflections on  
Healing and Regeneration*

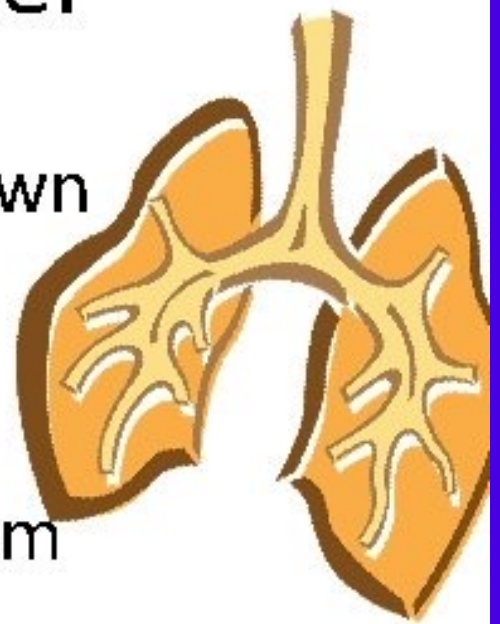
NORMAN COUSINS

# Gelotology: the study of humor and laughter

- This is what the physiological and psychological study of laughter is called.
- It was founded by American psychologist, William Fry, from Stanford University.

# 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*



[comments](#) on this story

Published online 4 June 2009 | Nature | doi:10.1038/news.2009.541

News

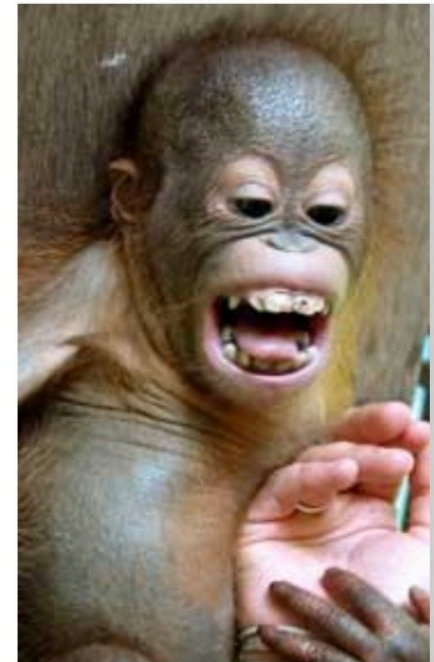
## Human-ape links heard in laughter

**Similarities between laughter of tickled apes and humans mirrors genetic ties between species.**

Lucas Laursen

Human laughter is rooted in the emotional displays of the common ancestor we share with apes, suggests an analysis of the vocalizations of tickled juvenile apes and humans.

Human speech is unique among animals, but researchers have long debated how our laughter might relate to similar vocalizations made by other primates. Scientists from Charles Darwin to Dian Fossey, author of *Gorillas in the Mist*, have compared the laughter of non-human primates with that of



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- [tickling](#)
- [laughter](#)
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- [apes](#)

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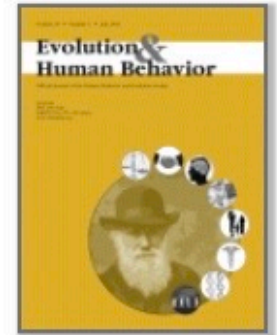




ELSEVIER

# Evolution and Human Behavior

Volume 35, Issue 4, July 2014, Pages 327-335



Original Article

## The animal nature of spontaneous human laughter

Gregory A. Bryant <sup>a, b</sup>  , C. Athena Aktipis <sup>c, d</sup>

PUBLISH

# PLOS ONE

 OPEN ACCESS  PEER-REVIEWED

RESEARCH ARTICLE

## Laughing Rats Are Optimistic

Rafal Rygula , Helena Pluta, Piotr Popik

Published: December 26, 2012 • <https://doi.org/10.1371/journal.pone.0051959>









When tickled, rats emit  
**ultrasonic chirps of  
"laughter."**



These sounds seem to indicate joy. Researchers have found that rats will *perform tasks* to receive tickling as a reward.

# 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**

Published Oct. 1, 2020 Updated Oct. 2, 2020



## CU Anschutz Medical Campus

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## Best Medicine During a Pandemic? How About Some Laughter?

School of Medicine alumnus and comedian Brad Nieder delivers much-needed dose of humor at CU Anschutz alumni event

Blair Ilsley | December 8, 2020

THE IMPORTANCE

OF THE

*Breath*

IN YOGA



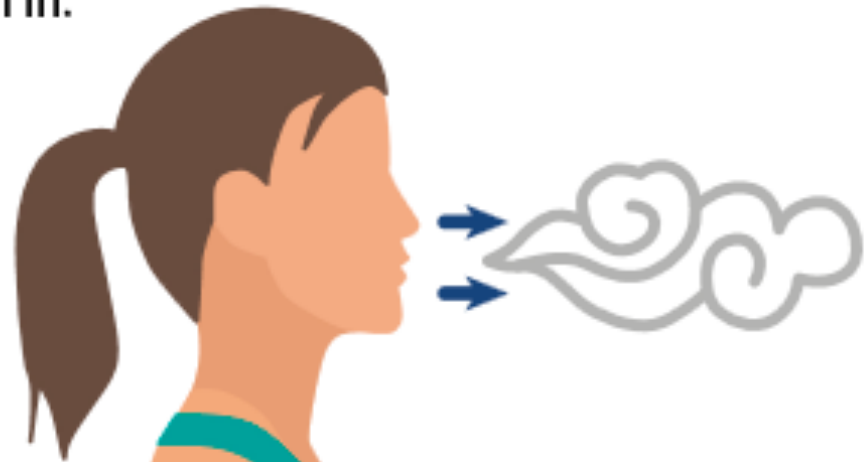
1 Slowly take a deep breath in.



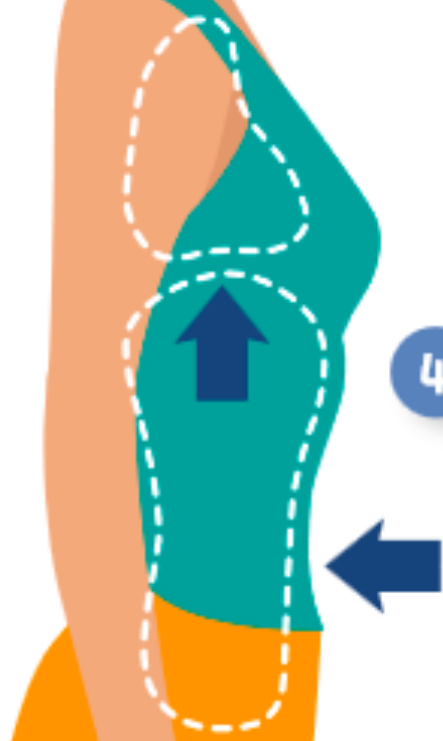
2 Fill your lungs with air.



3 Your abdomen expands.

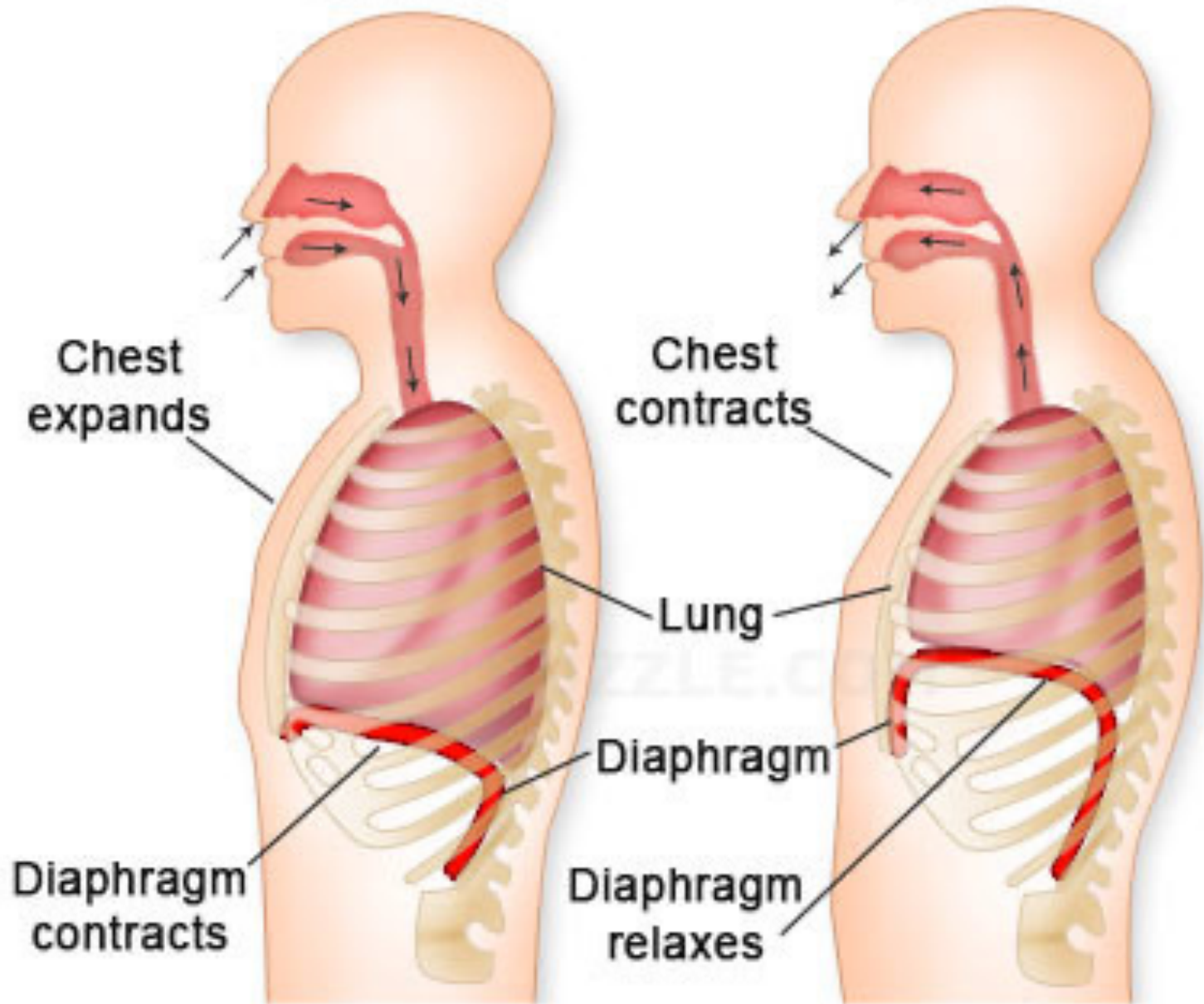


4 Exhale and your abdomen contracts inwards.

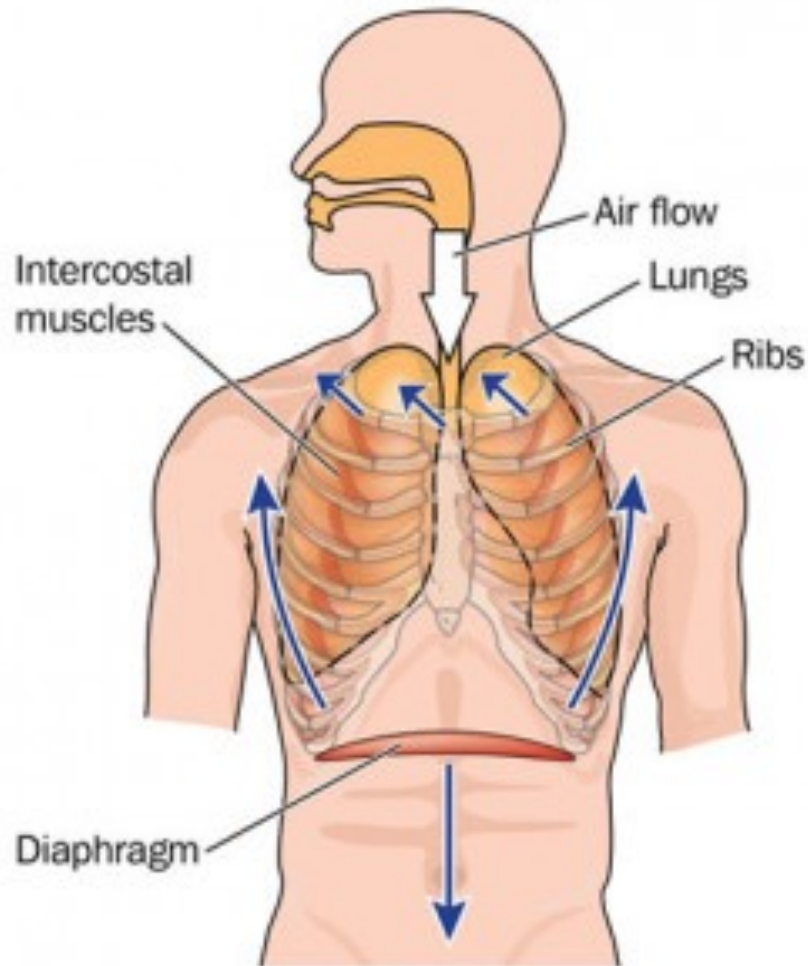


**Inhale**

**Exhale**

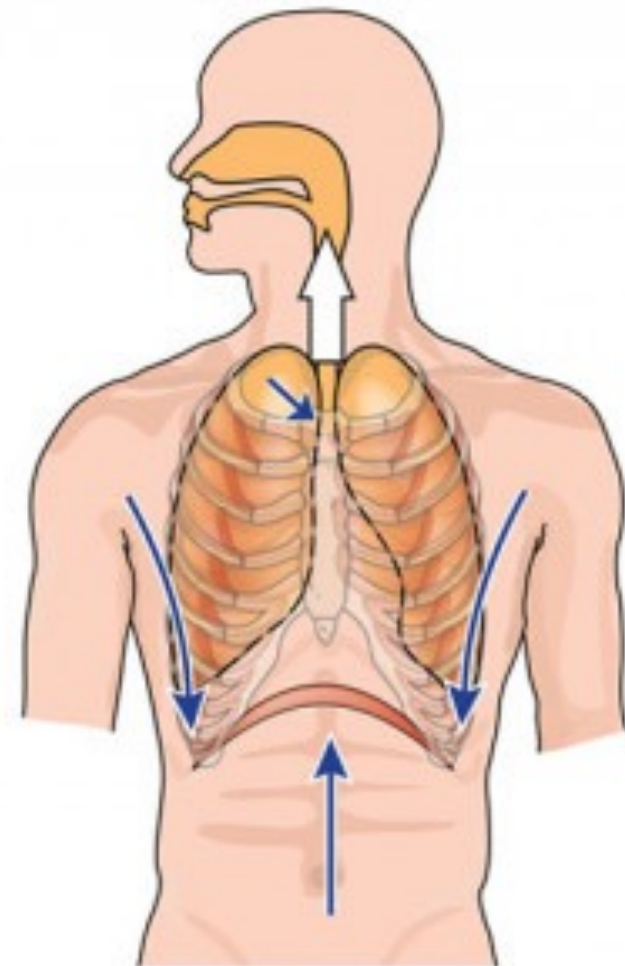


## Inhalation

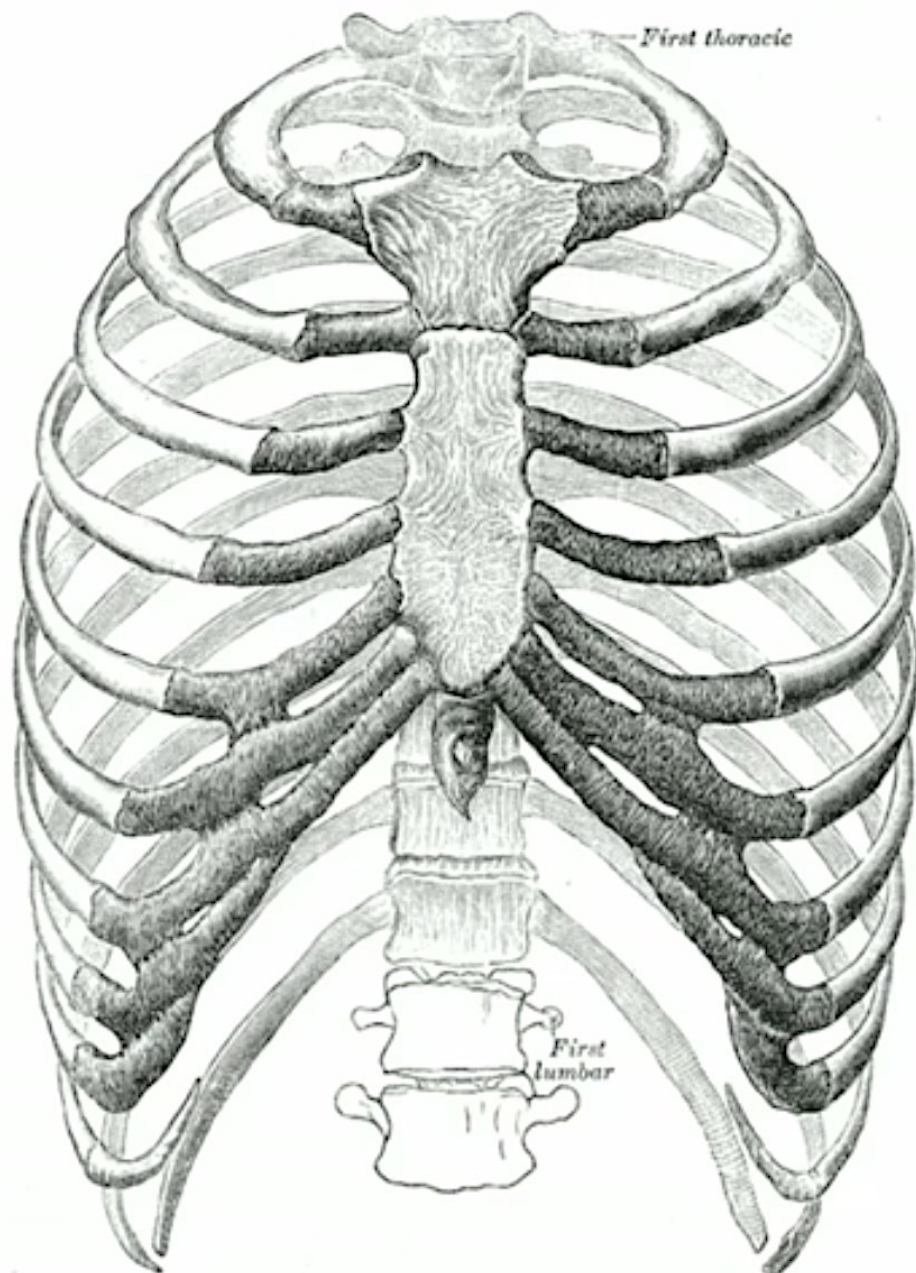


Air flows into lungs due to increased lung volume following contraction of diaphragm and intercostal muscles

## Exhalation



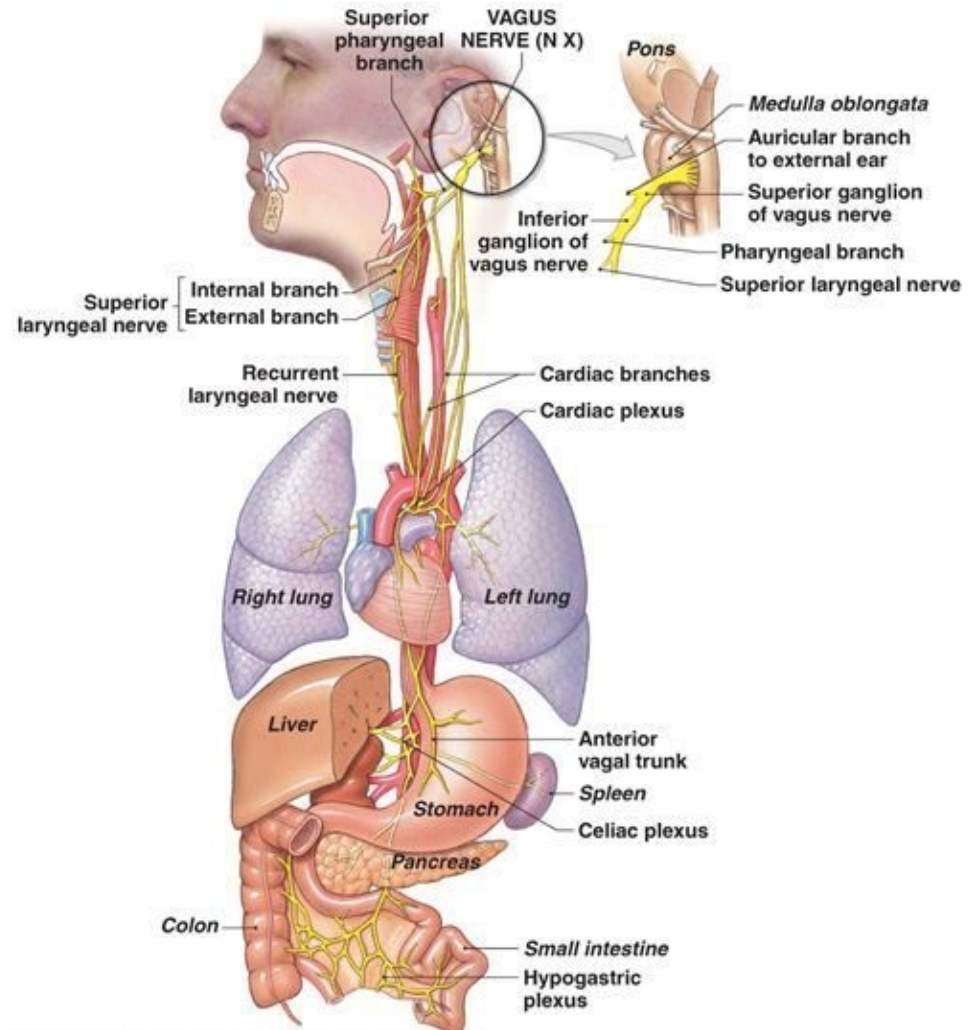
Air expelled from lungs due to relaxation of diaphragm and intercostal muscles

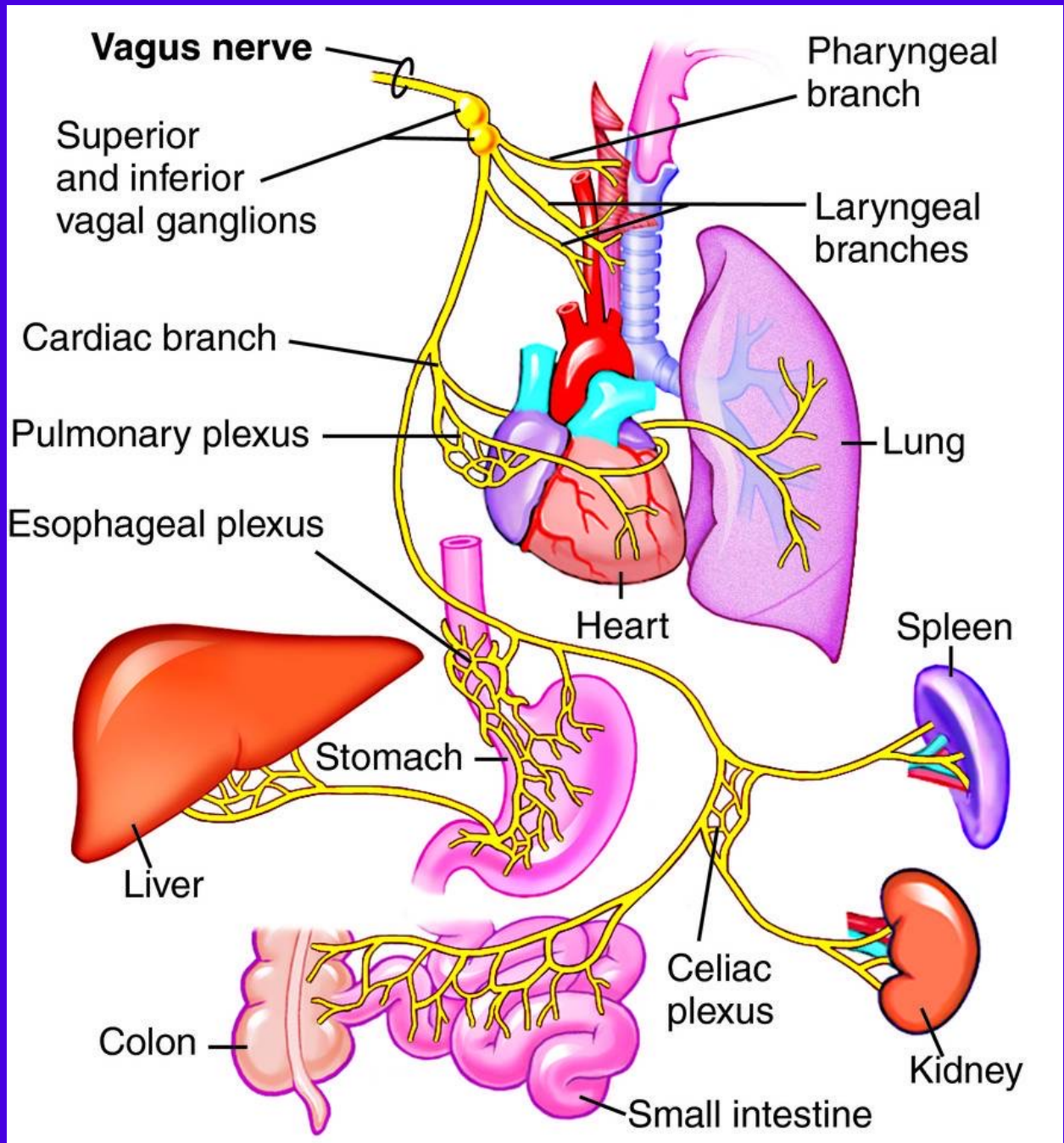


Vagus – Latin for wandering, root of words vagabond, vagrant

# Cranial Nerve X – Vagus

The vagus nerve is a critical nerve for supplying parasympathetic information to the visceral organs of the respiratory, digestive and urinary systems. It is important in the control of heart rate, bronchoconstriction & digestive processes.









ELSEVIER

# Medical Hypotheses


Volume 73, Issue 5, November 2009, Pages 636-639



## The effect of mirthful laughter on the human cardiovascular system ☆

Michael Miller<sup>a</sup>  , William F. Fry<sup>b</sup>

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<https://doi.org/10.1016/j.mehy.2009.02.044>

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# The American Journal of the Medical Sciences

Volume 298, Issue 6, December 1989, Pages 390-396



Original Manuscripts

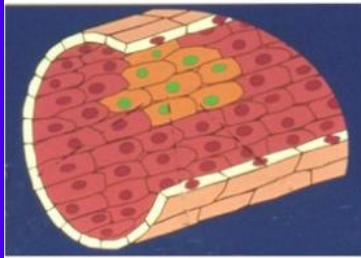
## Neuroendocrine and Stress Hormone Changes During Mirthful Laughter

Lee S. Berk DHSc, MPH \* ♂, Stanley A. Tan MD, PhD, MPH †, William F. Fry MD ‡, Barbara J. Napier BS \*, Jerry W. Lee PhD §, Richard W. Hubbard PhD \*, John E. Lewis PhD \*, William C. Eby MD, PhD \*



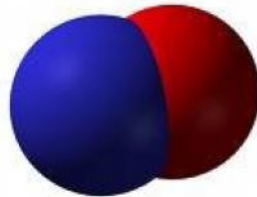
**PITUITARY/ HYPOTHALAMUS**

$\beta$ -endorphin (other opioid-like compounds)



**ENDOTHELIUM**

$\mu$ -3 receptor activation



**NITRIC OXIDE**

*Vessel Dilation*

$\downarrow$  *Platelet Aggregation*

$\downarrow$  *Inflammation*

Original Article

## Laughter is the Best Medicine? A Cross-Sectional Study of Cardiovascular Disease Among Older Japanese Adults

Kei Hayashi, Ichiro Kawachi, Tetsuya Ohira, Katsunori Kondo, Kokoro Shirai, Naoki Kondo

[+](#) Author information

Keywords: [laughter](#), [aged](#), [stroke](#), [cardiovascular diseases](#), [Japan](#)

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2016 Volume 26 Issue 10 Pages 546-552

Original Article

## Associations of Frequency of Laughter With Risk of All-Cause Mortality and Cardiovascular Disease Incidence in a General Population: Findings From the Yamagata Study

Kaori Sakurada, Tsuneo Konta, Masafumi Watanabe, Kenichi Ishizawa, Yoshiyuki Ueno, Hidetoshi Yamashita, Takamasa Kayama

[+](#) Author information

Keywords: [laughter](#), [mortality](#), [cardiovascular disease](#), [Yamagata study](#)

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ORIGINAL ARTICLES



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# A 15-Year Follow-Up Study of Sense of Humor and Causes of Mortality The Nord-Trøndelag Health Study

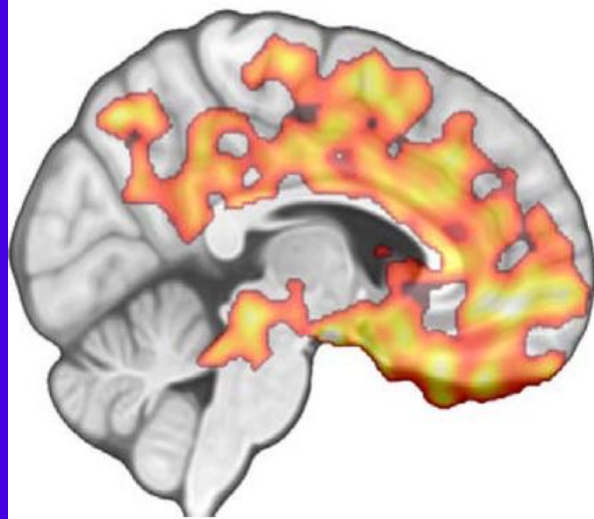
Romundstad, Solfrid MD, PhD; Svebak, Sven PhD; Holen, Are MD, PhD; Holmen, Jostein MD, PhD

**Author Information**

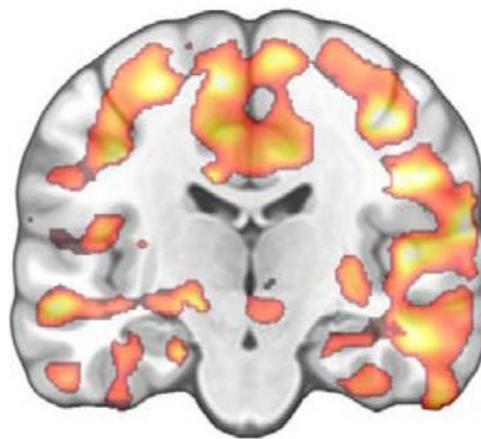
Psychosomatic Medicine: April 2016 - Volume 78 - Issue 3 - p 345-353

doi: 10.1097/PSY.0000000000000275

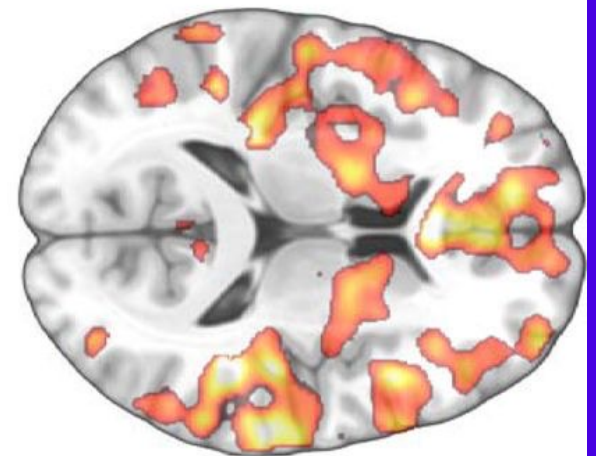
$x = 5$



$y = -19$



$z = 13$





FDR  T-score 4  
 $BP_{ND} \times \text{Laughs per minute}$


# PROCEEDINGS OF THE ROYAL SOCIETY B

BIOLOGICAL SCIENCES

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Research articles

## Social laughter is correlated with an elevated pain threshold

R. I. M. Dunbar, Rebecca Baron, Anna Frangou, Eiluned Pearce, Edwin J. C. van Leeuwen, Julie Stow, Giselle Partridge, Ian MacDonald, Vincent Barra and Mark van Vugt

Published: 14 September 2011 | <https://doi.org/10.1098/rspb.2011.1373>





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Research Articles, Behavioral/Cognitive

# Social Laughter Triggers Endogenous Opioid Release in Humans

Sandra Manninen, Lauri Tuominen, Robin I. Dunbar, Tomi Karjalainen, Jussi Hirvonen, Eveliina Arponen, Riitta Hari, Iiro P. Jääskeläinen, Mikko Sams, and Lauri Nummenmaa

Journal of Neuroscience 21 June 2017, 37 (25) 6125-6131; DOI: <https://doi.org/10.1523/JNEUROSCI.0688-16.2017>



## On this page


[Abstract](#)[Introduction](#)[Methods](#)[Results](#)[Discussion](#)[Acknowledgments](#)

## Research Article | Open Access

Volume 2010 | Article ID 343574 | <https://doi.org/10.4061/2010/343574>

[Show citation](#)

# Humor Therapy: Relieving Chronic Pain and Enhancing Happiness for Older Adults

**Mimi M. Y. Tse** <sup>1</sup>, Anna P. K. Lo,<sup>2</sup> Tracy L. Y. Cheng,<sup>3</sup> Eva K. K. Chan,<sup>4</sup> Annie H. Y. Chan,<sup>5</sup> and Helena S. W. Chung<sup>6</sup>



Research Article | Original Research

# Humor During Clinical Practice: Analysis of Recorded Clinical Encounters

Kari A. Phillips, Nayky Singh Ospina, Rene Rodriguez-Gutierrez, Ana Castaneda-Guarderas, Michael R. Gionfriddo, Megan Branda and Victor Montori

The Journal of the American Board of Family Medicine March 2018, 31 (2) 270-278; DOI: <https://doi.org/10.3122/jabfm.2018.02.170313>

Article

Figures & Data

References

Info & Metrics

PDF

## Abstract

**Objective:** Little is known about humor's use in clinical encounters, despite its many potential benefits. We aimed to describe humor during clinical encounters.

**Design:** We analyzed 112 recorded clinical encounters. Two reviewers working independently identified instances of humor, as well as information surrounding the logistics of its use.

**Results:** Of the 112 encounters, 66 (59%) contained 131 instances of humor. Humor was similarly

## In this issue



The Journal of the American Board of Family Medicine

Vol. 31, Issue 2  
March-April 2018

Table of Contents

Table of Contents (PDF)

Cover (PDF)

Index by author

## ORIGINAL RESEARCH

# The use of humor and laughter in research about end-of-life discussions

Ian N. Olver<sup>1</sup>, Jaklin A. Elliott<sup>1,2</sup>

1. Cancer Council Australia, Sydney, Australia. 2. School of Population Health, University of Adelaide, Adelaide, Australia.

**Correspondence:** Ian N. Olver. Address: Cancer Council Australia, GPO Box 4708 Sydney, New South Wales 2001, Australia. Email: [ian.olver@cancer.org.au](mailto:ian.olver@cancer.org.au)

**Received:** February 10, 2014

**Accepted:** July 27, 2014

**Online Published:** August 11, 2014

**DOI:** 10.5430/jnep.v4n10p80

**URL:** <http://dx.doi.org/10.5430/jnep.v4n10p80>

# Humour in your head

©NewScientist

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

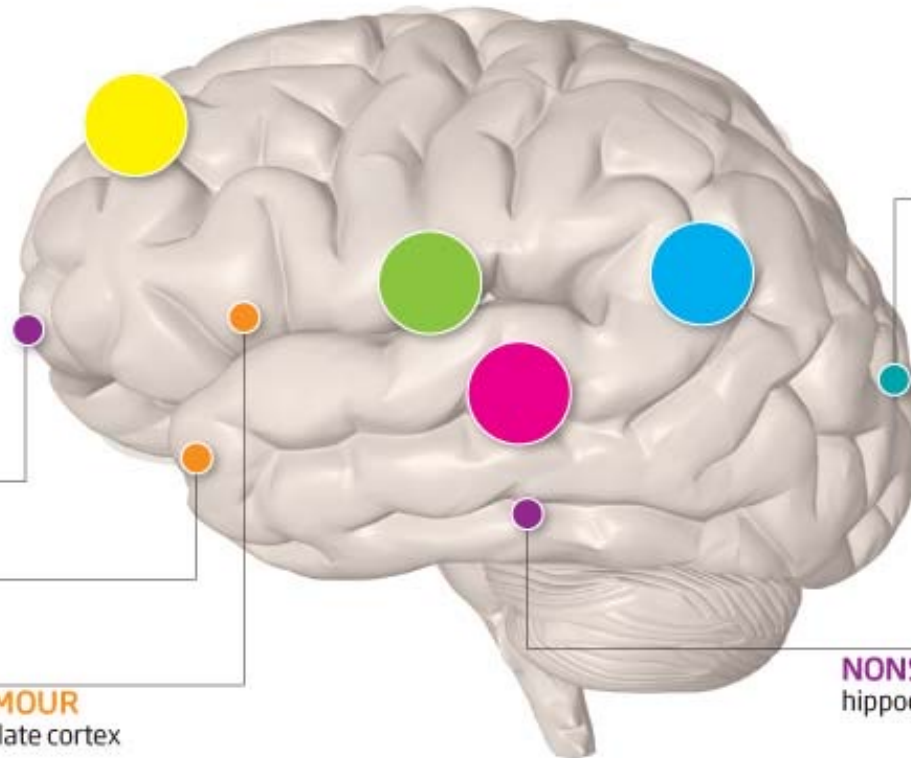
## Primary regions

- **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**  
frontoinsula cortex

**SOCIAL HUMOUR**  
anterior cingulate cortex

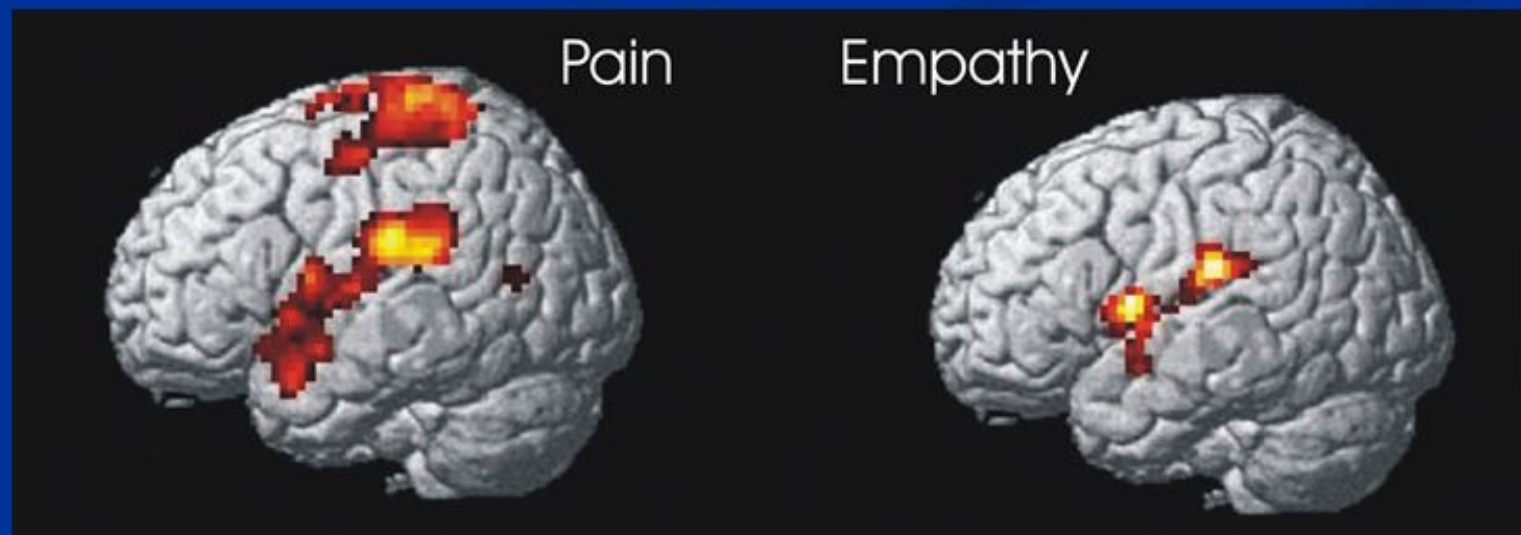
**VISUAL PUNS**  
extrastriate cortex

**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

Due to the mirror neurons in our brains,  
laughing is contagious.







Table 1. Main characteristics of five large categories of laughter.

Categories	Characteristics
Spontaneous laughter	Unrelated to one's own free will, is triggered by different (external) stimuli and positive emotions.
Simulated laughter	Is triggered by oneself at will (self-induced), with no specific reason (purposeful, unconditional), and therefore not elicited by humor, fun, other stimuli, or positive emotions.
Stimulated laughter	Happens as a result of the physical contact or action (reflex) of certain external factors (i.e. to be ticklish, specific facial or bodily motions, by pressing laughter bones).
Induced laughter	Is a result of the effects of specific drugs or substances (i.e. alcohol, caffeine, amphetamines, cannabis, lysergic acid diethylamide or LSD, nitrous oxide or "laughing gas", and more).
Pathological laughter	Is secondary to injuries to the central nervous system caused by various temporary or permanent neurological diseases and may also occur with certain psychiatric disorders.

	Spontaneous laughter	Simulated laughter
Genuine expression of positive emotions	Always	Not necessarily
Humor-related or humor-dependant	Very often, but not always	Very rarely
Laughing "at" or "with" others	Commonly "at"	Always "with"
Personal engagement/effort to think	Often necessary	Rarely necessary
Presence of "Duchenne laughter/smile" <sup>a</sup>	Typical (when not fake)	Only when done with a minimum of enthusiasm
Together with bodily motion	Yes (uncontrolled)	Yes (controlled)
One's own free will	No, unrelated	Yes, purposeful
Triggering off stimulus	Identifiable (external)	None (self-induced)
Contagious	Yes (often)	Yes (very often)
Self-control on intensity and duration	Minimum or less	Maximum or more
Mean ratio vocal/consonant sounds	1:1 (50% of each one) <sup>106</sup>	At will
Most common vocalizations	Ha/ho	At will: Ha/he/hi/ho/hu & others
Evidence of therapeutic value in medicine	Yes (several studies)	Yes (a few studies so far)
Best dynamics for experimenting laughter	In a group	Alone/in a group
Laughter technique samples	Playing; clowning; disguising; dancing; singing; having fun, humor, music; by surprise, emotional release, positive emotions or contagion	Laughter yoga exercises, laughter gymnastics; laughter practice; solo laughter

<sup>a</sup> Contraction of the muscles around the eye socket.

# 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)

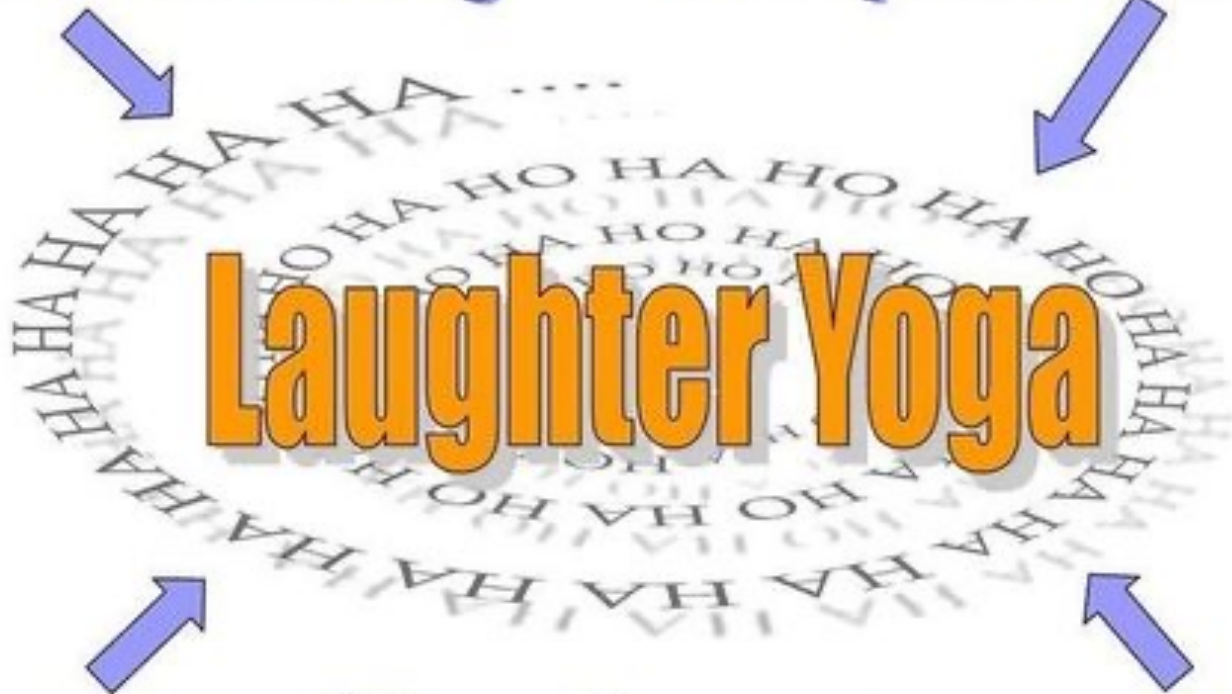


# What is Laughter Yoga?

# What is Laughter Yoga?

Gentle Stretching

Therapeutic Laughter



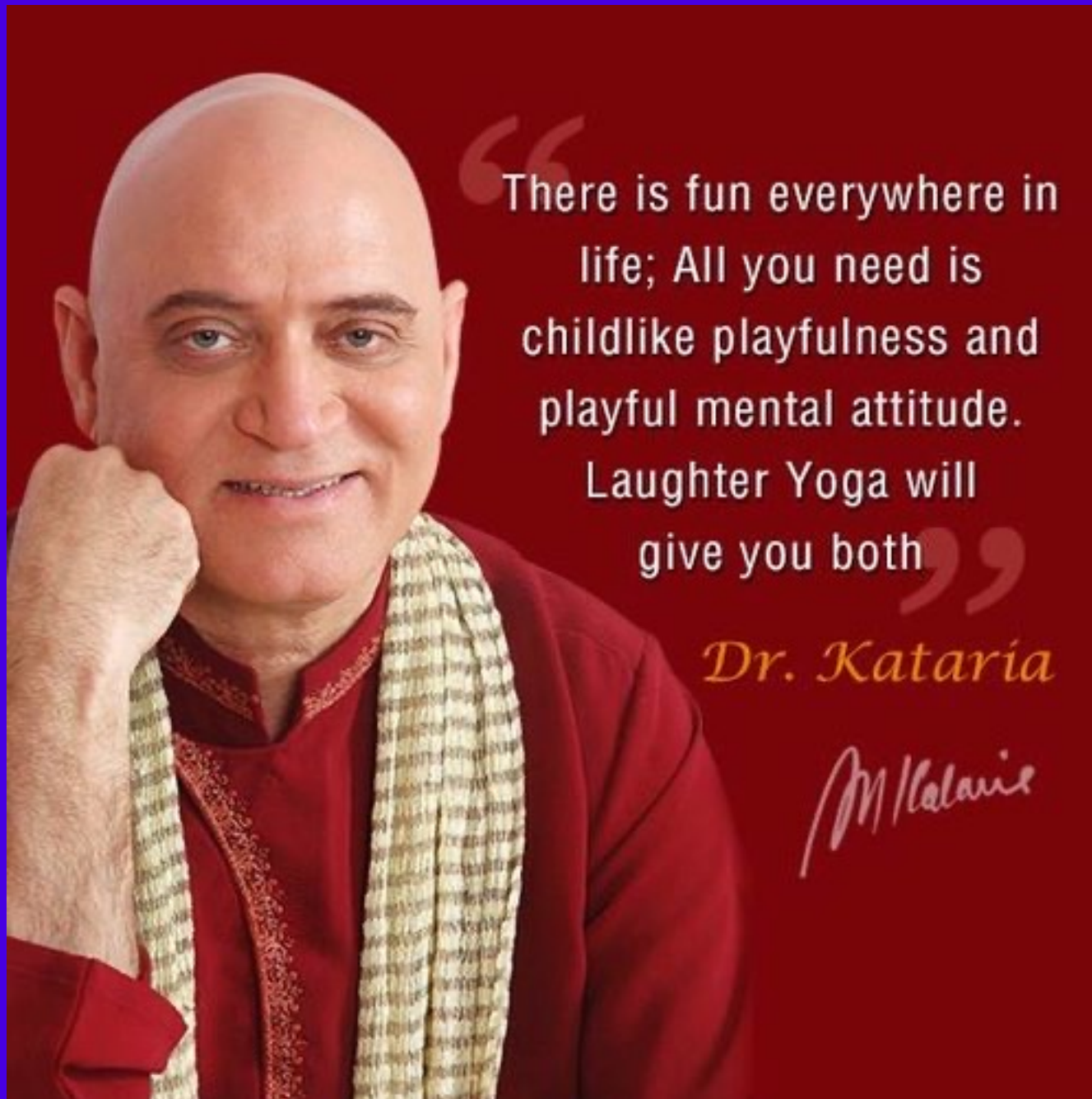
**Laughter Yoga**

Pranayam (Deep)

Laughter

Breathing

Meditation



“There is fun everywhere in life; All you need is childlike playfulness and playful mental attitude. Laughter Yoga will give you both”

*Dr. Kataria*

*M Kataria*

**"Laughter and Breathing  
of Laughter Yoga brings  
you totally in the  
Present Moment, as you  
can't Laugh and Breathe  
in the Past or Future".**

**Dr. Madan Kataria**





# The impact of laughter yoga on subjective well-being: A pilot study

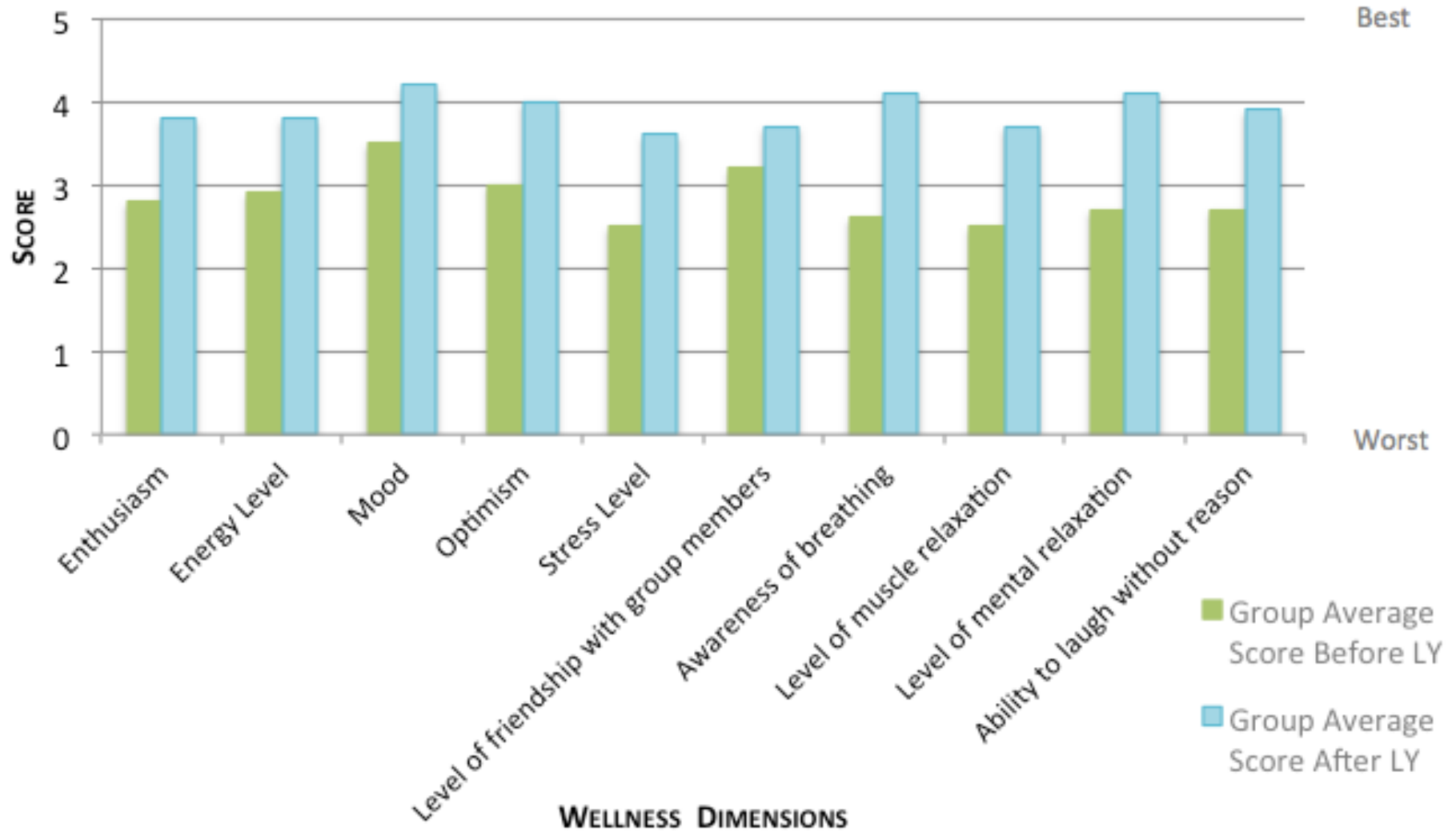
**Melissa K. Weinberg, PhD**  
**Thomas G. Hammond,**  
**Robert A. Cummins**

School of Psychology, Faculty of Health, Deakin University, Australia

## Abstract

*Laughter has been associated with a number of physiological and psychological benefits. Laughter yoga (LY) is a contemporary technique that encourages participants to mimic the act of laughing, with the goal of achieving positive psychological outcomes. This paper describes an exploratory pilot study to evaluate the effect of a single LY class on the psychological well-being of people who attended such sessions voluntarily. Forty-four participants (72.7% female, Mean age = 58.86, SD = 14.12) were recruited from LY clubs around Melbourne, Australia, and completed measures of well-being were taken before and after the LY class. Following the LY session, significant improvements in positive emotions and reductions in the severity of symptoms of anxiety and stress were reported. Importantly, the change in well-being was greatest for participants who were experiencing lower well-being prior to the class. These findings suggest that LY shows promise as an effective intervention to temporarily increase well-being.*

## CHANGE FOLLOWING LAUGHTER YOGA SESSION (N=10)



“Laughter Yoga combines laughter with yoga breathing exercises. It is a perfect way to laugh and get exercise at the same time. It approaches laughter as a body exercise so it's easy to laugh even if you're depressed or in a bad mood. I've tried it, and it works.”

- Oprah Winfrey

## Warm up

Clapping stimulates the acupressure points in our hands and increases energy levels. Movement to prepares the body to laugh and chanting using the ho-ho, ha-ha-ha to stimulate belly/diaphragmatic breathing.

## Laughter

Deep Breathing exercises .  
Laughter exercises and childlike playfulness.  
Laughter meditation (intentional laughter interspersed with breathing and silence)

## Cool Down

Guided relaxation meditation (Yoga nidra)  
Yoga Nidra is an ancient technique where the practitioner experiences wakefulness and a deep state of conscious relaxation which rejuvenates the mind, body and soul.

# 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



# 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

# Laughter has similar health benefits to exercise



**Researchers found that 20 minutes of laughter can lower your blood pressure and alter your appetite hormones like exercise would.**





**Fifteen straight minutes of laughter has the same health benefits as 30 mins of sit ups.**

Laughing 100 times is equivalent to 15 minutes of exercise on a stationary bicycle.



# Neuroendocrine Enhancement

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

# 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) -

One minute of anger weakens the immune system for 4 to 5 hours.

One minute of laughter boosts the immune system for 24 hours.



CAN  
LAUGHTER  
KILL YOU?



HA! HA!  
HA!  
HA!  
HA!  
HA!  
HA!  
HA!  
HA!

# Sick Humor Side Effects!

- Dehydration from dry wit
  - Sick jokes make you ill
- Bad taste jokes cause dysgeusia
- Blood loss from cutting humor
- Hostility from offensive humor
  - Fracture from cracking up
- Dyspnea from take your breath away humor
  - Incontinence from uproarious humor

# 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



## ***Conditions Where Humor is Inappropriate***

1. During any acute crisis. (But it can help adjust to the crisis afterwards.)
2. When the patient needs to cry.
3. When the patient needs quiet time.
4. When a patient in an adjacent bed is very sick or dying.
5. When the patient is trying to come to grips with any emotional crisis.
6. When the patient is trying to communicate something important to you.

Nothing is more frustrating than having someone appear to not take seriously something you're trying to communicate, and that is very important to you. This can destroy your rapport.

7. If you have any doubts about the appropriateness of humor in a situation, try another approach (e.g., compassion, concern, and touch).
8. Avoid:
  - a) Ethnic jokes, sarcasm, and mockery.
  - b) Humor at the expense of any other person. Laugh with, not at.
  - c) Joking about any patient or their condition.

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BEHAVIOR & SOCIETY

# What's So Funny? The Science of Why We Laugh

Psychologists, neuroscientists and philosophers are trying to understand humor

---

JANUARY 17, 2006

www.time.com AOL Keyword: TIME

SPECIAL MIND & BODY ISSUE

TIME



THE  
SCIENCE  
OF  
HAPPINESS

- Why **OPTIMISTS** live longer ■ Is **JOY** in your genes?
  - Does **GOD** want us to be happy?
  - Why we need to **LAUGH**
- PLUS: Dave Chappelle on what's funny

ARE YOU TOO **SEXY** FOR YOUR JOB?

Psychology Today

FOR A  
HEALTHIER  
LIFE

## Humor Secrets

- What Your Humor Style Reveals About You
- Love and the Language Of Jokes

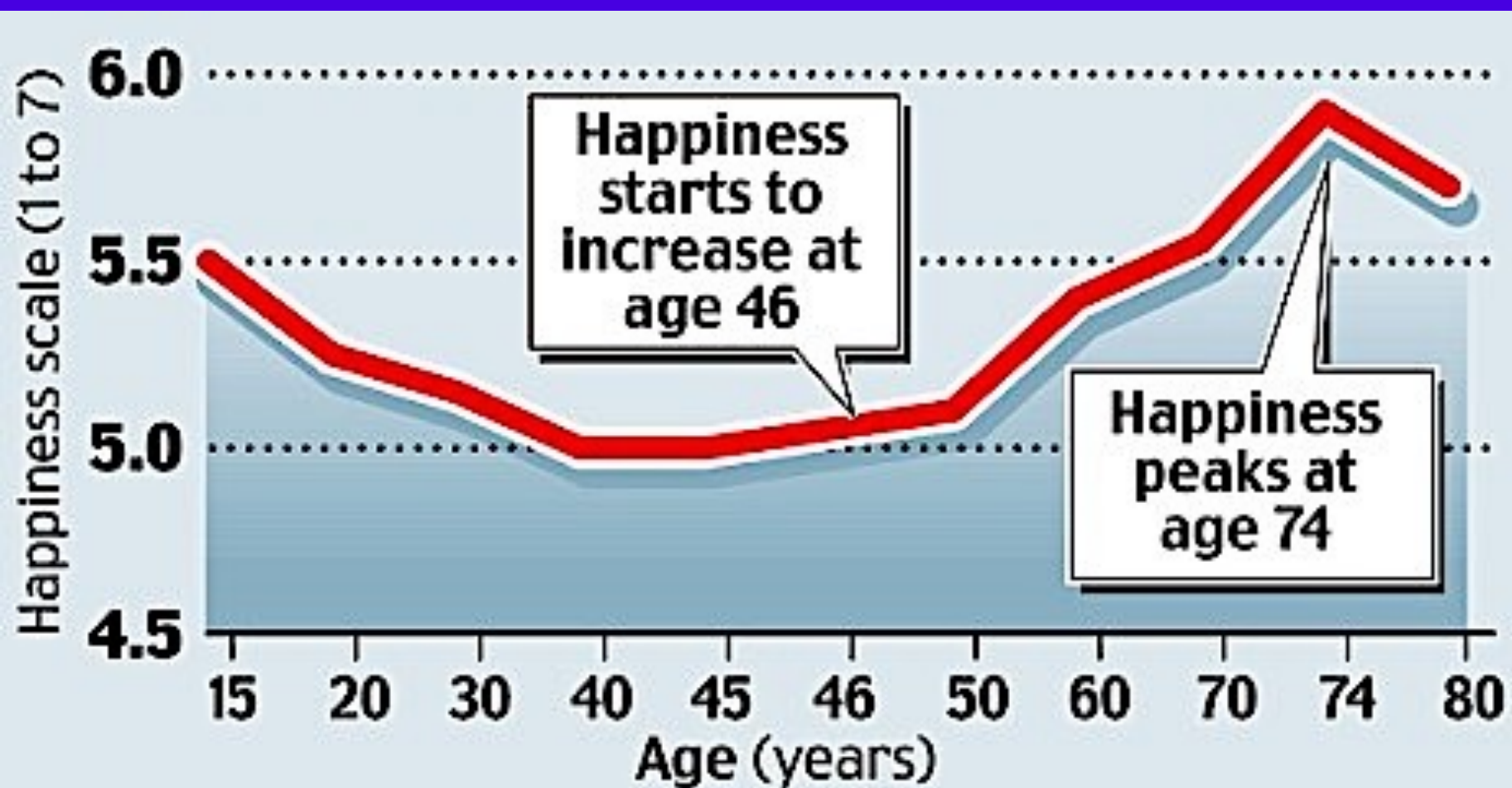
**First  
Love  
Fixation**  
Why We're  
Seduced  
By the Past

**Taking the Hit**  
How to Hear the Blunt  
Truth About Yourself

**Diva Dynasty**  
Fame, Fights &  
Mother-Daughter Drama

**Your Perfect Day**  
Tune In to Your Body Clock





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# Harvard Business Review



JANUARY-FEBRUARY 2012

50 **The Big Idea**  
Runaway Capitalism  
(Beware the Peacock Effect)  
*Christopher Meyer and Julia Kirby*

120 **Managing Yourself**  
The Skills Every  
21st-Century  
Manager Will Need

156 **Life's Work**  
Kareem Abdul-Jabbar

**PLUS** Audacious Ideas 2012

**SPECIAL DOUBLE ISSUE**

## THE VALUE OF HAPPINESS

HOW EMPLOYEE  
WELL-BEING  
DRIVES PROFITS



# Laughter

(*n.*) When a smile has an orgasm.

# 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



- Affiliative – funny jokes, one-liners that amuse while enhancing relationships
- Self-enhancing – usually a coping mechanism to assist with maintaining a positive attitude
- Self-defeating – using one's own weaknesses or faults as the butt of the joke
- Aggressive – sarcasm, put-downs, or other disparagement



# Humour in your head

©NewScientist

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

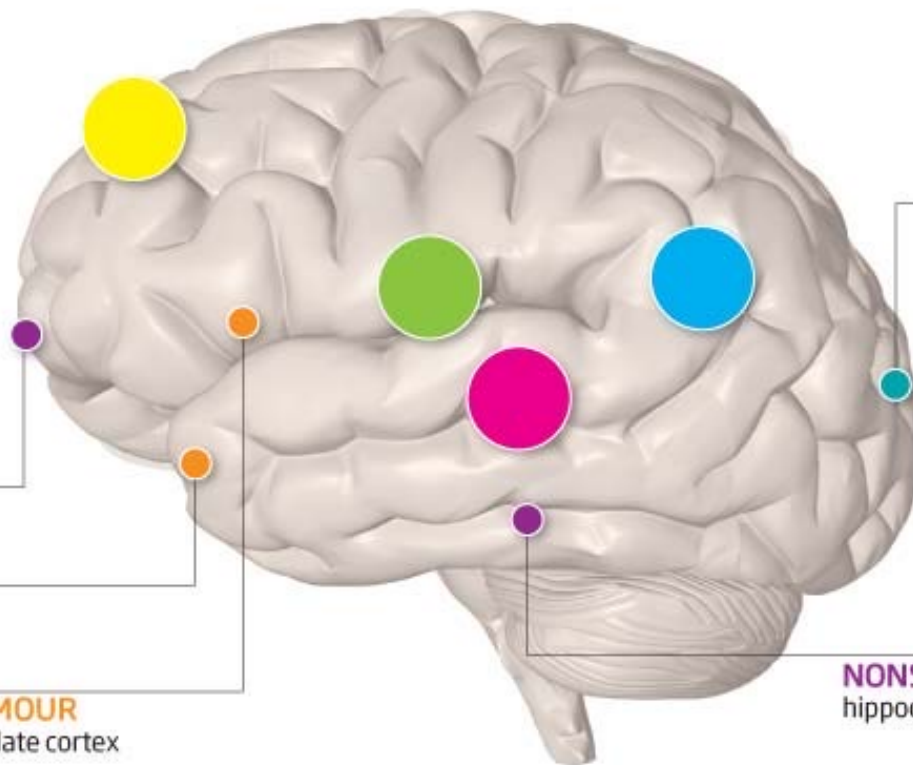
## Primary regions

- **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**  
frontoinsula cortex

**SOCIAL HUMOUR**  
anterior cingulate cortex

**VISUAL PUNS**  
extrastriate cortex

**NONSENSE HUMOUR**  
hippocampus

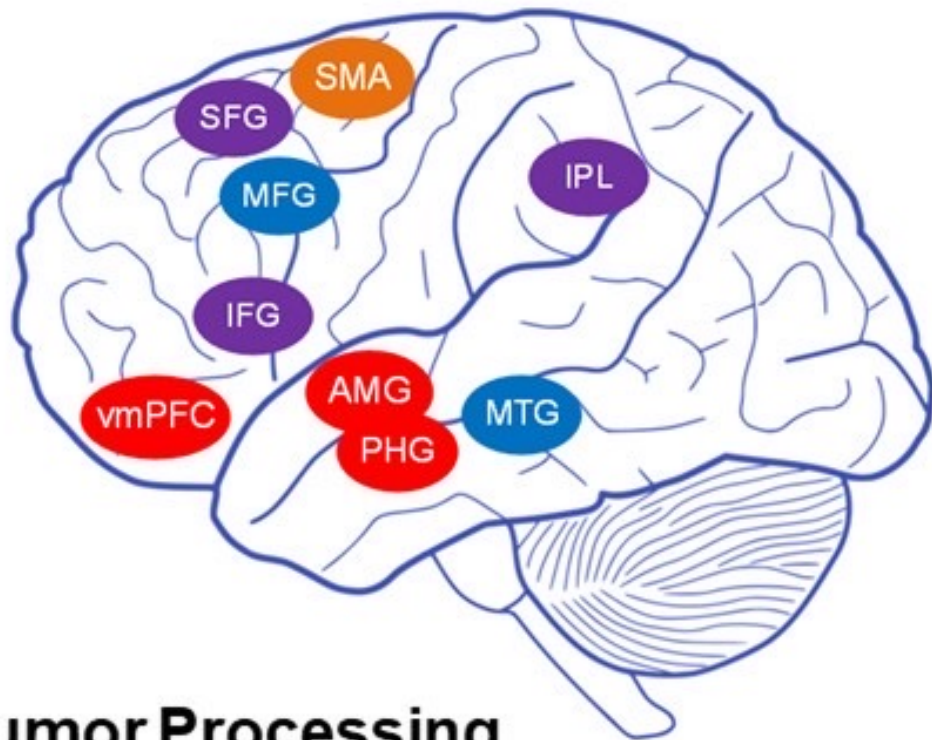
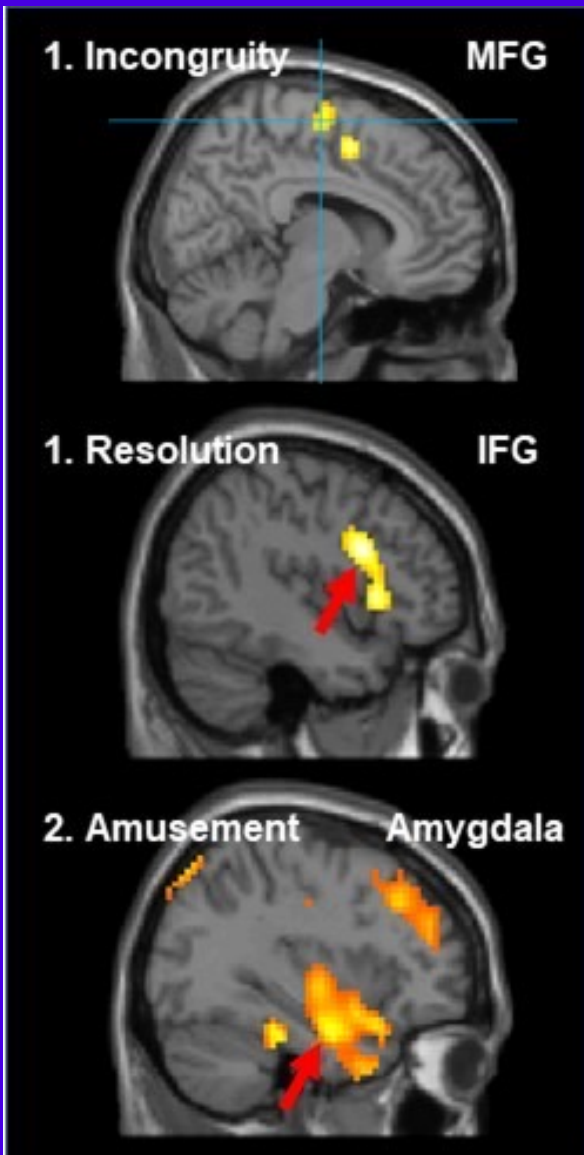
[nature](#) > [scientific reports](#) > [articles](#) > article

Article | [Open Access](#) | [Published: 23 October 2018](#)

# Appreciation of different styles of humor: An fMRI study

[Yu-Chen Chan](#) , [Wei-Chin Hsu](#), [Yi-Jun Liao](#), [Hsueh-Chih Chen](#), [Cheng-Hao Tu](#) & [Ching-Lin Wu](#)

[Scientific Reports](#) **8**, Article number: 15649 (2018) | [Cite this article](#)



## Humor Processing

1. Humor Comprehension

Incongruity



Resolution



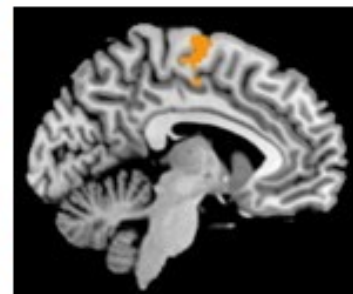
2. Humor Appreciation

Amusement



3. Humor Response

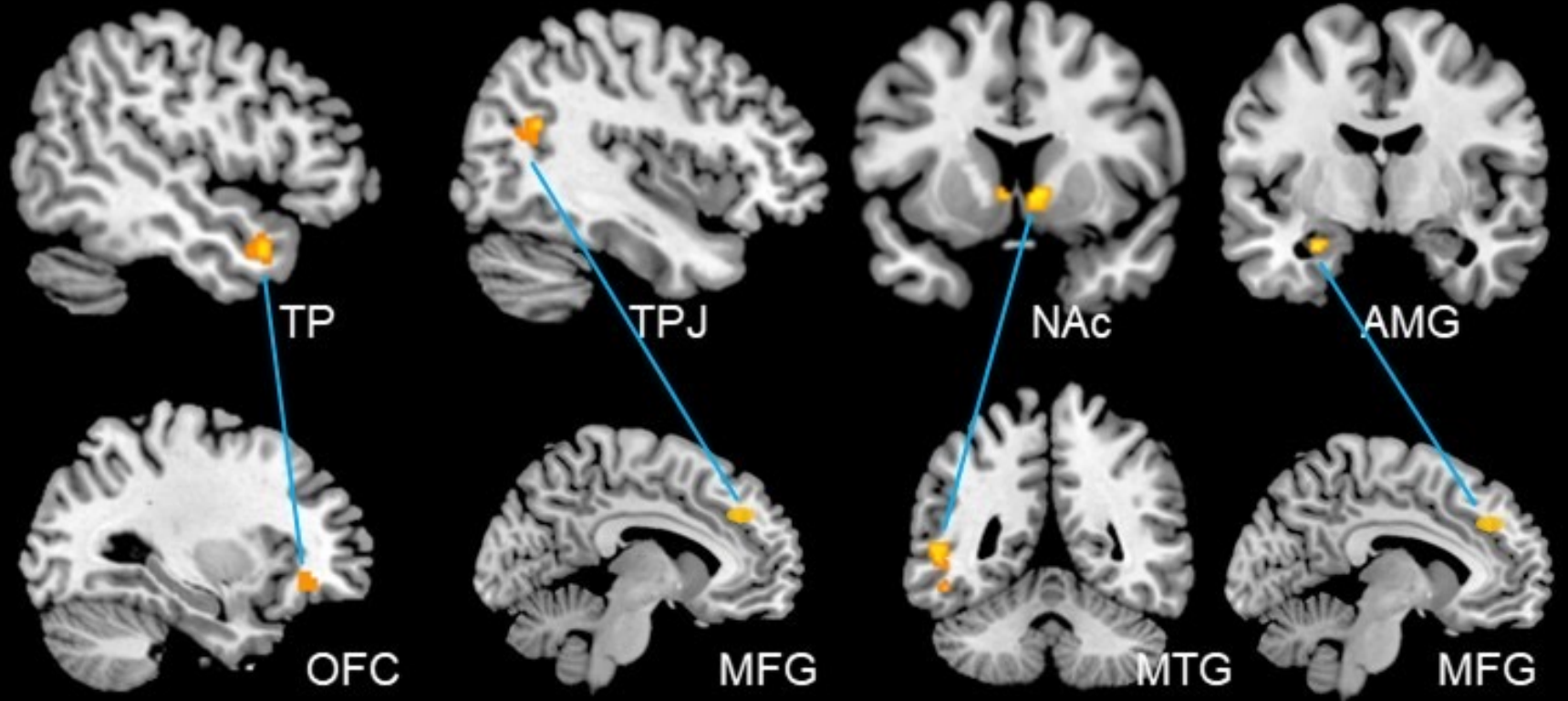
Laughter



3. Laughter: SMA

amygdala (AMG), inferior frontal gyrus (IFG), inferior parietal lobule (IPL), medial frontal gyrus (MFG), middle temporal gyrus (MTG), parahippocampal gyri (PHG), superior frontal gyrus (SFG), supplementary motor area (SMA), ventral medial prefrontal cortex (vmPFC),

# Sense of Humor: Appreciation of Humor Styles that Facilitate Relationships



**Self-directed humor**  
(SD > SE)

**Other-directed humor**  
(AF > AG)

**Benign Humor**  
(AF > SE)

**Detrimental Humor**  
(SD > AG)

self-enhancing humor (SE), affiliative humor (AF), self-defeating humor (SD), aggressive humor (AG), nucleus accumbens (NAc), temporoparietal junction (PJ)-frontal

**“Think about how stupid  
the average person is,  
and then realize that  
half of 'em are stupider  
than that.”**

**–George Carlin**





I hear laughter is the best medicine, so I hope you picked your doctor based on his sense of humor, not his medical abilities.



"I'm the doctor who brings  
the cards. I'm a cardiologist."





I don't mean to brag, but I put together a puzzle in 1 day and the box said 2-4 years.

Everybody laughs the same in every language  
because laughter is a universal connection.


-Yakov Smirnoff





Children laugh over 300 times per day, but adults only 4 to 15 times a day. Why?

Health experts recommend we laugh 10 to 15 minutes per day for ongoing health benefits.

A young child with curly hair, wearing a light blue t-shirt and blue jeans, is laughing joyfully with arms outstretched in a grassy field. The background is a soft-focus green landscape. The image is framed by a solid blue border.

**YOU DON'T STOP LAUGHING BECAUSE YOU GROW OLD.  
YOU GROW OLD BECAUSE YOU STOP LAUGHING.**

# 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).*

# Positive Effects of Laughter:

- **Hormones:** Laughter reduces the level of stress hormones like cortisol and adrenaline.
- **Physical Release:** The “laugh until you cry” syndrome.
- **Internal Workout:** Works the abs. “Laugh until it hurts” syndrome.
- **Distraction:** Laughter brings the focus away from anger, guilt, stress and negative emotions.\*
- **Perspective:** We view stressful events as either a “threat” or a “challenge.” Humor can help us view these events as “challenges,” making them less threatening and more positive. See *cognitive reframing*.\*
- **Social Benefits:** Laughter connects people, just like smiling or kindness. Laughter is also contagious.

## Physiological outcomes

- Exercises and relaxes muscles
- Improves respiration
- Stimulates circulation
- Decreases stress hormones
- Increases the immune system's defenses
- Elevates pain threshold and tolerance
- Enhances mental functioning

## Psychological outcomes

- Reduces stress, anxiety, and tension, and counteracts symptoms of depression
- Elevates mood, self-esteem, hope, energy, and vigor
- Enhances memory and creative thinking
- Improves interpersonal interaction
- Increases friendliness and helpfulness
- Promotes psychological well-being
- Improves quality of life and patient care
- Intensifies mirth and is contagious

# 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

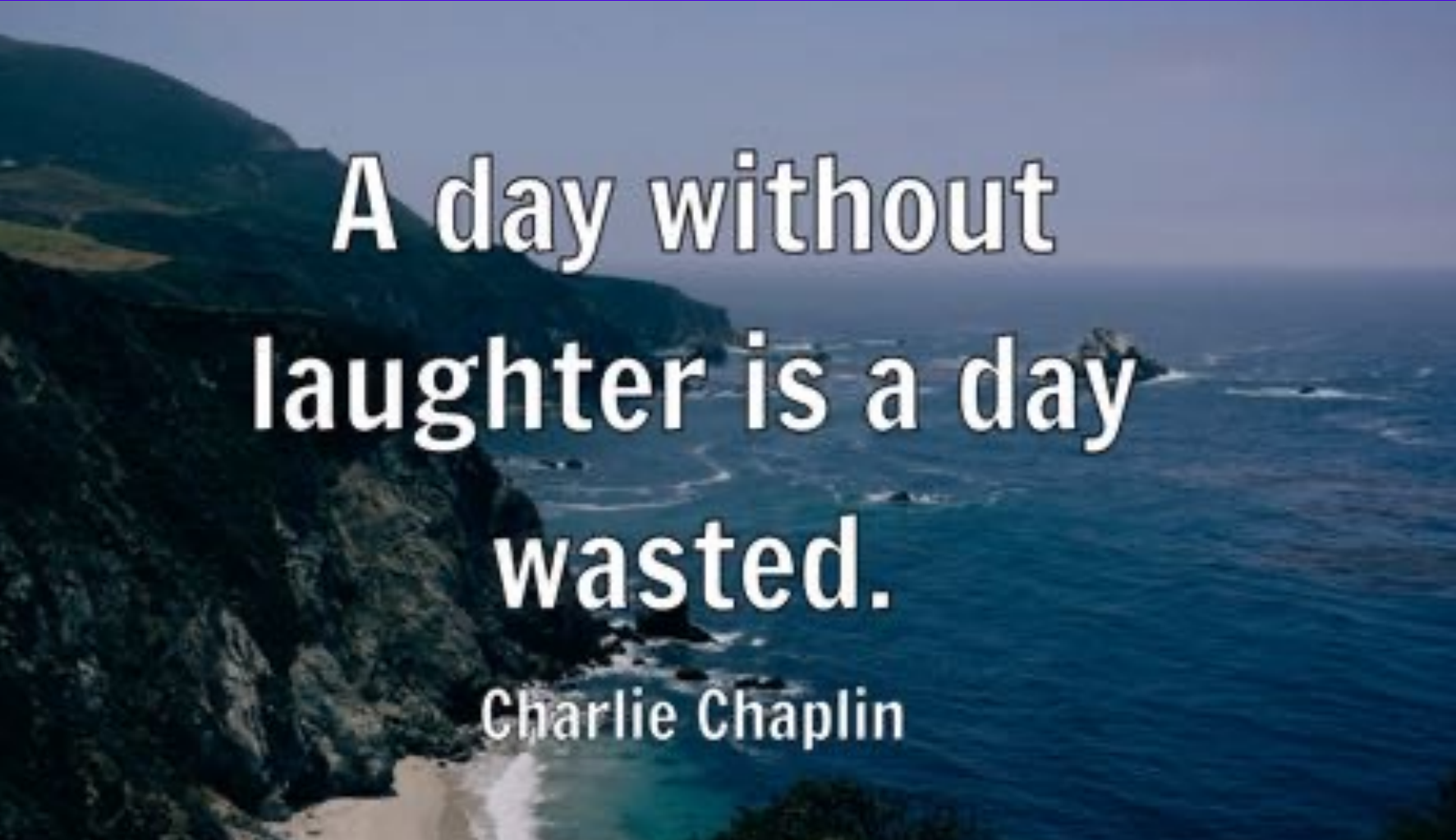
Optimism Improved

Relationships Strengthened

Teamwork Enhanced

Group Bonding Promoted

Conflict Defused



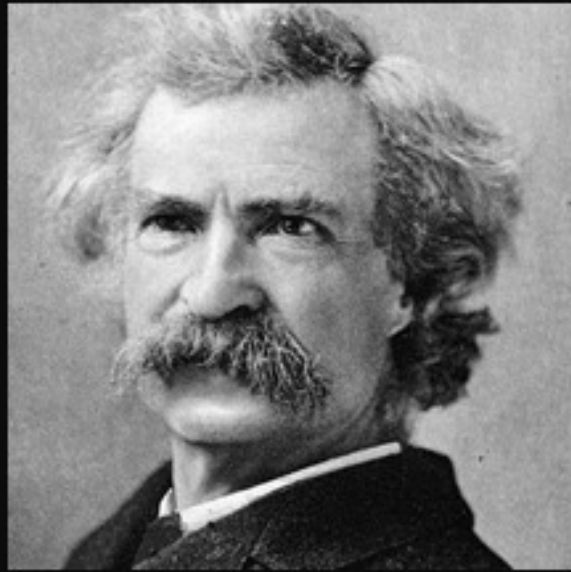
**A day without  
laughter is a day  
wasted.**

**Charlie Chaplin**

*Determine to live life  
with flair and  
laughter.*

*Maya Angelou*



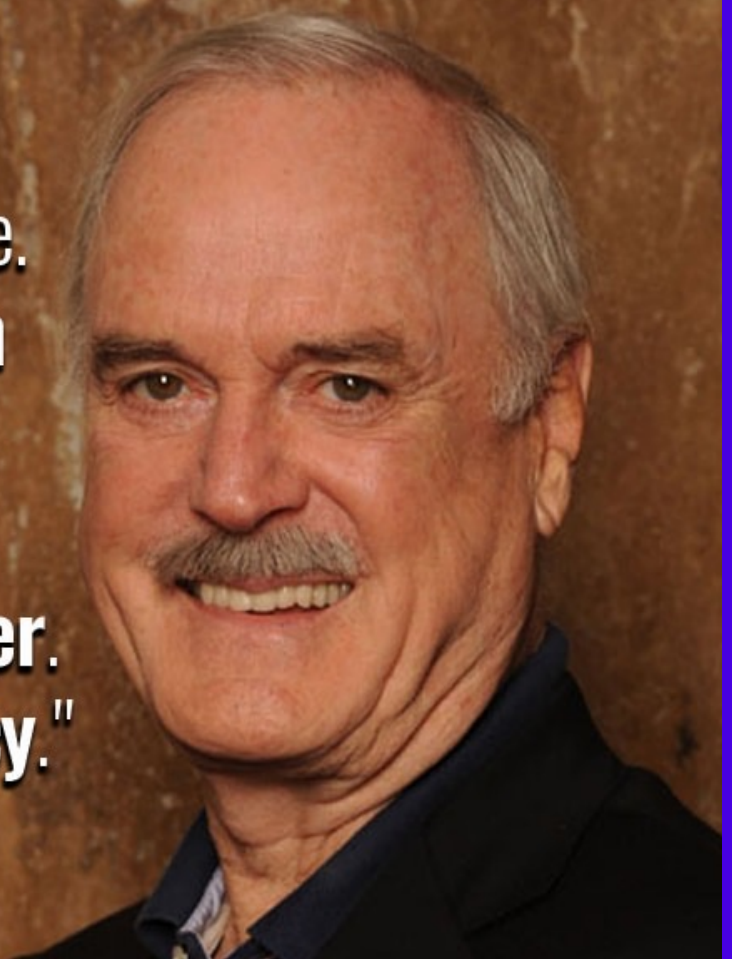


Against the assault of laughter  
nothing can stand.

~ Mark Twain

**"Laughter** connects you with people.  
It's **almost impossible** to maintain  
any kind of **distance**  
or any sense of **social hierarchy**  
when you're just howling with **laughter**.  
**Laughter is a force for democracy."**

*- John Cleese*



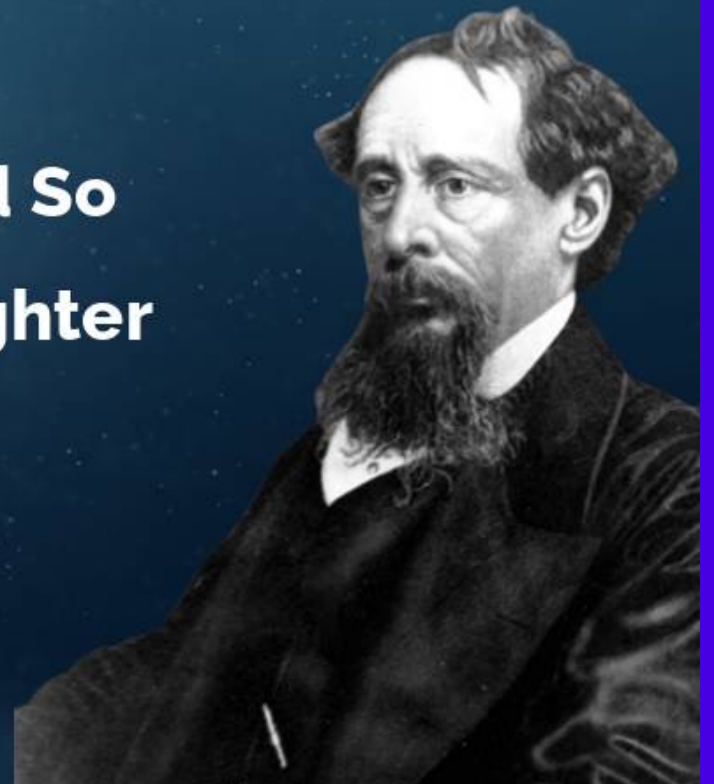


Laughter is the best medicine in the  
world.

— *Milton Berle* —

**There Is Nothing In The World So  
Irresistibly Contagious As Laughter  
And Good Humor.**

**~ CHARLES DICKENS ~**





Laughter is the language of the soul.

--PABLO NERUDA





What soap is to the body, laughter is to the soul. Laughter is the shortest distance between two people.

— *Victor Borge* —

**"I love people who  
make me laugh.  
I honestly think it's  
the thing I like most,  
to laugh. It cures a  
multitude of ills.  
It's probably the  
most important  
thing in a  
person."**

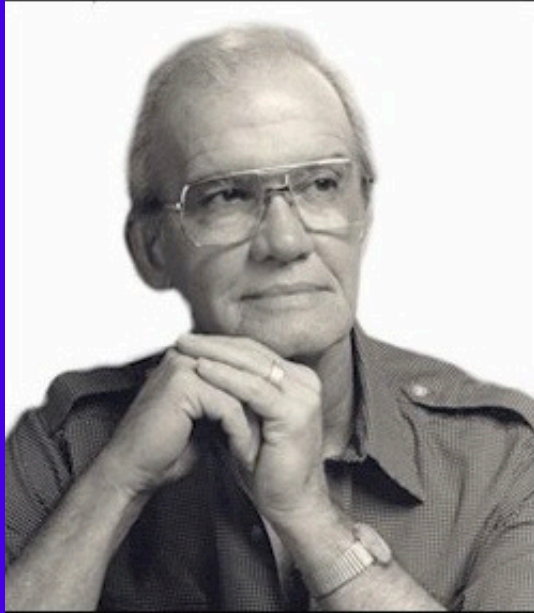
**-Audrey Hepburn**





I have seen what a laugh can do. It can transform almost unbearable tears into something bearable, even hopeful.

— *Bob Hope* —



Laugh at yourself and at life. Not in the spirit of derision or whining self-pity, but as a remedy, a miracle drug, that will ease your pain, cure your depression, and help you to put in perspective that seemingly terrible defeat and worry with laughter at your predicaments, thus freeing your mind to think clearly toward the solution that is certain to come.  
Never take yourself too seriously.

(Og Mandino)

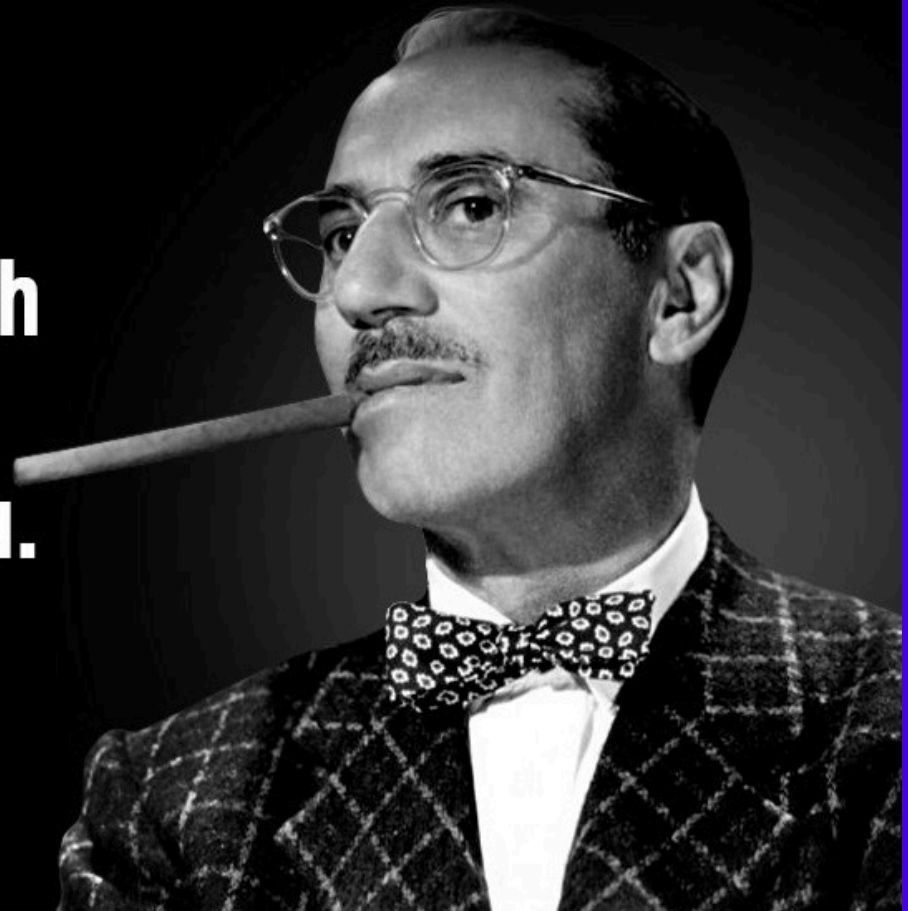


Laughter is a holy thing. It is as sacred as music and silence and solemnity, maybe more sacred. Laughter is like a prayer, like a bridge over which creatures tiptoe to meet each other. Laughter is like mercy; it heals. When you can laugh at yourself, you are free.

— *Ted Loder* —

If you find it **hard to laugh**  
**at yourself**, I would  
be happy to **do it for you.**

– *Groucho Marx*



Laughter is the tonic,  
the relief,  
the surcease for pain.

*- Charlie chaplin*

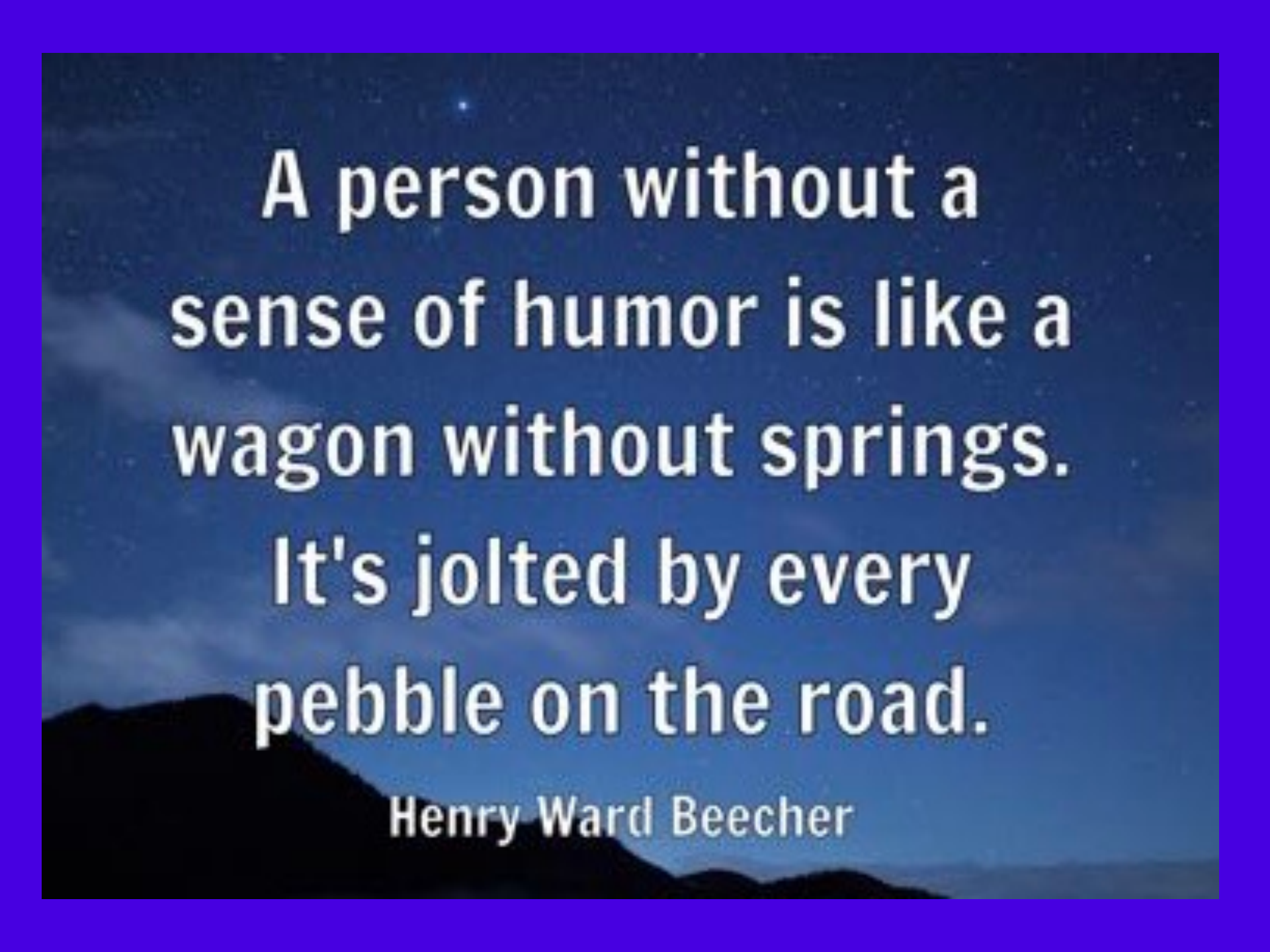




The art of medicine consists in  
amusing the patient while  
nature cures the disease.

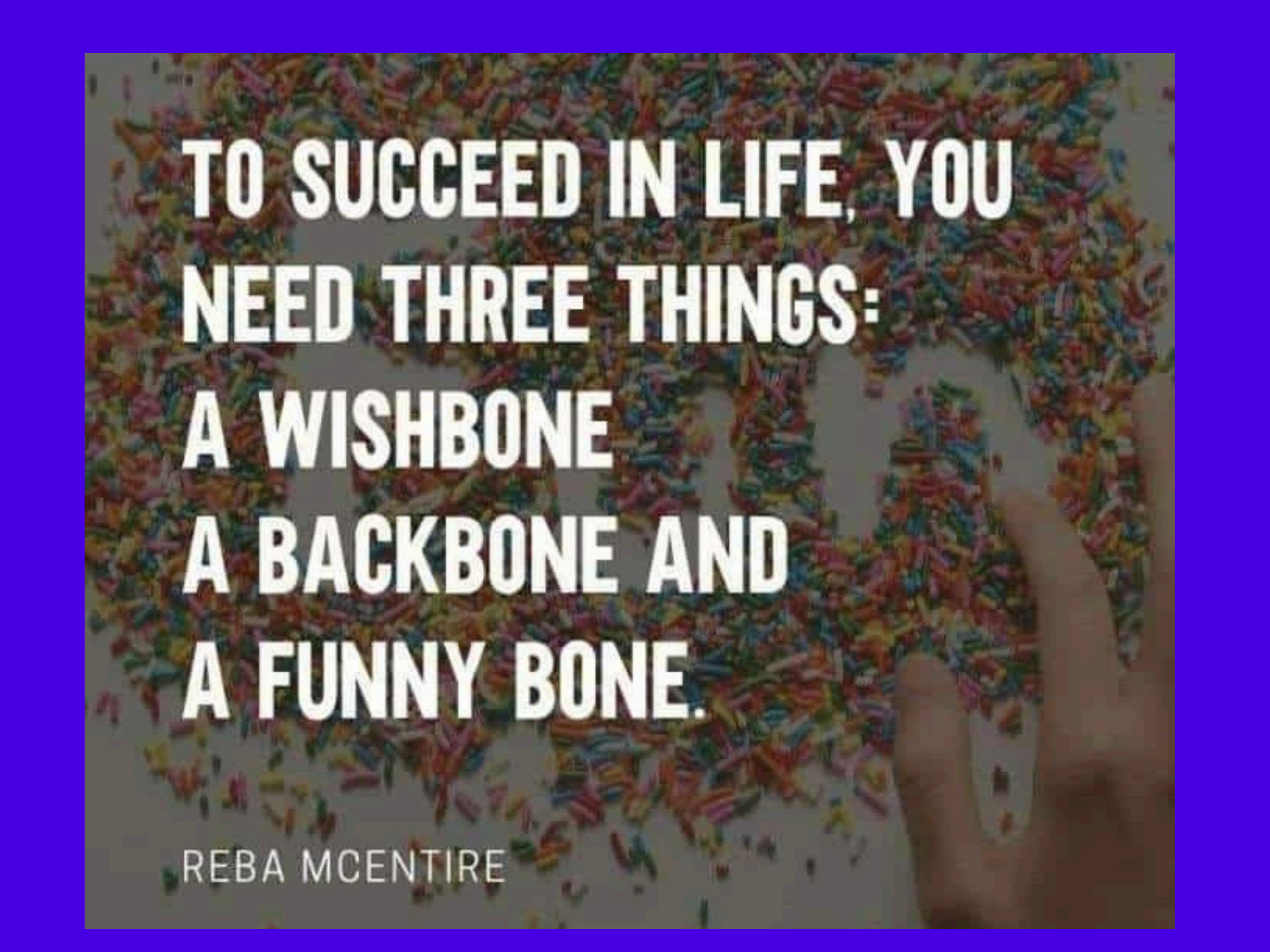
~ Voltaire





**A person without a  
sense of humor is like a  
wagon without springs.  
It's jolted by every  
pebble on the road.**

**Henry Ward Beecher**

A close-up photograph of a hand holding a large quantity of multi-colored sprinkles. The sprinkles are scattered across the hand and the surface below. The background is a solid blue color. The quote is overlaid in white, bold, sans-serif text.

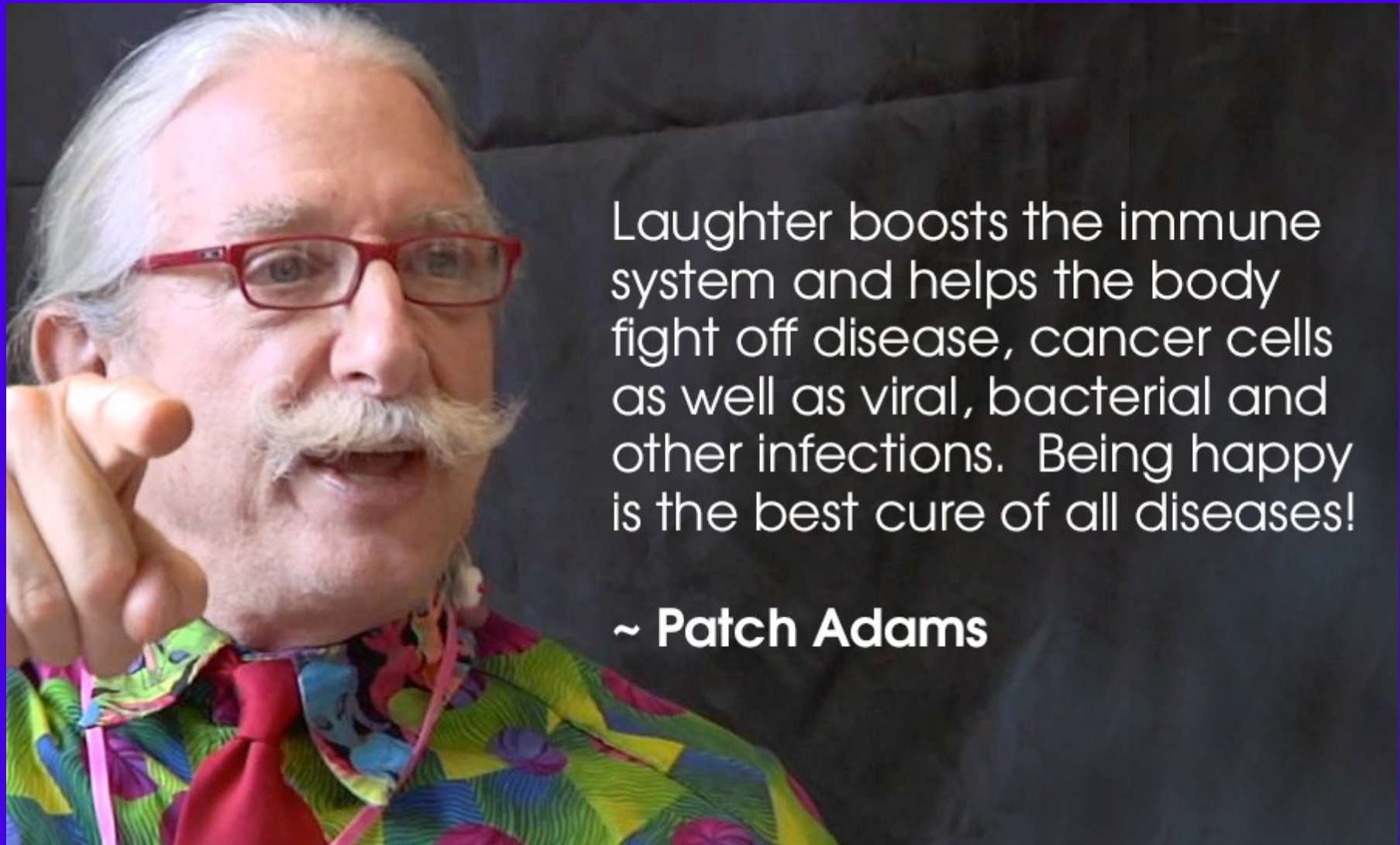
**TO SUCCEED IN LIFE, YOU  
NEED THREE THINGS:  
A WISHBONE  
A BACKBONE AND  
A FUNNY BONE.**

REBA MCENTIRE

The secret to living well and longer is:

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

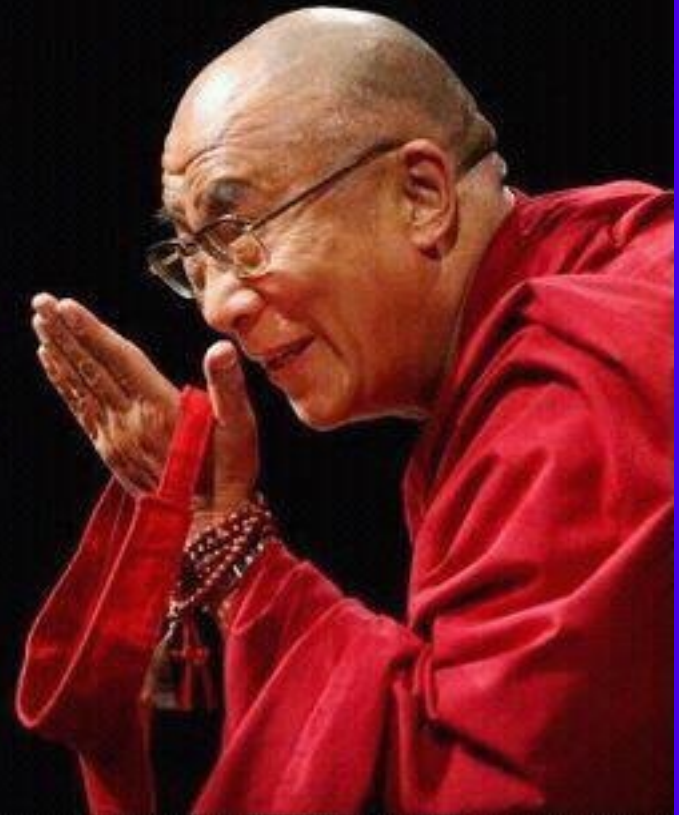
Tibetan Proverb



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**

**The Dalai Lama, when asked what surprised him most about humanity, answered "Man. Because he sacrifices his health in order to make money. Then he sacrifices money to recuperate his health. And then he is so anxious about the future that he does not enjoy the present; the result being that he does not live in the present or the future; he lives as if he is never going to die, and then dies having never really lived."**



**Laughter boosts  
mental health**  
by stimulating both  
hemispheres of the  
brain, encouraging  
clarity and better  
problem solving ability





**Laughter exercises increase social health** by connecting people and creating a positive bond with each other. Excellent for team building.

Laughter exercises  
nurture **spiritual  
health** by aiming to  
develop compassion,  
altruism, joy, and  
fulfillment, leading to  
a better quality of life





**Laughter improves emotional health**  
by shifting our perspective, breaking the  
cycle of negativity, and improving our mood



# LAUGHTER

and its Benefits On the Body



## Laughter:

increases serotonin  
and endorphins  
in the brain



replenishes  
the lungs



relaxes muscles  
and eases tension  
in the body



reduces stress  
hormones in  
the body



protects the heart



increases immune  
system functioning



is the best  
workout

