Maintaining Health: Use of Laughter for Ourselves and our Patients

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Disclosures

- Certified laughter leader from World Laughter Tour™
Objectives

• Review the science of humor and laughter
• Practice session
• Discussion of how we can incorporate laughter into our life and our practice
Disturbing epidemiology

- Suicide rates of physicians
  - Male MD 2x that of US men
  - Women MD 3-4x that of gen population
- Burnout is common
  - Estimates 25-60% affected
- Decreased physician well being
  - Higher rates of depression
  - More use of alcohol
  - Decreased empathy

British survey

- Adults laugh 6 min per day
- Average child laughs 400 x per day
- Adults worry avg of 36 min/day
- 1 in 10 adults feel stressed out >2hrs/d
- 1 in 2 worry to point of affecting health
- 1 in 6 reach for ETOH as stress relief
- 1 in 5 sit in front of the TV
Audience question

• If there was a drug that could lower cardiac disease, improve lung function, reduce stress and have other positive benefits with minimal to no side effects...would you take it?

• Yes
• No
Pioneers of Laughter Therapy and Research

- **Hans Selye**: studied General Adaptation Syndrome (stress syndrome) and body's response to distress. His work forged a new study of biological stress and its effects.

- **Norman Cousins**: wrote "Anatomy of an Illness" about his personal journey of healing and pain relief using humor and alternative therapy for severe ankylosing spondylitis.

- **Prof William F Fry**: "Father of Gelotologie". psychiatrist who examined the physiologic effects of laughter. His work showed that most of the major physiologic systems of the body are stimulated by mirthful laughter, including heart rate, increase endorphins for pain relief, and improved immune function.
Pioneers of Laughter Therapy and Research

- **Dr. Lee Berk**: suggested that humor and laughter can change one's physiology. His studies have confirmed that happiness is good for you.

- **Dr. Hunter (Patch) Adams**: founder of the Gesundheit Institute. Inspired millions by bringing laughter and compassion back into the hospital world.

- **Dr. Madan Kataria**: family physician from India who stated the first laughter club in 1995 using laughter exercises rather than humor. His work has led to thousands of laughter clubs around the world.

- **Dr. Steve Wilson**: founder of World Laughter Tour and creating laughter clubs and training certified laughter leaders in the US and abroad.
Benefits of laughter

- Reduces cortisol (stress reliever)
- Eases muscle tension
- Favorable effect on arterial stiffness
- Increases immune function
- Improves ventilation/oxidative status
- Increases pain tolerance (endorphins)
- Burns calories

It’s Free
Sir William Osler

• “Hilarity and good humour...help enormously both in the study and in the practice of medicine”

• “Bubbling spontaneously from the...child or man, laughter is the music of life”
Humor vs Laughter

- Humor: a personal, subjective, psychological phenomenon of shifting perception. (Webster’s: body fluids)
- Laughter: a universal physical act, often stimulated by humor, but also for other reasons
- Therapeutic laughter: systematic, programmable activity combining laughing exercises and attitudinal healing to achieve general or targeted goals (ie pleasure, pain reduction, socialization)
Optimism vs cynical hostility
Incident CHD and mortality

- Women’s Health Initiative: N=97,000+
- Optimism: life orientation test
- Cynical hostility: Cook Medley questionnaire
- AHR (adjusted hazard ratio) reduced in optimists
  - 16% incident MI
  - 30% CHD related mortality
  - 14% all cause mortality

Cynical hostility associated with higher AHR for all cause and cancer related mortality

  » Tindle et al. Circulation 2009;120:656-662
Laughter and vascular function

- Sugawara et al evaluated endothelial function and central artery compliance after watching comic movies vs documentary
- N-17 healthy adults watched 30 min of comedy
- Measured: brachial blood pressure and carotid artery compliance (with US)
- Result: carotid artery compliance increased after comedy and associated with baseline flow mediated dilation
- Effect lasted up to 24 hours
Effect on renin-angiotensin system

- Nasir et al. Intl J Mol Medicine 2005
- Evaluate effect of laughter on plasma levels of renin, angiotensinogen and prorenin in pts with Type 2 DM not on insulin
- N=18 pts
- Methods: nonrandomized. 30-40 min laughter therapy weekly for 6 months. Subjects estimated their laughter level on scale of 1 (low)-5 (high)
- Measured: plasma renin, angiotensinogen and prorenin at baseline, 3 months and 6 months
Results:
- Baseline renin: 24.6 ± 12 (5x higher than normal)
- 3 months: 8.2 ± 3.4 ng/ml
- 6 months: 7.7 ± 1.7 ng/ml
- Baseline angiotensinogen: 0.19 ± 0.08 ug/ml
- 3 months: 0.47 ± 0.12 ug/ml
- 6 months: 0.42 ± 0.14 ug/ml
- Prorenin levels: no change

Conclusions
- Plasma renin levels were significantly decreased due to laughter therapy. This may have implications for reducing the microvascular complications of diabetes
Modulation of neuroimmune parameters during mirthful laughter

• Berk et al. Altern Ther Health Med 2001
• Obj: determine efficacy of mirthful laughter to modulate neuroimmune parameters in normal subjects.
• Design: 5 separate studies based on multivariate measures
• N= 52 healthy men
• Intervention: viewing 1 hr of humor video.
Berk et al

• Measure: blood draw 10 min before, 30 min into video, 30 min after and 12 hr after intervention
• Outcome measures: natural killer cell activity, plasma Ig, functional phenotypic markers for leukocytes
• Results: increases found in natural killer cell activity, IgG, A and M with several effects lasting 12 hrs
• Conclusion: modulation of neuroimmune parameters following laughter may provide beneficial health effects and wellness
Laughter and pain

• Dunbar et al. 2011 Proc R Soc.
• Series of experiment design to see effect of laughter on pain threshold
• N= 15 F, 20 M
• Used humor video vs non-humor documentary
  - Humor video also shown alone and in group
  - Documentary shown in group
  - Measured pain using frozen vacuum wine cooler sleeve or BP cuff inflation to 260-280 mmHg before and after intervention
  - Subjects asked when they could no longer take the pain
Laughter and Pain

- Results:
  - Laughter increased pain thresholds in all experimental groups with humor video
  - Pain thresholds did not change or were lower with documentary
• “Laughter is the most inexpensive and most effective wonder drug. Laughter is a universal medicine.

» Bertrand Russell, Nobel Prize Winner
Take Home Points

• Laughter has lots of health benefits including stress relief
• Laughter exercise can be used personally or for patient care
• Laughter is contagious, start an epidemic

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