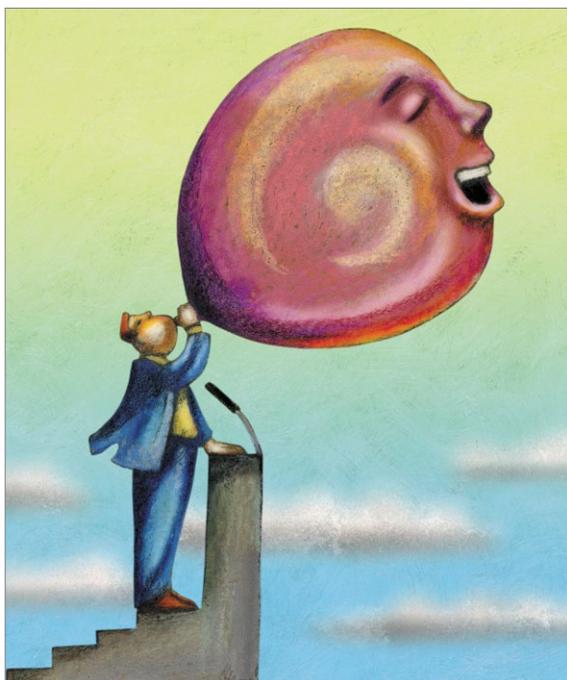


No laughing matter: Laughter is good psychiatric medicine



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Laughter can be helpful for treating mood disorders and other conditions

CASE REPORT

Laughter as therapy

Mrs. A is a 56-year-old married woman who has bipolar disorder. She has survived several suicide attempts. Her family history is positive for bipolar disorder and completed suicides.

After her most recent suicide attempt and a course of electroconvulsive therapy, Mrs. A recovered sufficiently to begin a spiritual journey that led her to practice a technique known as Laughter Yoga (**Box**) and, eventually, to become a Laughter Yoga instructor.

Mrs. A begins Laughter Yoga sessions by talking openly with students about her illness and the beneficial effects that laughter therapy has had on its course: She once had at least two major bipolar episodes a year, she explains, but has been in full remission for several years despite severe psychosocial stressors. In addition to practicing Laughter Yoga, Mrs. A is now maintained on a mood stabilizer that failed in the past to control her mood cycles.

Does laughter have a place in your practice?

It is said that laughter is good medicine—but is it good psychiatric medicine? Where might humor and laughter fit in the psychiatrist's armamentarium? Is laughter physiologically beneficial to psychiatric patients? And are there adverse effects or contraindications to laughter in psychiatry? This article:

- reviews studies that have examined the anatomy, physiology, and psychology of humor and laughter^a
- offers answers to the questions posed above (*Table, page 22*).

^aThe terms are often used interchangeably in the medical literature.

“Gelotology,” from the Greek “gelos,” laughter, is the science of laughter. The three components of humor and laughter are:

- the emotional component, which triggers emotions produced by a humorous situation
- the cognitive component, in which a person “gets it”
- the movement of facial, respiratory, and abdominal muscles.

Furthermore, tension and surprise are needed for laughter.

Theories about humor are varied

Philosophers since Plato have proposed theories of humor; modern theories of humor can be traced to Freud’s work.¹ The psychoanalytic literature on humor focuses on the role of humor in sublimation of feelings of anger and hostility, while releasing affect in an economical way.

Erikson also wrote about the role of humor in a child’s developing superego, which helps resolve the conflict with maternal authority.²

In a comprehensive review of theories of humor, Krichtafovitch explains that cognitive theories address the role of incongruity and contrast in the induction of laughter, whereas social theories explore the roles of aggression, hostility, superiority, triumph, derision, and disparagement in humor and laughter. The effect of humor, Krichtafovitch explains, is to elevate the social status of the joker while the listener’s social status is lifted through his (her) ability to “get it.” Thus, humor plays a meaningful role in creating a bond between speaker and listener.³

The neuroanatomy of laughter

Here is some of what we have learned about mapping the brain to the basis of laughter:

- Consider a 16-year-old girl who underwent neurosurgery for intractable seizures. During surgery, various parts of the brain were stimulated to test for the focus of the seizures. She laughed every time the left frontal superior gyrus was stimulated. According to the report, she apparently laughed first, then made up a story that was funny to her.⁴

Box

What is Laughter Yoga?

Laughter Yoga (www.laughteryoga.org) is a movement begun in India in the 1990s by Madan Kataria, an internist who came to realize the health benefits that laughter had for his patients. Starting with a single, small laughter group in India, Laughter Yoga has grown to 300,000 participants worldwide.

In addition to visiting the movement’s Web site, search “laughter therapy for depression” on the Web for links to on-line resources about laughter yoga.

- Pseudobulbar affect—excessive, usually incongruent laughter, secondary to neurologic disease or traumatic brain injury—is an example of the biologic basis of laughter.

- Many functional brain imaging studies of laughter have been published.⁵ These studies show involvement of various regions of the brain in laughter, including the amygdala, hypothalamus, and temporal and cerebellar regions.

- Sex differences also have been noted in the neuroanatomy of laughter. Females activate the left prefrontal cortex more than males do, suggesting a greater degree of executive processing and language-based decoding. Females also exhibit greater activation of mesolimbic regions, including the nucleus accumbens, implying a greater reward network response.⁶

- Wild et al⁷ reported that separate cortical regions are responsible for the production of facial expressions that are emotionally driven (through laughter) and voluntary.

The physiology of laughter

Humans begin to laugh at approximately 4 months of age. Children laugh, on average, 400 times a day; adults do so an average of only 5 times a day.⁸ In addition:

- Tickling a baby induces her (him) to laugh, which, in turn, makes the parent laugh; a social bond develops during this playful exercise. This response is probably mediated by 5-HT1A receptors, which, when stimulated, induces the release of oxytocin, which facilitates social bonding.⁹

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Laughter

Clinical Point

Researchers found that the higher a person's sense of humor score, the higher his (her) odds ratio of surviving 7 years

Table

Key points: Laughter therapy

Indications

- anxiety
- arthritis
- depression
- heart disease
- pain
- other

Contraindications

- asthma
- chronic obstructive pulmonary disease
- hostility (ie, on the part of the patient)
- recent surgery
- hostility

Dosing and administration

- variable and individualized; timing is of the essence

Caution

- avoid sensitive topics (eg, race, sex, religion, ethnicity, political affiliation)

- Potent stimulation of 5-HT_{1A} receptors through ingestion of 3,4-methylenedioxy-N-methylamphetamine (Ecstasy) leads to uncontrollable laughter and mirth.¹⁰

- Lower species are also known to enjoy humor. Mice emit a chirping sound when tickled, and laughter is contagious among monkeys.¹¹

- Berk et al^{12,13} reported that, when 52 healthy men watched a funny video for 30 minutes, they had significantly higher activity of natural killer (NK) cells and higher levels of IgG, IgA, and IgM compared with men who watched an emotionally neutral documentary.

- Bennett et al¹⁴ showed that, in 33 healthy women, the harder the laughter, the higher the NK activity.

- Sugawara et al¹⁵ showed improved cardiovascular function in 17 healthy persons (age 23 to 42) who watched a 30-minute comedy video, compared with their cardiovascular function when they watched a documentary video of equal length.

- Svebak et al¹⁶ examined the effect of humor as measured by the Sense of Humor Survey on the survival rate of more than 53,000 adults in one county in Norway. They concluded that the higher the sense of humor score, the higher the odds ratio of surviving 7 years, compared with subjects who had a lower sense of humor.

Clinical studies of laughter

The Coping Humor Scale (CHS) and the Humor Response Scale (HRS) are the two most widely used tools to measure a person's innate sense of humor (the CHS) and the ability to respond to a humorous situation (the HRS).¹⁷ Several studies about the effects of laughter on illness are notable:

- Laughter increased NK cell activity, lowered prorenin gene expression, and lowered the postprandial glucose level in 34 patients with diabetes, compared with 16 matched controls.¹⁸⁻²¹

- Clark et al studied the sense of humor of 150 patients with cardiac disease compared with 150 controls. They found that "people with heart disease responded less humorously to everyday life situations." They generally laughed less, even in positive situations, and displayed more anger and hostility.²²

- In his work on the salutatory effect of laughter on the experience of pain, Cousins described how he dealt with his painful arthritis by watching Marx Brothers movies²³:

I made the joyous discovery that 10 minutes of genuine belly laughter had an anesthetic effect and would give me at least two hours of pain-free sleep... When the pain-killing effect of the laughter wore off, we would switch on the motion picture projector again and not infrequently, it would lead to another pain-free interval.

- Hearty laughter leads to pain relief, probably through the release of endorphins. Dunbar et al²⁴ tested this hypothesis in a series of six experimental studies in the laboratory (watching videos) and in a naturalistic context (watching stage performances), using a change in pain threshold as an indirect measure of endorphin release. The results show that the pain threshold is significantly higher after laughter than in the control condition. This pain-tolerance effect is caused by the laughter itself, not simply because of a change in positive affect.

Laughter therapy for depression

Three studies have demonstrated the benefit of laughter therapy in depression:

continued on page 24



Laughter

Clinical Point

Patients who laugh with their physicians are more likely to feel connected with them, follow their advice, and feel more satisfied with their encounter

Related Resources

- Association for Applied and Therapeutic Humor. www.aath.org.
- Mora-Ripoll R. The therapeutic value of laughter in medicine. *Altern Ther Health Med*. 2010;16:56-64.
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- When Ko and Youn²⁵ studied 48 geriatric depressed patients and 61 age-matched controls, they found a significantly lower Geriatric Depression Scale score and a better Pittsburgh Sleep Quality Index score in patients who had been exposed to four weekly laughter groups, compared with persons who had been exposed to a control group.

- Shahidi et al²⁶ randomly assigned 60 community-dwelling female, geriatric, depressed patients to a laughter yoga group, an exercise group, and a control group. Laughter yoga and exercise were equally effective, and both were significantly superior to the control condition. The laughter yoga group scored significantly better than the other two groups on the Life Satisfaction Scale. The researchers concluded that, in addition to improved mood, patients who laugh experience increased life satisfaction.

- Fonzi et al²⁷ summarized data on the neurophysiology of laughter and the effect of laughter on the hypothalamus-pituitary-adrenal axis. They noted that depression reduces the frequency of laughter and, inversely, laughter reduces the severity of depression. Laughter, they reported, also increases the connectivity of patients with people in their life, which further alleviates symptoms of depression.

Other therapeutic uses of laughter

Humor can strengthen the bond of the therapeutic relationship. Patients who laugh with their physicians are more likely to feel connected with them, follow their advice, and feel more satisfied with their encounter. One study found that primary care physicians who gave positive statements, spent more time with patients, and included humor or laughter during their visits lowered their risk of being sued for malpractice.²⁸

Consider also the use of laughter in altering family dynamics in a therapeutic setting: Mr. and Mrs. B attend therapy in my practice to address a difficult situation with their adult children. One of them enables their children socially and financially; the other continually complains about this enabling. When the tension was high and the couple had reached an impasse during a visit, the therapist offered an anecdote from the 2006 motion picture *Failure to Launch* (in which a man lives in the security of his parents' home even though he is in his 30s), that dissipated the hostility they had shown toward each other and toward their children. The couple was then able to proceed to conflict resolution.

Recommendations, caveats

If you are considering incorporating laughter into therapy, keep in mind that:

- you should ensure that the patient does not perceive humor as minimizing the seriousness of their problems
- humor can be a minefield if not used judiciously, or if used at all, around certain sensitive topics, such as race, ethnicity, religion, political affiliation, and sexual orientation
- the timing of humor is particularly essential for it to succeed in the context of a therapeutic relationship
- from a medical perspective, laughter in patients who are recovering from abdomi-

Bottom Line

Humor and laughter are underutilized and underreported in therapy, in part because it is a nascent field of research. Laughter has social and physiologic benefits that can be used in the context of a therapeutic relationship to help patients with a variety of ailments, including depression, anxiety, and pain.

nal or other major surgery might compromise wound healing because of increased intra-abdominal pressure associated with laughing

- patients who have asthma, especially exercise-induced asthma, might be at risk of developing an acute asthmatic attack when they laugh very hard. Lebowitz et al²⁹ demonstrated that laughter can have a negative effect on patients with chronic obstructive pulmonary disease.

It is advisable in some situations to avoid humor in psychotherapy, such as when the patient or family is hostile—because, as noted, they might perceive laughter and humor as an attempt to minimize the seriousness of their discontent.

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