

Science – Findings and References

Mirthful laughter provides a “good workout” which can regulate and optimize the body's vital functions.

Mirthful laughter is the equivalent of “internal jogging”⁴ because it creates physical, mental and emotional benefits similar to moderate exercise which uses muscles in your diaphragm, thorax, abdomen, back and heart; deepens your breathing; and increases your body’s ability to use oxygen—especially helpful for those unable to perform physical exercise. The “high” from a giggling fit is similar to the endorphin rush from exercise³. Laughter enhances mood and cognition, decreases stress hormones, lowers blood pressure, enhances immune activity to help prevent heart disease, diabetes, cancer and other illnesses. And fake belly laughs get the same benefits—our body can’t tell the difference.

Laughter is 3rd and fullest stage of humor. According to Sultanoff:

Wit is thought-oriented: Wit changes how we cognitively process, appreciate, or “think” about life's events and situations. Wit provides a shift in perspective.

Mirth is emotional: Mirth can be a powerful experience for eliminating unhealthy feelings...at least temporarily..one cannot experience mirth and at the same time experience such powerful emotions as irritation, resentment, or upset

Laughter is physiological: Laughter changes how we feel physically, and it affects our biochemistry and physical health as much as moderate exercise.

Play and laughter are vital to feeling good...[providing] endorphinergic surges...For you not to be laughing and playing during some part of every day is unnatural and goes against your fundamental biochemistry. (Pert)

PHYSICAL HEALTH BENEFITS

- **Boosts immunity** – Laughter increases production of infection-fighting antibodies and activation of the T-cells and Natural Killer cells which fight tumors, thus improving resistance to a variety of diseases including cancer.
- **Lowers stress hormones** – Laughter reduces at least four of the neuro-endocrine hormones associated with stress response: epinephrine, cortisol, dopamine, and growth hormone.
- **Decreases pain** – Laughter triggers the release of endorphins^{26-Welsh}, the natural feel-good chemicals which resemble the opiates in their abilities to produce analgesia and an overall sense of well-being.
- **Relaxes muscles & the whole body** – Laughter leaves muscles relaxed for up to 45 minutes afterwards.
- **Prevents heart disease** – Laughter improves the function of blood vessels and increases blood flow, which can help protect against a heart attack and other cardiovascular problems. Dr. Miller, U of MD Medical Center, notes that “mental stress is associated with impairment of the endothelium, the protective barrier lining our blood vessels. This can cause a series of inflammatory reactions that lead to fat and cholesterol build-up in the coronary arteries and ultimately to a heart attack.”

- **Lowers blood pressure** – People who laugh heartily on a regular basis have a lower standing blood pressure than does the average person.
- **Improves respiration & energy** – Belly laughter empties lungs of more air than it takes in, resulting in a cleansing effect which sends more oxygen-enriched blood and nutrients throughout the body and thus can rejuvenate and regenerate our energy. Blood Oxygen level goes up which increases energy, and reduces tension.
- **Reduces blood sugar levels** – increases glucose tolerance in diabetics and nondiabetics alike.^{Marano}
- **Burns calories** – Laughing for one minute is equal to ten minutes on the rowing machine^{fry}, 10 minutes each day can burn the same number of calories as a half-hour workout.
- **Regulates appetite** – level of leptin decreases as the level of ghrelin increases, much like the acute effect of moderate physical exercise³... especially helpful to normalize or enhance appetite for those with wasting syndrome.
- **Modifies gene expression** - 23 genes showed significantly different expression changes after listening to a comic story compared to the lecture.^{Hayashi}
- **Improves healing** - An atmosphere of humor results in better patient cure, less anesthesia time, less operating time, and shorter hospital stays.^{Whipple}
- **Longevity** - Out of 54,000 adults studied – those who evidence a great sense of humor outlived those who don't find life funny.^{Robertshaw}

MENTAL & EMOTIONAL HEALTH BENEFITS:

Incongruity, absurdity and/or exaggeration create a shift in how we see things.. Robertshaw defines humor as the cognitive perception of playful incongruity. Paul McGhee believes that the perception of an incongruous relationship as the basic foundation for all humor experiences. Wallace Gray writes that “Essentially an incongruous event is one which involves a contradiction: ideas of apparently unrelated and moreover in conflict with one another are placed together [in ways that] imply or state a connection between them. When the nature of the connection is not immediately comprehensible, we call the situation absurd.” Boris Sidis believes that “The comic effect is a process of deviation...from the original meaning and...the shock given by the contrast...awaken the sense of the ludicrous.” Sultanoff writes that “It is the discrepancy and even trickery of the alterative path (the punch line) that we experience as humorous. Such discrepancy and trickery teaches us to seek alternative explanations for events, which is one process of healthy thinking and creative problem solving. Alternative thinking processes provided by wit provide perspective, and can reduce negative thinking common during depression, anxiety, and anger.”

- **Shifts perspective** – Laughter from the incongruity creates psychological distance, allowing greater objectivity and insight, changing your emotional response when negative things happen, making the situation seem less formidable, and helping one avoid feeling overwhelmed.⁷⁹⁸. Because of this shift in perspective one can^{Smith}:
 - ▶ **Be more spontaneous.** Humor gets you out of your head and away from your troubles.
 - ▶ **Let go of defensiveness.** Laughter helps you forget judgments, criticisms, and doubts.
 - ▶ **Release inhibitions.** Your fear of holding back and holding on are set aside.
 - ▶ **Express your true feelings.** Deeply felt emotions are allowed to rise to the surface.

- **Dissolves distressing emotions (anger, anxiety, fear)** – One can't feel anxious, angry, or sad while laughing: "You cannot experience emotional distress and emotional uplift at the same time," says Dr. Steven Sultanoff. "Anger and laughter are mutually exclusive and you have the power to choose either" notes Dr. Wayne Dyer. Dissipating these distressing emotions also:
 - ▶ **Relieves stress** – because of both the reduction in stress hormones and the relief from negative emotions.
 - ▶ **Improves mood & adds joy and zest** – because of both the release of endorphins as well as the dissipation of distressing emotions.
- **Relaxes and recharges** – Laughter increases in blood oxygen which regenerates energy, enabling one to stay focused and accomplish more.
- **Stimulates brain function** – Laughter stimulates both sides of the brain to enhance learning. It eases muscle tension and psychological stress, which keeps the brain alert and allows people to retain more information.
- **Enhances resilience** – "Humor helps provide the emotional resilience needed to meet the challenges presented by steadily increasing stress in our personal and work lives. It is a powerful tool for coping with any form of life stress, and a means of sustaining a positive, optimistic attitude toward life." (P. McGhee) "One of the main causes of suffering and stress is a sense of helplessness, powerlessness, or lack of control. But a sense of humor can put one back in control." (Gallozzi). "...the most dramatic health benefits of humor are not in laughter, but in the cognitive and emotional management that humorous experiences provide. The experience of humor relieves emotional distress and assists in changing negative thinking patterns." (Sultanoff)

SOCIAL BENEFITS:

"Humor is a social phenomenon and serves an important purpose in interaction. That is, humor can be viewed as interpersonal emotion management, whose purpose is to manage the emotions of others as well as of the self... humor as emotion management is an expert cultural performance; which strengthens or restores the feeling norms of the situation and creates amusement in the self and others; generating positive sentiments among members of an interacting group by bonding them and/or reducing an external threat; often at the expense of some excluded person(s), event(s), or object(s)." (Linda Francis in Symbolic Interaction)

- **Strengthens relationships** - by triggering positive feelings and fostering emotional connection, a positive bond is created. This bond acts as a strong buffer against stress, disagreements, and disappointment.
- **Attracts and connect others to us**, helps avoid loneliness
- **Laughter is infectious**. People tend to laugh more when in groups and it can make others smile and feel happier.
- **Enhances teamwork**
- **Helps defuse conflict**
- **Promotes group bonding** - Laughter has no foreign accent, writes Paul Lowney, author and humorist, the sound of laughter is so common and familiar that it can be recognized if played backwards on tape. Because laughter sounds the same across cultures, some theorize that laughter helped bond our ancestors together.

General presentation is adapted and modified from Whipple, C. and Smith, M., see References below.

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