

Laughter prescription

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

It has been more than 30 years since Norman Cousins published an article in the *New England Journal of Medicine*¹ extolling the potential medicinal benefits of laughter and humour. Yet the study of laughter still occupies a rather modest place in scientific inquiry.² It was not until 1995 that laughter as an exercise, or *laughter yoga*, emerged systematically through laughter clubs. The popularity of such laughter programs has grown markedly during the past decade. With increasing recognition, one might expect that there would be growing application of laughter and humour for their complementary and alternative medical benefits. (It should be noted that laughter is an adjunct to and not a replacement for accepted therapies.) They are easy to prescribe and there are no substantial concerns with respect to dose, side effects, or allergies. It seems, however, that the medical community has been reluctant to embrace and support laughter for health.

History and importance of the role of humour in medicine

Humour researchers³⁻⁸ have reported shortcomings of studies on the physiologic effects of laughter. For example, "Taken together, the empirical studies reviewed ... provide little evidence for unique positive effects of humor and laughter on health-related variables."⁴ Other commentators have cautioned practitioners about advocating the benefits of laughter, fashioning themselves as self-styled laughter police. "For practitioners to implement credible programs and effectively teach self-management techniques, further empirical research on the physical, psychosocial, deobafide [sic], and placebo effects of humor and laughter needs to be conducted."⁹ Furthermore, Bennett¹⁰ argued that although humour and laughter have been the focus of attention in the popular media and medical literature, and despite statements about the health benefits of humour, current research was insufficient to validate such claims. He identified support for the role of humour and laughter in other areas, including patient-physician communication, psychological aspects of patient care, medical education, and reducing stress among medical professionals. It is also important to note that while humour and laughter are often connected, there are some important distinctions. For example, laughter yoga

produces laughter and the concomitant physiologic benefits without the use of humour; humour without laughter might not produce those benefits and potentially could have adverse effects on the therapeutic relationship.

When considering new pharmacologic interventions or invasive procedures, it is quite appropriate to place the onus of proof of efficacy on the creator of the protocol. This mind-set is driven by appropriate concerns for false-positive errors. Given the side effects and inherent risks associated with pharmaceuticals, one exercises caution to be clear that the intended effect is achieved beyond reasonably considered chance factors. Thus recommendations suggest *P* values be set conservatively and techniques employed to avoid a "false discovery rate."¹¹

Similar thinking seems to have been applied to the consideration of laughter's potential medicinal effects. Although proponents of laughter and humour can be traced back to the Bible ("A merry heart doeth good like a medicine, but a broken spirit drieth the bones" [Proverbs 17:22]), and a variety of medical benefits of laughter have been supported through research, the scales seem to remain tipped markedly in the direction of caution.

The most positive claim that researchers seem willing to make is that "current research indicates that using humor is well accepted by the public and is frequently used as a coping mechanism. However, the scientific evidence of the benefits of using humor on various health related outcomes still leaves many questions unanswered."¹²

Biology of laughter and humour

There are, however, several good reasons to conclude that laughter is effective as an intervention. Although the evidence (detailed below) demonstrating laughter's benefits could be stronger, virtually all studies of laughter and health indicate positive results. Similarly, there are almost no negative side effects or undesirable ramifications associated with laughter as an intervention. This is a case in which the appropriate logic might be more akin to the legal perspective of "innocent until proven guilty."

Yet, given the prevailing orientation toward laughter as an intervention, an exhaustive review of the medical literature to assess demonstrated benefits of laughter

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was completed. Several databases were searched for all occurrences of *laughter*, and reviews of laughter and humour^{2,4,13,14} were examined. The intent was to find studies related to benefits of laughter and laughter effects. Although the literature contains “an abundance of non-evidence-based opinion”¹⁴ exploring how laughter and humour should or should not be applied in medical settings, there is also a substantial body of well-researched information demonstrating many benefits and potential benefits of laughter and humour. Future studies might enhance the literature by considering that laughter is highly social and examining laughter in social settings. Furthermore, careful descriptive work linking physiologic systems with types, kinds, and contexts of laughter will be valuable.²

Morse’s conclusion about laughter and humour in the dental setting summarized the literature to date: “Laughter and humor are not beneficial for everyone, but since there are no negative side effects, they should be used ... to help reduce stress and pain and to improve healing.”¹⁵ Findings range from suggesting that, in addition to a stress-relief effect, laughter can bring about feelings of being uplifted or fulfilled¹⁶ to showing that the act of laughter can lead to immediate increases in heart rate, respiratory rate, respiratory depth, and oxygen consumption.¹⁷ These increases are then followed by a period of muscle relaxation, with a corresponding decrease in heart rate, respiratory rate, and blood pressure.

Overall, the arguments against using laughter as an intervention appear to be both unduly cautious and based on the desire for more evidence. The arguments in favour of laughter as an intervention are grounded in the virtually universal positive results associated with existing studies of laughter. Although scholars and practitioners recognize the value of further study, more replication, and identification of specifics, the call for more application of laughter as an intervention seems warranted. Perhaps it is time to usher in a new era in which we reverse our concerns about errors.

It might be time to start giving more credence to positive views about laughter, such as that laughter might reduce stress and improve natural killer cell activity. As low natural killer cell activity is linked to decreased disease resistance and increased morbidity in those with cancer or HIV disease, laughter might be a useful cognitive-behavioural intervention.¹⁸

The many voices of cancer survivors and of those who have employed laughter in their recoveries supply further promising support. One such person, Scott Burton, said, “The other reactions; anger, depression, suppression, denial, took a little piece of me with them. Each made me feel just a little less human. Yet laughter made me more open to ideas, more inviting to others, and even a little stronger inside. It proved to me that, even as my body was devastated and my spirit challenged, I was still a vital human.”¹⁹ Perhaps medical prescription of

laughter and humour can illuminate what cancer patients already know; studies have shown that 50% of cancer patients used humour²⁰ and 21% of a group of breast cancer patients used humour or laughter therapy.²¹

Clinical evidence

As Rosner²² reported, randomized controlled clinical trials have not been conducted validating the therapeutic efficacy of laughter. Benefits, however, have been reported in geriatrics,²³ oncology,²⁴⁻²⁶ critical care,²⁷ psychiatry,^{28,29} rehabilitation,³⁰ rheumatology,¹ home care,³¹ palliative care,³² hospice care,³³ terminal care,³⁴ and general patient care.³⁵ These and other reports constitute sufficient substantiation to support what is experientially evident—laughter and humour are therapeutic allies in healing.

One area where questions remain is the effect of laughter on the so-called stress hormones: epinephrine, norepinephrine, and cortisol. This is important because it is theorized that if laughter does, in fact, decrease stress hormones, this would be one mechanism that might explain the proposed connection between laughter and immune function, and from there to improved health outcomes.¹⁷

“The relationship between humor and health is a complex one. Groucho Marx once noted that ‘A clown is like an aspirin, only he works twice as fast.’ Patch Adams, the founder of the Gesundheit community, where laughter therapy is a daily medical routine, would no doubt agree. Both men, to do their work, require a community—the former as an audience and the latter to magnify the power of the healing response. After all, half of the fun in laughter, as well as healing, is sharing it.”³⁶ Yet, research might not be ready and able to measure and understand the complexities of how laughter works, particularly when laughter occurs in a group environment, such as laughter clubs. “The prevailing medical paradigm has no capacity to incorporate the concept that a relationship is a physiologic process, as real and as potent as any pill or surgical procedure.”³⁷

Clinical bottom line

As Robert Provine, the noted laughter researcher, commented in the documentary *Laugh Out Loud*, “Until the scientists work out all the details, get in all the laughter that you can!”³⁸ Medical practitioners could begin to help patients get more laughter in their lives. Following the announcement of a study of the benefits of laughter on endothelial function,³⁹ Dr Michael Miller, one of the study’s authors, said he envisioned a time when physicians might recommend that everyone get 15 to 20 minutes of laughter in a day in the same way they recommend at least 30 minutes of exercise. Although physicians’ advice about health-promoting behaviour might have a limited effect in some cases,⁴⁰ it can certainly be a catalyst for change.⁴¹ Specifically, medical practitioners

might acquaint themselves with opportunities such as laughter clubs, which are available for their patients and provide information and endorsements. Let us begin to consider that, along with eating your vegetables and getting enough sleep, laughter is a sound prescription as a wonderful way to enhance health. 🌿

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Competing interests

None declared

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