



# Potential health benefits of simulated laughter: A narrative review of the literature and recommendations for future research

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Available online 25 May 2011

## KEYWORDS

Laughter therapy;  
Laughter intervention;  
Simulated laughter;  
Laughter yoga;  
Laughter research;  
Complementary and alternative medicine;  
Lifestyle medicine;  
Mind–body medicine;  
Health care;  
Patient care

## Summary

**Introduction:** Scientific research has shown that laughter may have both preventive and therapeutic values. Health-related benefits of laughter are mainly reported from spontaneous laughter interventional studies. While the human mind can make a distinction between simulated and spontaneous laughter, the human body cannot. Either way health-related outcomes are deemed to be produced. Simulated laughter is thus a relatively under-researched treatment modality with potential health benefits. The aim of this review was firstly to identify, critically evaluate and summarize the laughter literature; secondly to assess to which extent simulated laughter health-related benefits are currently sustained by empirical evidence; and lastly to provide recommendations and future directions for further research.

**Methods:** A comprehensive laughter literature search was performed. A list of inclusion and exclusion criteria was identified. Thematic analysis was applied to summarize laughter health-related outcomes, relationships, and general robustness.

**Results:** Laughter has shown different physiological and psychological benefits. Adverse effects are very limited and laughter is practically lacking in counter-indications. Despite the limited number of publications, there is some evidence to suggest that simulated laughter has also some effects on certain aspects of health, though further well-designed research is warranted.

**Conclusions:** Simulated laughter techniques can be easily implemented in traditional clinical settings for health and patient care. Their effective use for therapeutic purposes needs to be learned, practiced, and developed as any other medical strategy. Practical guidelines and further research are needed to help health care professionals (and others) implement laughter techniques in their health care portfolio.

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## Contents

Introduction.....	171
Review of the literature.....	171

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Design and methods.....	171
Overall results.....	172
Specific results.....	172
Recommendations for future research and practical guidelines.....	173
Laughter research challenges.....	173
Future directions.....	174
Practical guidelines.....	174
Conclusions.....	174
Conflict of interest.....	174
Acknowledgement.....	174
References.....	174

## Introduction

Laughter is an essential component of human happiness, and its absence is a pathology that is related to maladaptive and other dysfunctional behaviors. Scientific research has shown that laughter may have both preventive and therapeutic values. While several kinds of laughter have been described which are depending on various parameters and different fields of the scientific research,<sup>1–3</sup> five large groups can be summarized from a medical and therapeutic point of view<sup>4</sup>: (1) genuine or spontaneous laughter; (2) simulated laughter; (3) stimulated laughter; (4) induced laughter; and (5) pathological laughter. *Spontaneous laughter*, unrelated to one's own free will, is triggered by different (external) stimuli and positive emotions. It has been reported that spontaneous laughter causes typical contractions of the muscles around the eye socket (Duchenne laughter/smile<sup>5</sup>). *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<sup>6</sup>). *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). Lastly, *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. Pathological laughter is developed with no specific stimulus, is not connected with emotional changes, has no voluntary control of its duration, intensity or facial expression, and sometimes comes with "pathological crying".<sup>7</sup>

Health-related benefits of laughter are mainly reported from spontaneous laughter interventional studies, although the therapeutic value of laughter would concern in particular the first two types, spontaneous laughter and simulated laughter (Table 1), and to a lesser extent stimulated laughter. Modern laughter techniques are based on the following fundamental principle: through several exercises, activities and dynamics, a person or a group of people is transferred to a feeling of lack of inhibitions to achieve the binomial simulated laughter–spontaneous laughter and to experiment its physical, psychological, emotional and spiritual benefits. While the human mind can make a distinction between simulated and spontaneous laughter, the human body cannot,

only the difference in the intensity of the abdominal contractions that are created; therefore, their corresponding health-related benefits are alleged to be alike provided the simulated laughter is done with a minimum of enthusiasm ("motion creates emotion" theory). Simulated laughter is thus a relatively under-researched treatment modality with potential health benefits. Indeed, simulated laughter may lead to a higher "laughter exposure" both by achieving greater intensity and duration at will, or by triggering contagious and turning into spontaneous laughter, which might create greater accompanying psychophysiological changes.

The aim of this review was firstly to identify, critically evaluate and summarize the laughter literature across a number of fields related to health, health care, patient care and medicine; secondly to assess to which extent simulated laughter health-related benefits are currently sustained by empirical evidence; and lastly to elucidate whether certain recommendations for further research are needed so that future directions can be provided.

## Review of the literature

### Design and methods

A narrative review was conducted. This type of review is particularly useful where the aggregation of data is difficult because diverse definitions, many studies or fields, and different outcomes are being analyzed.<sup>8,9</sup> A comprehensive laughter and humor literature search was performed using a variety of electronic databases (Medline, PubMed, Cochrane Library and Google Scholar) and following keywords: laugh; laughing; laughter; laughter yoga; mirth, mirthful; humor; therapy; intervention; mind–body; medicine; health; health care; patient; and patient care. A manual search of additional relevant sources (specific publishers and their journals, and grey literature) was also included. A list of selection criteria was identified: (1) inclusion criteria: simulated laughter intervention main focus of paper; direct or indirect relationship to health-related outcomes; and paper either research or seminal in some form; (2) exclusion criteria: humor research only, non health-related research; textbooks, media-related items; and non-English, non-Spanish publications. All relevant published articles up to 2011 (March) were reviewed. No papers were excluded in respect of quality because of the dearth of literature meeting both the established inclusion or exclusion criteria. Thematic analysis was applied to summarize health-related

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