



PART 2

Read the text below and answer questions 14–26.

THE SCIENCE OF LAUGHTER

A

Laughter is a universal human behaviour, yet its precise function remains debated. Although it is often treated as a reaction to jokes, researchers increasingly describe laughter as a social signal that can appear even when nothing is objectively funny. At the biological level, laughter is a coordinated motor event: facial muscles contract in recognisable patterns, the chest and diaphragm produce rhythmic bursts, and breathing is interrupted so that speech and normal respiration are temporarily replaced by repeated vocalised exhalations. What makes laughter scientifically puzzling is that it sits at the intersection of voluntary and involuntary control. People can sometimes “choose” to laugh, but genuine bouts can also feel as if they happen automatically. This dual nature has encouraged neuroscientists to look for interacting systems rather than a single “laughter reflex”.

B

Brain research suggests that laughter is generated by networks that link emotional circuits with higher-order social judgement. A key contributor is the limbic system, which supports emotion processing, reward, and rapid appraisal of threat or safety. Working alongside it are cortical regions involved in interpreting other minds and managing social behaviour—especially areas within the prefrontal cortex that help evaluate context, monitor status, and predict how others will respond. The interaction matters: the limbic system may supply the affective “push” to laugh, while cortical systems shape when laughter is appropriate, strategic, or affiliative. This helps explain why laughter often erupts in response to a friend’s tone or a group’s mood rather than to the literal content of words. In other words, laughter can be less about humour itself and more about reading intentions and maintaining social alignment.

C

Some of the most influential evidence for laughter’s everyday function came from the psychologist Robert Provine, who avoided laboratory jokes and instead studied laughter in the wild. In his well-known “sidewalk studies”, he and trained observers positioned themselves in public spaces—such as shopping areas and campus walkways—and recorded laughter as it naturally occurred in conversation. Across roughly 1,200 instances, Provine found that people laughed far more in company than when alone, and that laughter frequently followed ordinary remarks rather than formal jokes. He also compared who



laughed: speakers laughed more than listeners, suggesting that laughter can serve as a kind of social punctuation produced by the person holding the floor—softening statements, signalling friendliness, and managing turn-taking. These findings challenged the assumption that laughter is mainly a response to humour, replacing it with a view of laughter as a tool for coordinating interaction in real time.

D

Physiological research asks a different question: what does laughter do to the body? Sustained laughter can elevate heart rate and oxygen intake, creating a mild workout for the diaphragm and cardiovascular system. A prominent claim is that laughter may trigger endorphin release, which is associated with reduced pain perception and a temporary sense of well-being. However, the evidence is not uniformly interpreted. Some experiments report measurable changes consistent with pain buffering, while others argue that effects are small, inconsistent across individuals, or confounded by expectation—raising the possibility of a placebo-like pathway where believing laughter is beneficial shapes how people report discomfort. A similar nuance applies to stress biology. Several studies report that laughter can reduce stress hormones such as cortisol in certain contexts, but outcomes depend on whether laughter is spontaneous, socially shared, or deliberately induced, and on how long after the laughter measurements are taken. As a result, many researchers describe laughter as a potential stress modulator rather than a guaranteed physiological “switch”.

E

Evolutionary accounts draw on primatology to argue that human laughter has deep roots. Great apes, including chimpanzees and gorillas, produce a laughter-like vocalisation during rough-and-tumble play and tickling, commonly called play panting. Acoustic analyses note a key difference from typical human laughter: play panting often contains audible sound on both the exhale and the inhale, whereas human laughter is dominated by sound on the exhale. Even so, the primate signal appears to serve a comparable function—marking interactions as playful and non-threatening, helping play remain cooperative instead of escalating into aggression. Yet laughter’s social role has a darker side. The same signal that strengthens bonds within an in-group can be used to police boundaries with an out-group. Mocking laughter can function as a tool of social exclusion, broadcasting who does not belong, and it can reinforce social hierarchies by humiliating lower-status individuals or rewarding those who conform. In this view, laughter is not simply “positive emotion made audible”, but a behavioural instrument that can unify or divide depending on context.



F

Because laughter can influence mood and social connection, it has been incorporated into structured wellness practices. “Laughter Yoga,” developed by Dr. Madan Kataria in the 1990s, combines voluntary laughter exercises with yogic breathing, based on the claim that the body may respond in similar ways to simulated and genuine laughter. A broader field sometimes called gelotology (the study of laughter) has explored possible benefits for stress, pain, and social well-being. However, clinical evidence remains mixed and methodologically contested. Studies that report improvements in mood or stress for certain groups—such as the elderly or people with chronic illness—are often limited by small sample sizes, short follow-up periods, inconsistent control conditions, or difficulty separating the effects of laughter from the benefits of group support and attention. Many researchers therefore treat structured laughter as a potentially helpful complement rather than a standalone medical treatment. Overall, the science of laughter points less to a single cure and more to the power of safe, positive social interaction—settings where laughter emerges naturally and helps regulate connection.

Questions 14–19

Select the correct answer.

14 Why have neuroscientists looked for interacting systems rather than a single “laughter reflex”?

- A** Laughter always begins as a conscious decision before becoming automatic.
- B** Laughter can involve both voluntary and involuntary control.
- C** Laughter interrupts normal breathing only when people hear jokes.
- D** Different forms of laughter depend entirely on separate muscle groups.

15 According to the passage, laughter is produced by interaction between brain systems linked to

- A** visual processing and motor balance
- B** language comprehension and long-term memory storage
- C** emotion processing and social judgement
- D** temperature regulation and sleep cycles

16 What does Provine’s “sidewalk studies” evidence suggest about laughter in everyday talk?

- A** It often follows ordinary remarks and helps manage social interaction, with speakers laughing more than listeners.
- B** It is mainly a listener’s response to jokes, and speakers rarely laugh while talking.



- C** It occurs too unpredictably in real life to be studied outside controlled experiments.
- D** It is most common when people are alone and can respond without social pressure.

17 Which finding is used to support the idea that laughter has evolutionary roots?

- A** People report feeling happier after laughter regardless of the setting.
- B** Laughter appears in every human culture in identical situations.
- C** Laughter always reduces cortisol immediately after a stressful event.
- D** Our closest biological relatives produce a play vocalisation with features comparable to laughter.

18 What point does the passage make about laughter's social effects?

- A** Laughter mainly dissolves status differences and prevents hierarchies from forming.
- B** It can strengthen in-group bonds but can also enforce exclusion and status differences.
- C** Laughter is best described as a private emotional release rather than a group behaviour.
- D** Laughter is socially useful only when it is completely involuntary.

19 What conclusion does the passage suggest about structured laughter programmes?

- A** They should replace standard medical care for stress-related disorders.
- B** They work only when participants hear jokes and humorous stories.
- C** They may help some people, but the evidence is limited by methodological weaknesses.
- D** They have been shown to produce identical physiological effects in all participants.

Questions 20–26

Complete the notes below. Choose **NO MORE THAN TWO WORDS** from the text for each answer.

Findings and claims about laughter

- Observational research found laughter to be considerably more frequent **20** than in solitary situations, and commonly associated with routine conversation.
- Brain studies link laughter to emotion-related circuits such as the limbic system as well as regions including the **21**
- Certain studies associate laughter with lower concentrations of the stress hormone **22**
- Evidence from primates includes a laughter-like sound called **23**, which occurs during playful interaction.



- Mocking laughter may strengthen rank-based social **24** by humiliating lower-status individuals.
- Laughter Yoga combines deliberate laughter exercises with a yogic form of **25**
- Despite mixed clinical evidence, positive effects have been reported for older adults and people living with **26**

Answer Key

14. B

15. C

16. A

17. D

18. B

19. C

20. in company

21. prefrontal cortex

22. cortisol

23. play panting

24. hierarchies

25. breathing

26. chronic illness