

MIT Press • Open Encyclopedia of Cognitive Science

Hypnosis

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MIT Press

Published on: Jul 24, 2024

DOI: <https://doi.org/10.21428/e2759450.971dd787>

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Hypnosis includes a diverse set of practices in which verbal suggestions are harnessed to modulate cognition and perception. The study of hypnosis and its historical antecedents have helped to draw attention to the influence of suggestions in various contexts and to advance knowledge regarding measurement biases in the study of human behavior. It is well established that individuals vary in their responsiveness to hypnotic suggestions, with the most pronounced effects (e.g., hallucinations) typically only observed in those with high hypnotic suggestibility. Although applications of hypnosis have long been plagued by myths and misconceptions, there is now robust evidence that hypnotic suggestion can be used to reliably modulate a variety of psychological functions with corresponding neurophysiological effects. Hypnosis has also been shown to have clinical efficacy for multiple conditions, but the strongest evidence for its therapeutic value lies in pain reduction. Although the experimental and clinical efficacy of suggestion is well established, there is continuing theoretical debate regarding many features of hypnotic responding.

History

Hypnosis has precedents in a range of medical traditions such as the induction of dissociative states in shamanistic practices and the incorporation of suggestions in therapeutic encounters. The origins of hypnosis are typically attributed to the practice of *animal magnetism* in the late 18th century, when Franz Anton Mesmer proposed that a universal magnetic fluid could be transferred between individuals to promote healing ([Gauld, 1992](#)). In the first double-blind experiment of the modern era, a team led by Benjamin Franklin found that the principal ingredient underlying a positive response was the mere *belief* that one was receiving the magnetic fluid. This experiment helped to usher in recognition that psychological factors beyond a specific treatment or procedure, such as suggestions from practitioners and participants' own expectations, can have profound effects on perception.

The phenomenon of hypnosis emerged in the 19th century in the use of pain reduction (hypoalgesia) suggestions during surgery. In the late 19th century, high hypnotic suggestibility was pathologized ([Janet, 1907](#)), but this view was supplanted in the 20th century with the study of hypnosis in nonmedical contexts. The development of standardized scales for hypnotic suggestibility in the 1950s ([Hilgard, 1965](#)) laid the foundation for experimental hypnosis research by establishing a shared set of metrics. Developments in hypnosis research additionally contributed to the awareness of how contextual cues can bias behavior in psychological experiments, effects sometimes referred to as *demand characteristics* ([Orne, 1962](#)).

Core concepts

The response to hypnosis is driven by the context of the procedure (including expectations and environmental cues), the specific suggestions being given, and the participant's trait suggestibility ([Lynn et al., 2023](#)). The most salient contextual factor is the induction, which comprises a prominent feature of the hypnotic ritual. Inductions vary considerably and are the source of many myths and misconceptions

surrounding hypnosis ([Lynn et al., 2020](#)) but typically include suggestions to promote relaxation and direct attention to the words of the experimenter/clinician. Inductions produce spontaneous changes in different dimensions of awareness (e.g., distortions in time perception) but tend to yield only a modest increase in suggestibility.

The primary driver of hypnotic effects, *verbal suggestions*, can be understood as communications for changes in experience that are framed as extra volitional (e.g., “you will experience no sensation in your arm”). Individuals vary in their hypnotic suggestibility, with approximately 10 to 15% of the population being high responders ([Laurence et al., 2008](#)). Hypnotic suggestibility is a stable, heritable trait that reliably predicts experimental and clinical applications of hypnotic suggestions ([Milling et al., 2021](#)). The responses to suggestions among highly suggestible individuals are typically accompanied by a reduction in the *sense of agency*, “the classic suggestion effect” ([Weitzenhoffer, 1974](#)), and corresponding neurophysiological changes ([Landry et al., 2017](#); [Oakley & Halligan, 2013](#)).

Questions, controversies, and new developments

The view that hypnosis represents a distinct, or unique, *state* of consciousness remains a persistent, albeit controversial, view in the field. State-oriented research often neglects hypnotic suggestibility in favor of phenomenological measures (e.g., hypnotic depth; [Timmermann et al., 2023](#)), which have not been validated to the same extent as classic hypnotic suggestibility scales. This orientation is also at odds with research demonstrating that verbal suggestions can still be highly effective and produce corresponding brain changes without a hypnotic induction ([McGeown et al., 2012](#)), as well as the prominent role of hypnotic suggestibility in shaping hypnotic response patterns ([Jensen et al., 2017](#)). Indeed, a recent trend in the field has been to study suggestion effects and suggestibility without a formal hypnotic induction. This trend speaks to a lingering controversy as to whether the hypnotic ritual itself can be understood as a placebo effect (i.e., a positive response to an inactive procedure such as a sugar pill). According to such a view, any added value of the hypnotic ritual beyond verbal suggestions alone can be attributed to an individual's beliefs and expectations rather than a specific feature of the induction.

A further debate concerns whether hypnotic suggestibility should be viewed solely through the lens of suggestion or whether it reflects a broader capacity for alterations in awareness beyond suggestion effects. A related point of contention is whether variability among highly suggestible individuals reflects the operation of different cognitive functions or dissimilar subgroups of individuals ([Sadler & Woody, 2021](#)). These issues also have bearing on the development of more rigorous hypnotic suggestibility scales ([Acunzo & Terhune, 2021](#)).

Broader connections

A perennial question is how hypnosis fits within the broader domain of suggestion effects: can hypnosis, placebo, nocebo, and other germane phenomena (e.g., eyewitness testimony errors driven by suggestion) be subsumed under a shared umbrella? Links between these phenomena warrant attention as to whether

trait responsiveness to suggestion reflects a latent ability that generalizes across contexts. Suggestion effects indicate that highly suggestible individuals exhibit a unique capacity for top-down regulation of awareness, with implications for pain management and cognitive rehabilitation [see [Bodily Sensations](#)] ([Lindelow et al., 2017](#); [Milling et al., 2021](#)). This observation illustrates the value of harnessing suggestion effects in research on cognitive control ([Landry et al., 2017](#)).

The pronounced effects of some suggestions for altering perception have parallels to other techniques for altering consciousness, including meditation and psychedelics ([Timmermann et al., 2023](#)). This overlap highlights the potential role of suggestion effects in response to meditation and psychedelics but also how higher suggestibility may predispose individuals to be more responsive to these techniques ([Burke & Blumberger, 2021](#)). However, suggestibility may function as a doubled-edged sword. Hypnotic suggestibility is elevated in functional neurological disorder (neurological symptoms that cannot be attributed to conventional neurological pathology) and related conditions ([Wieder et al., 2022](#)). These effects align with models attributing functional symptoms to the overweighting of precise symptom expectations ([Fiorio et al., 2022](#)) and suggest multiple inroads for harnessing insights from hypnosis research in the study of these disorders.

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