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1. Describe hypnosis.
2. Review available evidence concerning applications of hypnosis in cancer prevention, diagnosis, and treatment.

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Hypnosis for Cancer Care: Over 200 Years Young

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Hypnosis has been used to provide psychological and physical comfort to individuals diagnosed with cancer for nearly 200 years. The goals of this review are: 1) to describe hypnosis and its components and to dispel misconceptions; 2) to provide an overview of hypnosis as a cancer prevention and control technique (covering its use in weight management, smoking cessation, as an adjunct to diagnostic and treatment procedures, survivorship, and metastatic disease); and 3) to discuss future research directions. Overall, the literature supports the benefits of hypnosis for improving quality of life during the course of cancer and its treatment. However, a great deal more work needs to be done to explore the use of hypnosis in survivorship, to understand the mediators and moderators of hypnosis interventions, and to develop effective dissemination strategies. *CA Cancer J Clin* 2013;63:31-44. © 2012 American Cancer Society.

Keywords: hypnosis, clinical oncology, prevention and control, behavioral medicine



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Introduction

Hypnosis is an efficacious tool in cancer prevention and control. In this article, we present: 1) a clinically oriented overview of hypnosis, including definitions and procedures; 2) a research-oriented review of the empirical literature on hypnosis in cancer care; and 3) a discussion of the state of science and practice, along with future directions. We begin with a consideration of “What is hypnosis?”

Overview of Hypnosis

What Is Hypnosis?

Surprisingly, this is a more complex question than one might think. There have been a number of published definitions of hypnosis over the years, each of which differs in terms of what it includes and from what theoretical orientation it is derived. Yet there are commonalities across definitions (Table 1).¹⁻⁵ The 2 commonalities noted across most definitions are that the participants in the hypnosis encounter are identified as the hypnotist and the client, and that suggestions are a key ingredient in hypnosis. Although these definitions have provided an important foundation for the field, they have failed to include 2 additional clinical factors that are important to the success of therapeutic or medical hypnosis: client consent and the therapist describing the technique as intended to be helpful. We believe that for both practical and ethical reasons, hypnosis clients must agree (consent) to participate in any therapeutic hypnosis intervention. Hypnosis does not work if the client is unwilling or resistant to participate. It is important for clients receiving hypnosis in the health care setting for some type of medical or psychological issue to understand that hypnosis is a psychotherapeutic technique. We let clients know that we intend for hypnosis to help improve their quality of life, not to be a parlor trick or an experiment. To incorporate all of these factors, in 2010 we published an updated definition (Table 1).⁵ We have found that this definition is easy for clients to understand, and helps them feel comfortable with participating in hypnosis.

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TABLE 1. Selected Definitions of Hypnosis

CITATION	DEFINITION
Kihlstrom 1985 ¹	A situation or set of procedures in which a person designated as the hypnotist suggests that another person designated as the patient experience various changes in sensation, perception, cognition, or control over motor behavior.
Killeen & Nash 2003 ²	A hypnotic procedure is a protocol used to establish a hypnotic situation and evaluate responses to it. In such situations, one person (the subject) is guided by another (the hypnotist) to respond to suggestions for alterations in perception, thought, and action. If the constellation of responses to standardized suggestions satisfies a criterion, we infer that the procedure induced a hypnotic state. Hypnotic responses are those responses and experiences characteristic of the hypnotic state.
Spiegel & Greenleaf 2005 ³	Hypnosis (or trance) is an animated, altered, integrated state of focused consciousness (ie, controlled imagination). It is an attentive, receptive state of concentration that can be activated readily and measured. It requires some degree of dissociation to enter and become involved in imagined activity, enough concentration for an individual to maintain a certain level of absorption, and some degree of suggestibility to take in new premises.
American Society of Clinical Hypnosis: asch.net/Public/GeneralInfoonHypnosis/DefinitionofHypnosis/tabid/134/Default.aspx . Accessed September 30, 2012	Hypnosis is a state of inner absorption, concentration, and focused attention. It is like using a magnifying glass to focus the rays of the sun and make them more powerful. Similarly, when our minds are concentrated and focused, we are able to use them more powerfully. Because hypnosis allows people to use more of their potential, learning self-hypnosis is the ultimate act of self-control.
American Psychological Association, Division 30 2005 ⁴ : psychologicalhypnosis.com/info/the-official-division-30-definition-and-description-of-hypnosis/	<p>Hypnosis typically involves an introduction to the procedure during which the subject is told that suggestions for imaginative experiences will be presented. The hypnotic induction is an extended initial suggestion for using one's imagination, and may contain further elaborations of the introduction. A hypnotic procedure is used to encourage and evaluate responses to suggestions. When using hypnosis, one person (the subject) is guided by another (the hypnotist) to respond to suggestions for changes in subjective experience as well as alterations in perception, sensation, emotion, thought, or behavior. Persons can also learn self-hypnosis, which is the act of administering hypnotic procedures on one's own. If the subject responds to hypnotic suggestions, it is generally inferred that hypnosis has been induced. Many believe that hypnotic responses and experiences are characteristic of a hypnotic state. While some think that it is not necessary to use the word "hypnosis" as part of the hypnotic induction, others view it as essential.</p> <p>Details of hypnotic procedures and suggestions will differ depending on the goals of the practitioner and the purposes of the clinical or research endeavor. Procedures traditionally involve suggestions to relax, although relaxation is not necessary for hypnosis and a wide variety of suggestions can be used including those to become more alert. Suggestions that permit the extent of hypnosis to be assessed by comparing responses to standardized scales can be used in both clinical and research settings. While the majority of individuals are responsive to at least some suggestions, scores on standardized scales range from high to negligible. Traditionally, scores are grouped into low, medium, and high categories. As is the case with other positively scaled measures of psychological constructs such as attention and awareness, the salience of evidence for having achieved hypnosis increases with the individual's score.</p>
Montgomery 2010 ⁵	Hypnosis is an agreement between a person designated as the hypnotist and a person designated as the client or patient to participate in a psychotherapeutic technique based on the hypnotist providing suggestions for changes in sensation, perception, cognition, affect, mood, or behavior.

What Are the Components of a Hypnosis Intervention?

The hypnosis interventions we have used with cancer patients⁶⁻⁹ involve 6 primary components: an introduction, a hypnotic induction, imagery, a deepening procedure, symptom-specific suggestions, and a conclusion.¹⁰ These components are common in the clinical field. Each will be discussed below.

Introduction

The introduction begins by having the hypnotist debunk many of the common myths and misconceptions that patients may hold about hypnosis, often based on things patients may have seen on television or in the movies. For example, common myths that are debunked include that patients can lose control of themselves, that they can be made to do or say anything the hypnotist wants, or that patients will not be able to come "out" of hypnosis when

they want to. We make it clear that none of these things is true. Debunking is a critical component of our hypnosis intervention. We believe that a thorough, and accurate, understanding of hypnosis is critical for obtaining both patients' informed consent and increasing their comfort with the procedure.

Next, a description of hypnosis is provided. In our work with cancer patients,⁶⁻⁹ we describe hypnosis as focused attention and concentration, like being so lost in a book or movie that it is easy to lose track of what is going on around you. This description is intended to normalize hypnosis and put it within the context of everyday experiences.

Subsequently, patients are given the opportunity to ask any questions they have concerning hypnosis, and the hypnotist does not proceed with the intervention until the patient feels that all of his or her concerns have been addressed and all of his or her questions about the procedure have been answered. Frequently asked questions

TABLE 2. Frequently Asked Questions About Hypnosis

QUESTION	RESPONSE
Will I be able to wake up afterward? I want to make sure I will be awake enough to talk to my family and doctors.	You will have no problem “waking up” at the end of the hypnosis. You will never be asleep, you will just feel relaxed, calm, and focused.
I don’t think I’m very hypnotizable (eg, because I’m too nervous, because I have too strong a mind, I need to be in control, etc).	You do not have to be “very hypnotizable” to benefit from hypnosis. In fact, research has shown that almost 90% of patients benefit from hypnosis. ¹¹ This means that the vast majority of patients benefit, regardless of their level of hypnotizability.
I don’t think that I will be good at hypnosis.	All I am asking for is your attention and concentration. If at any point you want to stop, you can just let me know. But most people find hypnosis to be relaxing and pleasant, so you might find this enjoyable.
I saw a hypnosis stage show (or something similar [eg, a show on television]), and the subjects did all kinds of embarrassing things, like singing and dancing. I don’t want to do anything like that.	Our intent is to help you relax and feel better during the course of cancer treatment, NOT to embarrass you. And you should also know that you CANNOT be made to do anything you do not want to do during hypnosis. Hypnosis is not mind control, it is just a tool you can use to help yourself feel better.
Will I have to do what you say?	No! During hypnosis, we will offer you suggestions. Hypnotic suggestions are quite literally just suggestions. They are not commands, orders, or magic spells. They simply allow your mind to expect better outcomes. At any time during hypnosis, you can speak to me, stop the session, or refuse to accept a suggestion. It’s entirely up to you.

about hypnosis and sample responses are presented in Table 2.¹¹ In general, the introduction serves to reassure the patient that there is nothing to fear about hypnosis.

Hypnotic Induction

Once the patient has had all his or her questions addressed, and after he or she consents to participate in hypnosis, we begin a hypnotic induction. There are an infinite variety of hypnotic induction techniques that can be used. A commonly used approach is for the hypnotist to lead the patient through calming and peaceful imagery, which is intended to help patients relax, distract them from aversive stimuli, and encourage them to be more accepting of therapeutic suggestions. Our standardized hypnotic induction for cancer patients includes instructions that guide patients to experience mental and physical relaxation.⁶

Imagery

After the induction, we ask patients to imagine themselves in a peaceful, relaxing place. In particular, we ask them to imagine a scene where they can experience all the visual, tactile, auditory, and olfactory sensations associated with the image. For example, if patients are imagining a day at the beach, they are asked to visualize the bright blue sky, to feel the warmth of the sun on their skin, to hear the sounds of the waves rolling onto the sand, and to smell the salty sea air.

Deepening Procedure

Following the imagery, a deepening procedure is used. During deepening, suggestions are made to help participants to feel more and more deeply relaxed and more and more deeply hypnotized. Metaphors of descending a staircase or elevator are often used to help the patient relax further.

Symptom-Specific Suggestions

Once the patient is deeply hypnotized, the hypnotist will offer suggestions to reduce distress and improve symptom experiences (eg, reduce pain or nausea). For example, in the breast cancer radiotherapy setting, we make suggestions for reduced fatigue, reduced skin toxicity, and reduced distress. In the breast cancer surgical setting, we focus on reducing postsurgical pain, nausea, and fatigue. The specific form of these suggestions can vary and be adapted to the patient’s unique needs and language. Generally, clinicians may suggest that the patient will experience less of the symptom in question (eg, less pain), less bother associated with the symptom, or an alternative sensation (eg, numbness or coolness), or that the patient will be distracted from or will not notice the symptom.

Conclusion

We conclude the hypnotic session by providing patients with instructions on how to perform self-hypnosis. This allows patients to use hypnosis at any time, in any place, independent of the presence of a hypnotist. For example, patients can hypnotize themselves in the operating room, during radiotherapy, in an infusion suite, in a hospital bed, or at night if they are having trouble falling asleep.

Do I Have to Call It Hypnosis?

Many trainees ask us, “Do we have to call it hypnosis? That word may scare patients off.” The short answer is “Yes.” Data clearly indicate that labeling an intervention as “hypnosis” increases the intervention’s effect size. In their article, Gandhi and Oakley found that when participants were exposed to the same procedure, in one case labeled “hypnosis” and in the other case labeled “relaxation,” the

word “hypnosis” increased participants’ hypnotic suggestibility.¹² Similarly, Schoenberger et al¹³ found that labeling an intervention as hypnosis enhanced treatment effectiveness. In addition, a meta-analysis of hypnosis to reduce the distress associated with medical procedures found that the effect size for interventions labeled “hypnosis” was significantly higher than the effect size for interventions labeled “suggestion” (hypnosis $g=1.26$, which is a large effect¹⁴; suggestion $g=0.17$, which is a small effect¹⁴; $F(1,35)=11.79$ [$P<.002$]).¹⁵ Therefore, we recommend clearly defining hypnotic interventions as hypnosis, not only to ensure the client’s informed consent, but also to increase the benefit of the procedure.

Who Can Practice Hypnosis?

The question of who can practice hypnosis differs from who should practice therapeutic or medical hypnosis. A scripted hypnosis intervention can be read by almost anyone. Stage hypnosis requires skill, but no training as a health care professional. However, therapeutic or medical hypnosis requires not only the ability to perform hypnotic procedures, but also the training and licensure to ensure that it is practiced responsibly, competently, and ethically within the context of a healing relationship. In 1954, writing about the use of hypnosis in the care of the cancer patient, Butler¹⁶ said “The use of hypnotism can be compared to the performance of a difficult operation. Anyone can cut the skin, many may remove an appendix, but who should remove a stomach, a pancreas, or a lung? The same is true of hypnosis—anyone can learn to induce it, some can get therapeutic results, but only those with experience and training should attempt.”¹⁶ More specifically, we believe that health care providers are qualified to practice hypnosis based on their education, training, and professional licensure. For example, physicians, nurses, psychologists, dentists, and other allied health care professionals who have received training in hypnosis are competent to deliver hypnosis to their patients. However, the use of hypnosis should fall within the professional’s areas of competence. Thus, it would be appropriate for an oncologist to treat a patient using hypnosis for anticipatory nausea, but not for major depressive disorder.

Unfortunately, the practice of hypnosis is not regulated by most states. In the United States, there is no state licensure for the practice of hypnosis. An unfortunate consequence is that anyone can call themselves a “certified hypnotherapist,” “hypnotist,” or “master hypnotist.” A lay hypnotist may claim to be “certified in hypnotherapy,” and start a hypnotherapy or hypnosis practice after merely completing an online application and paying a fee.

The most effective way to identify a competent hypnosis provider in the United States is to first determine if the professional is a state-licensed health care provider.

If so, the next step is to assess what and how much hypnosis training they have received. Finally, membership in a professional hypnosis organization may suggest a commitment to ongoing education in hypnosis, as well as an interest in staying abreast of developments in the field. The 3 major organizations in the United States are the Society of Psychological Hypnosis (Division 30 of the American Psychological Association), the Society for Clinical and Experimental Hypnosis, and the American Society of Clinical Hypnosis.

How Can Hypnosis Be Delivered?

To date, hypnosis has primarily been delivered either “live” (face-to-face with a therapist) or via audio recording. Meta-analyses have suggested that although both delivery methods have the potential to benefit patients, live administration tends to be more efficacious. In a meta-analysis of hypnosis for surgery,¹¹ beneficial effects of hypnosis on postsurgical clinical outcomes (eg, pain, negative affect, and treatment time) were found regardless of whether hypnosis was delivered “live” or via audio recording. However, the effect size was large for “live” administration ($d=1.40$) and medium for recorded administration ($d=0.55$). Similarly, in a meta-analysis of hypnosis to manage distress associated with medical procedures,¹⁵ live hypnosis had a significantly higher effect size than recorded hypnosis (live $g=1.22$, which is a large effect size; recorded $g=0.19$, which is a small effect size; $F(1,35)=9.34$ [$P<.005$]). These results are consistent with research that has shown that live hypnosis procedures demonstrated increased hypnotic responsiveness in hospitalized patients with pain when compared with tape-recorded procedures ($P<.05$).¹⁷ Overall, although recorded hypnosis seems to be associated with some benefit, it appears to be less beneficial than live hypnosis.¹⁸

Hypnosis in Cancer Care

One of the earliest documented uses of hypnosis with a cancer patient was as anesthesia for breast cancer surgery. In 1829, M. le Docteur Chapelain used hypnosis (then referred to as mesmerism) over a period of several months to relieve the suffering of Madame Plantin, who had an ulcerated cancer of the right breast with massive enlargement of the right axillary lymph nodes. On April 1, 1829, in Paris, Chapelain used hypnosis as an anesthetic during mastectomy and axillary lymph node dissection. This was prior to the introduction of modern anesthesia techniques. During the operation, the patient was calm and evidenced good pain control.¹⁶ In the past 2 centuries, research on hypnosis has continued to support the efficacy of hypnosis in the cancer setting as an adjunct to modern care (eg, analgesics): that is, hypnosis is typically used in conjunction

with modern medical approaches, as it is the rare cancer patient who can achieve complete symptom and side effect control during major medical and surgical procedures with hypnosis alone.

Below, we provide an overview of the research literature on the use of hypnosis in cancer prevention, diagnosis, treatment, and survivorship. When meta-analyses or systematic reviews exist, we describe those results rather than individual studies. Please note by convention, for between-group differences, an effect size (*d*, *g*, or *D*) of 0.20 is considered small, 0.50 is considered medium, and 0.80 is considered large.¹⁴ When no meta-analyses or systematic reviews exist, we provide a brief description of our literature search strategy for identifying studies, references in the area, and conclusions drawn from the work.

Cancer Prevention

There is strong evidence that an individual's cancer risk can be significantly reduced by avoiding tobacco, exercising, practicing healthy dietary habits, and participating in cancer screening. The American Cancer Society estimates that this year alone, 173,200 cancer deaths in the United States will be caused by tobacco use, and that one-third of the 577,190 cancer deaths expected to occur in 2012 will be attributed to poor nutrition, physical inactivity, overweight, and obesity.¹⁹ Hypnosis has shown some promise in promoting these healthy behaviors. Evidence is reviewed below.

Weight Management

In the context of weight management, hypnosis is usually used as part of a treatment package. More specifically, hypnosis is typically added to established cognitive behavioral therapy (CBT) programs. Meta-analytic results indicate that hypnosis plus CBT can more than double the effects of CBT alone on weight loss.²⁰ Mean weight loss associated with CBT was 6.03 pounds (2.74 kg) without hypnosis and 14.88 pounds (6.75 kg) with hypnosis. These data represent a 147% increase in treatment efficacy. Allison et al have commented that hypnosis is no panacea for obese patients.²¹ However, even in the most critical arguments, hypnosis clearly adds to the treatment efficacy of CBT weight loss programs.²¹ Overall, as hypnosis increases effect sizes of CBT, the extant data support its inclusion in CBT weight loss programs.

Smoking

The most recent meta-analysis of randomized controlled trials (RCTs) of hypnosis for smoking cessation²² identified only 4 hypnosis trials that met their rigorous inclusion criteria. The results suggest that hypnosis may help patients quit smoking (odds ratio [OR], 4.55; 95% confidence interval [95% CI], 0.98-21.01). However, these results

should be viewed with some caution as there is a wide CI; in 3 of the 4 studies, the sample size was small (40 participants or fewer), there was variability in the duration of hypnosis administered (range, 80 minutes-480 minutes), and there was variability with regard to who administered the hypnosis.

These meta-analytic results stand in contrast to previous reviews that have failed to find any support for the efficacy of hypnosis for smoking cessation.^{23,24} In a 2000 review, Abbot et al studied 9 randomized trials of hypnosis for smoking cessation²³ and reported a great deal of heterogeneity in the study results regarding whether hypnosis was more effective than either no treatment or advice. Hypnosis was not shown to be effective when compared with rapid smoking or psychological treatment. The authors conclude that there was not enough good evidence to show whether hypnosis could help with smoking cessation. In a 2010 update, Barnes et al²⁴ examined 11 randomized trials of hypnosis for smoking cessation. Their findings were the same: the results on the effectiveness of hypnosis compared with no treatment, advice, or psychological treatment were mixed. There remained no effect of hypnosis compared with rapid smoking or psychological treatment. Despite 10 years elapsing between reviews, the conclusions were the same: there is not sufficient evidence to support a benefit of hypnosis for smoking cessation.

The lack of convincing empirical support for hypnosis as a smoking cessation intervention has not dissuaded patients. A percentage of patients continue to demand, use, and are able to quit smoking using hypnosis. Given that many patients prefer hypnosis for smoking cessation over other methods (eg, nicotine replacement, bupropion),²⁵ more research in this area is needed to determine for which patients hypnosis might be effective. For example, a recent meta-analysis suggested that male participants in hypnosis smoking cessation programs may be more likely to quit smoking compared with female participants.²⁶

More and more rigorous randomized trials of hypnosis for smoking cessation are needed to 1) identify moderators of treatment effects and 2) examine if the addition of hypnosis to an already efficacious treatment can “boost” the effect of that treatment. To date, much of the literature has focused on hypnosis alone, rather than hypnosis as one component of a treatment package.

Cancer Diagnosis

Hypnosis has been consistently shown to improve clinical and cost outcomes associated with diagnostic procedures. As there are no meta-analyses or systematic reviews in this area, we conducted a search in PubMed. The search terms were “Hypnosis”[Mesh] AND “Biopsy”[Mesh] AND

“Randomized Controlled Trial”[ptyp]. This search yielded 7 studies, 3 of which were randomized trials of hypnosis used with cancer screening procedures.^{8,27,28}

First, in the strongest study in this area, Lang et al²⁷ studied 236 women undergoing large core needle image-guided breast biopsy. Patients randomized to receive hypnosis had lower levels of anxiety and pain during the procedure than patients who received standard care. Furthermore, hypnosis did not cost significantly more than standard care: that is, procedure room time and overall costs were not significantly different between the hypnosis and standard-care control groups, despite hypnosis requiring the time and services of an additional professional (46 minutes at a cost of \$161 for standard care and 39 minutes at a cost of \$152 for hypnosis).

Second, Montgomery et al²⁸ studied 20 patients who underwent excisional breast biopsy and were randomly assigned to receive either a standardized, prebiopsy, psychologist-administered hypnosis intervention or standard care. Breast biopsy patients receiving hypnosis had significantly less postbiopsy pain than standard-care patients ($P < .5$), tended to be more satisfied with their overall medical treatment experience, and demonstrated less distress before and after biopsy (all $P < .05$).

Third, Schnur et al examined the effectiveness of hypnosis for controlling distress prior to undergoing excisional breast biopsy.⁸ Ninety patients scheduled to undergo excisional breast biopsy were randomly assigned to either a prebiopsy hypnosis group ($n = 49$; mean age, 46.4 years) or a prebiopsy attention control group ($n = 41$; mean age, 45.0 years). Following the study intervention, patients in the hypnosis group had significantly less prebiopsy emotional upset ($d = 0.85$, which is a large effect [$P < .0001$]), depressed mood ($d = 0.67$, which is a medium to large effect [$P < .02$]), and anxiety ($d = 0.85$, which is a large effect [$P < .0001$]). Hypnosis patients were also significantly more relaxed ($d = -0.76$, which is a medium to large effect [$P < .001$]) than attention control patients.

In a 2010 paper, Block²⁹ projected the amount of money that might be saved if hypnosis was used for all patients undergoing breast biopsies conducted in the United States during a 1-year period. Block's results were extrapolated from published cost-effectiveness data.⁶ Block estimated that if 92% of patients newly diagnosed with breast cancer in the United States (178,738 based on 2009 data) used the hypnosis intervention, \$138,112,331 would be saved. Savings were then adjusted for nurses' salaries to deliver the interventions. Using \$65,183 as a salary benchmark, the cost of delivering the intervention to all patients would be \$2,841,928 annually, resulting in an annual cost savings of \$135,270,403. It is likely that results do not account for all the costs associated with providing the hypnosis intervention, but it also appears that the article took a generally

conservative approach. For example, Block only included patients with breast cancer (ie, those with positive biopsies). However, it has been estimated that 80% of breast biopsies are benign.³⁰ By excluding these patients with benign biopsies, Block may have underestimated the total cost savings. The inclusion of women with benign biopsy results in the cost analyses would only increase institutional savings, perhaps by as much as a factor of 5. Furthermore, Block's estimates do not include potential individual- or societal-level benefits (eg, faster return to work), which would also increase the estimate of cost savings. In the present era of cost consciousness in health care, cost-effective approaches like hypnosis should be considered for widespread dissemination, or even for inclusion as part of standard clinical practice in cancer biopsy settings.

Overall, these studies indicate that hypnosis can be an effective means of controlling distress in women undergoing diagnostic breast cancer procedures. Results from an institutional cost-effectiveness perspective indicate that at a minimum, hypnosis interventions are likely to pay for themselves: that is, cost savings associated with the intervention offset additional costs associated with delivery of the intervention.²⁷ At best, hypnosis for breast biopsy could potentially save over \$100 million from an institutional perspective when extrapolated to a national level on an annual basis.²⁹

There is also research indicating beneficial hypnotic effects with other (nonbreast) diagnostic cancer procedures such as lumbar puncture and bone marrow aspirations. Using the search terms “Hypnosis”[Mesh] AND “bone marrow” OR “lumbar puncture” and limiting studies to RCTs, we identified 8 studies in English using the PubMed database. One study was excluded because the intervention was not hypnosis, and one study was excluded because the patients were not undergoing lumbar puncture or bone marrow aspiration. By thoroughly reviewing the references in these articles, we identified one additional RCT,³¹ leading to a total of 7 studies. Three of these studies involved patients undergoing lumbar puncture,³¹⁻³³ 2 involved patients undergoing bone marrow aspiration,^{34,35} and 2 studies included patients undergoing either of these procedures.^{36,37} Only one article discussed adult patients³⁴; the remainder focused on pediatric samples.

Consistent with reviews focused on pediatric patients,³⁸ hypnosis was found to be more effective than control conditions across studies in alleviating discomfort associated with lumbar punctures and bone marrow aspirations in children. In one of the stronger studies,³³ a prospective controlled trial was conducted to compare the efficacy of an analgesic cream (local anesthetic) alone or combined with a hypnosis intervention to relieve lumbar puncture-induced pain and anxiety in 45 pediatric cancer patients (aged 6 years-16 years).

Patients were randomized to 1 of 3 groups: local anesthetic, local anesthetic plus hypnosis, or local anesthetic plus attention. Results revealed that patients in the local anesthetic plus hypnosis group reported significantly less anticipatory anxiety and less procedure-related pain and anxiety than patients in the local anesthetic alone group or those in the local anesthetic plus attention group. Observational ratings of behavioral distress also supported the benefits of hypnosis over the 2 nonhypnosis comparison conditions. This study highlights the benefits of using hypnosis as an adjunct to traditional pharmacologic approaches.

From a public health perspective, colon cancer may be one of the most preventable of cancers. Colonoscopy is one of the few cancer screening procedures that both detects and removes cancerous and potentially cancerous cells.³⁹ One of the barriers to adherence to regular colonoscopy is the discomfort of the procedure itself.⁴⁰ Hypnosis may be an effective tool for reducing the discomfort of the procedure, and thereby indirectly improving adherence. Although no randomized studies have been completed with patients undergoing colonoscopy, case reports suggest potential benefits of using hypnosis. In one study that preliminarily explored the use of hypnosis with colonoscopy, 6 patients undergoing colonoscopy (5 men and 1 woman) received a hypnotic intervention on the day of their colonoscopy. Anxiety and pain during colonoscopy, perceived effectiveness of hypnosis, and patient satisfaction with medical care were assessed following colonoscopy. The results supported hypnosis as a feasible method with which to manage anxiety and pain associated with colonoscopy, and a potential means to reduce the need for sedation and shorten colonoscopy procedure time.⁴¹

Cancer Treatment

The vast majority of patients with cancer will undergo surgery, chemotherapy, and/or radiotherapy (if not all 3). Although these treatment approaches are medically necessary, they are accompanied by a wide spectrum of aversive side effects including pain, nausea, fatigue, anxiety, and depression, all of which negatively impact quality of life. Fortunately, hypnosis has shown promise in improving the patient experience of each of these treatments.

Surgical and Invasive Procedures

Across surgical settings, hypnosis has been demonstrated to effectively control pain and emotional distress and to improve recovery.¹¹ Meta-analytic results revealed a significant, large effect size ($D=1.20$) for hypnosis, indicating that surgical patients in hypnosis treatment groups had better outcomes than 89% of patients in control groups. Beneficial effects were found for numerous clinical outcome categories: negative affect, pain, pain medication, physiological indicators (eg, blood pressure),

recovery (eg, nausea and fatigue), and treatment time. As patients were drawn from a wide variety of surgical contexts (eg, orthopedic, cardiac, gynecologic, ophthalmologic, head and neck, and cosmetic), the results support the position that hypnosis is an effective intervention for a wide variety of surgical patients. These results are consistent with meta-analyses supporting significant effects of hypnosis for controlling pain ($D=0.74$, which is a medium to large effect size)⁴² and emotional distress ($D=0.88$, which is a large effect size)¹⁵ across a wide variety of patients and settings.

With regard to surgical oncology patients specifically, an RCT of 200 patients undergoing excisional biopsy or lumpectomy for breast cancer was conducted.⁶ Patients were assigned to either a 15-minute presurgery hypnosis session conducted by a psychologist or to a nondirective empathic listening (attention control) session. Intraoperative anesthesia use (ie, of the analgesics lidocaine and fentanyl and the sedatives propofol and midazolam) was assessed. Patient-reported side effects were assessed at the time of discharge, as was the use of analgesics in the recovery room. Institutional costs and time in the operating room were assessed via chart review. Patients in the hypnosis group required less propofol ($d=0.29$ [95% CI, 0.01-0.57], which is a small to medium effect) and lidocaine ($d=0.46$ [95% CI, 0.18-0.74], which is a small to medium effect) than patients in the control group. Patients in the hypnosis group also reported less pain intensity ($d=0.82$ [95% CI, 0.53-1.11], which is a large effect), pain unpleasantness ($d=0.57$ [95% CI, 0.28-0.85], which is a medium to large effect), nausea ($d=0.78$ [95% CI, 0.49-1.07], which is a medium to large effect), fatigue ($d=0.84$ [95% CI, 0.55-1.13], which is a large effect), discomfort ($d=0.63$ [95% CI, 0.35-0.91], which is a medium to large effect), and emotional upset ($d=0.91$ [95% CI, 0.62-1.20], which is a large effect). Patients in the hypnosis group cost the institution \$772.71 less per patient than those in the control group (95% CI, \$75.10-\$1469.89), mainly due to reduced surgical time (a mean difference of 10.6 minutes).

Positive effects of hypnosis have also been seen during the percutaneous treatment of tumors.⁴³ In a sample of 201 patients treated with tumor embolization or radiofrequency ablation, patients were randomized to standard-care, attention, or hypnosis groups. Pain and anxiety ratings were taken every 15 minutes until 150 minutes using a 0-to-10 verbal rating scale. Patients in the hypnosis group had significantly less pain and anxiety than patients in the standard-care or empathic attention groups over the course of the procedure. Pain and anxiety scores in the hypnosis group were less than the other 2 groups at every assessment point over time. Patients in the hypnosis group also received significantly less medication (midazolam or fentanyl) than patients in the standard-care (33% less

medication) or empathic attention (43% less medication) groups. These results support the use of hypnosis during this invasive procedure.

In pediatric cancer patients, hypnosis has been shown to reduce the pain and anxiety associated with venipuncture.⁴⁴ In a prospective randomized trial, 45 pediatric cancer outpatients (aged 6 years-16 years) were randomized to 1 of 3 groups: local anesthetic, local anesthetic plus hypnosis, and local anesthetic plus attention. Results demonstrated that patients in the local anesthetic plus hypnosis group reported significantly less anticipatory anxiety, less procedure-related pain, and less procedure-related anxiety than patients in the other 2 groups. In addition, patients in the local anesthetic plus hypnosis group demonstrated significantly less behavioral distress during venipuncture.

Overall, the evidence supporting the use of hypnosis for managing the side effects of surgery and invasive procedures is strong and consistent. Clinical efficacy has been widely demonstrated. Cost-effectiveness has been demonstrated in one methodologically sound RCT. These data argue for the more widespread adoption of hypnosis among cancer patients and survivors undergoing invasive treatment.

Chemotherapy

One of the first modern applications of hypnosis with cancer patients was hypnosis for the control of nausea and vomiting associated with chemotherapy.⁴⁵ Redd et al administered hypnosis to 6 adult female patients with cancer, and the results revealed that hypnosis suppressed anticipatory emesis in all cases. This work touched off a number of studies demonstrating the efficacy of hypnosis for controlling cancer chemotherapy-related nausea and vomiting.

Richardson et al⁴⁶ systematically reviewed RCTs of hypnosis for controlling nausea and vomiting associated with cancer chemotherapy. Six RCTs were found and analyzed. In 5 of the 6 studies, the participants were pediatric cancer patients. Studies reported positive results including statistically significant reductions in nausea and vomiting. Meta-analysis revealed a large effect size of hypnotic treatment when compared with treatment as usual and moderate when compared with attention control, and the effect was at least as large as that of CBT. This review supported the use of hypnosis in the pediatric setting. However, due to the small number of RCTs reviewed in the article, these conclusions should be viewed with caution. The generalizability of the findings to adult cancer patients also remains unclear, and therefore more research is needed in this area, with a particular need for an RCT with adult cancer patients. In addition, this review noted several methodological concerns with the literature regarding the use of hypnosis to alleviate nausea and vomiting, including that study sample sizes have generally been small, power analyses were generally not performed, the method of

randomization was not clear, and intent-to-treat analyses were typically not performed.⁴⁶ Some of these concerns may be due to the fact that most of the research was conducted in the 1980s, before CONSORT (Consolidated Standards Of Reporting Trials) and other reporting standards were widely adopted. The fact that this is an older literature raises another potential concern: much of this research was conducted before the widespread availability of modern antiemetics, potentially limiting the generalizability of the results. However, research has indicated that nausea and emesis continue to be problems for cancer patients despite improvements in pharmacotherapy,⁴⁷ and it is therefore probable that a role remains for hypnosis interventions to control nausea.

A second review of the literature on hypnosis and cancer chemotherapy-related nausea and vomiting⁴⁸ also supports the efficacy of hypnosis. In this review, which included both randomized and nonrandomized research, results similarly suggested that hypnosis was efficacious for controlling nausea and vomiting. This study pointed out, however, that much of the literature has focused on anticipatory nausea and vomiting, and that the effects of hypnosis on postchemotherapy nausea and vomiting are unclear. Effect sizes have generally been shown to be greater for anticipatory nausea and vomiting. Further investigation is necessary to better understand and improve hypnotic effects on postchemotherapy symptoms.

Unlike the surgical hypnosis literature, there have been no large-scale RCTs and no cost-effectiveness trials of hypnosis for nausea. Cost-effectiveness analyses are particularly critical given the expense associated with chemotherapy-induced nausea and vomiting. A recent publication⁴⁹ reported that among 11,495 study patients, chemotherapy-induced nausea and vomiting was associated with a treatment cost of \$89 million, and an average daily treatment cost of \$1854.70. If hypnosis can reduce nausea and vomiting, it not only has the potential to be of clinical benefit, but also to save scarce health care dollars.

Radiotherapy

To our knowledge, only 3 RCTs have been conducted to explore the effects of hypnosis in the radiotherapy setting. The first, by Montgomery et al,⁷ examined the effects of a psychotherapeutic intervention combining CBT and hypnosis (CBTH) on fatigue in patients undergoing radiotherapy for breast cancer. The decision to combine CBT with hypnosis was based on a meta-analysis demonstrating that CBTH is more effective than CBT alone.⁵⁰ In this study, 42 patients undergoing radiotherapy for breast cancer were randomly assigned to receive either standard medical care or CBTH. Multilevel modeling revealed an effect of CBTH over time, such that fatigue increased over the course of treatment among control participants, whereas it

did not increase significantly over the same period among CBTH participants. By the conclusion of radiotherapy, patients in the CBTH group had, on average, 32% less fatigue than patients in the control group based on the Functional Assessment of Chronic Illness Therapy-Fatigue subscale scores. Effects were similar using daily visual analog scale (VAS) measures of fatigue (a 22% difference) and muscle weakness (a 52% difference). Effect sizes for effects over time ranged from medium (daily fatigue VAS: $d=0.65$; daily muscle weakness VAS: $d=0.59$) to large (Functional Assessment of Chronic Illness Therapy-Fatigue subscale: $d=0.82$) according to Cohen's criteria.¹⁴ These results suggest that CBTH can not only manage fatigue, but possibly even prevent the development of fatigue in patients with breast cancer who are receiving radiotherapy.

Schnur et al⁹ conducted a randomized trial of 40 patients with breast cancer who were undergoing radiotherapy to evaluate the effects of CBTH on positive and negative affect. Participants were randomized to receive either CBTH or standard care. Results revealed that CBTH significantly reduced levels of negative affect and increased levels of positive affect over the course of radiotherapy. At week 5, patients in the CBTH group had 66% lower negative affect scores on average than the control group, and 43% greater positive affect scores compared with the control group. In addition, CBTH participants had more intense positive affect and less intense negative affect during radiotherapy. Finally, participants in the CBTH group reported a higher number of radiotherapy treatment days when positive affect was greater than negative affect. In sum, the CBTH intervention helped women to feel better emotionally during radiotherapy for breast cancer.

A study by Stalpers et al showed more mixed results.⁵¹ These authors randomly assigned 69 patients to receive either standard care or hypnosis. Results revealed no statistically significant between-group differences in anxiety or quality of life. However, 52% of the participants in the hypnosis group reported that study participation had improved their mental well-being (vs none of the control participants; $P<.05$) and 55% of the participants in the hypnosis group reported an improvement in overall well-being (vs 11% of the controls, $P<.05$). Furthermore, nearly two-thirds of the participants in the hypnosis group reported that they had benefited from hypnosis, and all of the hypnosis patients reported that they would recommend hypnosis to other patients.

Thus, the findings in this area are somewhat mixed. Between-study differences may be explained by 3 possible factors. First, our group has focused exclusively on female patients with breast cancer, whereas the study by

Stalpers et al⁵¹ included patients with prostate, breast, skin, uterine/cervix, lung, lymphoma, larynx, bladder, and brain cancers. It is possible that gender or diagnostic differences may explain differences in the results. Second, the suggestions included in our group's hypnosis were specifically focused on breast cancer radiotherapy and associated side effects (ie, fatigue and distress), whereas the suggestions in the study by Stalpers et al⁵¹ seem to have been less disease- and/or symptom-specific, and more focused on general well-being. Third, and perhaps most importantly, in the work by our group, participants received CBTH. In the study by Stalpers et al, hypnosis was used on its own.⁵¹ These results suggest that for patients undergoing radiotherapy, hypnosis may be best delivered as one component of a larger intervention.

Four limitations of the present studies should be noted. First, they all have relatively small sample sizes. Second, none of these studies compared hypnosis with an attention control condition. Although the results of these early studies are promising, one cannot yet definitively state that hypnosis is of greater benefit than nonspecific professional attention in the radiotherapy setting. Therefore, we recommend that future RCTs in radiotherapy focus on further elucidating the mechanisms of hypnosis effects and identifying whether hypnosis demonstrates benefit over and above attention alone. Third, the studies reviewed in this area all focused on acute radiotherapy side effects. Future research should examine whether hypnosis can have longer-term benefits as well. Fourth, similar to the chemotherapy setting, no cost-effectiveness analyses have yet been performed in the radiotherapy setting. Larger-scale RCTs, incorporating cost-effectiveness analyses and longer-term follow-up, would contribute to the understanding of hypnotic effects in this context.

Survivorship

According to the National Cancer Institute, "survivorship focuses on the health and life of a person with cancer post treatment until the end of life. It covers the physical, psychosocial, and economic issues of cancer, beyond the diagnosis and treatment phases."⁵² According to the American Cancer Society, as of January 1, 2012 there were approximately 13.7 million cancer survivors in the United States.⁵³ This number may actually be an underestimate since this count does not include most in situ cases or basal cell and squamous cell skin cancers. Many survivors, even those who have finished their cancer treatment, continue to experience an impaired quality of life including side effects such as chronic pain and neuropathy, cognitive problems, fatigue, fear of cancer recurrence, hot flashes, and sexual dysfunction.⁵³

Using the following search terms in PubMed—"survivors"[MeSH Terms] OR "survivor"[Text Word] AND "Survivors"[Mesh] AND "Neoplasms"[Mesh] AND

“Hypnosis”[Mesh]—and limiting our search to RCTs, one randomized study of hypnosis with cancer survivors was identified. The study focused on hot flashes in breast cancer survivors. Elkins et al⁵⁴ randomized 60 breast cancer survivors with hot flashes to receive either hypnosis (delivered in 5 weekly sessions and including self-hypnosis instructions, recommended self-hypnosis practice, and an audiocassette recording of hypnosis) or no treatment. At the conclusion of the study, participants in the hypnosis group reported significantly greater improvements in hot flashes, hot flash interference with daily activities, sleep, anxiety, and depression than participants in the control group. Results indicated that hypnosis successfully addressed not only hot flashes, but other common survivorship complaints as well (eg, sleep disturbance). A great deal more work needs to be done to investigate the potential benefits of hypnosis among cancer survivors, as well as its cost-effectiveness.

Advanced/Metastatic Disease

There has been widely publicized research on the use of hypnosis in patients with metastatic breast cancer. In 1983, Spiegel and Bloom⁵⁵ found that weekly group therapy combined with hypnosis was associated with less pain sensation and suffering and improved mood in patients with metastatic breast cancer. These results were later replicated in a larger sample.⁵⁶ In 1989, Spiegel et al⁵⁷ found that survival time was significantly longer in a group of patients with metastatic breast cancer who were randomly assigned to receive supportive group therapy including hypnosis (mean, 36.6 months) compared with a control group assigned to receive routine care (mean, 18.9 months). In a 2007 replication study, Spiegel et al⁵⁸ randomized patients with metastatic or locally recurrent breast cancer to receive either group therapy including hypnosis or to a control group. In this study, the authors found that on average, the intervention group did not live significantly longer than the control group. However, exploratory analyses suggested a survival benefit among the 25 patients with estrogen receptor (ER)-negative disease. More specifically, ER-negative intervention patients survived significantly longer than ER-negative control patients. No such effect was demonstrated in participants with ER-positive breast cancer.

Much of this line of research is consistent with the hypnosis studies reviewed above. Like past research, these studies reveal that hypnosis (here in combination with group therapy) effectively ameliorates pain and emotional distress associated with breast cancer. However, the findings of a survival benefit are unique, and have sparked a great deal of controversy and debate in the cancer community. A discussion of that debate is beyond the scope of the present article. However, we would like to point out that even if the intervention had shown no benefit with regard to improving the quantity of life, for patients with

metastatic breast cancer, it still improved their quality of life. As has been demonstrated so many times before, hypnosis has contributed to patients being more comfortable and less distressed as they live with their disease.

Overall, a great deal more work is needed to investigate the benefits of hypnosis in patients with metastatic disease or those receiving end-of-life and palliative care, especially among patients with cancers other than those of the breast.

Discussion and Future Directions

The literature reviewed above describes where hypnosis has been. Below, we describe where hypnosis can go and how it can grow. We will focus on 6 future research directions, which include the need: 1) for larger-scale randomized trials incorporating appropriate controls, cost-effectiveness analyses, and comparative effectiveness analyses; 2) to test new methods of hypnosis delivery; 3) to extend hypnosis research to cancers other than those of the breast; 4) for an increased focus on survivorship; 5) for mechanism studies; and 6) for dissemination/translation research.

Larger-Scale Randomized Trials Incorporating Appropriate Controls, Cost-Effectiveness Analyses, and Comparative Effectiveness Analyses

In writing this review, we noted how hypnosis can be effective in helping to improve the quality of life and experience of treatment in patients with cancer. Nevertheless, it was also apparent how few large-scale RCTs had been conducted on hypnosis for cancer patients. So many areas have had many promising small-scale studies, but lack “the” definitive RCT. When thinking about the research literature on hypnosis and cancer, we cannot help but describe it as 200 years young. The technique has been used since the 1800s, yet it is only now beginning to mature. More research is needed to build on this foundation and conclusively demonstrate what many clinicians already sense: that hypnosis helps cancer patients cope with their diagnosis and treatment.

Much of the hypnosis literature involves case studies, small-sample nonrandomized studies, and comparisons only with standard-care controls. Such work is of great value in that it can introduce readers to innovative ideas and treatment strategies, and can be a critical first step in intervention development. However, such work is insufficient to provide strong, persuasive empirical support for the more widespread use of hypnosis interventions, or even to gain hypnosis recognition as an empirically supported treatment. With shrinking healthcare dollars and an increased emphasis on empirically supported treatments, hypnosis researchers cannot rest on the extant small-scale studies. Larger, appropriately powered trials of hypnosis, including cost-effectiveness analyses, in cancer settings are needed.

Method of Delivery Studies

Beyond the traditional live and recorded delivery formats, research has begun to explore the use of new technologies to deliver hypnosis. For example, a series of articles have been published demonstrating the promise of delivering hypnosis via immersive virtual reality.⁵⁹⁻⁶⁵ Future research comparing the clinical efficacy and cost-effectiveness of virtual reality hypnosis with live and recorded methods would further strengthen the argument for this method of delivery.

Another new delivery option is hypnosis delivered over the Internet (e-hypnosis), either with therapist participation (eg, via videoconferencing) or without (eg, downloadable hypnosis recordings). To our knowledge, only one randomized trial of Internet-based hypnosis has been conducted.⁶⁶ E-hypnosis is likely to be easily accepted by cancer patients in light of the facts that nearly 40% of the US population has searched for cancer information at some point and the most frequently used source of cancer information was the Internet (55.3%),⁶⁷ that cancer is one of the top 2 diseases about which people seek information on the Internet,⁶⁸ and that meta-analyses have indicated that patients of all ages can benefit from online therapy.⁶⁹ We anticipate that e-hypnosis also has the potential to be a great boon to cancer patients, especially those who are too tired or too ill to travel to meet with a hypnotist in person.

Finally, a quick look at the iTunes store reveals over 1000 hypnosis applications that are available for download. Although to our knowledge none has been empirically tested and few have been developed by health care professionals, smartphone applications may be the wave of the future in terms of hypnosis delivery.

Extension to Cancers Other Than Those of the Breast

The vast majority of the research on hypnosis and cancer thus far has focused on breast cancer. This trend likely represents the fact that breast cancer is one of the most common cancers. However, prostate cancer, lung cancer, and colorectal cancer are also all too common, and their treatments can be associated with suffering and side effects, including incontinence, impotence, hot flashes, shortness of breath, fatigue, constipation, diarrhea, or the need for a colostomy. We hope that future hypnosis research will attend to the needs of these patients as well.

Increased Focus on Survivorship

As noted above, we identified a single RCT that was focused on cancer survivors. Individuals with cancer do not stop needing help the day acute treatment ends. Hypnosis has the potential to not only help with physical side effects

during survivorship, but also the emotional issues associated with living with uncertainty and adjusting to reduced contact with medical providers. Research efforts should be made in the area of hypnosis to improve cancer survivorship.

Mediational Studies

To our knowledge, there is only one randomized trial that has directly explored mediators of hypnotic effects in the cancer setting. Montgomery et al⁵ investigated whether the beneficial effects of hypnosis on postsurgical recovery in patients undergoing surgery for breast cancer might be mediated by either emotional distress or expectations for postsurgical symptoms. In 200 patients who underwent breast-conserving surgery, structural equation modeling revealed that: 1) expectations partially mediated the effects of hypnosis on postsurgical pain ($P < .0001$) and fatigue ($P < .0001$) and 2) emotional distress partially mediated the effects of hypnosis on postsurgical nausea ($P < .02$) and fatigue ($P < .02$). In other words, at least in part, hypnosis works by reducing patients' presurgical levels of expectations for postsurgical side effects, and by helping them feel less distressed prior to surgery. These findings are consistent with a recent review by Stanton et al,⁷⁰ which suggests that 2 of the promising mechanisms for the effects of psychosocial interventions in adult patients with cancer are cognitive factors (including expectations) and psychological symptoms (including emotional distress). However, a considerable amount of additional research is needed to fully elucidate the mechanisms by which hypnosis helps cancer patients and survivors.

Dissemination/Translation Studies

Despite empirical evidence supporting the use of hypnosis in cancer settings, it has failed to be widely adopted. Hypnosis does not appear to be currently popular, and in fact has failed to increase in popularity in the United States over time^{71,72} despite empirical support. The field of implementation science teaches us that successful efficacy trials should not be considered the conclusion of a program of research, but rather an initial stage.⁷³⁻⁷⁵ The next question to be answered is how can we ensure that this intervention will actually be provided to patients in need (ie, will implementation occur)?⁷³⁻⁷⁵ To our knowledge there has been no implementation research focused on increasing the use of hypnosis in the context of cancer care. We recommend implementation studies as a critical avenue of future research.

A potential explanation for the failure of hypnosis to be widely disseminated is the lack of clarity over where hypnosis fits into the larger health care system. In many cases,

hypnosis is placed within the complementary and alternative medicine domain. However, this is not as clear a designation as one might first think. For example, hypnosis is clearly not “alternative.” The best use of hypnosis is not to replace traditional approaches to anesthesia or other medical treatments, but rather as an adjunct to best clinical practices. Just as icing makes a cake taste better, hypnosis can improve clinical outcomes when added to traditional care. Then the question remains, should hypnosis be considered complementary? We would argue not. The term “complementary medicine” has several connotations, many of which are often negative. Complementary interventions are often viewed as untested and unreliable. What we hope to have demonstrated here is that in some contexts, hypnosis interventions have strong empirical support, and there are several promising areas. Our hope for the future is that hypnosis be considered as an “integrative” intervention that can improve a cancer patient’s quality of life. This terminology has the advantage of conveying the impression that this approach is not “instead of” conventional care, but rather integrated with traditional medical care to enhance patient outcomes.

Conclusions

The goal of this review was to summarize the empirical literature on hypnosis as an integrative cancer prevention and control technique. We have reviewed where hypnosis has strong support for its efficacy (surgery and other invasive procedures), where it holds promise (weight loss, chemotherapy, radiotherapy, and metastatic disease), and where more work is needed.

Overall, we hope that this review has served to dispel misconceptions about hypnosis (eg, that it is unscientific) and to answer questions about it, as well as help the reader to feel more comfortable and more relaxed about the notion of using hypnosis with cancer patients and survivors, to be able to imagine using hypnosis in their own clinical practice, and perhaps to consider using this review as a starting point to learn more about hypnosis. We hope that this article has served to both satisfy and stimulate the reader’s intellectual curiosity. We encourage clinicians and researchers to learn more about hypnosis, and to consider seeking training in this technique. However, paraphrasing O’Hanlon and Martin, we’re only hypnotists, so this is only a suggestion.⁷⁶ ■

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