

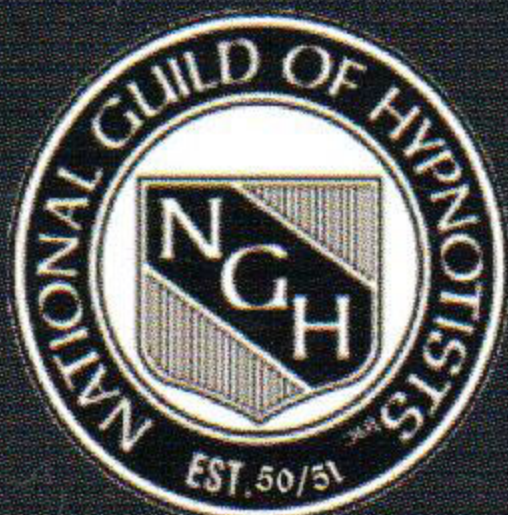
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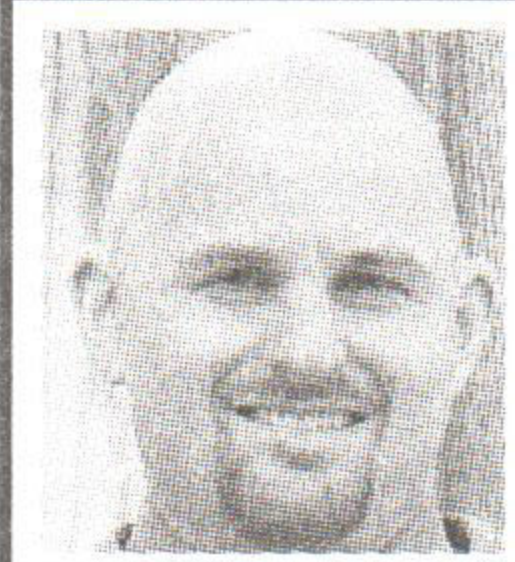
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Hypnosis For Cancer

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Cancer is a leading cause of death in most nations, resulting in approximately 6.7 million deaths per year world-wide. This is expected to rise to 15 million per year by 2020 (World Health Organization, 2003). Today, treatments for cancer typically include surgery, chemotherapy and/or radiation, all of which are invasive, expensive, and often produce undesired sickness as a side effect. Recently, scientific research has shown that hypnosis has the potential to improve outcomes for cancer patients, especially if used as an adjunct therapy to standard medical care. This article will discuss this growing body of literature and its implications for cancer patients and hypnotists in the future.

Background: Science of the Human Body

To better understand the hypnosis research, it is helpful to review the science behind the findings. These studies have focused on examining the effects of hypnosis on white blood cell count and activity, measured by testing human blood samples. White blood cells are important in the body, because they defend the body against disease. Humans have an average of 4000 to 11,000 white blood cells per cubic millimeter, comprising less than 1% of our total blood volume (Marieb, 2000). Although these cells represent only a small portion of our blood, their function is important in fighting harmful invaders, such as bacteria, viruses, parasites and even tumor (cancer) cells. Unlike red blood cells, which are confined to the blood stream (they supply oxygen to the tissues), white blood cells are not. Instead, white blood cells can

slip in or out of the blood stream via a process called diapedesis. This process allows the white blood cells to travel the body quickly, using the blood stream, or to slowly patrol tissues outside the blood stream.

Not all white blood cells are the same: some are more effective eliminating bacteria, while others are better at fighting viruses. Consequently, white blood cells are classified into two major groups: granulocytes (neutrophils, eosinophils and basophils) and agranulocytes (lymphocytes and monocytes). For cancer researchers, lymphocytes, which comprise 20-35% of all white blood cells, are the most commonly explored. Lymphocytes are classified into three divisions: (1) T-cells (accounting for 80% of lymphocytes), (2) B cells (accounting for 10-15%) and (3) Natural Killer Cells or NK cells (accounting for 5-10%). Consequently, cancer researchers mainly focus on T-cells and NK cells because they show the ability to kill cancer cells (Martini & Bartholomew, 2003).

Hypnosis and Relevant Studies

A number of recent studies have reported that hypnosis therapy caused statistically significant increases in the body's NK cell count and/or activity (Bakke, Purtzer & Newton, 2002; Hilderley & Holt, 2004; Hudacek, 2007; Lengacher et al., 2008), theoretically improving the body's natural ability to fight cancer. "Statistical significance" is the most rigorous mathematical method used in science to be certain that an observation was due to a real intervention (e.g. hypnosis) rather than by chance. The most noteworthy studies were by Bakke et al. (2002), who

reported the largest statistically significant increase in absolute number of NK cells (15.8%) and by Lengacher et al. (2008), who reported a statistically significant increase in NK cell activity (4%) which could destroy cancer cells (called cytotoxicity).

These recent findings support previous studies which showed that hypnotic interventions could extend life by 18-21 months compared to non-hypnosis interventions (Simonton & Mathews-Simonton, 1981; Spiegel, Bloom & Kraemer, 1989), especially when hypnosis was combined with group or individual counseling. Of these past studies, the Spiegel et al. (1989) study was the most scientifically rigorous (randomized-control study), examining the effects of weekly self-hypnosis for pain control combined with group therapy. Although the study by Simonton & Mathews-Simonton (1981) was less scientifically rigorous, they reported almost identical results as Spiegel and colleagues by combining treatment using weekly relaxation, mental imagery and group/individual counseling.

Effects on the Immune System

A number of different hypnosis approaches have shown beneficial changes in the immune system. For example, in the Bakke et al. (2002) study, participants received one-hour sessions of guided imagery and hypnosis focused on positive mental imagery. During sessions, patients learned about NK cells, were shown pictures of NK cells destroying cancer cells and were prompted to use vivid metaphors for the immune system (e.g. a warrior overcoming an

intruder). Patients also used muscle contraction-relaxation exercises and were encouraged to practice self-hypnosis three times per week using audiotapes; however, they were not monitored stringently. Although this study had the largest outcome (a 15.8% increase in NK cell count), this research lacked a control group (a group that does not undergo hypnosis) which would have made the study more scientifically rigorous. Interestingly, it was also found that NK cell count did not remain elevated three months after hypnosis was stopped.

In contrast, a study by Hilderley & Holt (2004) showed positive benefits using autogenic training focused on calming the mind and sympathetic nervous system. In this study, subjects used hypnosis (once per week) focused on six relaxation exercises: heaviness of limbs, warmth of limbs, regularity of heartbeat, ease of breathing, warmth of abdomen, cooling of the forehead. Although researchers did use a control group, the study only showed statistically significant improvements in NK cell count for subjects with vivid imagery (determined by researchers), but not for all subjects using this hypnotic approach.

Using a different approach, a very scientifically rigorous study by Lengacher et al. (2008), compared a hypnosis group to a suitable control group (they received standard care only). For the hypnosis group, subjects were hypnotized once per week and asked to listen to audiotapes at least three times per week on their own. During hypnosis, subjects spent 30 minutes on passive progressive relaxation of muscle groups and focused breathing to relax muscles deeper. The remaining time was spent on positive guided imagery, focused on: health-promoting images, images of immune cells destroying cancer, and on soothing images. Researchers reported a statistically significant rise in NK cells

activity for the hypnosis group (approximately 4%), compared to the control group, which showed a drop in NK cells activity during standard care (approximately 8%).

Effects on Depression and Anxiety

Studies also reported that hypnosis resulted in positive psychological benefits. For example, using the Profile of Mood States, Bakke et al. (2002) found statistically significant improvements in depression after two months of weekly hypnosis training, and these benefits remained for the subsequent three months, even after hypnosis had been stopped. Similarly, Hilderley & Holt (2004) showed a strong statistically significant reduction in anxiety and depression using the Hospital Anxiety and Depression Scale.

How Hypnosis Works for Cancer Patients

Hudacek (2007) proposed two explanations to describe why hypnosis may work for cancer patients. The first possibility is that hypnosis directly influences white blood cell production and/or activity. In this scenario, hypnosis works from a top-down mechanism, whereby the brain directly uses the sympathetic nervous system to cause primary lymphoid tissue (e.g. bone marrow and thymus) and secondary lymphoid tissue (spleen and lymph node) to increase production and/or activity of NK cells. This direct top-down process could be similar to the control the brain exerts on the body when hypnosis is used for surgical procedures. Although more research is needed to explain the exact process, hypnotic-guided therapy (e.g. vivid positive imagery and/or metaphors for fighting cancer) may cause the brain to directly influence white blood cell production.

Alternatively, hypnosis may indirectly influence NK cell count and/or activity by reducing the stress associ-

ated with a diagnosis of cancer. Stress is known to activate various neuroendocrine pathways in the brain (e.g. the hypothalamic-pituitary-adrenal axis, sympathetic-adrenal-medullary axis and the hypothalamic-pituitary-gonadal axis) causing the release adrenocorticotrophic hormone (ACTH), and consequently, an elevation in serum cortisol levels. Cortisol is known to bind to white blood cells, interfering with normal immune system functioning. In this scenario, hypnosis aimed to reduce stress (e.g. progressive relaxation or positive imagery) could decrease stress and cortisol levels, thereby reducing cortisol's interference with the immune system, allowing the NK cell count and/or activity to naturally increase to fight cancer cells.

Although more research is needed to understand these processes more fully, the modern hypnotist can still incorporate these studies into practice.

Suggestions for Hypnotists

Based on the research, there is evidence that hypnosis, one to three times per week, over two months, could provide health benefits to cancer patients. These benefits can be accomplished by using a hypnotist (at least once per week) and self-hypnosis (preferably daily). As for the method of hypnosis treatment, Debbie Papadakis and I recommend a "blended approach" which merges multiple hypnotic techniques (discussed earlier) into each treatment. For each session, a hypnotist could use: (a) muscle relaxation, (b) positive health imagery (e.g. patient imagines being cancer-free in the present and distant future), (c) stress reduction approaches (e.g. focused breathing; elimination of anger, fear, negative emotions), (d) changing negative or irrational beliefs, and (e) pain management.

As well, especially for the patients who have difficulty with vivid imagery, the hypnotist could make each session more effective by educating patients on their immune system function, showing pictures of the NK cells destroying cancer, and helping patients develop their own personal metaphors to be used in mental imagery (e.g. a warrior winning a battle against the evil enemy cancer). This "blended approach" may be an important tool for hypnotists to utilize, in order to improve successful outcomes for cancer patients. ▼

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