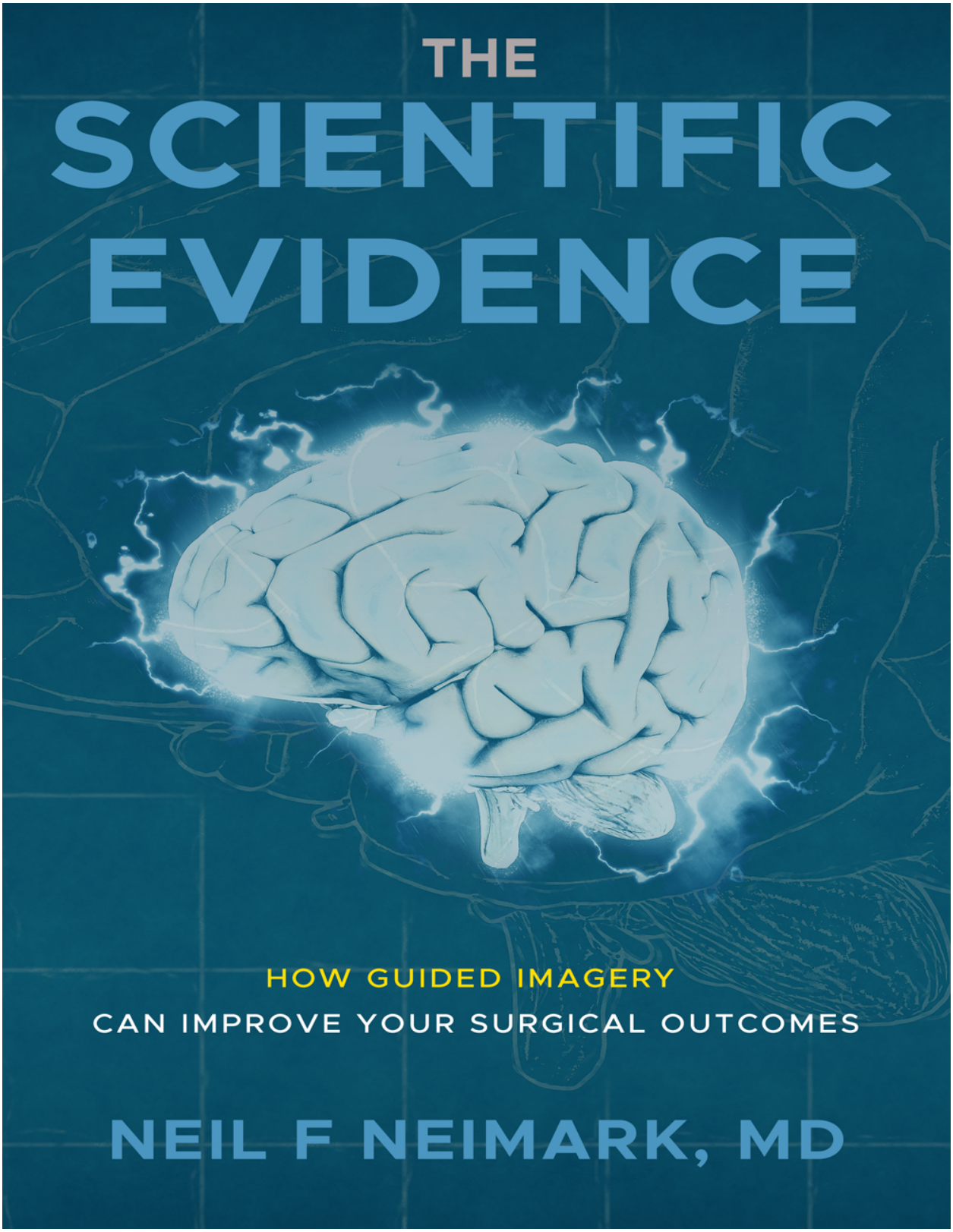
THE SCIENTIFIC EVIDENCE



HOW GUIDED IMAGERY
CAN IMPROVE YOUR SURGICAL OUTCOMES

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The Scientific Evidence: How Guided Imagery Can Improve Your Surgical Outcomes

Norman Cousins, the great humanitarian and author once said that “the highest exercise of a physician’s skill is to prescribe not just out of a little black bag but out of his or her knowledge of the human healing system.” Advances in mind/body research are now showing us the specific ways in which we can reach beyond our “little black bags” and help patients activate their own internal healing system. These advances allow us a measure of coping and self-care that can greatly improve our physical and psychological well being.

In this special report, we will review the latest research on mind/body interventions which are capable of speeding our recovery after surgery, minimizing post-operative pain, decreasing blood loss and reducing anxiety. This research draws upon new understandings in our knowledge of the human healing system.

We can improve our outcome from surgery.

There is now an abundance of research showing that pre-operative mind/body interventions (the use of guided imagery, auto suggestion, specific physiologic instruction or affirmation, etc.) are consistently effective in improving medical and psychological outcomes after surgery.

In his recent review article, Henry Dreher, author and scholar, states that “several hundred studies involving thousands of patients confirm that relatively simple behavioral interventions prior to surgery can demonstrably improve postoperative outcomes in such measures as reduced need for pain medication, shorter hospital stays, less blood loss, and fewer surgical complications.” (Dreher H 1998 Mind-body interventions for surgery: evidence and exigency. Advances in Mind-Body Medicine 14, 207-222.)

What are these simple mind/body (behavioral) interventions?

The vast majority of studies done in this area use what researcher Elizabeth Devine calls “psychoeducational” interventions. These usually involve a nurse, psychologist or doctor providing patients with health-related information (preparatory information), teaching patients skills and exercises likely to reduce discomfort and complications (rehabilitative and coping skills), and giving patients psychosocial support. These preoperative interventions take about 30 to 45 minutes to administer.

In her meta-analysis of over 102 studies, Devine concludes that “based on the research reviewed, psychoeducational interventions reliably facilitate the recovery of surgical patients.” The greatest benefits were found in the reduction of medical complications, quicker return to normal activities after surgery, reduced patient pain and improved psychological well-being.

More recent work by Henry Bennett, Ph.D., the leading pioneer and researcher in the field of behavioral anesthesia, reveals that even simple physiologic instruction (administered in a short 15 minute session) provides excellent outcomes from surgery.

Which of these interventions work best?

Those techniques that involve both educational AND emotional support seem to work best. As the field of behavioral anesthesia advances, however, what becomes clear is that many forms of traditional relaxation tapes and techniques do NOT confer the desired medical benefits. In fact, in certain cases, simple relaxation techniques actually make things worse than no pre-operative intervention. Why is this?

The most likely explanation comes to us from Dr. Bennett himself. Dr. Bennett hypothesizes that surgery is a stressful and demanding psychological and physiological event. As such, surgery requires preparation and training, no different than an athlete preparing to run a marathon. Simply “relaxing” prior to surgery is akin to having an athlete “relax” prior to a race without actually training, preparing and building up stamina and strength. The athlete is unlikely to do well. A much better outcome is expected for the athlete who trains hard, rehearses the course in their mind, knows the difficulties to expect and is prepared physically and mentally for the race.

A thorough review of the literature demonstrates that Bennett’s hypothesis is true: the best outcomes from pre-operative mind/body interventions are derived when the intervention involves specific “training” of the body and mind, through specific physiologic instructions that prepare the body for the rigors of surgery. This involves teaching patients certain skills that prepare and ready them for surgery.

Specifically we teach patients that they can learn to control the relaxation of their muscles, thereby altering blood flow to the surgical site. We teach patients that they can increase the return of intestinal motility by thinking of certain foods or sounds which stimulate the gut. We teach patients that they can improve their immune function by imagining their white cells moving towards the surgical site to clean the debris of the body.

What is the evidence that specific physiologic instructions work?

One of Dr. Bennett's early studies examined the effect of simple preoperative instructions in decreasing blood loss during spinal surgery. Surgical procedures involving fusions or instrumentation of the spine are typically bloody surgeries, often requiring transfusions. In this particular study, 94 patients scheduled for spinal surgery were randomly assigned to one of three groups.

All three groups received a 15 minute intervention from a psychologist. The first group received information about neurological monitoring during spinal surgery. The second group was taught about neurological monitoring and was also taught to relax their muscles during the operation. The third group received all of the above instruction PLUS specific directions for moving blood away from the surgical incision site during the operation (in order to minimize blood loss) and then moving blood back toward the surgery site after the operation (in order to maximize wound healing).

The findings showed that patients in the third group were able to exert positive mental control over their blood loss during surgery. Patients in the third group lost an average of 500 cc of blood compared to 900 cc of blood loss in the first and second groups. These results held true even after controlling for the length of incision and the length of time under anesthesia.

It is important to understand that the technique for delivering these instructions to preoperative patients was direct and simple, involving no hypnosis or relaxed suggestible state. Patients were simply told in normal conversation about the importance of blood conservation with statements like "the blood will move away" from the area of surgery during the course of the operation. Then, after the operation, the blood will "return to the area". All instructions were given in one 15-minute sitting.

This study dramatically illustrates the ability of the mind to convert our ideas and expectations into biochemical realities. The future will further elucidate the mechanisms by which these changes in physiology and biochemistry occur. But for now, results from studies such as the one above provide us encouragement in our ability to exert some measure of positive control in our lives, even in situations such as major surgery where we tend to feel out of control and somewhat helpless.

(For further information, please see: Bennett, HL Ph.D., Benson, DR M.D., Kuiken, DA M.D. Preoperative Instructions For Decreased Bleeding During Spine Surgery. Anesthesiology v.65, No. 3A, Sept. 1986.)

Guided imagery really works.

Another more recent study by psychologist Dr. Bennett involved the following design.

In a randomized, placebo-controlled, double-blind clinical trial, 335 surgical patients were randomly assigned to either a control group or one of four different audiotape programs: 1) Bennett's informational instructions about the surgical procedure including specific post-op outcomes 2) a relaxation tape of soothing music with a voice-over about the difficulty of surgery and the healing potential of relaxation 3) a relaxation tape of tonal sounds alleged to "drive" the brain toward greater relaxation with a voice over prompting the patient into deeper relaxed states and 4) a guided imagery tape with emphasis on spiritual connectedness and metaphors regarding positive outcomes, like faster wound healing, less pain, no nausea, etc.

The patients were assigned to take the tapes home several days prior to surgery and listen to them as often as they liked. Most patients averaged four listenings. When compared with the control group, the first three tapes produced no significant benefits with regard to three measured outcomes (blood loss during surgery, length of hospital stay, and use of post-operative pain medication). The fourth tape of guided imagery (produced by a highly regarded therapist and imagery practitioner, Belleruth Naparstek) produced highly significant results on 2 of the 3 outcomes (less blood loss and less time spent in the hospital).

Interestingly, the patients who listened to the two relaxation tapes did WORSE than the control group on all 3 medical outcomes. This confirms Bennett's view that tapes emphasizing relaxation alone do not necessarily produce desired benefits.

One possible explanation for this is akin to having someone "over-relax" prior to a difficult final exam at school. Far better test results would be expected if that student is properly "prepped" for the exam, knowing what to expect, the difficult test areas to be encountered, etc. Then, once properly prepared, a mild "relaxation" might be of benefit by inducing a state of "calm confidence" or "relaxed readiness", where a state of panic and "over-stress" are avoided. In this way, we realize the greatest benefit when proper preparation is coupled with a measured amount of relaxation in order to optimize clarity, recall, relaxed readiness and calm confidence.

This appears to be the reason that only the guided imagery tape by Belleruth Naparstek provided positive outcomes. In her tape, she gave proper preparation about the effects of surgery on the body (using guided images to promote wound healing, minimize blood loss, less pain, no nausea, etc.) combined with a sense of relaxation, safety and calmness. Naparstek herself says the imagery is designed to "evoke spirit, to generate love and gratitude."

This study seems to confirm what Norman Cousins, the great scholar and humanitarian, says in his book Head First: The Biology of Hope, ".. the human mind converts ideas and expectations into biochemical realities." Our mind seems to hold within it a natural pharmacy, or healing system, which when evoked and called upon, can bring about changes

in our physiology, biochemistry and immunology; helping us to heal physically and to calm ourselves emotionally.

(For more complete information on the above study, see: Bennett HL 1996 A comparison of audiotaped preparations for surgery: evaluation and outcomes. Paper presented at the annual meeting of the Society for Clinical and Experimental Hypnosis, Tampa, FL. or read the account in: Dreher, Henry. 1998 Mind-body interventions for surgery: evidence and exigency. Advances in Mind-Body Medicine 14, 207-222.)

More support for guided imagery.

Even more support for the power of guided imagery comes from a published study at the Cleveland Clinic Foundation by Diane L. Tusek, R.N., B.S.N., and James M. Church, M.D. In this prospective, randomized trial, 130 patients undergoing their first elective colorectal surgery were divided into one of two groups: Group 1) received standard preoperative care and Group 2) listened to a guided imagery tape three days before surgery and in the recovery room; as well as a music-only tape during the surgery.

The results showed that those patients in the guided imagery group significantly reduced their anxiety, decreased their post-operative pain, used less narcotics to control their pain and had a greater measure of satisfaction with their surgery. This is further evidence supporting the power of guided imagery in influencing our physiology and biochemistry in a positive way post-surgically.

These results are important because they replicate many of the findings of Bennett's guided imagery study. The researchers themselves conclude that the use of guided imagery "has a significant impact on preoperative and postoperative anxiety, pain, narcotic consumption, and patient satisfaction. Guided imagery is a simple, low-cost adjunct in the care of patients undergoing elective colorectal surgery."

(For more information, see: Tusek DL, Church JM, Strong SA, Grass JA, Fazio VW. Guided imagery: a significant advance in the care of patients undergoing elective colorectal surgery. Dis Colon Rectum 1997;40:172-178)

How does guided imagery really work?

Recent advances in technology allow us to visualize blood flow changes to different parts of the brain by the use of sophisticated imaging equipment called P.E.T. scanners (Positron Emission Tomography). Researchers have shown that the same parts of the brain are activated whether people actually experience something or vividly imagine it.

(For further information, see: Kosslyn, S., N.M. Alpert, W.L. Thompson, V. Maljkovic, S.B. Weise, D.F. Chabris, S.E. Hamilton, S.L. Rauch, and F. S. Buonanno. “Visual Mental Imagery Activates Topographically Organized Visual Cortex: PET Investigations.” Journal of Cognitive Neuroscience 5 (1993): 263-87.)

In other words, picturing an image of a beautiful sunset activates the same area of the cerebral cortex (brain) as actually seeing a beautiful sunset. Listening to our favorite music triggers the same area of our brain as does imagining the music in our mind. Imagining the touch of a warm cotton shirt hot from the drier activates the same area of our brain as actually feeling the warm touch on our skin.

This information helps us to understand how visual imagery can actually influence our physical body and our biochemistry. Vivid imagery actually stimulates the same brain centers as the “real thing”, in turn sending signals to our limbic system (the “feeling center” of our brain), our autonomic nervous system (which controls our bodily functions like heart rate, blood pressure, perspiration, respiratory rate, etc.) and the endocrine system (the control center for all our hormones, including stress hormones like cortisol, adrenaline, norepinephrine and the like). We all know what it is like to awaken from a scary dream and feel our heart pounding, our muscles aching, our breathing quickened and our skin sweating. That is the power of the “imaginary” world of visualization and imagery.

One basic premise of mind/body medicine is that all our thoughts and feelings are chemical. When we imagine a soothing walk on a warm, sandy beach (a vivid thought and feeling), our body produces neuropeptides (chemical messengers for those thoughts and feelings) which in turn circulate throughout our body, exerting their influence (spreading their message) to the cells of our immune system, nervous system, endocrine system and the like. As demonstrated by the studies above, this is how our body converts our ideas and expectations into biochemical realities. When properly harnessed, we can utilize appropriate ideas, expectations and instructions to help us activate and augment our human healing system, thereby improving our surgical outcome.

Wishing you the best of health and a speedy recovery from your upcoming surgery.