THE HEALING MIND

Research
The Healing Mind (www.thehealingmind.org) is focused on collecting, sharing, and supporting research on mind body and guided imagery effects on health and self-care. We participate in, design, and support research projects that help us better understand how people can use relaxation and guided imagery to support their health and healing.

Why are we focused on research?
Dr. Rossman and our expert advisors have spent much of the last 30 years working with lay people and professionals alike to understand how the mind and body best work together towards better health. We have discovered that there is an extensive and compelling body of research that demonstrates the effectiveness of relaxation, meditation, and guided imagery in a wide range of medical and health-related conditions, but this knowledge is largely not known by the medical profession. Our mission includes sharing this information with both the public and health professions in appropriate formats, so that these simple, inexpensive, and empowering approaches become part of the standard of good medical care. The Healing Mind not only aggregates and publishes research reviews, but also works collaboratively with researchers in the field to design and support original research. If you are aware of research that doesn't appear yet in our free research reviews, or know of research opportunities that we might support, please let us know.

This document contains research on mind body and guided imagery effects on health and self-care for the following conditions:

Angiogram
Asthma
Back & Neck Pain
Child Birth
Coronary Artery Disease
Diabetes
Headache
Hypertension
Insomnia
Irritable Bowel Syndrome
Preparing for Surgery
Sinus Pain
Smoking Cessation
Stress

Angiogram

Angiography is an important medical procedure for diagnosing and treating blockage of the arteries, especially the coronary (heart) arteries. Angiography is frequently accompanied by anxiety before the procedure and research shows that pre-angiography preparation with relaxation and guided imagery reduces anxiety and complication rates from the procedures. To be more relaxed and allow the procedure to go more easily, use our “Preparing for Surgery” or “Anxiety Relief” CD once or twice a day for 5 days or so before your procedure.

RESEARCH

The Role of Angiography

The value of these procedures is unquestioned; most cardiologists recommend an angiography for any patient having surgery on blood vessels Angiography is also useful for both immediate diagnostic purposes and can sometimes predict future problems (Grossman, 1986). Angioplasty can treat some blocked arteries, allowing some patients to avoid surgery.

Angiography is a widely performed procedure, costing upwards of $3500 for an uncomplicated coronary arteriogram in 1999 (Society of Nuclear Medicine, 2002). Two million angiographies with contrast materials were performed in American hospitals in 2001; there were 1.27 million cardiac catheterizations performed (Popovic,& Hall, 2001).

Patient Anxiety

Patient anxiety can be a significant problem in invasive cardiac procedures. According to Lang and Hamilton (1994): “Insufficient treatment of pain and anxiety can cause cardiovascular strain and restlessness, which may jeopardize the success of the procedure. On the other hand, pharmacologic oversedation [over-medication] can provoke respiratory and cardiovascular depression, thereby increasing the procedural risks and delaying the patient's recovery.”

High levels of patient anxiety can prolong procedures and can increase need for sedation and pain medication, and increase risks of complication (Lang & Hamilton; Lang, Joyce, Spiege, Hamilton & Lee, 1996).

Non-drug treatment of patient anxiety

One of the simplest and least expensive ways to alleviate patient anxiety is the use of specially selected music (McCaffrey, Taylor, 2005; Thorgaard, Henriksen, Pedersbaek, Thomsen, 2004). Massage prior to a procedure is also useful (McNamara, Burnham, Smith, Carroll, 2003).

Among the most effective non-drug approaches to reducing patient anxiety are relaxation with guided imagery (self-hypnosis) and pre-procedure provision of information (Lang & Hamilton, 1994; Lang, Joyce et al, 1996; Ludwick-Rosenthal & Neufeld, 1993). Pre-procedure teaching, tailored to each patient's coping style, can reduce tachycardia and other signs of distress during procedures (Ludwick-Rosenthal & Neufeld; Wilson, Moore, Randolph & Hanson, 1982).

Mind-body approaches, especially those incorporating guided imagery, relaxation, or self-hypnosis, can result in shorter procedures, less need for medication, lower anxiety, and fewer complications (Lang & Hamilton, 1994; Lang, Joyce et al, 1996; Ludwick-Rosenthal & Neufeld, 1993; Fick, Lang, Logan, Lutgendorf & Benotsch, 1999). Self-hypnosis (guided imagery) was effective even in patients with low hypnotizability scores (Fick et al). In a study where patients develop their own images (“interactive imagery”), it was more effective than pre-scripted imagery presented to patients (Fick et al,). Similar benefits have been found for imagery and self-hypnosis in other procedures including endoscopy and MRI (Friday, Kubal, 1990; Zimmeran, 1998).

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Asthma

Asthma is a growing problem in the developed world, with 20 million American adults and 9 million children suffering from its restriction of breathing through inflammation of the airways. A good deal of medical research shows that relaxation and guided imagery can help reduce asthma wheezing, airway obstruction, anxiety, medication usage and complications. Our Guided Imagery for Self-Healing book and 4 CD set will teach you all the fundamental skills of using guided imagery to help stimulate healing from within. The book will explain the process, review the science behind it, and coach you through the common questions that people have, while the CD set guides you through the 9 essential guided imagery skills taught in the book. If you prefer to listen rather than read, you may want to start with "Self-Healing with Guided Imagery", a 2 CD set featuring Dr. Andrew Weil. The first CD explains mind/body healing and guided imagery while the second teaches you three self-healing skills. Because anxiety is a frequent problem with asthma, our Anxiety Relief CD can be very useful as well.

RESEARCH

Guided Imagery for Asthma
November, 2005
Prevalence and Costs
According to the American Lung Association, asthma is a large, growing, and expensive health problem in all industrialized countries. As of 2003, the CDC estimated that 20.7 million Americans adults and 9.1 children have asthma; the condition generated 12.9 million office visits; in 2002, asthma occasioned 1.7 emergency room visits, and caused 4261 deaths in this country (CDC).

According to the Labor Occupational Safety & Health Administration, 15% of disabling asthma cases are work related. Occupational asthma is the most common type of occupational lung disease in the industrialized nations (Rabatin, 2001). Workers with asthma are twice as likely to retire early; they have higher rates of absenteeism, and they rate their ability to work and their general health as poorer than non-asthmatic workers (Sauni, Oksa, Vattulainen, Uitti, Palmroos, Roto, 2001). Baking, electronics, chemical and metal manufacturing, paints and plastics, farming, and house cleaning are the highest risk occupations (Rabatin; Sauni et al).

What is asthma?
Asthma has several causes, including genetic sensitivity, exposure to environmental irritants, and stress responses leading to “hyper-responsiveness” and bronchial inflammation. Both Inflammation and excess mucus production can close airways, thus making exhaling difficult. This cycle is difficult to stop once it is established.

Medical treatment
Customary treatment includes daily inhaled steroid medication, an as-needed bronchodilator for use during attacks, and education to avoid environmental asthma “triggers.” Sometimes, oral medications are prescribed. However, non-compliance is a major issue, particularly with inhalers. In some studies, 70% of patients (Rand, Wise, 1994) either failed to take inhalers as prescribed, or never filled the prescription (Piecoro, Potoski, Talbert, Doherty, 2001).

Non-pharmacologic treatment including imagery
According to researchers Bloomberg and Chen at St. Louis Children's Hospital, "The mind-body paradigm that links psychologic stress to disease is necessary when considering the global evaluation of childhood asthma." The mind-body connection is important in adult asthma, as well.

Mind-body techniques and behavioral modification can be used to control inflammation and spasms. In two studies, hypnosis reduced hyperresponsiveness and increased forced expiratory volume in highly hypnotizable subjects; results were maintained at one year follow up (Ewer, Stewart, 1986). In another study (n=250), 59% of those in the hypnosis group who received

positive suggestion were “much better,” compared with 40% of a group who only received relaxation training (Maher-Loughna, Macdonald, Mason, Fry, 1962).

Like hypnosis, guided imagery uses both relaxation and affirmative suggestion. “Self-hypnosis,” “auto-hypnosis,” and "guided imagery" are used almost interchangeably in the literature (Olness, 1981). A meta-analysis of previous studies conducted in 2000 showed that hypnosis had definite, long-term effectiveness in asthma. This effectiveness was helped when patients used self-hypnosis (Hackman, Stern, Gershwin, 2000). In one pediatric study (n=303), some patient’s symptoms resolved after one hypnosis session, 80% had measurable improvement, and no children's symptoms worsened (Anbar, 2002). In another pediatric study of self-hypnosis positive results were recorded in 13 patients in follow-up (mean, 9 months) and two were asymptomatic and able to discontinue medication (Anbar, 2001). Pediatric compliance in taking peak flow measurements increased when the children received a combination of education and hypnosis (Lehrer, Feldman, Giardino, Song, Schmaling, 2002). Adult asthmatics who listened to imagery tapes had lower levels of depression and anxiety, and were able to reduce their medication (Report, 1997).

According to a 2005 review of the hypnosis literature conducted by Mayo Clinic physician James H. Steward, no fewer than five studies showed positive results for asthma patients using hypnosis; results included a large multicenter trial with hypnosis patients reporting a "significant decrease" in failed treatments and an even larger number deemed "much improved" (Hypnosis for asthma, 1968); in another study, 54% of patients who used hypnosis had "excellent" results and 21% became asymptomatic and were able to discontinue medication (Collison, 1975).

In the Freeman and Welton 2005 study, the results were contrary to the researchers' hypothesis when it was shown that biologically targeted imagery was more efficacious than critical thinking asthma management.

Team or combination approaches in asthma management can be beneficial, as with Stanford University School of Medicine's multicomponent program (Shames, Sharek, Mayer, Robinson, Hoyte, Gonzalez-Hensley, Bergman, Umetsu, 2004). Remarkable improvement occurred in Anbar and Hummell's multicomponent approach which incorporates hypnosis; 82% of their patients showed either improvement or resolution of their primary symptoms.

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Back and Neck Pain

Pain, along with fatigue, is the most common complaint heard by any physician or primary health care professional. Chronic pain is pain that persists beyond the length expected from an injury, and can become a difficult problem in itself. A good deal of medical research shows that many people can reduce or relieve pain successfully with relaxation and guided imagery. Our Pain Relief CD will teach you three frequently effective methods of reducing pain through the mind/body connection, and the Guided Imagery for Self-Healing book and 4 CD set will teach you all the fundamental skills of using guided imagery to help stimulate healing from within. The book will explain the process, review the science behind it, and coach you through the common questions that people have, while the CD set guides you through the 9 essential guided imagery skills taught in the book. We recommend reading the book no matter what CDs you choose, but if you prefer to just listen rather than read, you may want to start with Self Healing with Guided Imagery, a 2 CD set featuring Dr. Andrew Weil. The first CD explains mind/body healing and guided imagery while the second teaches you three self-healing skills.

Back pain is one of the most common and disabling problems seen by any health professional. Over 80% of all Americans will have significant back pain at some time in their life, whether from posture, stress and tension, sprains and injuries, or herniated disks. Medical research shows that relaxation and guided imagery can be very helpful with back problems, reducing muscle tension and spasms, pain, and stress effects that can both cause or be caused by back problems. Our Guided Imagery for Self-Healing book and 4 CD set will teach you all the fundamental skills of using guided imagery to help stimulate healing from within. The book will explain the process, review the science behind it, and coach you through the common questions that people have, while the CD set guides you through the 9 essential guided imagery skills taught in the book. If you prefer to listen rather than read, you may want to start with Self-Healing with Guided Imagery, a 2 CD set featuring Dr. Andrew Weil. The first CD explains mind/body healing and guided imagery while the second teaches you three self-healing skills. Some people prefer to start with our Pain Relief CD or add it to the set to learn additional guided imagery skills specifically aimed at reducing or relieving pain.

RESEARCH

Guided Imagery for neck and back pain
November, 2005
Incidence of Back and Neck Pain
Fifteen to twenty percent of Americans have back pain at any given time, and 70% have had back pain at least once in their lives (Atlas, Deyo, 2001; Lipman, Jackson, 2000). According to the American Academy of Physical Medicine and Rehabilitation, back pain is the second leading cause of absenteeism from work. Work-related back injuries are the country's number one occupational hazard, with the cost to Americans of lower back pain given as $50 billion a year (NINDS). According to government statistics, there were 14.3 million office visits for conditions associated with back pain (Hart, Deyo, Cherkin, 1995). In 1997, almost one-third (or 203 million) of all visits to CAM providers were for back or neck pain (Wolsko, Eisenberg, Davis, Kessler, Phillips, 2003).

Chronic pain can have negative psychological side effects such as anger, anxiety, depression, low perceived quality of life, low self-efficacy, and poor coping skills (Materson, 1999).

Mind-Body Approaches
Many studies demonstrate the effectiveness of cognitive-behavioral measures, including relaxation, meditation, and guided imagery, in reducing pain perception, narcotic use, and physician visits, and in increasing feelings of self-efficacy and well-being in pain conditions. Researches in one study of people with neck and back pain found that cognitive-behavioral therapy that included relaxation and imagery stopped pain from becoming a chronic disability in

88% of the cases (Linton, Andersson, 2002). The noted authority on Preventive and Behavioral Medicine, Jon Kabat-Zinn, found that mindfulness meditation successfully reduced pain in a mixed group of chronic pain patients, including those with back pain; the location of pain did not appear to affect the outcome (Kabat-Zinn, Lipworth, Burney, 1985).

In a 2003 extensive review by Astin et al. of mind-body literature, researchers concluded “there is considerable evidence” that these approaches (imagery, relaxation, CBT meditation, imagery, and hypnosis) are effective in the treating chronic lower back pain (Astin, Shapiro, Eisenberg, Forys, 2003). Astin's 2004 review also reaffirmed that "multi-component mind-body approaches" are an suitable adjunctive treatment for chronic low back pain (Astin, 2004). A 2005 review published in Cochrane Database System Review found strong evidence for CBT's having a "medium positive effect" on pain, and moderate evidence of progressive relaxation's having a "large positive effect on pain and behavioural outcomes"; however, it was inconclusive as to whether these effects were long term (Ostelo, vanTulder, Vlaeyen, Linton, Morley, Assendfelft, 2005).

Another study reported that a higher percentage of patients had used complementary therapies for their back and neck pain than had used conventional approaches (54% vs. 37%). A higher percentage of those using complementary methods found those approaches “more helpful” than those who used conventional approaches (Wolsko, Eisenberg, Davis, Kessler, Phillips, 2003).

A three-year follow up study of back and neck pain patients revealed that a program of behavioral medicine cut sick leave by almost two-thirds (Jensen, Bergstron, Ljungquist, Bodin, 2005). Another multidisciplinary approach (which included relaxation) was also deemed effective in significantly reducing sick leave (Storro, Moel, Sveback, 2004). Patients using a program of breath therapy (body awareness, movement, breathing, and meditation) improve significantly both physically and emotionally (Mehling, Hamel, Acree, Myl, Hecht, 2005). Meditation was able to reduce not only pain, but also anger and psychological distress in those with chronic low back pain (Carson, Keefe, Lunch, Carson, GOli, Fras, Thorp, 2005. Among other complementary approaches, patients using Iyengar yoga had a high compliance rate, and showed significant improvements in pain, function, and medication use (Williams, Petronis, Smith, Goodrich, Wu, et al., 2005).

Chronic neck pain can accompany chronic headache. In a study of the use of imagery in patients with tension headache patients (Mannix, Chandurkar, Rybicki, Tusek, Solomon, 1999), the imagery group was three times as likely to report major pain reduction (p=.004.) Relaxation and imagery has significantly reduced pain in studies involving patients with cancer, arthritis, fibromyalgia, hemophilia, and migraine headaches (Syrjala, Donaldson, Davis, Kippes, Carr, 1995; Varni, Gilbert, 1982; Walco, Ilowite, 1992). In all studies with follow-up, improvements in pain, function, and mental outlook were sustained through follow-up lasting as long as 18 months (Materson, 1999; Linton, Andersson, 2002; Kabat-Zinn, Lipworth, Burney, 1985).

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Child Birth

Childbirth is an exciting and potentially stressful time, and research shows that relaxation and guided imagery can be very helpful in reducing anxiety and stress associated with labor and delivery.. Our "Preparing for Childbirth" CD will teach you three guided imagery processes will help prepare a woman for an easier, more natural childbirth while reducing complications and enhancing the enjoyment of this special event.

RESEARCH

January, 2006
Acceptance and efficacy of natural childbirth preparation
About four million births take place annually in the United States (NCHS). Many of the mothers involved are looking for ways to participate more actively in preparation for delivery and in the process of labor, and to avoid “medicalized” births. A search for "natural childbirth" books on Amazon.com, conducted on January 1, 2006, yielded 457 titles, up from 309 titles just three years earlier. Another indicator of this trend is the rise in the use of midwives, which rose from less than 1% in 1975, to nearly 8% of vaginal deliveries in 2003 (Martin, Hamilton, 2005). A survey of nurse midwives revealed that 48.8% of CNM’S recommend mind-body techniques for the birthing process (Gentz, 2001).

Multiple studies have shown that psychological and educational programs using self-hypnosis and guided imagery are effective methods of natural childbirth methods (Harmon, Hynan et al, 1990; Martin, Schauble, et al, 2001; Oster, 1994; Schauble, Werner, et al. 1998). Self-hypnosis and guided imagery – the terms are used interchangeably in the literature – combining deep relaxation with positive suggestion and positive expectation for a normal, comfortable birthing process which is often shorter, with fewer medical interventions, than with "prepared childbirth" methods.

In one study, women who used self-hypnosis for their labors had shorter hospital stays ($p<0.005$) and fewer surgical interventions ($p<0.001$) than a matched control group who received psychosocial counseling (Martin, Schauble et al. 2001). Harmon, Hynan, and Tyre studied 60 pregnant women, half of whom received hypnotic suggestions for a comfortable labor, deep relaxation, and glove anesthesia. Those using hypnosis had shorter Stage 1 of labor, reported less pain, and used less medication than the control group. The babies of the treatment group had higher Apgar scores at 1 and 5 minutes.

Imagery and self-hypnosis have also been shown to reduce complications of pregnancy (Mehl, 1994; Torem, 1994). Mehl used guided imagery with 100 women whose babies were in breech positions at 37 to 40 weeks' gestation and compared them with a matched comparison group. Eighty-one percent of the babies in the hypnosis group spontaneously converted to vertex presentation, compared with 48% of the comparison group. Gentz, in her 2001 review of the literature, concluded that hypnosis is “a helpful adjunct” for women during labor. Authors of a 2003 review found that women using hypnosis were more satisfied with the management of their labor pain when compared with women using other forms of alternative and complementary methods of pain management (Smith, Collins, et al, 2003). More recently, authors of a 2004 review reported that women using hypnosis needed less analgesia and rated their pain as less severe than those in the non-hypnosis groups (Cyna, McAuliffe, Andrew, 2004).

Potential Cost Savings
The 2004 national cesarean section rate climbed another 6% to an all-time high of 29.1% (Martin, Hamilton, et al. 2005), with individual hospital's rates approaching a staggering 57% (Goldstein, 2005). These numbers far exceed The World Health Organization's call for a rate no higher than 15% (World Health Organization). Clearly there is a need for greater education of the benefits to

both mother and baby of natural childbirth and the potential complications of medically unnecessary interventions of "managed" birth.

According to a NEJM article, reduction of American surgical birth rates to European levels would save approximately $1.5 billion per year (Sachs, Kobelin, 1999). The use of guided imagery to reduce not only the number of surgical births, but also reduce the length of hospital stays, complications, and pain medications, would save additional resources.

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Coronary Artery Disease:

Coronary artery disease is the most common cause of death in America for both men and women and is largely modifiable through changing lifestyle habits and patterns. Research has shown that relaxation and guided imagery can help with many forms of heart disease in many ways, by reducing stress, lowering blood pressure, helping people stop smoking, helping them lose weight, and even having a direct effect on heart function.

RESEARCH

Guided Imagery for Coronary Artery Disease
NOVEMBER, 2005
About CAD
According to the American Heart Association (pg. 11; 2002), as of 1999, 12.6 million Americans had CHD, and the direct and indirect costs of CHD to the U.S. economy exceed $129.9 billion annually (pg. 4). Medicare alone spends more than $10.6 billion annually in its treatment(AHA, 2001). CHD is the most common form of heart disease and is the leading cause of death in Americans, both male and female -- over 500,000 deaths annually (National Heart, Blood, and Lung Institute.

Medical Treatment
Treatment for CHD depends on many factors, including the severity of the disease and any comorbid conditions. The medication and surgical choices are vast, and are outside the scope of this paper. Recommended lifestyle changes include quitting smoking, maintaining correct weight, regular exercise, and following a diet low in fat and cholesterol (Bass, 2001).

Lifestyle Changes, Emotions, and Well-Being
The results of Dean Ornish and associates' landmark 1998 study demonstrated that lifestyle changes (diet, exercise, relaxation, and social support) can dramatically reverse CHD. Other studies have shown that emotions can play a major role in CHD, with fear, grief, and anxiety capable of triggering cardiac events (Ornish, 1998a; Verrier & Mittelman, 1997; Williams, Kiecolt-Glaser, Legato, Ornish et al, 1999). Anger can also be a trigger (Boltwood, Taylor, Burke, et al., 1993; Ironson, Taylor & Boltwood, et al, 1993; Mittleman, Maclure, Sherwood, et al,.1995; Verrier, Hagestad & Lown, 1987; Verrier & Miittelman, 1997), and depression can affect the outcome of long-term survival (Barefoot, Brummett, Helms, Mark, Siegler, Williams, 2000). Stress also plays a role in the development and progression of CHD both in men and women (Allison, Williams, Miller, Patten, Bailey et al., 1995; Bairey, Krantz & Rozanski, 1990; Nordstrom, Dwyer, Merz, Shircore, Dwyer, 2001; Orth-Gomer, Wamala, Horsten, Schenck-Gustafsson et al., 2000; Sheps, McMahon, Becker, Carney, Freedland, et al, 2002).

Guided Imagery and other Mind-Body Approaches
Anger and other possibly harmful emotional states can be meliorated by the inner-focused, relaxed state induced by guided imagery and other mind-body modalities. A sense of emotional well-being can be improved by the use of these mind-body techniques. Guided imagery and relaxation can reduce stress, and lower heart rate and blood pressure (Crowther,1983; Pender, 1985; Sharpley, 1994). Meditation produces similar physiological results (Castillo-Richmond, Schneider, Alexander, Cook, et al., 2000; Zamarra, Schneider, Besseghini, Robinson & Salerno,1996). Yoga that combined both postures and yogic breathing produced significant positive levels of blood lipids in those patients who participated in the program (Bijlani,Vempati, Yadav, Ray, & Gupta, 2005).

Authors of a review of 23 major heart disease studies concluded that when psychosocial approaches were added to standard medical treatments, not only survival but further cardiac event rates improved significantly (Linden, Stossel, Maurice, 1996). Complementary approaches like relaxation training and imagery are so effective that they are routinely done at major medical facilities such as Columbia Presbyterian Hospital’s Department of Surgery (Oz MC, Lemole, Oz,

LL, Whitworth & Lemole, 1996). Relaxation, imagery, and education are important parts of Stanford's Chronic Disease Self-Management Program.

According to one lifestyle study, 80% of people who used complementary approaches avoided cardiac surgery – a savings of almost $30,000 per patient (Ornish, 1998c). Self-management of chronic conditions including CHD improves symptom management and reduces medical costs (Loring, Sobe, Stewart, Brown et al., 1999)

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Diabetes

There are two kinds of diabetes, with Diabetes Type I resulting from a lack of insulin and requiring its replacement, and Diabetes Type II, much more common, which is brought on by overweight, sedentary lifestyle, and a resulting resistance to the effects of insulin. Medical research shows that good stress management is an important part of diabetes management, and that relaxation and guided imagery can be very helpful. The benefits are largely through the effectiveness of guided imagery to reduce stress and help people change to healthier lifestyles, but there may also be some direct effect on blood sugar levels.

RESEARCH

GUIDED IMAGERY FOR DIABETES
JANUARY, 2006
Definition of the Problem

There are two major types of diabetes mellitus (DM); both affect how a person metabolizes glucose (“blood sugar”). Type I diabetes, also called Juvenile Diabetes, is thought to be an auto-immune condition in which the pancreas stops producing insulin. Someone with Type I is "insulin-dependent," meaning they need daily insulin replacement therapy to survive. Type I diabetics comprise only 5%-10% of the diabetic population (Votey, Peters, 2005a).

People with Type II diabetes are "insulin resistant," meaning that the pancreas may or may not be producing sufficient insulin, but the insulin receptor cells have become "resistant" to absorbing the insulin. Type II diabetes is primarily a lifestyle condition associated with being overweight, and leading a sedentary lifestyle; it occurs more frequently in persons of low economic levels, probably as a result of the consumption of a high-fat, high-calorie diet (Black, 2002; Bo, Menato, et al, 2002; Votey, Peters, 2005b). Stress is a major contributing factor, since stress raises blood glucose by stimulating the liver to release glucose. Additionally, people under stress often fail to follow doctors' recommendations (Surwit, van Tilburg, et al, 2002; Arsham and Lowe, 1997, p. 213-215).

Scope and Cost of the Problem

Diabetes is among the most prevalent, most expensive, and fastest growing chronic conditions in the U.S.A. and the world. In 2002, About 18.2 million Americans were estimated to have diabetes (Votey, Peters, 2005a). In 1998, their care involved 513,000 hospital admissions, averaging 5.2 days per stay (Hall, Popovic, 2000). For the year 2002, Direct medical expenditures for diabetes in 1997 totaled $44.1 billion – about $7.7 billion for glycemic care, and $36.4 billion for treatment of complications and excess prevalence of general medical conditions (Votey, Peters, 2005b). People visited doctor’s offices 21.4 million times in 1997 (Schappert, 1999).

According to the American Diabetes Association, indirect costs of diabetes (from premature mortality and disability) in 1997 totaled $54.1 billion. In 2002, medical expenditures incurred by people with diabetes totaled $13,243 per person, compared with $2,560 for people without diabetes (Votey, Peters, 2005b). ADA research also found that: “In the United States alone, diabetes accounted for a loss of nearly 88 million disability days in 1997" (Schappert, 1999).

Patient Compliance

Outcomes, quality of life, and use of medical resources depend almost entirely on patient compliance, including following prescribed diet, exercising, infection prevention, and adhering to medication and glucose monitoring regimens. Improvements in glucose testing technology and medications have made glucose control possible for a greater number of diabetics. Still, the physical and psychological demands can be difficult (Polonsky, 1999). Patient noncompliance is the single largest cause of common diabetic complications, such as kidney failure, blindness, amputation, and heart disease (Arsham, 280-290). Any program that improves patient attitude and compliance will be extremely valuable and cost-effective. The Diabetes Clinical Control Trial

clearly illustrated that diabetics maintaining excellent glycemic control greatly lower their risk of kidney failure, retinopathy, or amputation.

The Role of Relaxation, Hypnosis, and Imagery

Stress reduction is a vital part of diabetes management program. This is especially true in Type II diabetes, where stress reduction appears to lower blood glucose directly (Feinglos, Hastedt, Surwit, 1987; Surwit, van Tillburg, et al., 2002). The advantages of guided imagery, relaxation, hypnosis, biofeedback and in Type I stem largely from improved behaviors and compliance, although there is also some evidence of a direct effect (McGrady, Gerstenmaier, 1990; Ratner, Gross et al, 1990). Depression and anxiety worsen glycemic control both directly, and indirectly through behavior (McGrady, Horner, 1999). Relaxation and self-hypnosis (guided imagery) can fat least partially relieve depression and anxiety (Davidson, Farnbach, Richardson, 1978; Stetter, Walter, et al, 1994). Guided imagery tapes have also been shown to be effective in improving several areas of diabetes' self-care behavior (Wichowski, Kubsch, 1999).

More recently, researches illustrated that both biofeedback and relaxation significantly lowered blood glucose, A1C, and muscle tension, depression and anxiety (McGinnis, McGrady, et al, 2005).

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Headache

Headaches are a common source of pain, distress, and disability, and guided imagery can help relieve them, whether they are tension or migraine type., When practiced regularly, research shows that relaxation and imagery can prevent migraines as well as any of the most commonly prescribed medications, and of course, without the accompanying side effects of expense.

RESEARCH

GUIDED IMAGERY-BASED FOR HEADACHE
November, 2005
Prevalence and Costs of Headaches
Over 45 million Americans have recurring headaches and 28 million of them have chronic migraines.1 The incidence of headache increased 60% in the years 1988-1998.7 Headaches cause 329,000 school absences per month and cause Americans to miss more than 150 million workdays a year. 7 These missed workdays and their associated medical costs represent a loss to industry of $50 billion annually.17 Headaches are also responsible for 10 million physician visits a year in the U.S.A.

Headache Causes
Headache pain can occur in the muscles and blood vessels of the scalp, face, or neck, in the tissue around the brain, or in the attaching structures at the base of the brain. There are many classifications of headache, but there are three most common types. Tension or muscle contraction headaches are usually caused by fatigue, stress, or environmental factors.1,7 Migraines are throbbing headaches that can last for hours or days, usually affecting one temple or side of the head, and are often accompanied by nausea, vomiting, and light/noise sensitivity. 7 Cluster headaches, appropriately named because they occur in clusters, are often the most painful type. They are characterized by short periods (usually 30 to 40 minutes) of excruciating head pain that often recur several times a day, sometimes for months at a time.

Medical treatment of headaches
Over-the-counter analgesics (aspirin and NSAIDS) are often a first line of treatment for tension headaches. For more severe recurrent headaches, medications include analgesics including acetaminophen and codeine, antidepressants, NSAIDS, antihistamines, anti-emetics, serotonin receptor blockers and vaso-constrictors, serotonin 1-D receptor agonists, triptan drugs, beta-blockers, ergot alkaloids, lithium, corticosteroids, calcium channel blockers, and anti-seizure medications. All these pharmacologic treatments have significant risks and side effects and are only variably effective in relieving headaches.

Guided Imagery and Mind/Body Studies
Guided imagery, which combines deep relaxation with positive suggestion, was shown to be a cost effective way of decreasing the intensity, number, or duration of headaches; it was also helpful in increasing patient ability to cope with headaches. 4-6, 9-16, 18-23, 25-27

When Mannix et al. studied a group of 260 patients with tension-type headaches14, 21.7% of those in the imagery group reported their headaches ìmuch improved,î compared to 7.6% of the control group ($p = 0.04$). The authors of a 2003 review of the literature concluded that ìconsiderable evidenceî exists for the efficacy of mind-body techniques such as imagery, relaxation, hypnosis, and CBT in the treatment of headaches2.11 In their review of the literature, University of Mississippi researchers concluded that regular practice of relaxation and stress reduction is as effective in reducing frequency of headaches as taking medication, with far fewer side effects.17

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Hypertension

High blood pressure (Hypertension) is a common risk factor for heart disease and stroke later in life, and reducing blood pressure can significantly protect you from these undesirable health events. Regular relaxation and guided imagery have been shown in research studies to lower blood pressure, especially in the pre-hypertensive, mildly and moderately hypertensive stages. Imagery can also help you stop smoking, lose weight, develop an exercise habit, and reduce stress, all of which can help with high blood pressure.

RESEARCH

GUIDED IMAGERY in HYPERTENSION
November, 2005
About the problem
Hypertension (HTN) is defined as a repeated blood pressure reading of greater than 140/90 mm Hg with pressures over 120/80 now considered as pre-hypertensive and worthy of lowering, especially with non-pharmacologic means Over 50 million Americans have HTN, and more than 31% of those who have it don't realize it (National Institute of Mental Health).

Costs
According to a publication by the U.S. Preventative Services Task Force, the total costs of hypertension in 2000 was $50.3 billion (approximately $37.2 billion in direct costs; $13.1 billion in indirect costs). Hypertension is a major contributor to coronary artery disease (740,000 deaths per year in the United States), cerebrovascular disease (150,000 deaths per year), and kidney disease -- three of the leading causes of morbidity, mortality, and medical resource utilization in this country (AHA, 2002). In 2000, there were 35 million outpatient visits for hypertension (Dawber, 1980). In 2000, 44,619 deaths were attributed directly to hypertension, with HTN playing a part in 118,000 more (NIMH).

Benefits of Control
The benefits of controlling even mild hypertension are well accepted. Long-term reductions in mortality from coronary artery and cerebrovascular disease of between have been reported in large-scale studies (CDC).6 Incidence of stroke, in particular, can be sharply reduced by controlling hypertension (AHA, 2003).

Nonpharmacologic Approaches
The effectiveness and cost-effectiveness of behavioral interventions, either in place of or in combination with drug therapy, were demonstrated in many studies done in the1980s (Agras, 1981; Crowther, 1983; "Five year findings," 1979; Patel & Marmot, 1987). Along with exercise, and weight loss, relaxation techniques are among the most effective interventions. Behavioral approaches also have the added advantage of improved quality of life ("Five year findings"), better self-care, improved patient locus of control, and improving compliance (Ginsberg, Viskoper, Prem, et al, 1990).

Mind-Body Approaches*
Guided imagery is a highly effective in reducing blood pressure using deep relaxation with positive self-suggestion (Agras 1981; Lorig, Sobel, Stewart et al. 1999). Centers for Disease Control and Prevention researchers have stated that evidence for the effectiveness of certain non-drug approaches to HNT prevention and control including guided imagery is strong (Taylor, Farquhar, Nelson & Argas, 1977). Individual studies support the effectiveness of imagery, relaxation training, biofeedback with relaxation training, hypnosis, and autogenic training (Astin, Shapiro, Eisenberg, et al, 2003; Labarthe; Herrmann, 2002; & Ayala, 2002; Setter & Kupper, 2002). Positive results were further confirmed by two 2003 reviews of the medical literature. One study found ìmoderate evidence of efficacyî for using mind body modalities (relaxation, imagery, hypnosis, CBT) for managing HTN (Labarthe), while a review of 22 studies showed that

biofeedback combined with relaxation significantly decreased both systolic and diastolic blood pressures (Stetter).

One researcher reported in his 2002 study that relaxation techniques (autogenic training or progressive muscular relaxation, behavioral therapy or biofeedback techniques), can lower elevated blood pressure by an average of 10 mmHg (systolic) and 5 mmHg (diastolic)" (Astin, Shapiro, Eisenberg, et al.).î

More recent studies confirm that meditation (Barnes, et al, 2004a, Barnes et al, 2004b), relaxation and stress reduction (Kurz, Potz, Dorrscheidt, Uhlir 2005), and even simply breathing techniques (Bernardi, Spicuzza, Sleight, 2005) can positively affect hypertension. Meditation also appeared to decrease blood pressure among African American women (Schneider, Alexander, Staggers, Orme-Johnson, Rainforth et al., 2005) and significantly decreased mortality in hypertensive subjects (Schneider, Alexander, Staggers, Rainforth, Salerno, et al., 2005). Authors of a meta-analysis of 22 biofeedback studies concluded that only the relaxation-assisted biofeedback significantly decreased both systolic and diastolic blood pressures, so its effect may possibly only be from the relaxation component (Nakao).

* Please note that we cite studies that include relaxation training, suggestion, hypnosis, meditation, biofeedback, and psychotherapy. All these processes and interventions utilize imagery and guided imagery as core components, and in fact, it is difficult to have any effect from any of them, except meditation, without the significant use of imagery.

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Insomnia

Sleep disturbances can be the result of excessive stress, anxiety, depression, or medical conditions, and sleep deprivation can make people more vulnerable to developing illness. Relaxation and guided imagery have been shown in medical research to help with sleep disturbances. If you are having trouble sleeping it will help you to learn to relax your body and mind and reduce your stress levels.

RESEARCH

GUIDED IMAGERY FOR INSOMNIA
November, 2005
Definition
One can be said to have insomnia if it takes more than 30 minutes to get to sleep, awakens for than 30 minutes, or awakens earlier than desired, resulting in fatigue and drowsiness during the day, recurring during a 30 day or longer period (Lacks, 1987).

D**imensions of the Problem**
About one-third of American experience insomnia, with about 10 million visiting physicians each year for the problem. It takes people, on average, 14 years to seek professional help for insomnia, but some people wait as long as 30 years (Lacks, 1987). In one survey, 32% of respondents in Los Angeles complained of insomnia at time of survey, while another 10% said they had insomnia in the previous month (Bixler, Kales, Scharf, Kales, &Leo, 1976).

The National Commission on Sleep Disorders Research reported almost $16 billion as direct cost of sleep disorders and sleep deprivation, with another $50-$100 billion in indirect costs, mostly from accidents (Overview of the Findings, 2003). In European studies, drowsiness was established to be a bigger traffic hazard than drinking alcohol (Haraldsson, Akerstedt, 2001). According to one source, in 1999 Americans spent $1.1 billion on sleep products, split about 50/50 between prescription medicines and herbal sleep aids.

A 1991 survey of 1308 workers found that insomnia was the most predictable factor of absenteeism at work, with those experiencing insomnia having an average monthly sick absence rate 2.8 times that of the total group (Leigh, 1991). The estimated annual loss of productivity due to insomnia in the U.S. was $41.1 billion in 1988 (Stoller, 1994).

Causes
Chronic insomnia is usually a behavioral or psychophysiological problem, although causative medical conditions like sleep apnea or restless legs syndrome must always be ruled out. Temporary sleeplessness often occurs during stressful times and can lead people to forming a link between bedtime and worrying. Those with insomnia usually have higher than normal levels of anxiety and depression, and have overly high self-expectations and low self-efficacy -- any of which can cause or effect sleeplessness. Hormonal changes and drug use (including prescription drugs), cigarettes, and alcohol can also cause insomnia (Lacks, 1987).

Pharmaceutical Treatment
Pharmaceutical treatment of insomnia is often less than satisfactory to both patient and clinician. Older sleep medications had many risks, including building up tolerance in as little as 2 weeks. That period of time has been extended with newer medications, but medications often work for only a short while then lose their effectiveness. In the elderly population, there is a risk of sleep medications causing falls or breathing complications. Sleep aids can also interact with other medications or alcohol, and can disrupt circadian rhythms. There is often a rebound effect after people stop taking them (Hauri, 1982). The next-day after-effects of sleep aids can make people feel just as bad as a lack of sleep does (Lacks, 1987). Recently introduced medications like zalpidem (Ambien), zaleplon (Sonata) have less dangerous side effects than benzodiazepine and tranquilizers. While they’re frequently effective for short-term episodes, they are not

recommended for chronic insomnia. A newer hypnotic, eszopiclone (Lunesta), is approved for long-term use.

Non-pharmacologic Treatment Including Relaxation and Guided Imagery
Behavioral therapy has repeatedly demonstrated its efficacy as the most effective long-term approach to chronic insomnia (Backhaous, Hohagen, Voderholzer, Reimann, 2001; Dashevsky, Kramer, 1998; Jansson, Linton , 2005).

McClusky, Milby, Switzer, Williams, Wooten, 1991; Morin, Mimeault, Gagne, 1999; Smith, Huang, Manber, 2005). Cognitive Behavioral Therapy (CBT) alone or in combination with medication has been shown effective many times (Montgomery, Pennis, 2003); Ediger, Wohlgemuth, Radtke, Marsh, Quillian, 2001b; Espie, Inglis, Harvey, 2001; Perlis, Sharpe, Smith, Greenblatt, Giles, 2001; Morin, Blais, Savard, 2002). One research has said that "CBT has emerged as 'the treatment of choice'" for sleep/wake (CBT) has emerged as a "treatment of choice" for managing the sleep/wake aspects of primary insomnia (Edinger, Means, 2005).

The main categories of behavior therapy for insomnia are stimulus control (using the bed only for sleeping), a sleep hygiene program, keeping a sleep log, cognitive control, and progressive relaxation. These methods are often combined to maximize effectiveness.

Relaxation can reduce sleep-onset insomnia, with or without stimulus control measures (Cannici, Malcolm, Peek, 1983; Viens, DeKonick, Mercier, Sto-Onge, Lorrain, 2003). Effects are better when the two are combined (Jacobs, Rosenberg, Friedman, Matheson, Peavy, Domar, Benson, 1993). Patients were able to stay asleep longer when they used CBT and relaxation techniques (Edinger, Wohlgemuth, Radtke, Marsh, Quillian, 2001a). Similar results were reported in a 2002 study of older patients; 54% of those who took part in classroom CBT, and 35% of those who took part in a home-based audiotaped relaxation program achieved clinically significant changes (Rybarczyk, Lopez, Benson, Alsten, Stepanski, 2002).

One study demonstrated that when subjects combined progressive relaxation and learned new sleep habits, they became less depressed, achieved a greater sense of control, fell asleep faster, and slept better, even two years follow-up (Engle-Friedman, Bootzin, Hazelwood, Tsao, 1992).Both progressive relaxation and autogenic training helped cancer patients experiencing insomnia, with subjects in using those interventions benefiting with moderate-or large-scale effects on sleep latency ($p<0.001$), sleep duration ($p<0.001$), sleep efficiency ($p<0.001$), sleep quality ($p<0.001$), sleep medication ($p<0.05$) and daytime dysfunction ($p<0.05$). (Simeit)

Hypnosis, consisting of relaxation and imagery laden suggestions, helped subjects in one study sleep better (Younus, Simpson, Collins, Wang, 2003); imagery helped subjects in another study fall asleep faster and have less intrusive “mind-racing” prior to sleep (Harvey, Payne, 2002).

Three reviews of the literature of mind-body techniques including relaxation, meditation, guided imagery or biofeedback led their authors to conclude that there is, respectively, either “considerable,” "moderate," or “sufficient” evidence of their effectiveness in insomnia (Astin, Shapiro, Eisenberg, Forys, 2003; Barrows, Jacobs, 2002; Mamtani, Cimino, 2002). A 2003 study found that at-home use of relaxation tapes was effective in improving subjects’ sleep (Hanley, Stirling, Brown, 2003).

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Irritable Bowel Syndrome

IBS is a dysfunction of the bowel resulting in a variety of abdominal symptoms that may include constipation, diarrhea, cramps, bloating, as well as anxiety and fatigue. IBS is often reactive to stress and anxiety, and responds quite well to relaxation and guided imagery. In fact, the research into this common condition indicates that this mind/body approach is the treatment of choice, and works better than any medication.

RESEARCH

January 2006
Alternatively known as "spastic colon," irritable colon," or the highly imprecise "nervous stomach," Irritable Bowel Syndrome (IBS) is a functional disorder of the bowel.

IBS usually presents with patients reporting a change in the normal functioning of their bowels -- diarrhea, constipation, or alternating between the two. Because of the many pain receptors in the gut make it extremely sensitive to pain, patients often report discomfort. Other symptoms can include bloating, a sense of fullness, gas or flatulence. Symptoms are not confined to the gut. There can be nausea and reflux, non-cardiac-related chest pain, exhaustion, and depression. Quality of life is often low, with sleep, sexual functioning, and social life being affected. Other challenges to the IBS patient can exist when those patients have comorbid conditions such as thyroid disease, fibromyalgia, or Chronic Fatigue Syndrome (CFIDS).

Contrary to common opinion, diet is not a cause of IBS. The problem seems to be an errant communication between the central nervous system, the brain, and the bowel, causing the gut to be over-reactive, much like an over-vigilant immune system "causes" allergies. Diet can, however, trigger symptoms, and stress and emotions can adversely affect the gut (Whorwell, Houghton et al).

Incidence
IBS is more common than diabetes, asthma, heart disease, or hypertension (Adams, Benson), and it affects 20-22% of Americans at any one time, 60-65% of whom are women. Up to 70% of those who meet IBS diagnostic criteria do not seek medical attention (Zaman).

Diagnosis and Treatment
IBS is a diagnosis of exclusion, with medication being aimed at symptom management. Drugs include antispasmodics, antidiarrhetics, laxatives, bulking agents, and prokinetic agents (to move food quickly through the bowel). A patient exhibiting depression or having severe pain that hasn't responded to other treatment are often given SSRIs or low-dose tricyclic antidepressants. According to one expert, however, there is “little evidence” that medications are effective in treating IBS (Zaman). A new approach to treating IBS has to do with correcting bacterial overgrowth believed to be related to peristaltic problems in the small intestine. (Pimentel)

Mind-Body Approaches
Because of its well-established mind-body component, IBS is particularly responsive to mind-body modalities, and the literature supports this assertion. Relaxation (Keefer & Blanchard, 2001, 2002; Voirol, Hipolito, et al) and biofeedback (Leahy & Clayman) have shown success in improving symptoms and preventing relapse. One approach (relaxation, therapy, and medication) was effective in 66% of patients who had not responded to medication alone (Guthrie, Creed et al). A program of progressive muscle relaxation, thermal biofeedback, cognitive therapy, education had a 50% success rate, maintained four years later (Schwarz, Taylor et al). One meditation study reported that improvement in symptoms were maintained at one-year follow-up (Keefer). A 2005 review of fourteen hypnosis/IBS studies strongly reaffirms hypnosis' consistent efficacy (Tan, Hammond, Joseph). The power of placebo and positive suggestions and expectation are very interestingly illustrated in one study (Vase & Robinson et al).

Hypnosis has been effective even in refractory cases (Forbes & MacAulay et al.; Francis & Houghton; Galovski & Blanchard; Houghton & Heyman et al.), and in patients where psychotherapy has failed (Whorwell & Prior, et al). Significent improvement was shown when gut-directed suggestion was used (Forbes; Galovsky), even when the suggestions were audiotapes (Forbes). The Houghton-Heyman study results showed “profound” improvement in pain, bloating, and bowel habit). Gonsalkorale reported that not only symptoms, but quality of life, depression, anxiety and cognitive scores). This was also reported by Houghton, Heyman & Whorell; Blanchard & Radnitz, et al, ; and Read; it was echoed by patients who reported feeling more in control. Patients had fewer sick days and lower numbers of visits to the doctor than the control group (Houghton,1996).

Psychotherapy also proved superior to medication in 19 of 22 studies reviewed by Svelund (2002). Svelund, with co-author Sjodin, concluded from another study that patients only on medication actually deteriorated when compared with those receiving psychotherapy.

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Preparing for Surgery

A great deal of medical research shows that mentally preparing for the procedure with relaxation and guided imagery helps to not only relieve anxiety, but to significantly reduce complications, shorten hospital stays, minimize post-operative pain, and even reduce the time it takes to do the operation.

RESEARCH

December, 2005
Numbers of Surgeries Performed
In 2000, there were almost 40 million surgeries performed in U.S. hospitals (Hall, and Owings, 2000). In 1998, there were also 32.5 million in-office surgery procedures, many of which routinely use some sedation (Hall and Hall, 1998).

Mind-Body Approaches to Coping with Surgery
Patients are often sedated to reduce their anxiety before a medical procedure. However, sedation can have side effects, like increasing the risk of low blood pressure or not getting enough oxygen. Therefore, researchers have looked for other ways to reduce patient anxiety.

Relaxation with guided imagery (with or without music), self-hypnosis, and giving patients reassuring information prior to surgery have been shown to be highly effective (Ashton, Whitworth, Seldomridge, Shapiro, Weinberg, Michler, Smith, Rose, Fisher, Oz, 2000; Faymonville, Fissette, Mambourg, Roediger, Joris, Lamy, 1995; Lang, Haminton, 1994; Lang, Joyce, Spiegel, Hamilton, Lee, 1996; Laurion, Fetzer, 2003; Ludwick-Rosenthal, Newfeld, 1993).

Guided imagery, hypnosis, self-hypnosis, and other forms of relaxation before and during surgery can reduce anxiety (Bugbee, Wellisch, Arnott, Maxwell, Kirsch, Sayre, Bassett, 2005; Huth, Broome, Good, 2004; McCaffrey, Taylor, 2005; Pellino, Gordon, Engelke, Busse, Collins, Silver, Norcross, 2005), including in a pediatric population (Calipel, Lucas-Polomeni, Wodey, Ecoffey. 2005). These mind-body techniques can shorten procedures (Butler, Symons, Henderson, Shortliffe, Spiegel, 2005; Lang, Benotsch, Fick, Lutgendoft, Berbaum, Berbaum, Logan, Spiegel, 2000; Tusek, Church, Strong, Grass, Fazio, 1997) and, significantly reduce pain and the need for pain medication post-operatively (Antall, Kresevec, 2004; Ashton, Whitworth et al, 2000; Disbrow, Bennett, Owings, 1993; Faymonville, Fissette, et al, 1995; Huth et al, 2004; Lang, Benotsch, et al, 2000; Lang, Hamilton, 1994; Lang, Joyce Spiegel, Hamilton, Lee, 1996; Manyande, Berg, Gettins, Stanford, Mazhero, Marks, Salmon, 1995; Meurissse, Hamoir, Defecheueux, Gollogly, Derry, Postal, Joris, Faymonville, 1999; Pellino et al, 2005; Rensi, Peticca, Pescatori, 2000; Syrjala, Donaldson, Davis, Kippes, Carr, 1995; Tusek, Church, et al, 1997; Weinstein, Au, 1991). Guided imagery, with or without music, has also been effective in reducing pain when only used post-operatively (Nilsson, Rawal, Enqvist, Unosson, 2003). They can also shorten the time it takes for patients' bowels to return to normal functioning (Disbrow, et al, 1993; Tusek, et al, 1997), and shorten hospital stay (Cowan, Buffington, Cowan, Hathaway, 2001; Disbrow, et al, 1993; Meurisse, et al, 1996; Rapkin, Straubing, Holroyd, 1991; Tusek et al, 1997). There is also some evidence that these techniques can reduce blood loss (Enqvist, von Konow, Bystedt, 1995; Lucas, 1975; Meurisse, et al, 1996) and speed wound healing (Holden-Lund, 1988; Jones, 1977).

In a study of male cardiac patients, post-coronary artery bypass surgery depression and anxiety, common in heart patients, was reported by de Klerk and colleagues in their 2004 study. In another 2004 study, patients using hypnosis instead of drug sedation during angioplasty had no increase in cardiac sympathetic activity and myocardial ischemia (Baglini, Sesana, Capuano, Gnecchi-Ruscone, Ugo, Danzi, 2004).

Several sources, including Blue Shield of California and Cedars Sinai Medical Center (Los Angeles), have reported that patients who used guided imagery tapes to prepare for surgery were very satisfied with them – plus, it reduced their bills (Fontana, 2000; Holden-Jones, 1988;).In

addition, guided imagery audio tapes are routinely used and recommended by many well respected physicians, including Mehmet Oz, cardiac surgeon and Director of the Complementary Care Center at Columbia Presbyterian Medical Center (New York) (Oz, 2000).

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Sinus Pain

Sinus Pain
Pain, along with fatigue, is the most common complaint heard by any physician or primary health care professional. Chronic pain is pain that persists beyond the length expected from an injury, and can become a difficult problem in itself. A good deal of medical research shows that many people can reduce or relieve pain successfully with relaxation and guided imagery.

RESEARCH

GUIDED IMAGERY FOR SINUS PAIN
January, 2006
Definition of the Problem
Chronic sinusitis is defined as long-term inflammation of the sinuses. The sinuses are moist air spaces located in the bones of the upper face. The sinuses warm and filter incoming air, thereby protecting the delicate tissues of the airway and lungs. The mucus contained in the sinuses trap pollutants, allergens, and infectious agents. However, infections, swelling, allergic reactions or blockages can block the proper flow of the mucus. Allergic reactions, infections, and swelling block the flow of mucus, causing sinus pressure (Ivker, 1995). Symptoms include pain and pressure, often accompanied by fatigue and difficulty concentrating (Dykewicz, Fineman, 1998; Grossan, Bruce, 2001).

Chronic sinusitis can significantly diminish quality of life, and increase the number of office visits and medication use, and cause work or school absenteeism.

Scope and Cost of the Problem
According to the CDC, approximately 29.7 million people have sinusitis; in 2003, sinusitis occasioned 14.1 million office visits and 1.1 million hospitalizations (CDC, 2005). The direct medical costs of treating sinusitis amounted to $6 billion in 1996 (Ray, Baraniuk et al, 1999). Over 9% of medical claims in the United States include a diagnosis of sinusitis (U.S. Agency for Health Care Research and Quality, 2000). Economic costs of sinus-related absenteeism and decreased productivity are high, with restricted or lost work days averaging approximately 36 million per year (U.S.A.H.R.C.). Chronic sinusitis is particularly prevalent in polluted urban centers, with Los Angeles having one of the highest rates of sinusitis in the world (Ivker, 1995).

Medical Treatment
Chronic sinusitis is often associated with allergies, recurring infections, allergies, and obstructions; psychological factors are likely to be present (Addolorato, Ancona, et al., 1999; Weir, 1976). Treating only one component (e.g., antibiotics for infection) rarely resolves the sinusitis (Ivker, 1995; Grossman, Bruce, 2001). Antihistamines are often used for the allergic component, but can dry the mucus and make it harder to drain. Likewise, anti-inflammatories, usually in the form of steroid nasal sprays, only relieve symptoms but do not address the cause of the swelling.

Surgery for an obstruction (especially polyps or a deformity) often greatly reduce symptoms. Endoscopic surgery enables many of these procedures to be done on an outpatient basis. Another promising treatment is the use of antifungal drugs such as fluconazole.

Non-pharmacologic Treatment
As in any chronic condition, patient self-care plays a large role in positively affecting quality of life, disease progression, and in lowering resource utilization. Patients can also promote sinus healing and minimize re-infection and irritation by incorporating environmental modifications, such as removing carpets and drapes, and using humidifiers and air-purifiers. Changes in behavior, such as stopping smoking, adequate hydration, avoiding sinus triggers, and doing daily nasal saline irrigation can help, sooth, and heal (Ivker, 1995; Grossman, Bruce, 2001).

Imagery, Relaxation and Self-Hypnosis
Relaxation, guided imagery, and self-hypnosis can reduce reactivity to allergens and decrease inflammatory response (Klein, Ziering, et al, 1985; Madrid, Rostel, et al, 1005; Zachariae, Kristensen, et al, 1990).

In the Madrid et al. study, among 34 allergic subjects who were taught a two-session course in self-hypnosis, 76% reported improvement, and 86% reduced medication usage; improvement was maintained through two years of follow-up.

Mind-body approaches such as imagery and relaxation can also help reduce or diminish sinusitis symptoms. Head and facial pain are the most intrusive symptoms reported by sinusitis patients. Imagery, relaxation, and suggestion has frequently been shown to reduce various types of headache pain, thereby reducing medication use (Blanchard, Jaccard, et al., 1985; Ilacqua, 1994; Mannix, Chandurkar, et al, 1999).

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Smoking Cessation

RESEARCH

GUIDED IMAGERY FOR SMOKING CESSATION
January 2006
Scope of the Problem
Cigarette smoking is the largest preventable cause of illness, death, and medical expenditures in the U.S.A. (CDC). In 1993, direct medical costs associated with smoking amounted to approximately $50 billion; smoking was responsible for approximately 7 percent of total U.S. health care costs (CDC).

This $50 billion figure is highly conservative, considering that factors not included in this number are: costs of burns from smoking-related fires; perinatal care for low-birth-weight infants whose mothers smoked during pregnancy; and expenses incurred in treating diseases caused by secondhand smoke. Indirect costs include lost productivity and early death (CDC). Another study found that in 1997, smoking-related medical expenditures reached $72.7 billion -- about 11% of total health care costs (McBroom, 1998).

Government estimates put the number of adult American smokers at 45.8 million, half of whom die or become disabled as a direct result. Cigarette smoking kills more than 440,000 people annually and is responsible for one in every five deaths. Direct and indirect costs of smoking-related illness amount to over $155 billion annually (NCCDPHP). It is estimated that in the next 20 years, Medicare will spend $800 billion for care of people with smoking-related illnesses (Rodgers, 1997).

Effectiveness of Smoking Cessation Programs
The cost of smoking-related illness is so high that smoking cessation has been called the “gold standard” of medical cost-effectiveness by Warner (1997), who stated that: “A considered review of the evidence recommends support of all of the major forms of smoking-cessation intervention; even the most expensive are highly cost effective compared with all medical treatments studied.”

For example, simple instructions from a physician to stop smoking resulted in a 2% quit rate at one-year follow-up -- an effect one study’s authors called “modest but highly cost effective. It cost $1500 to save one life” (Law, Tang, 1995). Costs rise as interventions become more intensive, but even moderately effective programs will save far more than they cost (Westmaas, Nath et al., 2000).

Treatment Approaches, including Mind-Body Approaches
Typically, smoking cessation programs achieve 50-60% short-term success rates. However, the relapse rate is often 60-80% at one-year follow-up (Wynd, 1992a). Most widely-used programs have long-term success rates under 35% (Colletti, Supnick, et al., 1982; Hensel, Cavanagh, et al., 1995).

Nonpharmacologic approaches include psychotherapy, support groups, behavioral therapy, providing education/information, hypnosis, telephone monitoring, and rapid-smoking. Medications include nicotine (delivered via patch or chewing gum), buproprion, and fluoxetine. These treatments have long-term success rates varying from 15-32% (West, McNeill, et al, 2000).

The most consistently successful approach is combining nicotine replacement and/or bupropion with behavioral therapy and psychological support. In one study, 35% or more smokers using the multicomponent regimen remained smoke-free for a year (McGhan, Smith, 1996). A recent study combined CBT with community reinforcement and naltrexone to achieve an abstinence rate of 43% at three-month follow-up (Roosen, Van Beers, et al, 2006). In two other studies, 58.5% of those using behavior therapy and nicotine patches were abstinent at five years (Garcia Vera, 2004), while 80% of those in a multicomponent CBT program that also incorporated relaxation

training and imagery rehearsal changed their behavior (30% has reduced their cigarette consumption; 50% were abstinent) (Huang, 2005).

In two studies, groups using guided imagery for relaxation and to gain a sense of personal mastery had much higher abstinence rates at 3-months than control groups who had received only counseling (Wynd, 1992a; 1992b). Smokers who practiced imagery at home, and continued using imagery after the training program ended, had abstinence rates over 52% at three months (Wynd, 1992a). In a study of guided imagery, smokers who used an audiotaped imagery program had two times the abstinence rates as the control group (25% versus 12%) at two-year follow-up (Wynd, 2005).

Using self-hypnosis even once resulted in 22% of 226 patients remaining smoke-free after two years. While this is a modest result, it is a better outcome than trying to quit without any assistance (Spiegel, Frischholz, et al, 1993). Hypnosis, which incorporates relaxation, imagery and positive suggestion, has been reported to have significant success rates -- as high at 90% in one study (Klager, 2004). One clinical hypnosis study had an 81% success rate in the three-session hypnosis group, with a 48% success rate at one year post-treatment (Elkins, Rajab, 2004). These studies show that imagery and hypnosis have been as effective as traditional behavioral and psychological approaches. These mind-body techniques were even more effective in smokers who found them pleasant.

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Stress

RESEARCH

GUIDED IMAGERY FOR STRESS
December, 2005
Prevalence and Costs
The National Institute for Occupational Safety and Health (NIOSH) estimated that, 75-90% of office visits to primary care physicians are stress-related. Stress reduction is important because stress has been linked to every major cause of death in this country. A Gallup Poll reported that 80% of Americans feel stress on their jobs, and almost half of these workers reported that they needed training to manage their stress.

Stress-related absenteeism results in over 1,000,000 workers absent on an average day, with 550 million lost workdays annually.1 Stress-related workers' compensation claims and awards have skyrocketed. In California in 1987, the cost for workers' compensation medical and legal fees alone neared $1 billion.1 In 1988, the direct and indirect costs of job stress to the country's economy were $50 billion

What Is Stress?
People experience stress when the demands on them exceed their perceived capacity to cope. Stress can affect every major organ and body system. It can cause or worsen many conditions, among them immune system suppression, arthritis, gastrointestinal disorders, addictions, diabetes, chronic pain, sleep disorders, angina, hypertension, PTSD, eating disorders, and cancer.

Medical Treatment
While some patients visit doctors complaining of stress, more often they complain of digestive trouble, pain, insomnia, fatigue, or other stress-related symptoms. Medical treatment consists mainly of anxiety medications and antidepressants. Primary stress management is usually left to mental health professionals, but the need for more crossover is apparent. As one team of researchers stated, "The existence of pathways and regulatory mechanisms common to the regulation of both physical and emotional states transcend classical categorical disease classifications."

Non-pharmacologic Treatment
The more that is learned about the physical mechanisms of stress, the more apparent is the mind-body connection. Stress-management programs using behavioral and mind/body approaches have found wide favor. Exercise, biofeedback, muscle relaxation, and psychotherapy have all been found useful.

Guided imagery -- combining deep relaxation and positive suggestion -- is a powerful stress management technique. Eight studies conducted between 1983- 1995 reported on groups of surgical, cardiac, and cancer patients, smokers, and others reporting high stress levels. After guided imagery sessions, they had significantly less self-reported stress; physiological measures of stress, and anxiety when compared to control groups. Effects were stronger when patients could practice on their own.

Results of a review of studies showed that relaxation, hypnosis, and imagery can protect the immune system against the effects of stress; hypnosis was even more effective when “targeted imagery” was used. Hypnosis is often used to good effect in combination with Cognitive Behavioral Therapy (CBT) for acute stress disorders and PTSD.7, Other mind-body approaches have also yielded impressive results. In a study of geriatric congestive heart failure patients, CBT lowered perceived stress, anxiety, and other measurements.

Several studies of various forms of meditation (mindfulness, transcendental, yoga) showed significant improvement over the control groups. , , , , , In the Reibel et al. study, the reduction in distress and physical symptoms in the meditation group was particularly impressive. A mindfulness meditation program was also beneficial for caregivers; nurses reported greater well-being and coping skills; scores showed "significantly reduced" anxiety, and "favorable downward trends" in personal distress and fantasy.

Stress management programs incorporating imagery and relaxation are also cost effective. One company saved almost $150,000 in worker's compensation costs, while the cost of the program itself was a mere $150 per person. Relaxation tapes are also a low-cost way to relieve stress; an at-home relaxation audio program was as effective as massage in decreasing subjects' stress and improving their sleep.

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