Relaxation, Music Reduce Post-Op Pain. New research has found that relaxation and music, separately or together, significantly reduce patients' pain following major abdominal surgery.

The study, published in the May issue of the journal Pain, found that these methods reduce pain more than pain medication alone.

Led by Marion Good, PhD, RN, of Frances Payne Bolton School of Nursing, Case Western Reserve University, Cleveland, Ohio, the study is supported by the National Institute of Nursing Research (NINR), at the National Institutes of Health.

"This is important news for the millions of Americans who undergo surgery and experience postoperative pain each year," said Dr. Patricia A. Grady, director of the NINR.

"Better pain management can reduce hospital stays and speed recovery, ultimately improving patients' quality of life."

Dr. Good and her research team studied three groups of patients undergoing abdominal surgery.

In addition to the usual pain medication, one group used a jaw relaxation technique, another group listened to music, and a third group received a combination of relaxation and music. Findings revealed that, after surgery, the three treatment groups had significantly less pain than the control group, which received only pain medication.

"Both medication and self-care methods which involve patient participation are needed for relief," said Dr. Good.

"These relaxation and music self-care methods provide more complete relief without the undesired side effects of some pain medications."

The findings have important implications for the 23 million people who undergo surgery and experience postoperative pain annually in the United States.

Pain can hamper recovery by heightening the body's response to the stress of surgery and increasing tissue breakdown, coagulation and fluid retention.

Pain also interferes with appetite and sleep and can lead to complications that prolong hospitalization.

Dr. Good and her research staff worked with 500 patients aged 18-70, who were undergoing gynecological, gastrointestinal, exploratory or urinary surgery.

Prior to surgery, those in the music, relaxation or combination groups practiced the techniques.

The relaxation technique consisted of letting the lower jaw drop slightly, softening the lips, resting the tongue in the bottom of the mouth, and breathing slowly and rhythmically with a

three-rhythm pattern of inhale, exhale and rest.

Patients in the music group chose one of five kinds of soothing music--harp, piano, synthesizer, orchestral or slow jazz.

On the first and second days after surgery, all patients received morphine or Demerol for pain relief by pressing a button connected to their intravenous patient controlled analgesia pumps.

The groups receiving the additional intervention used earphones to listen to music and relaxation tapes during walking and rest, while the control group did not.

The research team measured the patients' pain before and after 15 minutes of bed rest and four times during walking to see if the sensation and distress of pain changed.

Dr. Good found that during these two days postsurgery the three treatment groups had significantly less pain than the control group during both walking and rest.

"Patients can take more control of their postoperative pain using these self-care methods," says Dr. Good.

"Nurses and physicians preparing patients for surgery and caring for them afterwards should encourage patients to use relaxation and music to enhance the effectiveness of pain medication and hasten recovery."

Dr. Good's findings have implications for future research into the effectiveness of self-care methods on other types of pain, including chronic pain, cancer pain, and pain of the critically ill.

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Vitamin D Lack Linked to Hip Fracture. Vitamin D deficiency in post-menopausal women is associated with increased risk of hip fracture, according to investigators at Brigham and Women's Hospital in Boston, Mass.

In a group of women with osteoporosis hospitalized for hip fracture, 50 percent were found to have a previously undetected vitamin D deficiency.

In the control group, women who had not suffered a hip fracture but who were hospitalized for an elective hip replacement, only a very small percentage had vitamin D deficiency, although one-fourth of those women also had osteoporosis.

These findings were reported in the April 28, 1999, issue of the Journal of the American Medical Association.

The study, conducted by Meryl S. LeBoff, MD; Lynn Kohlmeier, MD; Shelley Hurwitz, PhD; Jennifer Franklin, BA; John Wright, MD; and Julie Glowacki, PhD; of the Endocrine Hypertension Division, Department of Internal Medicine, and Department of Orthopedic Surgery, Brigham and Women's Hospital, Boston, was supported by grants from the National Institute on Aging (NIA) and the National Center for Research Resources (NCRR.

These investigators studied women admitted to either Brigham and Women's Hospital or the New England Baptist Hospital, both in Boston, between January 1995 and June 1998.

A group of 98 postmenopausal women who normally reside in their own homes were chosen for the study. Women with bone deterioration from other causes were excluded from the study.

There were 30 women with hip fractures caused by osteoporosis and 68 hospitalized for elective joint replacement. Of these 68, 17 women also had osteoporosis as determined by the World Health Organization bone density criteria.

All the participants answered questions regarding their lifestyle, reproductive history, calcium in their diet, and physical activity.

Bone mineral density of the spine, hip, and total body were measured by dual X-ray absorptiometry (DXA) technique, as was body composition.

Blood chemistry and urinary calcium levels were analyzed.

The two groups of women with osteoporosis did not differ significantly in either time since menopause or bone density in the spine or hip. They did, however, differ in total bone density. The women admitted for a hip fracture had fewer hours of exercise than the control group.

Fifty percent of the women with hip fractures were deficient in vitamin D, 36.7 percent had elevated parathyroid hormone (PTH) levels (a hormone which can stimulate loss of calcium from bone), and 81.8 percent had calcium in their urine, suggesting inappropriate calcium loss.

Blood levels of calcium were lower in the women with hip fractures than in either elective group.

These researchers propose that vitamin D supplementation at the time of fracture may speed up recovery and reduce risk of fracture in the future.

Current Dietary Reference Intake Guidelines contain a daily recommendation of 400 IU of vitamin D for people aged 51 through 70 and 600 IU for those over age 70.

"We know that a calcium-rich diet and regular weight-bearing exercise can help prevent osteoporosis. This new research suggests that an adequate intake of vitamin D, which the body uses to help absorb calcium, may help women to reduce their risk of hip fracture, even when osteoporosis is present," observed Dr. Evan C. Hadley, NIA Associate Director for geriatrics research.

"Osteoporosis leads to more than 300,000 hip fractures each year, causing pain, frequent disability, and costly hospitalizations or long-term care.

"Prevention of such fractures would greatly improve the quality of life for many older women and men, as well as significantly reduce medical costs."

The bones in the body often undergo rebuilding. Some cells, osteoclasts, dissolve older parts of the bones. Then, bone-building cells known as osteoblasts create new bone using calcium and phosphorus.

As people age, if osteoporosis develops, more bone is dissolved than is rebuilt, and the bones weaken and become prone to fracture.

Also in many older persons, levels of vitamin D in the blood are low because they eat less or spend less time in the sun, which stimulates the body's own production of vitamin D.

Experts do not understand fully the causes of osteoporosis. However, they do know that lack of estrogen which accompanies menopause, diets low in calcium, and lack of exercise contribute to the problem.

Eighty percent of older Americans who face the possibility of pain and debilitation from an osteoporosis-related fracture are women. One out of every two women and one in eight men over the age of 50 will have such a fracture sometime in the future.

These fractures usually occur in the hip, wrist, and spine.

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Sleep Apnea, Diabetes Link Found. Adults who suffer from obstructive sleep apnea are three times more likely to also have diabetes and more likely to suffer a stroke in the future, according to a new UCLA School of Dentistry/Department of Veterans Affairs study published today in the Journal of Oral and Maxillofacial Surgery.

Sleep apnea, a serious condition marked by loud snoring, irregular breathing and interrupted oxygen intake, affects an estimated nine million Americans.

The culprit? Carrying too many extra pounds.

"The blame falls squarely on excess weight gain," said Dr. Arthur H. Friedlander, associate professor of oral and maxillofacial surgery at the UCLA School of Dentistry and associate chief of staff at the Veterans Affairs Medical Center in Los Angeles.

Surplus weight interferes with insulin's ability to propel sugars from digested food across the cell membrane, robbing the cells of needed carbohydrates.

Diabetes results when glucose builds up in the bloodstream and can't be utilized by the body.

Being overweight can also lead to obstructive sleep apnea, according to Friedlander.

"When people gain too much weight, fatty deposits build up along the throat and line the breathing passages," he explained. "The muscles in this region slacken during sleep, forcing the airway to narrow and often close altogether."

Reclining on one's back magnifies the situation. "When an overweight person lies down and goes

to sleep," Friedlander said, "gravity shoves the fat in the neck backwards. This blocks the airway and can bring breathing to a halt."

Friedlander tested the blood sugar of 54 randomly selected male veterans whom doctors had previously diagnosed with obstructive sleep apnea.

He discovered that 17 of the 54 patients, or 31 percent, unknowingly suffered from adult-onset diabetes.

Using the same sample, Friedlander also took panoramic X-rays of the men's necks and jaws. The X-rays indicated that 12 of the 54 patients, or 22 percent, revealed calcified plaques in the carotid artery leading to the brain.

These plaques block blood flow, significantly increasing patients' risk for stroke. Seven of the 12, or 58 percent, were also diagnosed with diabetes.

In dramatic comparison, the 17 patients diagnosed with diabetes showed nearly twice the incidence of blockage. Seven of the 17 men, or 41 percent, had carotid plaques. Only five of the 54 patients who displayed plaques did not have also diabetes.

If he conducted this study today, Friedlander notes, he would likely find a higher number of diabetic patients.

After he completed the study in 1997, the American Diabetes Association lowered its definition for diabetes from 140 to 126 milligrams of sugar per deciliter of blood.

"This is the first time that science has uncovered a link between sleep apnea and diabetes," said Friedlander. "The data suggest that someone afflicted with both diabetes and sleep apnea is more likely to suffer a stroke in the future."

"Persons going to the doctor for a sleep-apnea exam should request that their blood be screened for diabetes, especially if they are overweight," he cautioned.

More than half of the individuals who develop diabetes as adults will need to modify their diet and take daily insulin in order to control the disease, he added.

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Stress, Surgery May Increase CA Tumors. Stress and surgery may increase the growth of cancerous tumors by suppressing natural killer cell activity, says a Johns Hopkins researcher.

Malignancies and viral infections are in part controlled by the immune system's natural killer (NK) cells, a sub-population of white blood cells that seek out and kill certain tumor and virally infected cells.

In a study using animal models, natural killer cell activity was suppressed by physical stress or surgery, resulting in a significant increase in tumor development.

These findings suggest that protective measures should be considered to prevent metastasis for patients undergoing surgery to remove a cancerous tumor, according to Gayle Page, D.N.Sc., R.N., associate professor and Independence Foundation chair at the Johns Hopkins School of Nursing.

"Human studies have already found a connection between the level of NK activity and susceptibility to several different types of cancer," says Page, an author of the study.

"We sought to determine the importance of stress-induced suppression of NK activity and thus learn the effects of stress and surgery on tumor development.

"Many patients undergo surgery to remove cancerous tumors that have the potential to spread. If our findings in rats can be generalized to such clinical settings, then these circumstances could increase tumor growth during or shortly after surgery."

The research was conducted at Ohio State University College of Nursing and the Department of Psychology at UCLA, where Page held previous positions, and at Tel Aviv University.

Results of the study are published in the March issue of the International Journal of Cancer.

In laboratory studies, Page and her colleagues subjected rats to either abdominal surgery or physical stress, and then inoculated them with cancer cells.

In the rats that had undergone surgery, the researchers observed a 200 to 500 percent increase in the incidence of lung tumor cells, an early indicator of metastasis, compared with rats that had not received surgery.

The experiment also showed that stress increased lung tumor incidence and significantly increased the mortality in the animals inoculated with cancer cells.

"Our results show that, under specific circumstances, resistance to tumor development is compromised by physical stress and surgical intervention," says Page.

"Because surgical procedures are life-saving and cannot be withheld, protective measures should be considered that will prevent suppression of the natural killer cell activity and additional tumor development.

"Researchers do not yet know how to prevent surgery-induced immune suppression, but early

animal studies have shown increased use of analgesia reduces the risk."

The study was funded by the National Institutes of Health, and the Chief Scientist of the Israeli Ministry of Health. Lead author was Shamgar Ben-Eliyahu, Ph.D., and other authors were Raz Yirmiya, Ph.D., and Guy Shakhar.

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