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## Health Benefits of Yoga explained

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### Chronic Backpain

When doctors at the HMO Group Health Cooperative in Seattle pitted 12 weekly sessions of yoga against therapeutic exercises and a handbook on self-care, they discovered the yoga group not only showed greater improvement but experienced benefits lasting 14 weeks longer. A note of caution: "While many poses are helpful, seated postures or extreme movement in one direction can make back pain worse," says Gary Kraftsow, author of Yoga for Wellness, who designed the program for the study.

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### Depression

Low brain levels of the neurotransmitter GABA are often found in people with depression; SSRIs, electroconvulsive therapy, and now yoga, it seems, can boost GABA. Preliminary research out of the Boston University School of Medicine and Harvard's McLean Hospital found that healthy subjects who practiced yoga for one hour had a 27 percent increase in levels of GABA compared with a control group that simply sat and read for an hour. This supports a growing body of research that's proving yoga can significantly improve mood and reduce the symptoms of depression and anxiety.

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### Yoga and Diabetes

#### Speeds Nerve Impulses

One of the major problems from long term diabetes is nerve damage due to constant high sugar levels in the body. This nerve damage leads to the slowing of nerve impulses, decreased sensation, numbness of the feet, and poor bowel function. Can yoga help? Scientists at Guru Tegh Bahadur Hospital, in Delhi, India, studied a group of 20 type 2 diabetic subjects between the ages of 30-60 years. Their aim was to see whether Yoga asanas had any effect on nerve conduction. The Yoga asanas included Suryanamskar Tadasan, Konasan, Padmasan Pranayam, Shavasan, Pavanmukthasan, Sarpasan and Shavasan. The Yoga exercises were performed for 40 minutes every day for 40 days in the above sequence. The subjects continued their normally prescribed medicines and diet. Blood sugar and nerve conduction velocity of the median nerve (in the hand) were measured and repeated after 40 days of the Yogic regime. Another group of 20 type 2 diabetes subjects of comparable age and severity, called the control group, were kept on prescribed medication and light physical exercises like walking. Their initial & post 40 days parameters were recorded for comparison.

At the end of the 40 days, those who did the yoga had improved the nerve impulse in their hands. The hand nerve conduction velocity increased from 52.8 meters per second to 53.8 m/sec. The control group nerve function deteriorated over the period of study, indicating that diabetes is a slowly progressive disease involving the nerves. The authors conclude that Yoga asanas have a beneficial effect on blood sugar control and improve nerve function in type 2 diabetics who have mild nerve damage. Dr. Sahelian says: In addition to Yoga, I recommend my patients with diabetes take a nutrient called lipoic acid which has also been found to improve nerve function in diabetics.

### **Yoga Lowers Blood Sugar in Diabetics**

Certain yoga asanas, if practiced regularly, are known to have beneficial effects on human body. Researchers at the University College of Medical Sciences, in Shahdara, New Delhi evaluated 24 patients aged 30 to 60 year old who had non-insulin dependent diabetes mellitus, also called Type II diabetes. Diabetics who require insulin are called Type I, while Type II diabetics are treated with diet, exercise, and oral medicines that lower blood sugar. The researchers evaluated the baseline fasting blood sugar levels of the patients, and they also performed pulmonary function studies. These pulmonary function studies measure lung capacity and the amount of air that can be exhaled within the first second of a rapid exhale.

After performing these basic tests, yoga experts gave these patients training in yoga asanas. The yoga practice was done 40 minutes a day for 40 days. These asanas consisted of 13 well known and common postures, done in a sequence. After 40 days of yoga asanas regimen, the testing was repeated. The results indicate that there was significant decrease in fasting blood sugar levels from about 190 initially to 140 after the 40 day period of yoga activity. Fasting blood sugar in people without diabetes is usually below 120. The lung studies showed an average improvement of about 10 percent in lung capacity. These findings suggest that better blood sugar control and pulmonary functions can be obtained in type I diabetics when they stick to a daily schedule of yoga asanas and pranayama.

The exact mechanism as to how these postures and controlled breathing interact with physio-neuro-endocrine mechanisms affecting blood sugar and pulmonary functions remains to be worked out.

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## **Menopause**

A preliminary study at the University of California, San Francisco, found that menopausal women who took two months of a weekly restorative yoga class, which uses props to support the postures, reported a 30 percent decrease in hot flashes. A four-month study at the University of Illinois found that many women who took a 90-minute Iyengar class twice a week boosted both their energy and mood; plus they reported less physical and sexual discomfort, and reduced stress and anxiety.

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## **Stress Management and Relaxation**

### **Using Yoga to Relieve Stress**

To combat stress, many people turn to meditation or other mental stress reduction tools. But stress also creates physical response in the body and, as such, can be managed with exercise -- in particular, with yoga.

"Stress sends the entire physical system into overdrive," says Garrett Sarley, president and CEO of the Kripalu Center for Yoga & Health in Lenox, Mass. "The muscles tense, the heart beats faster, breathing patterns change, and if the cause of stress isn't discontinued, the body secretes more hormones that increase blood sugar levels, raising blood pressure. Yoga is one of the few stress-relief tools that has a positive effect on all the body systems involved."

Recognizing the detrimental effects of stress, especially in the area of heart disease, the preventive and rehabilitative cardiac center at Cedars-Sinai Medical Center in Los Angeles began offering yoga to their patients more than 10 years ago.

"Over the years, yoga has become one of our primary therapies for stress management," says C. Noel Bairey Merz, M.D., director of the preventive and rehabilitative cardiac center at Cedars-Sinai Medical Center.

### **Yoga-based guided relaxation reduces sympathetic activity judged from baseline levels.**

35 male volunteers whose ages ranged from 20 to 46 years were studied in two sessions of yoga-based guided relaxation and supine rest. Assessments of autonomic variables were made for 15 subjects, before, during, and after the practices, whereas oxygen consumption and breath volume were recorded for 25 subjects before and after both types of relaxation. A significant decrease in oxygen consumption and increase in breath volume were recorded after guided relaxation (paired t test). There were comparable reductions in heart rate and skin conductance during both types of relaxation. During guided relaxation the power of the low frequency component of the heart-rate variability spectrum reduced, whereas the power of the high frequency component increased, suggesting reduced sympathetic activity. Also, subjects with a baseline ratio of LF/HF > 0.5 showed a significant decrease in the ratio after guided relaxation, while subjects with a ratio < or = 0.5 at baseline showed no such change. The results suggest that sympathetic activity decreased after guided relaxation based on yoga, depending on the baseline levels.

Psychol Rep 2002 Apr;90(2):487-94 Related Articles, Links. Swami Vivekananda Yoga Research Foundation, Chamarajpet, Bangalore, India.

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## Asthma and Breathing

Asthma is a lung condition involving chronic inflammation of the airways (bronchi) which can narrow and go into spasms. During asthma attacks, the smooth muscle cells in the bronchi constrict, the airways become inflamed and swollen, and breathing becomes difficult.

### **Symptomatic control of episodes of wheezing and shortness of breath is generally achieved with fast-acting bronchodilators.**

A study of the effect of yoga training on pulmonary functions in patients with bronchial asthma.

Indian J Physiol Pharmacol. 2009 Apr-Jun; Sodhi C, Singh S, Dandona PK. Department of Physiology, Christian Medical College, Ludhiana - 141 007.

The role of yoga breathing exercises, as an adjunct treatment for bronchial asthma is well recognized. One hundred twenty patients of asthma were randomized into two groups i.e Group A (yoga training group) and Group B (control group). Each group included sixty patients. Pulmonary function tests were performed on all the patients at baseline, after 4 weeks and then after 8 weeks. Majority of the subjects in the two groups had mild disease (34 patients in Group A and 32 in Group B). Group A subjects showed a statistically significant increasing trend in %

predicted peak expiratory flow rate (PEFR), forced expiratory volume in the first second (FEV1), forced vital capacity (FVC), forced mid expiratory flow in 0.25-0.75 seconds (FEF25-75) and FEV1/FVC% ratio at 4 weeks and 8 weeks as compared to Group B. Thus, yoga breathing exercises used adjunctively with standard pharmacological treatment significantly improves pulmonary functions in patients with bronchial asthma.

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## Obesity

Obesity rates in the United States have reached epidemic proportions: 58 Million Overweight; 40 Million Obese; Eight out of 10 adults over age 25 Overweight; 78% of American's not meeting basic activity level recommendations; 25% completely Sedentary; 76% increase in Type II diabetes in adults 30-40 yrs old since 1990; In 2001 25% of all white children and 33% of African American and Hispanic children were overweight.

Solution: Vigorous Power, Vinyasa, or Ashtanga yoga classes done for 90 minutes at least 3-5 times a week will produce weight loss. Yoga keeps people more in tune with their bodies making them aware of aware of bad habits, such as eating because of stress, boredom or depression. The first study investigating the effects of yoga on weight was recently conducted by the Fred Hutchinson Cancer Research Center in Seattle, WA.

General Stats: According to the Centers for Disease Control and Prevention, 16 percent of children (over 9 million) 6-19 years old are overweight or obese -- a number that has tripled since 1980. In addition to the 16 percent of children and teens ages 6 to 19 who were overweight in 1999-2002, another 15 percent were considered at risk of becoming overweight. ("Prevalence of Overweight and Obesity Among Children and Adolescents: United States, 1999-2002"; Oct. 6, 2004)

According to the Centers for Disease Control and Prevention, over the past three decades the childhood obesity rate has more than doubled for preschool children aged 2-5 years and adolescents aged 12-19 years, and it has more than tripled for children aged 6-11 years. ("Prevalence of Overweight and Obesity Among Children and Adolescents: United States, 1999-2002"; Oct. 6, 2004)

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## Heart Disease

### **Lower blood pressure, cholesterol, heart rate and other heart disease symptoms**

Several trials have found that yoga can lower blood pressure, cholesterol, and resting heart rates, and help slow the progression of atherosclerosis—all risk factors for heart disease, says Erin Olivo, PhD, director of Columbia University's Integrative Medicine Program.

While almost any exercise is good for the heart, experts speculate yoga's meditative component may give it an extra boost by helping to stabilize the endothelium, the lining of the blood vessels that, when irritated, contributes to cardiovascular disease. Since the lining is reactive to stress, and meditation can lower stress hormones, yoga may be causing a cascade of events that could reduce your risk of a heart attack or stroke.

### **Retardation of coronary atherosclerosis with yoga lifestyle intervention.**

Yoga has potential for benefit for patients with coronary artery disease though objective, angiographic studies are lacking. We evaluated possible role of lifestyle modification incorporating yoga, on retardation of coronary

atherosclerotic disease. In this prospective, randomized, controlled trial, 42 men with angiographically proven coronary artery disease (CAD) were randomized to control and yoga intervention group and were followed for one year. The active group was treated with a user-friendly program consisting of yoga, control of risk factors, diet control and moderate aerobic exercise. The control group was managed by conventional methods i.e. risk factor control and American Heart Association step I diet. At one year, the yoga groups showed significant reduction in number of anginal episodes per week, improved exercise capacity and decrease in body weight. Serum total cholesterol, LDL cholesterol and triglyceride levels also showed greater reductions as compared with control group. Revascularisation procedures (coronary angioplasty or bypass surgery) were less frequently required in the yoga group. Coronary angiography repeated at one year showed that significantly more lesions regressed (20% versus 2%) and less lesions progressed (5% versus 37%) in the yoga group. The compliance to the total program was excellent and no side effects were observed. : Yoga lifestyle intervention retards progression and increases regression of coronary atherosclerosis in patients with severe coronary artery disease. It also improves symptomatic status, functional class and risk factor profile.

The overall benefits of yoga on risk factors for heart disease were evaluated by researchers at Bhabha Atomic Research Centre, Medical Division, in Mumbai, India. (Mumbai is the new name for the city formerly known as Bombay. The name was changed in the mid 1990s. The effect of yoga on the body, psychological well being, and cardiovascular risk factors was studied in a group of middle aged patients. Twenty patients (16 males, 4 females) in the age group of 35 to 55 years with mild to moderate high blood pressure underwent yogic practices daily for one hour for three months. High blood pressure is a risk factor for heart disease, stroke, and kidney damage. Biochemical and psychological parameters were studied prior and following period of three months of yoga. These biochemical parameters included blood sugar, lipid profile including cholesterol, and blood levels of catecholamines (stress chemicals like epinephrine or adrenaline). The overall results were quite positive. There was a decrease in blood pressure along with a decrease in blood sugar, cholesterol and triglycerides. The patients also reported an improvement in overall well being and quality of life. There was also a decrease in the levels of catecholamines, suggesting a decrease in sympathetic activity. A decrease in sympathetic activity indicates that the patients were calmer and experienced less tension and stress, and that their blood pressure would be lower. The authors of the study conclude that yoga can play an important role in decreasing the risk factors for cardiovascular disease in those with mild to moderate hypertension.

Heart rate variability, a sign of a healthy heart, has been shown to be higher in yoga practitioners than in non-practitioners, according to research in the International Journal of Medical Engineering and Informatics. The autonomic nervous system regulates the heart rate through two routes — the sympathetic and parasympathetic nervous systems. The former causes the heart rate to rise, while, the parasympathetic slows it. When working well together, the two ensure that the heart rate is steady but ready to respond to changes caused by eating, the fight or flight response, or arousal.

J Assoc Physicians India 2000 Jul; Manchanda SC, Narang R, Reddy KS, Sachdeva U, Prabhakaran D, Dharmanand S, Rajani M, Bijlani R. All India Institute of Medical Sciences, New Delhi, India.

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## Cancer

Yoga Benefits for Cancer Patients Yoga's gentle exercises have numerous well-known health benefits. Practicing yoga can lower blood pressure, improve coordination and reduce stress. For those coping with a chronic illness such as mesothelioma or other types of cancers, a yoga routine can be added to a treatment regimen, whether it

is holistic or traditional treatment. Like any treatment, yoga should be individualized to meet specific needs. Unsurprisingly, cancer patients often do not have enough energy and do not feel well enough for much physical activity.

Especially during treatments such as chemotherapy, even simple tasks like making dinner can become daunting chores. Cancer patients often suffer from fatigue and muscle soreness, as well as various other ailments like shortness of breath caused by mesothelioma of the lung. These problems often can be relieved by implementing a gentle yoga routine. For patients who may have trouble integrating physical activity into their lives during treatment, yoga stretches and poses provide a low-impact, low-stress technique for rejuvenating and reenergizing the body.

A patient should incorporate yoga in whatever way works best for his or her schedule and body. Some cancer patients find that a weekly 30- to 60-minute yoga session is enough to improve physical wellbeing and reduce stress. Others benefit from a daily or twice-daily practice. A short 10-minute session in the morning and another before bed can have significant physical results without imposing on a busy schedule. As with any such lifestyle change, a new yoga practice should be approved by cancer patients' doctors.

Doctors can advise their patients with regards to each specific diagnosis and condition and may even be able to recommend a therapeutic yoga instructor. In addition to communicating with their doctors, patients should tell their yoga instructors of the special circumstances and any other relevant physical problems.

Courtesy of [www.pleuralmesothelioma.com](http://www.pleuralmesothelioma.com)

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## Fatigue in Cancer Survivors

### **Yoga improves fatigue in cancer survivors**

Cancer can be a devastating disease that saps energy often due to radiation and chemotherapy. Researchers at the University of Rochester Medical Center in New York assigned more than 400 cancer survivors to one of two groups.

Most had been treated with chemotherapy for breast cancer. The first group did gentle Hatha yoga and restorative yoga twice a week for a month. The other group did not engage in such activity. The individuals who did yoga were able to cut back on sleeping pills and slept better. Yoga also increased their energy levels and improved their quality of life.

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## Cancer Patients and Survivors

### **Yoga Helps Cancer Patients**

A gentle form of yoga helps those with lymphoma sleep better. Lymphoma is a cancer that arises in the cells of the immune system. The investigators found that among 39 patients being treated for lymphoma, those who participated in only seven weekly sessions of yoga said they got to sleep sooner, slept for longer, and needed fewer drugs to fall asleep. Study author Dr. Lorenzo Cohen, of the M. D. Anderson Cancer Center in Houston,

Texas, explained that living with cancer can be a very stressful experience, as patients cope with a diagnosis of a life-threatening illness and the side effects of treatment. As is well known, stress can often interfere with patients' sleep habits. Over the years, studies have linked yoga to a number of health benefits, including lowering blood pressure, beating fatigue and easing chronic pain. In the current report, Cohen and his team asked half of the patients to participate in seven weekly sessions of yoga and the results were compared to other patients with lymphoma who did not participate in the yoga program. Some studies have suggested that up to three quarters of cancer patients struggle with sleep. This may have important health consequences since sleep disturbances have been linked with problems with the immune system, and an increased risk of illness or death. Individuals with cancer should be cautioned that while undergoing or recovering from treatment one should adopt a gentle routine, and avoid excessively strenuous routines. This is particularly true for cancer patients who have metastases to the bones which would make the skeletal system more prone to fractures. There is good reason to expect that a gentle form of yoga would be beneficial to not only patients with lymphoma, but those suffering from other types of cancer.

Yoga has been practiced for thousands of years to improve physical and emotional well-being. Several recent studies have been conducted with cancer patients and survivors. Nine studies conducted with cancer patients and survivors yielded modest improvements in sleep quality, mood, stress, cancer-related distress, cancer-related symptoms, and overall quality of life. Studies conducted in other patient populations and healthy individuals have shown beneficial effects on psychological symptoms, as well as other aspects of physical function. Results from the emerging literature on yoga and cancer provide preliminary support for yoga interventions for cancer patients, although controlled trials are lacking.

Dr. Ray Sahelian comments: I started yoga 20 years ago and I love it. It makes me feel so relaxed, revitalized, and supple. I heard someone once say, "You're as young as your spine is flexible." Although not completely true, part of staying younger is to have flexibility of tendons and ligaments. No amount of a healthy diet and supplement intake is going to replace the benefits of yoga or other forms of stretching practices. Although I realize how important yoga is, sometimes I don't have the patience to attend a one and half hour class, so I do it at home at 20 minute intervals a few times a week. There are several yoga programs on TV, particularly the public funded channels, and you can tape some and do the yoga postures at your leisure. Or, you can attend a local yoga class.

### **Yoga for cancer patients and survivors**

Yoga has been practiced for thousands of years to improve physical and emotional well-being. Empirical research on yoga has been ongoing for several decades, including several recent studies conducted with cancer patients and survivors. **METHODS:** This review provides a general introduction to yoga and a detailed review of yoga research in cancer. **RESULTS:** Nine studies conducted with cancer patients and survivors yielded modest improvements in sleep quality, mood, stress, cancer-related distress, cancer-related symptoms, and overall quality of life. Studies conducted in other patient populations and healthy individuals have shown beneficial effects on psychological and somatic symptoms, as well as other aspects of physical function. **CONCLUSIONS:** Results from the emerging literature on yoga and cancer provide preliminary support for the feasibility and efficacy of yoga interventions for cancer patients, although controlled trials are lacking. Further research is required to determine the reliability of these effects and to identify their underlying mechanisms.

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## Breast Cancer

Research is becoming clear on this: Women who do yoga during and after treatment experience less physical discomfort and stress. Earlier this year Duke University scientists reported results of a pilot study in which women with metastatic breast cancer attended eight weekly yoga sessions. The doctors found that the women had much less pain and felt more energetic and relaxed.

### Yoga and Breast Cancer

Women who took yoga classes during breast cancer treatment reported they could function better physically and felt better about their health. Sixty-two women who were undergoing radiation treatment for breast cancer were randomly assigned to attend yoga classes twice a week or be put on a waiting list to start yoga after their treatment. The women who practiced yoga reported better physical functioning, such as the ability to walk a mile, climb stairs and lift groceries, said Lorenzo Cohen, director of integrative medicine at the University of Texas M.D. Anderson Cancer Center. They also felt better about their overall health and reported less fatigue and problems sleeping. No difference was seen, however, in rates of depression and anxiety in the two groups. In the study, instructors emphasized breathing and relaxation and excluded positions that would be difficult for patients with weakened range of motion. The average patient in the study was 52 years old.

### Breast cancer patients benefit from a yoga program

Researchers in Ankara, Turkey evaluated twenty patients between the ages of 30 and 50 years who were under routine medical treatment for breast cancer. Eight sessions of a yoga program were included in the program such as warming and breathing exercises, asanas, relaxation in supine position, and meditation. After completion of the study, testing showed that patients' quality of life scores were better than scores obtained before the program. After the yoga sessions, there was a significant decrease in anxiety. It can be concluded that yoga is helpful to achieve relaxation and reduction of stress, helps cancer patients perform daily and routine activities in an easier manner, and increases the quality of life in cancer patients. In addition to yoga, there are foods and supplements that can be of benefit in reducing the risk or improving survival outcomes.

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## Yoga side effect and danger of Yoga

Even though in most cases yoga is safe, there are times that certain positions could lead to low back pain, neck pain, shoulder pain, hip or knee problems. For instance, should stands could aggravate neck problems. Back bends could aggravate back problems. If you have a musculoskeletal injury, take it slow and don't try to do every position the yoga instructor recommends to the class.

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## Yoga and Heart Failure

A regimen of yoga is safe for patients with chronic heart failure and helps reduce signs of inflammation often linked with death. More than 5 million Americans have chronic heart failure, a long-term condition in which the heart no longer pumps blood efficiently to the body's other organs.

Researchers at Emory University School of Medicine in Atlanta who measured the effects of an eight-week yoga regimen on heart failure patients found the yoga routine improved exercise tolerance and quality of life.

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## Yoga and Weight Loss

### **Yoga practice is associated with attenuated weight gain in healthy, middle-aged men and women.**

Yoga is promoted for weight maintenance, but there is little evidence of its efficacy. **OBJECTIVE:** To examine whether yoga practice is associated with lower mean 10-year weight gain after age 45. Participants included 15,550 adults, aged 53 to 57 years, recruited to the Vitamin and Lifestyle (VITAL) cohort study between 2000 and 2002. **Conclusions:** Regular yoga practice was associated with attenuated weight gain, most strongly among individuals who were overweight. Although causal inference from this observational study is not possible, results are consistent with the hypothesis that regular yoga practice can benefit individuals who wish to maintain or lose weight.

Altern Ther Health Med. 2005 Jul-Aug;11(4):28-33. Kristal AR, Littman AJ, Benitez D, White E. Division of Public Health Sciences, Fred Hutchinson Cancer Research Center, Seattle, Wash, USA.

### **Yoga, Weight Loss, and Teenagers**

Teens bent on losing weight may want to bend into the downward dog pose -- or any other yoga position. Researchers at Hampton University in Virginia report that a program combining yoga and breathing exercises helped teens shed unwanted pounds. The study included 60 overweight high school girls and boys who were divided into two groups. One group received 40 minutes of yoga and pranayama (quiet, deep and forced breathing) four times a week for 12 weeks, while those in the control group did their normal activities. After 12 weeks, the average body mass index (BMI) in the yoga / pranayama group went from 22.8 to 21.5 (a 5.7 percent decrease), while the average BMI in the control group increased from 22.3 to 22.4. The decrease in the pranayama group could be attributed to two factors: the pranayama and yoga exercises themselves, and a possible decrease in daily caloric intake by the participants in the pranayama group because of decreased stomach size.

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## Yoga, Meditation and Consciousness

### **Increased dopamine tone during meditation-induced change of consciousness.**

This is the first in vivo demonstration of an association between endogenous neurotransmitter release and conscious experience. Using <sup>11</sup>C-raclopride PET we demonstrated increased endogenous dopamine release in the ventral striatum during Yoga Nidra meditation. Yoga Nidra is characterized by a depressed level of desire for action, associated with decreased blood flow in prefrontal, cerebellar and subcortical regions, structures thought to be organized in open loops subserving executive control. In the striatum, dopamine modulates excitatory glutamatergic synapses of the projections from the frontal cortex to striatal neurons, which in turn project back to the frontal cortex via the pallidum and ventral thalamus. The present study was designed to investigate whether endogenous dopamine release increases during loss of executive control in meditation. Participants underwent

two <sup>11</sup>C-raclopride PET scans: one while attending to speech with eyes closed, and one during active meditation.