

8-day yoga intervention

Positive lifestyle modifications can improve important biochemical indices associated with heart disease, stroke, hypertension and diabetes mellitus.

Bijlani, R.L., et al. 2005. A brief but comprehensive lifestyle education program based on yoga reduces risk factors for cardiovascular disease and diabetes mellitus. The Journal of Alternative and Complementary Medicine, 11 (2), 267–74.

Many people strive to attain a lifestyle that includes a balanced diet, daily physical activity, mental tranquillity, manageable stress levels and regular sleep patterns. Too often, life stressors, such as keeping up with information technology and/or the complexities of dealing with personal, local, national and world events, interfere with our achieving a healthy existence. Cardiovascular disease, diabetes mellitus and other disease-causing disorders may result. A seldom-researched question is whether any type of short-term intervention can meaningfully reduce these negative health consequences. Bijlani and colleagues (2005) present some intriguing and noteworthy data from an 8-day integrated yoga and lifestyle health-risk-reduction program designed to answer this investigative question.

Method Subjects

This study included 98 participants (males = 67; females = 31), ages 20–74. Each participant attended this interven-

tion program between May 2001 and November 2002. The subjects were a diversified group of people with health disorders commonly seen in societies throughout the world (see Table 1).

The 8-Day Program

The theory and applied program lasted 3–4 hours a day throughout the 8-day intervention, which did not include 2 weekend days. Participants were placed into small groups of six to eight. The program consisted of asanas (physical postures) and pranayama (breathing exercises) for 1 hour, followed by breakfast (although meals were not provided as part

of the program) and then an educational video or a lecture. Each day ended with savasana (a relaxation technique, pronounced *shah-VAHS-anna*) or meditation. (See Table 2 for complete 8-day intervention program.)

Subjects were taught essential and fundamental facts about nutrition. Program providers encouraged participants to eat a low-fat, vegetarian-style diet, with moderate amounts of dairy products. However, it was entirely up to the subjects to implement any dietary information or recommendations into their lives.

An introduction to the principles of yoga was provided, as were various tech-

table 1. health diseases and disorders of 98 subjects in study

| Disease or Health Disorder | Number |
|---|--------|
| backache | 13 |
| bronchial asthma | 5 |
| cervical spondylosis | 6 |
| constipation | 1 |
| coronary heart disease | 25 |
| diabetes mellitus | 20 |
| hypertension | 26 |
| obesity | 8 |
| osteoarthritis | 8 |
| peptic ulcer/acid dyspepsia | 6 |
| psychological problems (including anxiety, stress, depression, insomnia) | 8 |
| tension headache | 6 |
| various other health disorders | 16 |

Note: Some subjects had more than one condition.

Source: Adapted from Bijlani, R.L., et al. 2005. A brief but comprehensive lifestyle education program based on yoga reduces risk factors for cardiovascular disease and diabetes mellitus. *The Journal of Alternative and Complementary Medicine, 11 (2)*, 267–74.

niques. One whole session was dedicated to meditation principles and practices; two other sessions focused on stress management. Group discussion and questions and answers were encouraged. Self-healing was taught through imagery and/or autosuggestion.

Pamphlets from the lectures were distributed to participants to highlight important lessons and discussions. Each study participant also received one personalized meeting with a medical doctor during the 8-day intervention. The physician discussed and recommended lifestyle changes pertaining to diet, physical activity, smoking, drinking and relaxation, and offered advice on specific problems and questions brought forward by the subject.

Study Design

Fasting blood samples were taken on day 1 for baseline values and on day 10 (inclusive of the 2 nonpractice weekend days) to compare the effects of the program on glucose, cholesterol and triglyceride levels. However, analyses could be conducted on only 77 participants, either because blood samples were insufficient or because patients drank tea before their blood draw.

Results

Fasting glucose, total cholesterol, LDL cholesterol (“lousy” type), VLDL (very low density lipoprotein) cholesterol, total cholesterol/HDL ratio and triglycerides were significantly lower on day 10 compared to day 1, while HDL cholesterol (“healthy” type) was significantly higher.

The researchers further divided the subjects into two subgroups: a high-cholesterol subgroup (43 subjects; total cholesterol \geq 200 milligrams per deciliter [mg/dl]) and a normal-cholesterol subgroup (55 subjects; total cholesterol $<$ 200 mg/dl). Analysis of the data, depicted by percentage changes in Figure 1, clearly shows that the group with the higher cholesterol values—who were thus at greater health risk—showed the more meaningful improvement.

The researchers also separated the subjects into a hyperglycemic subgroup (29 subjects; blood glucose \geq 104 mg/dl) and a nonhyperglycemic subgroup (48 subjects; blood glucose $<$ 104 mg/dl). Similarly, those at greater health risk—the hyperglycemic group—showed the more consequential positive changes from the 8-day intervention.

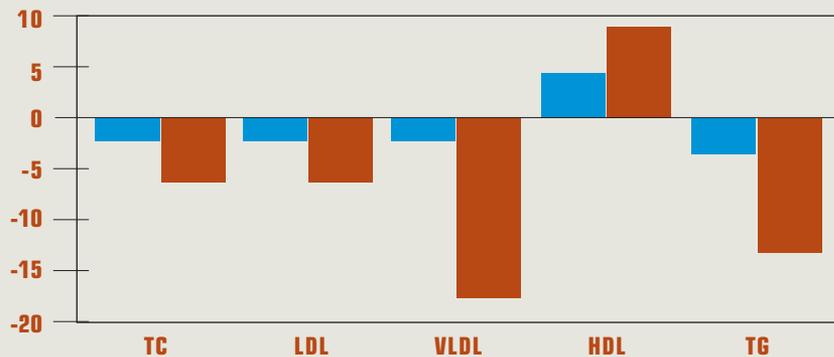
table 2. 8-day program design

| Day: Day of Week | Intervention/Break/Testing |
|-------------------------|---|
| Day 1: Wednesday | fasting blood samples taken; participant grouping; and introductions lecture: “Introduction to Yoga” practice: savasana (relaxation technique) |
| Day 2: Thursday | practice: asanas (physical postures) and pranayama (breathing) break lecture: “Meditation” practice: meditation individualized advice with a doctor (2 subjects in a group) |
| Day 3: Friday | practice: asanas and pranayama break lecture: “Fundamentals of Nutrition” practice: meditation individualized advice with a doctor (2 subjects in a group) |
| Day 4: Saturday | off |
| Day 5: Sunday | off |
| Day 6: Monday | practice: asanas and pranayama break film: “Samattvam (equanimity or calmness)” practice: meditation/savasana |
| Day 7: Tuesday | practice: asanas and pranayama break film: “Stress Management” practice: meditation/savasana |
| Day 8: Wednesday | practice: asanas and pranayama break lecture: “About Your Illness” practice: meditation/savasana individualized advice with a doctor (2 subjects in a group) |
| Day 9: Thursday | practice: asanas and pranayama break lecture: “Yogic Attitude in Daily Life” practice: meditation/savasana individualized advice with a doctor (2 subjects in a group) |
| Day 10: Friday | fasting blood sample practice: asanas and pranayama break lecture: “Stress Management” practice: meditation/savasana closing session |

Source: Adapted from Bijlani, R.L., et al. 2005. A brief but comprehensive lifestyle education program based on yoga reduces risk factors for cardiovascular disease and diabetes mellitus. *The Journal of Alternative and Complementary Medicine*, 11 (2), 267–74.

figure 1. health diseases and disorders of 98 subjects in study

■ normal cholesterol
■ high cholesterol



Subject subgroup data for TC (total cholesterol), LDL (low-density lipoprotein), VLDL (very low density lipoprotein), HDL (high-density lipoprotein) and TG (triglycerides). The normal-cholesterol subgroup (55 subjects) had cholesterol levels < 200 mg/dl, whereas the high-cholesterol group (43 subjects) had cholesterol levels \geq 200 mg/dl.

Observation 1: Note that high-cholesterol group showed greater changes.

Observation 2: Increase in HDL (“healthy”) cholesterol is desired.

Practice Findings and Discussion

This study clearly shows that an 8-day integrated program of yoga, stress management, diet, meditation and positive lifestyle modifications can improve important biochemical indices associated with heart disease, stroke, hypertension and diabetes mellitus. However, one study limitation clearly discussed by the authors is the lack of a control group in this investigation. Although a lengthy debate on control groups is not warranted here, suffice it to say that a follow-up control-group design study by this research team—or another group of interested investigators—would be welcome.

Practically, however, this study impressively supports the direction of the fitness industry as it moves toward a much more integrated approach to health and fitness by combining exercise, mind-body interventions, stress management and healthy nutrition in comprehensive programs,

versus treating each area as a separate entity. For fitness professionals currently offering inclusive wellness programs for clients and students, this study provides enlightening evidence that positive dramatic changes may be attained early in a program.

Iris Poole is completing her bachelor's degree in exercise science at the University of New Mexico, Albuquerque (UNMA). She will begin graduate school this summer at the University of Nevada, Las Vegas, to earn a doctorate degree in physical therapy.

Len Kravitz, PhD, is the program coordinator of exercise science and a researcher at UNMA, where he won the 2004 Outstanding Teacher of the Year Award. He was also honored with the 1999 Canadian Fitness Professionals International Presenter of the Year Award and was the first recipient of the IDEA Fitness Instructor of the Year Award.

© 2006 by IDEA Health & Fitness Inc. All rights reserved. Reproduction without permission is strictly prohibited.