

## FOR THE LADIES

# Estrogen and exercise combined double the positive effects on bone density

By Caroline Decker

Post-menopausal women who seek their physician's advice about how to prevent osteoporosis are likely to hear two recommendations — take hormone-replacement therapy and begin an exercise program.

Osteoporosis affects some 25 million Americans, most of whom are post-menopausal women. The disease causes progressive bone loss, which leaves bones brittle and prone to fractures. Each year an estimated 1.3 million fractures are linked to osteoporosis.

Studies have shown that replacement therapy with the female hormone estrogen can effectively reduce bone loss in post-menopausal women. Weight-bearing exercise such as walking or jogging also is believed to slow bone loss.

However, few studies have assessed the benefits of exercise on bone density in older women. Exercise is thought to preserve bone density, but that assumption is based primarily on studies of inactivity, such as bed rest or space flight. These studies show that inactivity has a profound and rapid effect on bone loss.

"There has been a prevailing opinion that exercise has a very potent effect on bone density in older women when, in fact, there has been little scientific support for this," said Wendy Kohrt, Ph.D., an exercise physiologist at Washington University School of Medicine in St. Louis.

In fact, the few prospective studies to assess the effects of exercise on bone density in older women have produced mixed results. They have shown that hormone replacement combined with exercise increases bone density, while exercise alone does not.

In an attempt to settle the issue, Kohrt and her co-workers studied the independent and combined effects of estrogen and exercise in post-menopausal women.

In the October 1995 issue of the *Journal of Bone and Mineral Research*, they report that weight-bearing exercise and hormone replacement therapy each can prevent some bone loss in key regions of the hip and spine. The research was supported by grants from the National Institutes of Health.

The effects of the two therapies are additive, the researchers found, meaning that women who received estrogen and exercised received double the benefit of either therapy alone.

"Each intervention has positive effects on bone mineral density," Kohrt said. "When you combine the treatments, they appear to be additive at the spine and the hip."

The study involved 32 women who ranged in age from 60 to 72. The researchers divided the women into four groups of eight. One group received daily estrogen and participated in a regimented exercise program at least three days a week; the other two groups received either estrogen or participated in the exercise program. A fourth group, which served as a comparison, received neither estrogen nor exercise. All women received calcium

at a moderate intensity; all participants met the goal within four weeks. By the beginning of the third month, stair climbing and/or jogging were incorporated into the program. The women were strongly encouraged to jog at least occasionally to increase the loading forces acting on the hip and spine.

### Slows Bone Loss

The researchers assessed bone mineral density every three months throughout the course of the study. They found significant increases in bone mineral density in women who exercised or took estrogen or both. Hormone replacement therapy was slightly more effective than exercise in

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supplements.

None of the women exercised regularly before the study. Each were at least 10 years past menopause and none had taken estrogen for the past six years. All women were non-smokers.

The exercise program consisted of two months of flexibility training followed by nine months of more vigorous weight-bearing exercise training. Participants were required to attend three 45-minute sessions each week but were encouraged to attend five sessions.

Flexibility training included exercise to improve range of motion of all major joints and muscle groups. The training also was designed to reduce the likelihood of injury during the more rigorous weight-bearing exercise program.

The weight-bearing exercise program included walking, jogging and/or stair climbing. The program was individualized and updated weekly. The initial goal was to walk for 30 minutes

increasing bone mineral density.

In women who took estrogen or who exercised, or both, the researchers suspect that an overall increase in bone and mineral density is due to a slowdown in bone loss, rather than an increase in new bone formation. However, estrogen and exercise each may slow bone loss by different mechanisms.

Kohrt recommends that post-menopausal women talk to their doctors about taking hormone replacement therapy and starting an exercise program.

The most effective exercises would be those that include walking, jogging or stair climbing in excess of a woman's usual routine.

"There is the potential for exercise and hormone replacement to have a profound effect on the skeleton in older women," Kohrt says. "This is considered good news for many women who are looking to reduce their risk of osteoporosis."

## Women's studies to be topic of lecture at UNLV

"Cross-Cultural and Socially Responsive Women Studies" will be the topic when Chinosole, an associate professor at San Francisco State University, speaks at UNLV on February 16. The lecture is scheduled for 7:30 p.m. in the Classroom Building Complex, Room A-112. It is free and open to the public. Chinosole, who teaches women's studies, will draw on her knowledge of building curriculums in that field at San Francisco State and in central Africa at both the college and high school levels. Her presentation at UNLV is being sponsored by the Nevada Humanities Committee and the UNLV women's studies program. For additional information, call UNLV's women's studies program at 895-0837.

# Computers are tools for planning weddings

Microsoft magnet Bill Gates says he once maintained a "virtual dating" relationship with a woman in another city via e-mail and cellular phone—so it's not surprising that computers are becoming a part of the wedding picture.

The powerful tools can keep track of wedding plans, carry messages to family and friends, aid in obtaining information from vendors, and sometimes, even connect couples who want to complain, commiserate and ask one another for advice.

To take advantage of all these services, a computer has to be equipped with a modem and the user needs an e-mail address, either through work or through one of the on-line services such as America On-Line, CompuServe or Prodigy.

For Carolyn Pytte and her

mother, Patricia Pytte—both hooked into the Internet—e-mail was a valuable adjunct to planning for Carolyn's wedding.

"It was more efficient than a telephone call, less intrusive and less expensive," says Patricia Pytte. "Each of us typed in ideas for the reception when we got an inspiration—things that wouldn't have been worth a telephone call."

For those who are plugged in, but not connected, there are software programs such as the "Wedding Workshop" and "I Do: The Ultimate Wedding Planner," which are among a number of high tech versions of old-fashioned wedding planning books.

Programs such as these keep track of many details, such as wedding guests lists, seating charts, expenses, gifts and the

names and addresses of vendors being considered or already hired.

These software programs are the most common uses of computers for weddings, according to Millie Bratten, editor of *Bride's* magazine. But they may be a form of technological overkill; a review of five current wedding planning programs in a recent issue of *Bride's* found none of them to be a significant advance on printed wedding planners. While those who prefer using computers to pencil and paper may well prefer them, at prices ranging from \$29.95 to \$49.95, they are more expensive than the planners that sell for \$20 or less, and a lot more expensive than a blank notebook that can be used for the same purpose.

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