

# A+ CALIFORNIA TEACHERS STUDY Report Card

VOLUME X, WINTER 2008

## TEACHERS SHOW BENEFIT OF EXERCISE

### THE HEALTHFUL EFFECTS OF PHYSICAL EXERCISE

on health of the heart and cardiovascular system have been known for decades. More recently, evidence of similar protection for some forms of cancer has been emerging. For example, reduced risk of colon cancer has been repeatedly found to be associated with higher levels of exercise, but this finding has generally been limited to men.



Members of the California Teachers Study have now made a major contribution to better understanding of this relationship among women. Based on the detailed information you have reported on your exercise experience at various points in your lives and additional information on use of medications and other factors, some new information has emerged.

So why has a reduction in colon cancer risk not been found among women with higher levels



of exercise? We know that risk of colon cancer is lower among postmenopausal women who use hormone therapy than those who do not. So the question arose as to whether hormone therapy use might be masking any beneficial effects of physical activity on colon cancer risk among women with a history of hormone use.

By analyzing Teachers Study data on exercise patterns since high school, our researchers found a slight reduction in colon cancer risk among those with lifetime moderate or strenuous recreational physical activity. But



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**SAVE THIS CARD!** The California Teachers Study is a long-term research project. To assure that you receive future newsletters containing study updates, please save this postcard and return it to us if your name or address changes. Thank you!

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# NATURE OR NURTURE?

**“NATURE VS. NURTURE.”** We all enjoy thinking about this question – how much of who we are is due to our environment (including our personal choices) and how much can we blame on our parents! It has long been clear that human health is determined by a complex interaction of genetics and external factors. For example, an intriguing question is why most smokers do not develop lung cancer when smoking is well-established as a cause of lung cancer. Perhaps some people have a gene that protects them from developing lung cancer or, perhaps, there is a gene that allows or promotes lung cancer. Fortunately, genes that by themselves cause cancer appear to be fairly quite rare.

Even more challenging is the knowledge that genes can control other genes and some genes can change during life. So with every one of us being genetically different and everyone having a different set of life exposures and experiences, how can identify the pathways that lead to cancer? Certainly the Human Genome Project in 2003 was a great advance. Identifying the sequence of all 30,000 genes comprising human DNA created a “roadmap” for the future directions in research.

So how can we include both nature and nurture in our quest to find the causes of cancers and other diseases among women? Imagine you are driving to an unfamiliar destination. It is most helpful to have an accurate roadmap. But, unless you are also looking through the windshield at the surrounding environment, you will not arrive at your destination. And, advances in technology can make using your roadmap even easier – now, with GPS and computerchips, it can talk to you as you drive!

In cancer research, rapidly growing

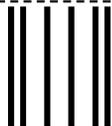


technology is also offering exciting new potential. New faster, more sophisticated systems to evaluate genetic information are becoming available every year. Even small amounts of DNA can unlock answers to risks of disease. In the California Teachers Study we can combine the DNA “roadmap” information with the “look out the windshield” information that you have provided by participating in the study surveys.

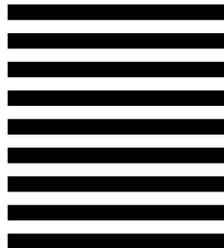
An increasingly popular way to provide DNA specimens is collection of saliva. In the past, saliva was considered to not contain enough DNA to be sufficient for research. But new laboratory techniques have been developed which make this viable. And it is both convenient and painless. It is so easy that we are inviting any member of the Teachers Study to submit a sample. All you



TEACHERS



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## Teachers Study Researcher Receives National Awards



Leslie Bernstein, PhD

A founding member of the California Teachers Study has received two prestigious 2007 awards recognizing excellence in cancer research. Dr. Leslie Bernstein has been named the recipient of the Komen Foundation Brinker Award for Scientific Distinction. Focused on breast cancer, this award recognizes outstanding work that has advanced basic research concepts,

or affected clinical or social-behavioral applications in the field of breast cancer research, screening, treatment or prevention. The intent is to recognize scholars for a specific contribution, a consistent pattern of contributions, or leadership in the field that has had a substantial impact on breast cancer. Two awards are given annually; one is for basic science and the other in clinical science. Dr. Bernstein is the recipient of the clinical science award.

Dr. Bernstein has also received the American Association for Cancer Research - Cancer Research and Prevention Foundation Award for Excellence in Cancer Prevention Research which is given annually to a scientist residing in any country in the world for his or her seminal contributions to the field of cancer prevention. The studies must have had not only a major impact on the field, but must also have stimulated new directions in this important area. The 2007 award notes Dr. Bernstein's "lifelong research focusing on the effects of exposure to exogenous and endogenous hormones on cancer risk, the late effects of cancer treatment, the impact of lifestyles on prognosis, and the quality of life issues among cancer survivors."

The recognition also cites her "pioneering work examining the effects of exercise and weight on the onset of puberty and hormonal patterns during adolescence." This research challenged the paradigm that epidemiologic risk factors for breast cancer were largely unmodifiable; demonstrated that physical activity can directly decrease breast cancer risk; and laid the foundation for subsequent epidemiologic studies and clinical trials focused on understanding the joint contributions of physical activity and weight and the associated biologic mechanisms."

After a 30-year research career at the University of Southern California, Dr. Bernstein will continue her work at the City of Hope National Medical Center. She intends to devote even more of her time to the California Teachers Study. ❖

have to do is visit the Teachers Study website, and we will mail you a collection kit. If you do not have access to the Internet or want to speak with us in person, feel free to call us at (800) 568-9471 and we will send a kit to you. ❖

### DNA Study Kit

[www.CalTeachersStudy.org](http://www.CalTeachersStudy.org)

1. Go to our website and click here

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when we focused on postmenopausal women who had never taken hormone therapy, the protective effect was greater. Postmenopausal women who did use hormone therapy also had lower colon cancer risk, but their risk was not associated with physical activity. Thus, it does appear that both hormone therapy and exercise lower risk of colon cancer among women.

What about breast cancer? Can an exercise regimen that reduces risk of heart disease and colon cancer also protect against breast cancer? Many studies say yes. But most of those studies were conducted among patients who already had breast cancer and were asked to remember their exercise behaviors. As described above, Teachers Study members have been reporting their experiences for



many years, closer to the time they actually occurred.

Our researchers confirmed that women in the Teachers Study who participated in strenuous activity for much of their lives had significantly lower risk of breast cancer. Furthermore, this was found not only for invasive breast cancer but for in situ cancer, the less progressed form. (Importantly, unlike colon cancer, breast cancer risk is higher among women who use combined estrogen and progesterone hormone therapy after menopause.)

For you jogging, tennis-playing, gym-going, bicycling, hiking, swimming, distance-walking, working-out, gardening, mountain-climbing folks – keep it up! And encourage those around you to join you. ♦

