■ NURSES' HEALTH STUDY ■

NEWSLETTER

VOLUME 5, NUMBER 1 JUNE 1992

Nurses' Health Study

As we enter the 16 year follow-up of the Nurses' Health Study, it is helpful to review the major contribution that this study has made to our under-standing of life-style and health among women. The Nurses' Health Study began when 121,700 US registered nurses returned a questionnaire in 1976. The study focused on contra-ception and other factors that may influence risk of breast cancer. In addition, details of factors that may modify risk were included on this short baseline questionnaire. Over the years participants have returned follow-up questionnaires on a regular basis. These questionnaires, mailed every two years update information on life-style and allow you, the participants, to report major illness that have been diagnosed.

In 1980 we added a diet assessment that has been the basis of a number of analyses addressing diet and health. A subgroup of the cohort have participated in extensive detailed diet assessment to validate the questionnaire used for the whole cohort, and to allow for adjustments of relations between diet and disease.

With your collaboration, we have expanded other components of the study over the years. In addition to more detailed assessment of diet and physical activity, we have also obtained blood samples from over 30,000 participants. These have been processed and are currently stored, pending detailed hormone and other laboratory analyses. In 1983 more than 60,000 participants sent in toe-nail clippings to allow assessments of the relations between trace elements and risk of disease. Based on these samples we have shown that selenium intake is not related to risk of breast cancer.

Other developments have included expansion of the range of health conditions that are followed, and hence available for study. For example, we have confirmed cataract extractions in more than 493 women, and with these important endpoints have shown that smoking increases risk of cataract, and further that high intake of carotenoids, particularly leafy green vegetables, significantly reduces risk. We are currently addressing life-

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style and risk of fractures among women, and will provide unique data relating diet to risk of fractures.

Diet and breast cancer

When examining diet and breast cancer we have found that moderate intake of alcohol is associated with a 30 to 60 percent increase in risk, and that total fat intake is not related to risk. Specifically, we have reported data based on four years of follow-up showing that women with the highest levels of total fat intake have no higher risk of breast cancer than those with the lowest intakes. We expanded these analyses with over 1,400 cases of breast cancer diagnosed between 1980 and 1988, and observed that women consuming more than 40 percent of energy intake from fat had no higher risk of breast cancer than those women consuming less than 25 percent of their total energy intake from fat.[1]

Other relations between diet and disease include and increase in risk of hip and forearm fractures seen among women who consume coffee regularly, and a similar increase in risk among women who consume alcohol[2]. When examining onset of diabetes, we observed that diet bore little relation to risk after accounting for the very strong relation between increasing body weight and risk of diabetes.[3]

Heart Disease

Updating our earlier results that showed a lower risk of coronary heart disease among postmenopausal women taking estrogen replacement therapy, we added cases of heart disease and stroke diagnosed through the 1986 follow-up. With more than 400 new cases of heart disease among postmenopausal women we noted a significantly reduced risk among those women who were currently using replacement hormone therapy. The risk reduction of 50 percent was seen among those women at high risk for heart disease and also among women at low risk of disease[4]. These results contrast with the moderate increase in risk of breast cancer that we note using data through the 1986 follow-up.[5]

Prior use of oral contraceptives reported on questionnaires early in the study was not related to risk of heart disease or stroke[6].

In analyses that related personal history of diabetes to risk of heart disease, we noted a strong relation with more than a six-fold increase in risk for women with a history of diabetes compared to those without any personal history of diabetes[7].

1. Am J Epidemiol 1991;134:
2. Am J Clin Nutr 1991;54: 157-63
3. Am J Clin Nutr 1992;55: 1018-23



Members of the research group

4. N Engl J Med 1991;325: 756-62
5. JAMA 1990;264: 2648-53
6. Am J Obstet Gynecol 1990;163: 285-91

Hormone therapy and breast cancer

With the addition of new cases of breast cancer we expanded our analysis of hormone therapy and risk of breast cancer to address the specific types of hormone therapy used by postmenopausal women. We observed a similar 40 percent increase in risk for women using conjugated estrogens alone, or in combination with progestins. These data clearly show that the addition of progestins does not reduce the risk of breast cancer associated with estrogen replacement therapy, and contrasts with the protective association seen for heart disease.

New Developments

With the preparation of the 1992 questionnaire we have worked closely with faculty in the Department of Health and Social Behavior at the Harvard School of Public Health to identify a series of questions relating to social determinants of health and to assess quality of life. These items are included as a supplement with the current mailing and will allow us to relate the many life-style variables reported by you over the years to current health status. These measures place health in a broader context than simply diagnosed medical conditions and may help further the understanding of factors associated with healthful aging.



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Overwhelming Response

With the 1990 follow-up cycle we used a wide range of techniques to contact participants in the Nurses' Health Study. These included up to five mailings to those who have responded to questionnaires on a regular basis, telephoning those who were known to be disabled, mail followed by telephoning those who did not respond to the regular mailings, and finally certified mail to those women who did not respond to either the mail or telephone calls. Using these approaches we obtained responses from over 90 percent of the women in the study. This was our highest response in over 10 years.

TABLE 1. **Response by year**

Year	*Response*
1976	100%
1978	89%
1980	86%
1982	92%
1984	82%
1986	86%
1988	88%
1990	90%

This high level of response reflects not only your commitment to the study, but a broader commitment to advancing the understanding

7. Arch Int Med 1991;151:1141-7

of life-style and health of women.

Beginning in 1989 we have increased our efforts to regain contact with nurses we have "lost" over the years. We have successfully returned several thousand members of the cohort to our active files. If you know someone who is a member of the Nurses' Health Study but has not been receiving our mailings, please send us a note with their name and address so that we may update our files and resume including them in our follow-up.

Screening practices among participants

Based on responses to the 1990 questionnaire, we estimate that xb percent of women in the study had a mammogram during the two year interval from 1988 to 1990. The frequency of mammography varied little according to age or breast cancer risk factors, although we did note that women with a family history of breast cancer and those with a personal history of benign breast disease were a little more likely to report having a mammogram.

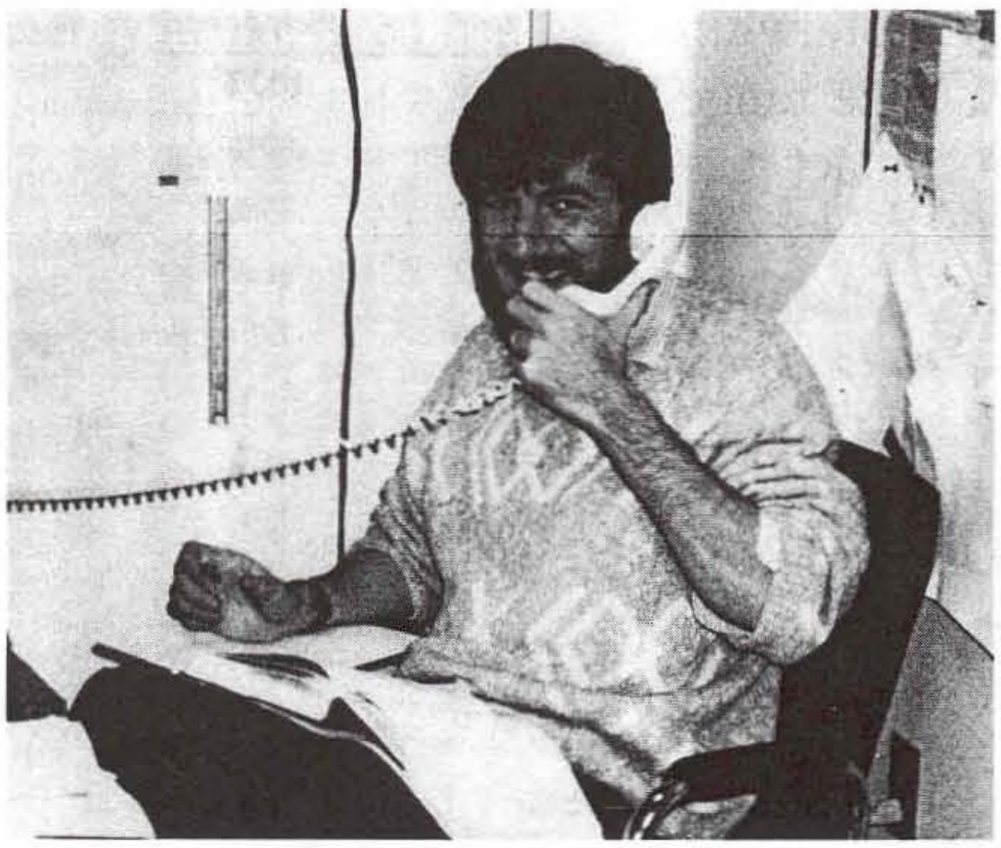
Aspirin and heart disease

Data on aspirin use as reported on questionnaires in 1980, 1982, and 1984 allowed us to examine the relation between regular use of aspirin and risk of heart attack and stroke during 8-years of follow-up. Women taking aspirin regularly, but les than 7 per week, had a significant 30 percent reduction in risk of heart attack. These results persisted in subgroups of women defined by age and by other risk factors for heart attack. We observed no relation between aspirin use and risk of stroke[1].

Ovarian cancer

We observed that women who had used oral contraceptives or who had a tubal ligation were at reduced risk of ovarian cancer. These findings is consistent with results from a number of other studies.

1. JAMA 1991; 266:521-7



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