



PLEASE REPLY TO:
 Channing Laboratory
 180 Longwood Ave.
 Boston, Mass. 02115
 617-732-2279

Dear Colleague:

I would again like to express my gratitude for your continued and invaluable participation in the Nurses' Health Study. The information you have provided over the last eleven years is now yielding many important findings and is becoming increasingly valuable. In 1986, this study received an extremely high priority by the National Cancer Institute with a special commitment to provide funding for at least seven more years. This recognition of excellence is primarily due to the exceptional quality of information you and other participants have provided.

Since last year several major reports have been published (see back of letter for abstracts). Based on the 1980 diet data provided by more than 95,000 participants, we found that women who reported high intakes of total fat, animal fat, and cholesterol were not at increased risk of subsequent breast cancer compared with women eating lower levels of these fats. However, we observed a steady increase in risk of breast cancer with increasing intake of alcohol. Risk of breast cancer was increased by greater than 50% among women consuming more than one alcoholic drink per day. This effect, recently seen in several other studies as well, was observed for beer, wine or liquor. We found no long-term effects of hair dyes on the risk of breast cancer.

With respect to cardiovascular disease we also have several findings. Past use of oral contraceptives did not increase the risk of myocardial infarction. We found a protective effect of post-menopausal estrogen use for risk of myocardial infarction. Women who had ever used estrogen therapy had a risk that was half that of those who never used them. However, women using estrogen supplements did experience an increased risk of uterine cancer. In addition, women with high blood pressure or high cholesterol are at increased risk of coronary heart disease, as are those who smoke cigarettes.

We would like to convey our special appreciation to those who provided permission to review medical records related to diagnoses of malignancies, cardiovascular diseases, gallbladder disease, diabetes, rheumatoid arthritis, as well as other diseases. These record reviews have been extremely important and have documented the accuracy and care with which participants have reported medical events. In addition, we are particularly grateful to the special sample of 200 participants in the greater Boston area who are currently measuring their dietary intake on a meal-by-meal basis, thus providing data to standardize the dietary questionnaire completed by the entire Nurses' Health Study group. Over the next twelve months we will be pilot testing our ability to obtain blood and urine specimens from members of the Nurses' Health Study. If successful, this may lead to our collecting such specimens from a sample of all participants. In 1988, we will be sending you another questionnaire to update our information and to collect data on new health-related events.

Again, I am grateful for your invaluable contribution to knowledge of factors that influence the health of women.

Sincerely,

Frank E. Speizer, M.D.
 Principal Investigator

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DIETARY FAT AND THE RISK OF BREAST CANCER

Willett, W.C., Stampfer, M.J., Colditz, G.A.,
Rosner, B., Hennekens, C.H., Speizer, F.E.

N Engl J Med 1987; 316:22-8.

In 1980, 89,538 U.S. registered nurses who were 34 to 59 years of age and had no history of cancer completed a previously validated dietary questionnaire designed to measure individual consumption of total fat, saturated fat, linoleic acid, and cholesterol, as well as other nutrients. In a subsample of 173 participants studied in detail, those in the highest quintile of fat intake consumed a mean of 44 percent of calories from fat, as compared with 32 percent for those in the lowest quintile. During four years of follow-up, 601 cases of breast cancer were diagnosed among the 89,538 nurses in the study. After adjustment for known determinants in multivariate analyses, the relative risk of breast cancer among women in the highest quintile of calorie-adjusted total fat intake, as compared with women in the lowest quintile, was 0.82 (95 percent confidence limits, 0.64 and 1.05). The corresponding relative risks were 0.84 (confidence limits, 0.66 and 1.08) for saturated fat, 0.88 (0.69 and 1.12) for linoleic acid, and 0.91 (0.70 and 1.18) for cholesterol intake. Similar results were found for both postmenopausal and premenopausal women.

These data are based on a limited period of follow-up and do not exclude a possible influence of fat intake before adulthood or at levels lower than 30 percent of calories. They suggest, however, that a moderate reduction in fat intake by adult women is unlikely to result in a substantial reduction in the incidence of breast cancer.

A PROSPECTIVE STUDY OF ALCOHOL INTAKE AND RISK OF BREAST CANCER

Willett, W., Colditz, G., Stampfer, M.J., Rosner, B.,
Hennekens, C.H., Speizer, F.E.

Am J Epidemiol 1986; 124:540 and N Engl J Med, May 1987.

In 1980, 89,538 women aged 34-59 years without previous history of cancer completed dietary questionnaires that included use of beer, wine, and liquor. During the subsequent four years, 601 incident cases of breast cancer were ascertained by biennial questionnaires and vital record searches. Compared with nondrinkers, the age-adjusted relative risk of breast cancer among women who consumed 5-14 gm of alcohol per day (3-8 drinks per week) was 1.3 (95% confidence interval (CI), 1.1-1.7). Among women who consumed 15+ gm of alcohol per day, the age-adjusted relative risk was 1.6 (95% CI, 1.3-2.0). Women who consumed less than 5 gm of alcohol per day experienced no increase in risk. Significant effects were observed separately for beer and liquor. These findings were not materially altered by control for known breast cancer risk factors or nutritional variables in multiple logistic analyses. In conjunction with previous data, these findings suggest that moderate alcohol consumption increases the risk of breast cancer.

A PROSPECTIVE STUDY OF POSTMENOPAUSAL ESTROGEN THERAPY AND CORONARY HEART DISEASE

Stampfer, M.J., Willett, W.C., Colditz, G.A., Rosner, B.,
Speizer, F.E., Hennekens, C.H.

N Engl J Med 1985; 313:1044-9.

The possible role of postmenopausal estrogen use in coronary heart disease, was examined in the Nurses' Health Study, beginning in 1976. Information on hormone use and other potential risk factors was updated and the incidence of coronary heart disease was ascertained through additional questionnaires in 1978 and 1980, with a 92.7 per cent follow-up. End points were documented by medical records. During 105,786 person-years of observation among 32,327 postmenopausal women who were initially free of coronary disease, 90 women had either nonfatal myocardial infarctions (65 cases) or fatal coronary heart disease (25 cases). As compared with the risk in women who had never used postmenopausal hormones, the age-adjusted relative risk of coronary disease in those who had ever used them was 0.5 (95 per cent confidence limits, 0.2 and 0.6; $p = 0.007$), and the risk in current users was 0.3 (95 per cent confidence limits, 0.2 and 0.6; $p = 0.001$). The relative risks were similar for fatal and nonfatal disease and were unaltered after adjustment for cigarette smoking, hypertension, diabetes, high cholesterol levels, a parental history of myocardial infarction, past use of oral contraceptives, and obesity. These data support the hypothesis that the postmenopausal use of estrogen reduces the risk of severe coronary heart disease.

A PROSPECTIVE STUDY OF EXOGENOUS HORMONES AND RISK OF ENDOMETRIAL CANCER

Stampfer, M.J., Colditz, G.A., Willett, W.C., Rosner, B.,
Hennekens, C.H., Speizer, F.E.

Am J Epidemiol 1986; 124:520.

Nurses' Health Study subjects aged 30-55 years in 1976 reported their oral contraceptive and postmenopausal hormones use in 1976, with information updated by follow-up questionnaires in 1978 and 1980. Incident cancers were reported on follow-up questionnaires in 1978, 1980, and 1982 (96% follow-up rate), and fatal cases were found by a search of state vital records. All cases were documented by pathology reports. Among the 96,365 women free of cancer and with an intact uterus in 1976, 150 cases of endometrial cancer occurred in 548,026 person-years of follow-up. Past users of oral contraceptives had an age-adjusted relative risk of 0.7 (95% confidence interval (CI), 0.5-1.1) compared with never users. There was a nonsignificant trend (\bar{x}_1 trend = -1.8) among past users for increased protection with increased duration of use, and a decline in protection with increasing time since last use of oral contraceptives (x_1 trend = 2.1). Postmenopausal hormone use was studied only among postmenopausal women, among whom there were 70 cases in 114,896 person-years. Current postmenopausal hormone users had a relative risk of 4.4 (95% CI, 2.7-7.1), for five or more years of use, the relative risk was 6.9 (95% CI, 3.6-13.2), and for under one year of use, it was 3.5 (95% CI, 1.2-10.8). Among past postmenopausal hormone users, there was increased risk with increased duration (x_1 trend = 3.1); past users of postmenopausal hormones of five or more years had a relative risk of 4.6 (95% CI, 2.0-10.4). These prospective data highlight the opposite effects of oral contraceptive and postmenopausal hormone use on risk of endometrial cancer.

**HARVARD MEDICAL
SCHOOL**
**NURSES' HEALTH STUDY
QUESTIONNAIRE**

1. What is your date of birth? / /
2. Have your menstrual periods ceased permanently? YES NO
3. Do you currently use female hormone pills (e.g. Premarin)? YES NO
4. Do you currently smoke cigarettes? YES NO
5. How many months in total did you breast feed?
(all births combined) # months total

6. Since June 1982, have you had any of the following physician-diagnosed illnesses?

	PLEASE CHECK IF DIAGNOSED	YEAR OF DIAGNOSIS				
		JUNE 82 TO MAY 84	JUNE 84 TO MAY 85	JUNE 85 TO MAY 86	AFTER JUNE 1 1986	
1 (7) 87	<input checked="" type="checkbox"/> Y	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
2 (8) 88	<input checked="" type="checkbox"/> Y	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
3 (9)	<input checked="" type="checkbox"/> Y	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4 (10) D	<input checked="" type="checkbox"/> Y	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
5 (11) E	<input checked="" type="checkbox"/> Y	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
6 (12) F	<input checked="" type="checkbox"/> Y	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	→ Were you hospitalized?..... <input type="checkbox"/> YES <input type="checkbox"/> NO
0 (0) 0	<input checked="" type="checkbox"/> Y	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	→ Did you have an angiogram or stress test?..... <input type="checkbox"/> YES <input type="checkbox"/> NO
1 (1) 1	<input checked="" type="checkbox"/> Y	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
2 (2) 2	<input checked="" type="checkbox"/> Y	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
3 (3) 3	<input checked="" type="checkbox"/> Y	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4 (4) 4	<input checked="" type="checkbox"/> Y	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
5 (5) 5	<input checked="" type="checkbox"/> Y	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	→ Confirmed by breast biopsy? . <input type="checkbox"/> YES <input type="checkbox"/> NO
6 (6) 6	<input checked="" type="checkbox"/> Y	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	→ Confirmed by breast biopsy? . <input type="checkbox"/> YES <input type="checkbox"/> NO
7 (7) 7	<input checked="" type="checkbox"/> Y	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
8 (8) 8	<input checked="" type="checkbox"/> Y	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
9 (9) 9	<input checked="" type="checkbox"/> Y	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
0 (0) 0	<input checked="" type="checkbox"/> Y	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
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4 (4) 4	<input checked="" type="checkbox"/> Y	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
5 (5) 5	<input checked="" type="checkbox"/> Y	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
6 (6) 6	<input checked="" type="checkbox"/> Y	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
7 (7) 7	<input checked="" type="checkbox"/> Y	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
8 (8) 8	<input checked="" type="checkbox"/> Y	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
9 (9) 9	<input checked="" type="checkbox"/> Y	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
0 (0) 0	<input checked="" type="checkbox"/> Y	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	→ Specify other cancer site: <input type="text"/>
1 (1) 1	<input checked="" type="checkbox"/> Y	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	→ Please specify site and circumstances on a separate sheet.
2 (2) 2	<input checked="" type="checkbox"/> Y	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
3 (3) 3	<input checked="" type="checkbox"/> Y	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
4 (4) 4	<input checked="" type="checkbox"/> Y	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
5 (5) 5	<input checked="" type="checkbox"/> Y	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
6 (6) 6	<input checked="" type="checkbox"/> Y	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
7 (7) 7	<input checked="" type="checkbox"/> Y	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
8 (8) 8	<input checked="" type="checkbox"/> Y	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
9 (9) 9	<input checked="" type="checkbox"/> Y	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
7 (Y) N	<input checked="" type="checkbox"/> Y	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	→ Did you have symptoms?..... <input type="checkbox"/> YES <input type="checkbox"/> NO
8 (Y) N	<input checked="" type="checkbox"/> Y	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	→ How diagnosed?.... <input type="checkbox"/> X-Ray/ultrasound <input type="checkbox"/> Other
9 (Y) N	<input checked="" type="checkbox"/> Y	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
10 (Y) N	<input checked="" type="checkbox"/> Y	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
11 (Y) N	<input checked="" type="checkbox"/> Y	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	→ Specify other major illness: <input type="text"/>

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