from birth certificates of the same birth cohort and frequency matched to cases by race, period of birth, and hospital of birth.
RESULTS: Maternal tea consumption during the periconceptional period (3 months before through the first trimester of pregnancy) was reported at 82, 83.6, and 92.9% among controls, anencephaly, and spina bifida cases, respectively. With subjects whose mothers consumed no tea as a reference, odds ratios (OR) for tea consumption during the periconceptional period (adjusted for gender, race, period of birth, maternal age, education, alcohol consumption, smoking, and periconceptional multivitamins) were: anencephaly 0.9 (95% confidence limits (CI) 0.5–1.5); spina bifida 2.3 (CI 1.2–4.4). Odds ratios for spina bifida and number of cups of tea consumed/day were: 1–2 cups 2.1 (CI 1.1–4.0); 3+ cups 2.8 (CI 1.4–5.6). Consumption of other caffeinated beverages was not associated with risk for anencephaly or spina bifida.
CONCLUSIONS: Further studies are warranted to corroborate and elucidate the observed association between tea consumption and spina bifida.

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FATTY ACID COMPOSITION OF THE RED BLOOD CELL MEMBRANE IN RELATION TO MENOPAUSAL STATUS

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PURPOSE: Menopausal status effects female anatomical functioning at a variety of system-wide and cellular levels, including cellular membrane composition. This study analyzed a nested case-control ORDET data set of 433 pre and post-menopausal breast cancer controls to examine the effects of menopausal status on the fatty acid composition of the red blood cell membrane.
METHODS: ORDET is a prospective cohort study conducted in Italy to investigate the etiologic role of hormones and diet in breast cancer development. The fatty acid composition was measured and analyzed by gas chromotography, comparing retention time with standard measurement. Twenty-two individual fatty acids were measured, recorded, and categorized into four fatty acid groups: saturated, monounsaturated, polyunsaturated n–6 (PUFA n–6), and polyunsaturated (PUFA n–3) fatty acids.
RESULTS: Post-menopausal women had consistently lower mean values for all four fatty acid categories and all individual fatty acids. Statistically significant mean differences, by menopausal status, were observed for three of the four fatty acid categories: saturated fatty acids ($p = 0.006$), PUFA n–6 acids ($p = 0.001$), and PUFA n–3 acids ($p = 0.000$). The biggest statistically significant differences in mean values among individual fatty acids for each category were observed for Palmitic acid ($p = 0.009$), Oleic acid ($p = 0.040$), Linoleic acid ($p = 0.000$), and Docosahexaenoic acid ($p = 0.000$). Individual fatty acids were also less highly correlated among post-menopausal women.
CONCLUSIONS: There was an observed relationship between menopausal status and the fatty acid composition of the red blood cell membrane that warrants further study. This relationship may contribute to the physiological and psychological changes that occur during and after menopause, and may have far-reaching implications for women's health.

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ENVIRONMENT/OCCUPATION

GEOGRAPHIC INFORMATION SYSTEMS: A NEW TOOL IN ENVIRONMENTAL EPIDEMIOLOGY

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PURPOSE: Geographic Information Systems (GIS) are useful tools for identifying populations with potential exposure to environmental contaminants. Using a GIS, features of the local environment around an individual's home, work, or school can be described. We present two examples illustrating methods and issues in identifying populations potentially exposed to agricultural pesticides and to toxic releases from the Toxic Release Inventory (TRI).
METHODS: We used USDA Farm Service Agency records as ground reference data to classify a late summer 1984 satellite image into crop species in 3 counties in Nebraska. We located residences from a case-control study of non-Hodgkin's lymphoma (NHL) on the crop maps and calculated the distance to crop fields. Residences from a 4-center study of NHL were mapped and the distance to TRI sites was determined.
RESULTS: Twenty-two percent of residences had crop fields within 500 meters of the home, an intermediate distance for the range of drift effects from pesticide applications. After accounting for the extent of primary drift from ground applications of pesticides, we estimated that 30 percent of residences were potentially exposed to crop pesticides. In the 4-center study, residence locations determined by address-matching methods and by a global positioning system were compared; the population 1 mile from specific TRI sites is described.
CONCLUSIONS: These examples demonstrate the utility of a GIS in environmental epidemiology studies. A GIS can be a useful addition to questionnaire and other methods of exposure assessment in health studies.

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THE EFFECT OF IMPUTATION OF EXPOSURE ESTIMATES ON THE ASSOCIATION BETWEEN FINE PARTICULATE MATTER AND MORTALITY

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PURPOSE: The Harvard Six Cities Study (HSCS) found a small but significant association between daily PM2.5 and daily mortality count. The HSCS findings have been used as the basis for new EPA regulations, requiring lower levels of PM2.5. We feel that there are unresolved issues regarding the HSCS that should be