SWAN UPDATES

September, 2006

Is it hot in here, or is it just me? –
SWAN's investigation of hot flashes and night sweats (vasomotor symptoms)

For those of you who have experienced hot flashes, it is a baffling occurrence: you suddenly feel much warmer than you felt moments before—sometimes to the point of sweating heavily. When this happens at night, you may wake up with damp pajamas and the covers thrown off, hence a "night sweat." Using blood, urine, and questions you have answered for us, we have investigated hot flashes/night sweats (collectively called "vasomotor symptoms") and their effect on you.

A hot flash occurs because of a miscalculation made by the part of the brain called the hypothalamus—the body's internal temperature regulator. If the hypothalamus thinks you are too hot, it immediately begins a rapid cool-down process by speeding up the heart to pump blood to the skin, expanding the blood vessels there to reduce the "extra" heat, and frequently activating sweat glands. These events transfer the "extra" heat from the inside of the body to the skin—and now you fan your red face, mop your sweating forehead, or stand in front of the open refrigerator.

A shift in hormones will trigger a "hot" flash, and the menopause transition is not the only time women go through hormone changes. Women also report hot flashes during pregnancy and breastfeeding, times marked by rapid changes in hormone levels.

Because estrogen-replacement therapy decreases vasomotor symptoms, it was thought that a drop in estrogen was the trigger for hot flashes.

SWAN investigators have measured several hormones in the annual blood samples, including estradiol (E2 - the potent form of estrogen found in higher levels in premenopausal women), follicle-stimulating hormone (FSH communicates between the brain and ovaries), and testosterone (the "male" hormone that is converted to an estrogen). Higher FSH levels are more predictive of a hot flash occurrence than lower E2 levels. As FSH levels rise, there is an increasing likelihood that hot flashes would occur more frequently. E2 and FSH hormone levels are reported in your results letter. (Read more about this in SWAN journal article #1 listed at the end of the newsletter.)

Naturally, your menopausal status reflects your body's hormonal shifts. When SWAN began in 1996, all participants were pre- or perimenopausal (what was believed to be the beginning of the menopause transition). At this baseline visit, 4 out of 10 women said they had experienced a hot flash or night sweat in the two weeks before their interview. Today in 2006, almost all SWAN participants are postmenopausal and reported vasomotor symptoms (hot flash or night sweat) much more frequently when they are in the early- and especially late-perimenopausal stage of transition (when periods were less predictable). Though symptoms will decrease in frequency for most women after menopause, many women will experience

occasional hot flashes after their menstrual periods cease. (Read more in the SWAN journal article #2 listed at the end of the newsletter.)

A woman's ethnic group is linked to her chances of having hot flashes. Among women screened for the SWAN Study, 46% of African American women and over 30% of Hispanics and Caucasians reported hot flashes. The percentage was notably lower—20%—in Chinese and Japanese women.

Hot flashes occurred in less than one third of SWAN participants with normal weight (BMI of 19-26.9). But among overweight to obese SWAN women (a BMI more than 27), 40% reported hot flashes.

Behaviors also affect vasomotor symptoms, too. Lower levels of physical activity appear to increase the likelihood of hot flashes; at the baseline SWAN visit, nearly 50% of SWAN participants who felt they were "much less" physically active than women their age said they experienced at least one hot flash during a two-week time span.

SWAN has also confirmed that smoking is significantly associated with hot flashes. Importantly, SWAN identified that passive smoke exposure is also linked to vasomotor symptoms. Passive smoke is smoke in your environment that you did not produce: friends or co-workers who smoke, exhaust from cars, or factory smoke. (Read more about this in SWAN journal article #3 listed at the end of the newsletter.)

Also important is stress from life events—having a very hard time paying for basic life necessities, relationship difficulties, job stress, etc. These events may raise your core body temperature, triggering a hot flash.

SWAN participants report that the experience of vasomotor symptoms is strongly linked to trouble sleeping. This is one of the reasons that SWAN has begun a special detailed study of sleep at the Chicago, Michigan, Oakland, and Pittsburgh SWAN sites.

SWAN has shown that vasomotor symptoms are annoying to most women; however, for about 1 out of 10 women, hot flashes are extremely disruptive in their lives. As a result, research continues on methods to control hot flash episodes. Although estrogen treatments are an effective way to lessen hot flashes, women frequently ask about natural alternatives. While SWAN asks if you take supplements or eat certain foods, the study does not conduct tests for products affecting hot flashes.

Although vasomotor symptoms are not a pleasant part of the menopausal transition, SWAN is continuing to gain a better understanding of vasomotor symptoms as well as the menopause transition. At your local SWAN center, you can read more about the information gained as a result of your SWAN contributions.

ARTICLES from SWAN about vasomotor symptoms available at your local center

1. **The Relationship of Longitudinal Change in Reproductive Hormones and Vasomotor Symptoms during the Menopausal Transition.** Journal of Clinical Endocrinology & Metabolism, Volume 90, pages 6106-6112 (2005)
2. **Relationship of Demographic and Lifestyle Factors to Symptoms in a Multi-racial/ethnic Population of Women 40-55 Years of Age** American Journal of Epidemiology, Volume 152, pages 463-473 (2000)
3. **Lifestyle and Demographic Factors in Relation to Vasomotor Symptoms: Baseline Results from the Study of Women's Health Across the Nation** American Journal of Epidemiology, Volume 159, pages 1189-1199 (2004)