BACKGROUND
Hot flashes, the most common symptom of menopause, are probably the one that aggravates women the most. While some women never have hot flashes and others have mild or infrequent hot flashes, some women experience dozens each day. Severe hot flashes can make it difficult to get a full night’s sleep, which, in turn, affects women’s mood and concentration, and can cause other physical problems.

Like other symptoms of the menopausal transition, hot flashes are usually transient, lasting from a few weeks to a few years as a woman transitions to post-menopause. For most women, hot flashes eventually get better without any treatment (which also makes it hard to determine if a particular treatment is effective).1

HORMONE THERAPY
Hormone replacement therapy (HT) is the use of the hormones estrogen and progesterone to boost women’s hormone levels and minimize symptoms of the menopausal transition, including hot flashes. HT can be taken as a pill or absorbed through the skin via sprays, gels, or patches. Women who still have their uterus have to take a combination HT that includes both the hormones progesterone and estrogen to protect themselves from endometrial cancer (cancer of the uterine lining) that can result from using estrogen alone. Women who have had a hysterectomy and don’t have a uterus can use estrogen alone.

Hormone therapy is the most reliably effective treatment for hot flashes. Clinical trials show that 75 percent of women will experience significant relief within four to eight weeks.2 We now know, however, that even short-term HT use exposes women to the small, but real, risk of serious complications. The Women’s Health Initiative’s (WHI) trial that compared the use of estrogen plus progestin to placebo in healthy post-menopausal women (called the WHI-E+P trial) conclusively demonstrated HT’s risks. It showed that an increased risk of heart disease and stroke emerges within the first year of HT use, and that women who stay on HT for longer periods of time continue to have an increased risk of heart attack and stroke.3 Women who take combination HT also have an increased risk of breast cancer, which increases the longer HT is used.4,5

A second WHI trial examined the effect of taking estrogen alone (the WHI-CEE trial) and demonstrated that estrogen alone increases women’s risk of stroke and thromboembolism.5,6 These risks go away once women stop taking estrogen. This trial found that estrogen therapy did not increase the risk of breast cancer. Other studies have found an
increase in the risk of breast cancer with very long-term use (22 percent increased risk among women using estrogen HT for 10-14.9 years and 43 percent increased risk with 15-19.9 years of use); it is important to note that these studies were not randomized and cannot be considered to be conclusive. The risk of ovarian cancer, which is much less common than breast cancer, is increased by estrogen therapy, although the increased risk does not occur as quickly as the risk of blood clots and stroke.\(^7,8\)

The WHI findings were so significant that the WHI-E+P trial was ended earlier than planned, in 2002 (HT use declined afterward, leading to a sharp subsequent decline in breast cancer rates). As a result of the WHI’s findings, the Food and Drug Administration (FDA) advises women to use the smallest dose that effectively treats their hot flashes for the shortest amount of time possible.\(^9\) The Network recommends that women who use HT try stopping it every six months or so.

**Bioidentical Hormones**

Women hear a lot about the supposed benefits and lack of side effects of “natural hormones.” Celebrity endorsements, pharmacy advertisements, and clinician recommendations all claim that HT’s risks can be avoided by using “natural” (or “bio-identical hormone replacement therapy” [BHRT]) hormones. Women’s bodies naturally produce the hormones estrone, estradiol, estriol, and progesterone, and the hormones can also be produced in laboratories. The Network considers “natural hormones” to be just a marketing term, used to convey the false impression that these hormones are always safe, whether they’re created in a woman’s body or in a laboratory.

Regardless of how these hormones are produced, taking them to prevent disease or improve health has not been shown to be either safe or effective. There is no scientific evidence that “natural” or “bio-identical” therapy is any more effective, or safer, than HT. The FDA, which does not recognize the term “bio-identical”, states that it “is unaware of any credible scientific evidence supporting the assertions that these bio-identical compounded products are a safe or effective alternative to FDA-approved drugs containing hormones.” The FDA is also not aware of sound evidence showing the superiority of compounded BHRT products over FDA-approved drugs. Likewise, [the] FDA has no information indicating that the side effects and risks of compounded BHRT products are dissimilar to those of FDA-approved drugs. Thus, claims regarding the safety, efficacy, and superiority of compounded BHRT products have not been substantiated by [the] FDA and may mislead patients and practitioners.\(^10\)

And the American Cancer Society cautions, “The use of these [bio-identical] hormones has been marketed as a safe way to treat the symptoms of menopause. It is important to realize that although there are only a few studies that compare ‘bio-identical’ or ‘natural’ hormones to synthetic versions of hormones, there is no evidence that they are safer or more effective. The use of these bio-identical hormones should be assumed to have the same health risks as any other type of hormone therapy.”\(^11\)

Many of the proponents of “natural” hormones encourage women to use estriol, a weak estrogen that, in high doses, can be used to treat hot flashes. There is no evidence that estriol is any safer than other forms of estrogen. In fact, the FDA has not approved any drug containing estriol and its effectiveness is untested and unknown.\(^12\) The Network recommends that women not use estriol until adequate studies are done. Compared to other natural hormones, there are many good studies about the effectiveness of estradiol, which is a more potent form of estrogen. FDA-approved estradiol-containing products to treat hot flashes include Alora, Climera, Divigel, Estrace, Estraderm, Estrogel, Evamist, and Vivelle.\(^13\) The Network supports the informed use of all types of estrogen (in the lowest dose for the shortest duration) to relieve hot flashes and encourages women to use reliable suppliers (i.e. FDA-approved) manufacturers.

Inadequate research also causes problems for women who are considering using progesterone to treat hot flashes. There is some evidence that natural progesterone (often marketed in a micronized cream format) is effective for relieving hot
flashes, and there are some intriguing theories proposed by creative researchers who are examining the effect of progesterone on women going through the menopause transition. But — aside from the one drug form of natural micronized progesterone (Prometrium) that has been FDA-approved — most progesterone creams are marketed as cosmetics, with very limited FDA oversight; there is also a lack of good studies supporting their effectiveness or safety.\textsuperscript{14,15} Prometrium is prescribed as a pill for use in conjunction with estrogen HT. The Network supports its use in this manner by women who are using estrogen to deal with hot flashes.

**Compounding Pharmacies**

Another issue related to promotion of natural/bio-identical hormones stems from the fact that proponents often encourage women to get these products from compounding pharmacies, which prepare customized and tailored prescriptions for their clients rather than using drugs in standard dosages provided by the manufacturer. The FDA has stated that some compounding pharmacies use the term “bio-identical” as a marketing ploy to imply that effects are identical to those hormones made by the body, when this has actually not been proved.\textsuperscript{16}

Compounding pharmacies’ products are not subject to FDA regulations to the same degree that drugs made in standard pharmacies are, so the quality of these products may be inconsistent. Incorrectly prepared compounded products have been linked to negative outcomes, including death. In two rounds of testing, FDA analysis has found that a startling percentage of compounded drugs (including bio-identical hormones) are incorrectly prepared. In 2001 testing, the FDA found that 34 percent of samples failed one or more standard quality tests, including 2 of the 8 (25 percent) compounded hormone drugs.\textsuperscript{17} In 2006 testing, 33 percent of samples failed analytical testing, including 9 of the 13 (29 percent) compounded hormone drugs.

**Alternatives to Hormones**

Because the risks of HT are serious (even if they are relatively uncommon, especially for women in their 50s), many women want to avoid these risks and seek alternative ways to cope with hot flashes. The research on alternative approaches is not as extensive as that on HT, however. And, what works for one woman may not for another; the Network recommends, if one strategy doesn’t provide relief, women should try another.

**Behavioral Techniques:** Some simple changes in temperature and/or food can help manage hot flashes.

- **Staying cool.** Several studies have shown that exposure to cold can relieve a hot flash.\textsuperscript{18} Sipping cold fluids and maintaining a cool environment can prevent or quickly curtail hot flashes. Wearing layers allows women to shed clothes quickly when their temperature rises. Sleeping nude helps to dissipate the heat of night sweats, and layering blankets enables women to cast off layers during a hot flash. Women can also use portable fans, gel cooling packs, and/or cooling pillows to curtail hot flashes.

- **Dietary strategies.** Many women make dietary changes to relieve their hot flashes either by limiting foods that trigger hot flashes and/or by increasing the intake of beneficial foods. Food triggers haven’t been well studied, and certainly vary from woman to woman. Women who recognize that certain substances trigger hot flashes (such as caffeine, chocolate, spicy and hot foods, and alcohol) can try to limit these foods and evaluate whether their hot flashes improve. Anecdotally, some women report that eating plant foods that contain phytoestrogens (which resemble estrogen) helps reduce hot flashes; these foods include nuts, oilseeds, soy products, and legumes. Studies examining phytoestrogen-containing foods’ effect on hot flashes have had mixed results; one study found increased soy consumption reduced the severity, but not the number, of hot flashes,\textsuperscript{19} while another found that the number of hot flashes declined (the study didn’t measure severity).\textsuperscript{20}

Women who have been treated for estrogen receptor-positive breast cancer may not be able to use this approach, however, as there is some evidence that phytoestrogens may stimulate breast cancer.

**Stress Management Techniques** to relieve stress can be effective in combating hot flashes.
Paced breathing. Studies have found that slow, deep breathing can reduce the frequency of hot flashes by about 50 percent.\textsuperscript{21} Paced breathing, which is easy and can be done any time, involves slowing one’s breathing rate down from about 10-15 breaths per minutes to just 6 breaths per minute. The breath should come from deep inside the abdomen. Assess this by putting one hand on your abdomen and the other on your chest; the former should rise and fall with the breath, while the latter should not move. Breathe in for five seconds, then out for five seconds to get the timing right.

Relaxation response. “Relaxation response” is a term that describes physiological changes that are the opposite of the “fight or flight” response, and is characterized by a slower heart rate and measured breathing. It can be invoked by a variety of techniques, including paced breathing, assuming a comfortable position in a quiet room, and meditating. In a recent randomized study, women who practiced the relaxation response reported the intensity and severity of their hot flashes decreased significantly (the frequency was unchanged), and their anxiety levels decreased significantly.\textsuperscript{22}

Non-Hormonal Drugs: Some non-hormonal drugs can be used off-label to minimize hot flashes. Two non-HT drugs have been shown to be effective in relieving hot flashes. The first, venlafaxine, is an anti-depressant; the second, clonidine, is a drug to lower high blood pressure.\textsuperscript{23,24} Studies show improvement in hot flashes among some populations using these drugs, particularly women who experience hot flashes as a reaction to cancer treatment.\textsuperscript{25} The effectiveness studies were small and short-term, so information about complications and long-term effects is still limited. The FDA has not evaluated or approved either drug for use in treating hot flashes, so these prescriptions are given “off label” by providers.

Complementary and Alternative Medicine (CAM): CAM is the term for products and practices that are not part of standard Western medical care. Herbs. Some women get relief from hot flashes by taking phytoestrogen-containing herbs, but studies assessing their effectiveness in treating hot flashes have been contradictory. A recent trial showed that neither black cohosh nor red clover significantly reduced the frequency of hot flash symptoms compared with placebo.\textsuperscript{26} Studies on dong quai (female ginseng) and evening primrose oil have not found them to be significantly effective at reducing hot flashes. We believe it is likely that women who experience relief with herbs are sometimes experiencing a placebo effect. Sage is also reputed to help hot flashes, but should not be used since it can cause seizures and other neurological problems.

Acupuncture. Acupuncture is helpful to treat hot flashes.\textsuperscript{27} In a recent study, women who received traditional acupuncture showed significant improvement in their menopausal symptoms compared to those who received placebo acupuncture.\textsuperscript{28} Electro acupuncture (where a small current is passed between acupuncture needles) also helps reduce both the number and intensity of hot flashes.\textsuperscript{29,30,31}

Conclusion
The Network recommends that women who experience troublesome hot flashes try non-hormonal therapies first. Like the FDA, we believe that a woman who chooses HT should use the lowest dose to alleviate her symptoms, for as short a time as possible. Women who have been taking HT to relieve hot flashes can work with their health care providers to reduce the amount they take and find the lowest effective dose. Some women will be able to stop taking HT entirely, if they’ve made it through the hot flash stage of the menopausal transition. Women who start HT should also know that hot flashes may recur after they stop taking hormone therapy, especially if HT is stopped suddenly.

For more information, see the Network’s Fact Sheets on Herbs & Phytoestrogens and on Menopause Hormone Therapy & Breast Cancer, both of which are available at http://nwhn.org/fact-sheets. Another good resource is Our Bodies Ourselves Menopause.
Contact Us
The National Women's Health Network is committed to ensuring that women have access to accurate, balanced information. For more information, email us at healthquestions@nwhn.org or call the Women's Health Voice at (202) 682-2646. Stay informed, connect with us on Facebook and Twitter.

References
25. Boekhout A, Vincent A, Dalesio O et al., “Management of hot flashes in patients who have breast cancer with venlafaxine and clonidine: a randomized,

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