

Women's Health Research Institute

Putting Women's Health Research First

July 2013

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Dear Friend,

This month, we invited our colleagues from the Women's Skin Health Program at Northwestern Memorial Hospital to write the featured article for this e-newsletter. Skin is rarely the body organ we think about when we talk about sex differences, but the women's clinical program as well as the [Skin Disease Research Core Center \(SDRC\)](#) at Northwestern University are providing resources that change the way we study the skin. Almost 100% of what is known about normal epidermal skin cell (keratinocyte) function today has been studied in males---because foreskin has been the primary source of normal keratinocytes for studies for years. Thanks to our friends in Dermatology, that is changing!

We hope you enjoy the article below, and if you are going through changes related to menopause, visit our new website on menopause at menopauseNU.org.

Enjoy the summer and don't forget your sunscreen!

Sincerely,

The Institute Staff

WOMEN, ACNE, AND ROSACEA

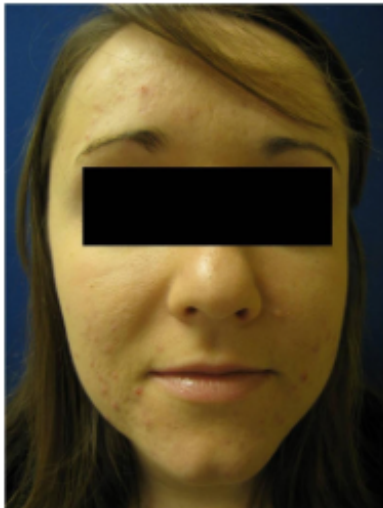
Adult-onset acne and rosacea predominantly affect women. Acne develops when oil glands in the the skin produce too much sebum (oil), causing adjacent hair follicles (pores) to become plugged. As a result, white and black heads develop, as well as pimples and deeper tender lumps under the skin surface. In comparison, rosacea is characterized by dilation of blood vessels in the face, leading to a tendency to flush easily with intermittent and then more persistent redness of the forehead, nose and cheeks, or even bumps and pimples that may resemble acne lesions in more advanced stages.

Both acne and rosacea may flare around the time of a woman's menstrual period suggesting a hormonal component to these inflammatory skin disorders. Due to their chronic course and potential to cause significant scarring, both acne and rosacea can cause serious psychosocial effects in women, affecting their quality of life, self-esteem and overall well-being. Despite their similarities, it is important to understand that acne and rosacea are distinct entities caused by different mechanisms.

ACNE

How common is acne and how does it affect women?

Acne is the most common skin disorder in the United States, affecting 40 to 50 million Americans (1). While nearly all adolescents are affected by some degree of acne, it affects adult men and women differently. Adult-onset acne favors women and is often linked to androgens, a specific type of sex hormones responsible for male sexual characteristics. Results of one study showed that slightly more than half of women in their twenties, one-quarter of women in their thirties, and more than ten percent of women in their forties have clinically significant acne, far surpassing similarly aged males (2).



How does acne develop?

Acne is caused by four basic mechanisms that originate in the pilosebaceous unit, composed of the hair follicle (pore) and attached oil glands. When oil is produced in excess and skin cells within the follicle accumulate abnormally, follicles become blocked, leading to the formation of whiteheads and blackheads (comedones). Subsequently, increased numbers of *P. acnes*, a skin bacterium that feeds on sebum, promote inflammation, which in turn causes the development of red pimples, pustules and deeper nodules.

Why does acne develop in women?

Androgens, sex hormones that promote male sexual characteristics, have a particular role in the development of acne in all patients including adult women. Adult female acne may present as a continuation of adolescent acne, or

alternatively, as a newly developing disorder in adult women. Androgens stimulate the activity of oil glands and increase sebum production. In some cases, increased blood levels of androgens may be the direct culprit. This can happen in a variety of medical conditions, the most common being polycystic ovarian syndrome, characterized by altered menstrual periods, excess hair growth, obesity, cysts within the ovaries, and acne. Most adult women with acne, however, have normal androgen blood levels, in which case locally increased androgen levels and/or increased sensitivity of the pilosebaceous unit to androgens are believed to contribute to acne development.



Is acne associated with certain types of foods?

It is a popular belief that certain types of foods may cause acne. To date, no confirming evidence supports the role of dietary components in causing acne. Potential associations with dairy products, foods with a high glycemic index (a measure of how quickly blood sugar levels rise after eating a given food) and chocolate have been suggested, but evidence has been inconsistent. Further research is required.

What are the different types of acne?



Acne lesions are divided into two major groups.

Comedonal acne is characterized by:

- Whiteheads (closed comedones): small skin-colored bumps that develop when plugged pores remain under the skin's surface.
- Blackheads (open comedones): small skin-colored bumps with a central gray/black dot that occur when plugged pores open up at the surface exposing to the air.

Inflammatory acne is characterized by:

- Pimples (papules and pustules): red, often tender, bumps which may be filled with pus.
- Deeper lumps (cysts and nodules): tender, deep bumps under the skin that may eventually open at the skin surface to drain pus.

Acne in adult women often presents with lesions preferentially involving the lower cheeks, chin, jawline and neck. Women of all ages though may also develop acne on other facial areas, chest, back and shoulders.

How is acne treated?

Treatment aims to remedy the four basic causes of acne and should be tailored depending upon the predominant type and severity of acne lesions.

- Comedonal acne is treated with topical medications such as retinoids, antibiotics and/or benzoyl peroxide, which unplug pores and decrease the number of bacteria on the surface of the skin.
- Mild to moderate inflammatory acne is treated with topical medications and oral antibiotics, which have been shown to reduce skin inflammation.
- Severe inflammatory acne can be treated with oral antibiotics or oral isotretinoin.
- Hormonal treatment, including oral contraceptive pills and spironolactone, a pill which blocks the activity of androgens in the skin, can benefit many women with acne.

What type of skin care regimens should be followed by women with acne?

Dermatologists often recommend the use of products labeled as "non-comedogenic", i.e. will not clog hair follicles. Gentle cleansers should be used, and moisturizers and sunscreen are also recommended. Oil-free makeup products can also be utilized.

ROSACEA

How common is rosacea and how does it affect women?

It is estimated that 16 million Americans suffer from rosacea (3). Rosacea affects women two to three more often than men. Women of Northern European and Celtic origin over the age of thirty appear to be at greatest risk.



Why does rosacea develop?

Factors that cause rosacea are not well-understood. Several mechanisms have been proposed, including abnormal responses of blood vessels to external triggers causing flushing of the face, as well as alterations in the innate immune system (the body's non-specific defense mechanism against infections) and skin colonization by microbes capable of stimulating skin inflammation and leading to the development of rosacea lesions.

What are common rosacea triggers?

It is unclear whether a variety of environmental, chemical, psychological and emotional factors act as triggers or are directly associated in the development of rosacea, especially flushing. Common triggers noted by patients include, but are not limited to:

- sun exposure
- emotional stress

- extreme temperatures
- wind exposure
- heavy exercise
- alcohol consumption
- spicy foods
- certain skin-care products

Regardless of their specific role, triggers may vary from patient to patient and should be avoided once identified.

What are the different types of rosacea?

There are four main subtypes of rosacea, and some patients may have overlapping features.

- Erythematotelangiectatic rosacea: flushing, chronic redness of the nose and cheeks, dilated blood vessels (telangiectasias), skin roughness, as well as stinging and burning sensations.
- Papulopustular rosacea: red bumps and pus bumps on the central face, closely resembling acne. (Whiteheads and blackheads are not present in rosacea.)
- Phymatous rosacea: thickening of the skin, most commonly of the nose. This is the only rosacea subtype to present almost exclusively in men.
- Ocular rosacea: eye redness, abnormal tearing and styte formation which may occur in up to half of patients. An ophthalmologist should be consulted.



How is rosacea treated?

Rosacea treatment depends upon the specific subtype.

- For patients who primarily suffer from flushing, redness and dilated blood vessels, avoidance of triggers may suffice to reduce symptoms. Other patients may benefit from laser and light therapy. Topical medications such as metronidazole or azelaic acid are also effective in reducing redness.
- For patients presenting with pimples, topical antibiotics, such as metronidazole, and oral antibiotics, such as doxycycline are effective. Recalcitrant, severe cases may require the use of oral isotretinoin, similar to acne.

What type of skin care regimens should be followed by women with rosacea?

Similar to acne, patients should use mild cleansers and select non-comedogenic skin care products and oil-free cosmetics.

*Author: Bethanee Schlosser, MD, PhD, Director, Women's Skin Health Program.
To make an appointment, call: 312-695-8106.*

Sources:

1. [American Dermatology Association Stats and Facts](#)
2. Perkins AC, Maglione J, Hillebrand GG, et al. Acne vulgaris in women: prevalence across the life span. *J Womens Health (Larchmt)* 2012; 21:223.
3. http://www.rosacea.org/rr/2010/winter/article_1.php

Useful resources include:

<http://www.womenshealth.gov/publications/our-publications/fact-sheet/acne.cfm>
<http://www.aad.org/media-resources/stats-and-facts/conditions/acne>
<http://www.rosacea.org/>
www.niams.nih.gov/Health_Info/Acne
[niams.nih.gov/Health_Info/Rosacea](http://www.niams.nih.gov/Health_Info/Rosacea)

Health Tip: Sunscreen

According to the American Academy of Dermatology, the ideal sunscreen should be water-resistant, should have an SPF of 30 or more, and should provide protection against both UVA and UVB rays. To ensure broad protection, select a product that has one or more of the following ingredients: avobenzone, cinoxate, ecamsule, menthyl anthranilate, mexoryl SX, octyl methoxycinnamate, octyl salicylate, osybenzone, sulisobenzene, titanium dioxide or zinc oxide.

The FDA recently put a cap on all SPF labels at 50+ because there is no evidence that anything above 50 provides more coverage. It has issued regulations banning the use of the terms, *sunblock*, *waterproof*, and *sweatproof*, because they are misleading.

INSTITUTE HAPPENINGS

Menopause: Should you take hormone therapy during menopause? What's the latest research about its safety? Are there non-hormonal alternatives for managing hot flashes and other symptoms? Menopause and its management just got a lot less confusing with the launch of a new website, **menopausenu.org**, that offers women a personalized approach to managing their symptoms and the latest information based on authoritative research. Created by the Women's Health Research Institute (WHRI) at Northwestern University, it can be viewed on a computer, tablet or smart phone.

MOMFIT: Are you pregnant and in your first trimester? Being pregnant and overweight can pose risks for both Mom and Baby. MOMFIT is a research study designed to help women manage their weight during pregnancy. Eligibility includes being in your first trimester, having conceived naturally (no in-vitro), expecting one baby, your doctor says you weigh more than you should and you plan to deliver at Prentice Women's Hospital. If interested in participating in this study, contact study coordinator Niki Gernhofer at 312-217-7475. The study provides free 3D ultrasound and compensation for visit. Please let them know you

learned about the study from the Women's Health Research Institute.

Postpartum Depression Study: Have you had a baby recently? Feeling sad, down or overwhelmed? Researchers at the Asher Center, Department of Psychiatry and Behavioral Sciences at NU are seeking women to participate in a study to determine whether depression after childbirth can be treated with transdermal hormone estrogen compared to an antidepressant or placebo. For more information, call (855) 99-ASHER (855.992.7437). You may receive up to \$100, plus items for your baby for completing this study.

UPCOMING EVENTS

September 17, 2013, Monthly Forum, 12:00pm

Restarting the Menopause Discussion: From Confusion to Clarity presented by Elena Kamel, MD.

October 2, 2013, Monthly Forum, 12:00pm

Update on Breast Cancer Prevention and Treatment presented by Virginia Kaklamani, MD, DSc.

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