

IN THE SPOTLIGHT

Chiquita White, section head of product development for North American Pantene, Global Pantene Design and Ethnic Hair Care, has recently been appointed to the Massachusetts Institute of Technology (MIT) Board of Trustees. White joins a select group of thought leaders chosen by the institute to provide guidance on the strategic direction and vision of the renowned university.

White's appointment complements her more than 20-year commitment to help shape scientific leaders in the academic world. Her involvement in the scientific community includes mentoring students and young engineers, serving as vice president of the MIT Alumni Association, and serving as president of the Black MIT Alumni Association.

White's current responsibilities at P&G include the holistic design of a diverse range of products and global technologies uniquely designed for the world's hair-care consumers.

She joined P&G's Fabric and Home Care Organization in 1987 as an engineer in product development. During her tenure at P&G, she has been responsible for innovative improvements to many products, including the Pantene Relaxed & Natural and Pantene Restoratives hair-care lines, Tide® laundry detergent, and Dawn® dishwashing liquid.



FAST FORWARD

Although 96% of our skin covers us below the neck, women spend most of their skin-care time and money caring for their faces. As a result, according to most professionals, skin on the rest of the body, particularly the hands and décolletage, may be a better indicator of a woman's true age. Yet anti-aging skin treatments for the whole body have been limited until recently. In terms of skin appearance, only 20% of aging effects relate to our intrinsic age; the other 80% reflect environmental damage. The main culprit is ultraviolet radiation, which produces free radicals that damage DNA, proteins, and lipids in skin cells. To answer this growing need, P&G Beauty scientists have taken the lead and developed an intensive UV-defense serum, designed specifically for the body, that boosts skin's antioxidant power and blocks damaging UV rays.

DID YOU KNOW?

Olay® holds 652 active patents on skin-care technology, including skin care and hand, body, and facial cleansing. P&G Beauty holds an additional 291 active patents on personal cleansing.



P&G BEAUTY SCIENCE

P&G Beauty Science has more than 1,800 scientists and technical employees working at 11 global technical centers with an unparalleled commitment to technology development. Company scientific efforts have resulted in over 3,500 active beauty care patents. This allows P&G to develop products uniquely suited for different types of hair and skin, and tailored to different cultures and climates. P&G scientists are constantly seeking new ways of turning inspiration into innovation.

P&G Beauty products help make beauty dreams real and grooming enjoyable every day for millions of women and men worldwide. With more than 100 brands available in nearly 130 countries, P&G Beauty delivered sales of more than \$21 billion in fiscal year 2005/06, making it a leading global beauty company. P&G Beauty offers trusted brands with leading technology to meet the full complement of beauty and grooming needs: Pantene®, Olay®, Head & Shoulders®, Max Factor®, Cover Girl®, Always®, Sassoon Professional®, Wellaflex®, Rejoice®, Sebastian Professional®, Herbal Essences®, Koleston®, Clairol Professional®, Nice 'n Easy®, Venus®, Gillette®, SK-II®, Wella Professionals®, and the luxury or prestige fragrance licenses for Dolce & Gabbana®, Valentino®, Hugo®, and Gucci®. Please visit www.pg.com for the latest news and in-depth information about P&G Beauty and its brands.

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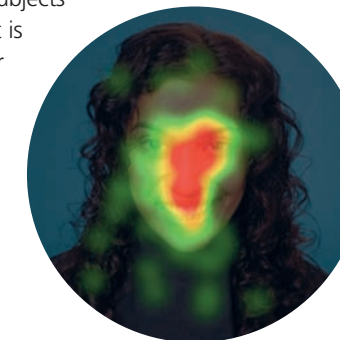
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BREAKTHROUGHS:
SCIENCE NEWS FROM P&G BEAUTY

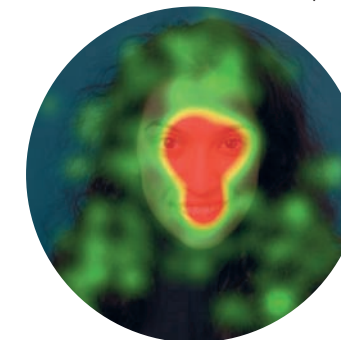
EYE TRACKING SHOWS
"GOOD HAIR DAY" IS LINKED TO
HIGHER PERCEIVED ATTRACTIVENESS

Women and men know intuitively that their confidence can be boosted by having a "good hair day," one where hair is shiny, manageable, smooth, and well-kept. Previous research shows that their intuition is right. In fact, on a "good hair day" others will perceive them in a more positive light than on a "bad hair day." P&G Beauty scientists set out to better understand the visual cues that relate to the perception of attractiveness resulting from "good hair days" using a high-tech tool from the fields of psychology and computer science called "eye-tracking."

As early as 1947, researchers used motion picture cameras to track the eye movements of fighter pilots to better understand the instruments that pilots view when making split-second decisions. Modern computer technology has taken that technique and made it more broadly usable by academia and industry. Near-infrared light is shone on the subject and a recording device is focused on the eyes of research subjects as they view a stimulus. The input is processed by a complex computer algorithm to calculate the focus of attention and length of time spent viewing certain features. This provides data regarding the features that are the most eye-catching, the ones that may cause confusion, as well as the ones that are ignored entirely.



Good hair



Bad hair

SMOOTH, SHINY HAIR
ALLOWS EYES TO FOCUS ON FACE

In a P&G Beauty study, 36 men and women were asked to view pictures of models with "good hair" and with "bad hair" as well as to rate the models' level of attractiveness. In the pictures, good hair appeared smooth and shiny while bad hair was identified by typical hair issues—dullness, frizziness, fly-aways, and kinks. As the subjects observed the pictures, viewing patterns were collected by

What's Inside

- Study provides insight into alternative approach to treating heavy sweating
- P&G Beauty formulates hair-care products with Hispanic women in mind
- Research shows pyrithione zinc in antidandruff shampoo improves overall scalp health

the eye-tracking camera, indicating the time and sequence of viewing events. Any area a subject viewed for >100 milliseconds was assumed to impact the viewer, either positively or negatively.

A composite of the eye-tracking results from multiple subjects gave a heat map (as shown below) that indicates the areas that subjects spent the most time observing. For hair in good condition, the face was the primary focal point. Conversely, "bad" hair distracted the subject's eyes away from the face as the subjects focused on the hair's periphery. It was found that 20% of gaze time was spent on hair when it was bad, but only 9% of time was spent away from the face when hair was good. Having healthy, smooth hair resulted in the face becoming the focus of attention. Conversely, bad hair issues distracted the viewer away from the face.

Additionally, viewing patterns were correlated to ratings of attractiveness for the same model with good and bad hair to understand the visual cues that impact perception, even in the subconscious. Even though less time was spent on viewing the hair, having good hair improved the attractiveness rating by an average of

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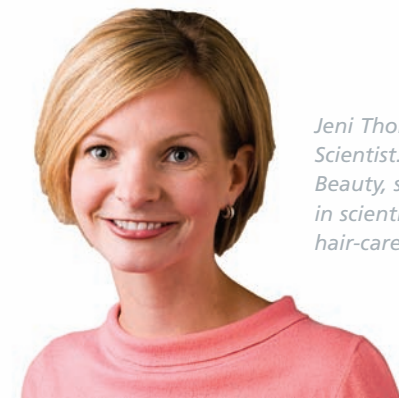




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0.8 points. The data indicate that having healthy, smooth hair allows more time spent appreciating the beauty of one's face.

"This is the first time we have been able to statistically analyze data that confirm when you have a 'good hair day,' you have a higher attractiveness score," said Dr Jeni Thomas, P&G Beauty scientist. "With this study, we also better understand how we see the differences between good and bad hair and can design products to deliver more good hair days. Hair-care products with conditioning ingredients such as fatty alcohols, cationic surfactants, and silicones help to keep hair smooth and shiny. Ultimately, the right treatment can increase the number of good hair days and one's self-confidence, allowing others to see both inner and outer beauty."



Jeni Thomas, PhD, is a P&G Beauty Scientist. While working in P&G Beauty, she has applied her expertise in scientific visualization to hair and hair-care products.

CLINICAL STUDY REVEALS LESS IRRITATING TREATMENT FOR HEAVY SWEATING

Although axillary, or underarm, sweating is a normal part of life for most people, it can be a significant problem for others. For example, one in four women identifies herself as a "heavy sweater," and about 3% of all people experience severe, uncontrollable sweating, a medical condition called hyperhidrosis.

Today, there are several invasive options for helping people with heavy sweating, including botulinum injections and, as a last resort, surgery. Prescription topical antiperspirants are available; however, they tend to be very irritating to underarm skin. P&G Beauty scientists have recently studied sweat patterns to identify alternative treatment approaches.

Most antiperspirants are composed of an aluminum salt suspended in a matrix. In the presence of sweat, the aluminum salts dissolve and are drawn back down into the opening of the duct as the sweat pulses. Once in the duct, the salt encounters a higher pH environment causing it to precipitate out into gel-like plugs that inhibit the flow of sweat. Too much sweat causes the salts to wash away instead of being drawn back into the duct to form a plug. In fact, a small amount of sweating is ideal for plug formation.

This key insight caused P&G Beauty researchers to take another look at how and when people use their antiperspirants. They knew 80% of people apply their antiperspirant in the morning. However, physicians and biologists knew that sweat rate follows a circadian pattern with maximum sweating during the day and minimum at night. There is very little information in scientific literature that quantifies the role of application timing on antiperspirancy. As a result, P&G Beauty scientists designed a clinical study to examine the effect of nighttime application.

The clinical study showed that nighttime application provided superior wetness control vs morning application, and that application in both the morning and evening provided even more control. "One of the simplest things we can tell consumers that are worried about axillary sweating is to apply their product at night before they go to bed," said David Swaile, PhD, research fellow at P&G. "Additionally, at the 2007 American Academy of Dermatology Meeting, we will be reporting that we can even drive efficacy by combining our latest antiperspirant formulas with nighttime application to levels similar to prescription strength products, without the irritation typically associated with prescription formulas."



MYTHS & FACTS

• All antiperspirants are the same.

MYTH: Even when they contain the same active ingredient, soft solids are typically more effective than sticks, roll-ons or aerosols. That's because the formulation, product viscosity, and the way antiperspirants are applied provide better delivery of the active ingredient to the sweat ducts.

• Antiperspirants are most effective when applied first thing in the morning.

MYTH: Using an antiperspirant at night, when the body's core temperature and basal sweat rate are lower, allows more of the active ingredient to get into the sweat gland and block perspiration. New research shows applying the product at night and again in the morning is even more effective.

STRANGELY BEAUTIFUL

While most people agree that dandruff flakes detract from hair beauty, they do not know that itch (another common symptom of dandruff) can result in hair damage. In a survey of women who have dandruff, 39% said that dandruff itch caused them to scratch their head. Examination of scratched hairs by electron microscopy shows hair strands can be damaged by scratching. If the affected area is continually scratched, the hair cuticle can be traumatized, leaving it weakened and vulnerable to breakage. P&G Beauty scientists are leading the charge to develop high-quality antidandruff shampoos that not only eliminate flakes but reduce itch, thereby protecting hair and keeping it looking beautiful.

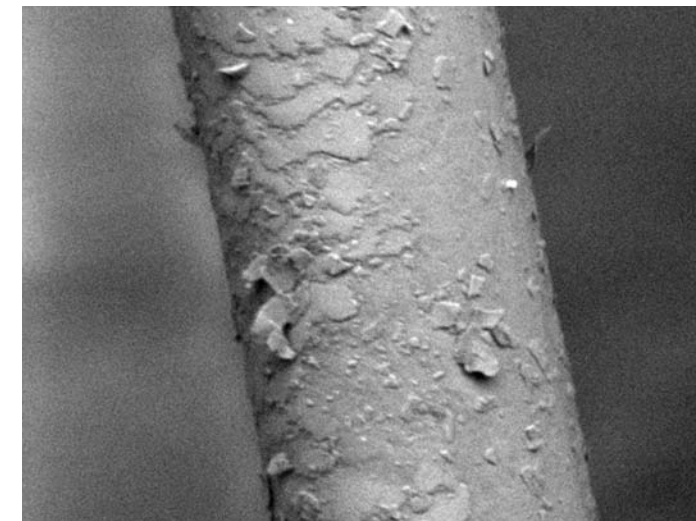


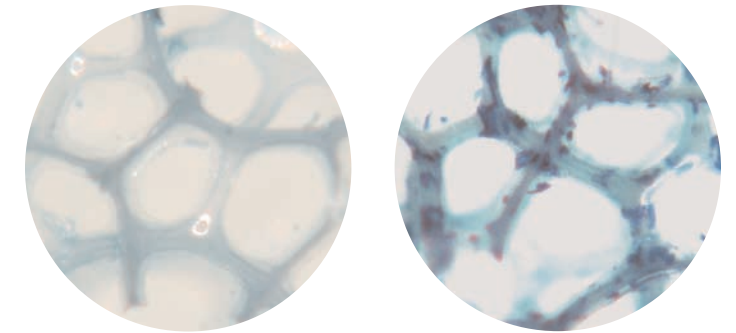
Image demonstrates damaged hair resulting from prolonged scratching.

GLOBAL BEAUTY

To Mexican women, nothing equates to a "bad hair day" more than "cabello esponjado," which directly translates into "spongy hair"—in other words, frizz. Many Mexican women have thick, naturally curly or wavy hair that expands in humidity. In fact, in a recent survey conducted by P&G Beauty, 75% of Mexican women claimed to have slight to very frizzy hair. To combat this, many Mexican women use what's known as a "combing cream" (which is similar to a leave-in conditioner), as well as intensive conditioning treatments to achieve the smooth, silky, straight look they desire. P&G Beauty has used this consumer knowledge to formulate hair-care products with the Hispanic woman in mind. By combining advanced conditioning techniques with an exclusive amino complex, these products help hair look virtually frizz-free.

CLOSE-UP

Due to the delicacy and sensitivity of the skin around the eyes, anti-aging treatments for the eye have not been widely available to consumers. P&G Beauty scientists have developed a new dermatologically and ophthalmologically tested system gentle enough to be used around the eyes. This new product not only moisturizes and fills in fine lines and wrinkles, but has an exfoliating foam applicator to help remove dead skin cells and resurface the skin.



Before

After

A dye stain technique and microscopy were used to show the exfoliation benefits provided by the foam applicator of a new anti-aging treatment for use around the eyes. Exfoliated skin cells can be seen on the applicator after use.

LAB NOTES

P&G Beauty scientists continue to make breakthroughs in their quest to understand the etiology of dandruff. Previously, P&G researchers reported that dandruff is a result of the skin's irritation from a microorganism called *Malassezia*.

This irritation disrupts the skin's normal desquamation cycle causing excessive skin cell shedding seen as flakes. New research shows, in addition to flakes, excessive shedding results in a breakdown of the skin's natural barrier properties. Scientists assess the skin damage by measuring how much moisture escapes, a measure they call transepidermal water loss (TEWL). Clinical research reported by P&G Beauty investigators at the American Academy of Dermatology Annual Meeting in 2006 shows that treatment with antidandruff shampoos containing pyrithione zinc reduces TEWL and improves overall scalp health in people with dandruff.

