INTERRACIAL COMPARISON OF FACIAL SKIN SEBUM AND AGING

R Osborne\(^{(1)}\) - P Mats\(^{(2)}\) - M Tamura\(^{(1)}\) - B Jarrold\(^{(1)}\) - L Mullins\(^{(3)}\) - C Bascom\(^{(1)}\) - R Isfort\(^{(1)}\) - H Rocchetta\(^{(1)}\) - M Alora-palli\(^{(4)}\) - A Kimball\(^{(4)}\)

The Procter & Gamble Company, P&g Beauty, Cincinnati, Oh, United States\(^{(1)}\) - The Procter & Gamble Company, P&g Beauty, Egham, Surrey, United Kingdom\(^{(2)}\) - The Procter & Gamble Company, P&g Beauty, Cincinnati,oh, United States\(^{(3)}\) - Harvard Medical School, Dermatology, Boston, Ma, United States\(^{(4)}\)

Introduction: While sebum production has some benefit to skin (e.g., the donation of some anti-oxidant and anti-microbial efficacy), excess sebum drives undesirable specular shine (and a “greasy” appearance), while low sebum levels contribute to a dry skin appearance and feel. We evaluated changes in facial sebum secretion / sebaceous glands with aging in two large studies on female subjects aged 10-80, across 5 ethnic groups.

Objective: To determine changes in facial surface sebum levels and sebaceous gland biology with aging in women of different ethnicities and ages.

Materials and Methods: In one study, we evaluated 250 female subjects (aged 10-80) in each of five ethnic groups, Caucasian, Chinese, African, Indian and Latino, at 3 sites (2 US, 1 China). Surface sebum levels were measured objectively using a Sebumeter. A second study evaluated molecular effects of aging in 340 US women aged 20-74 years (~25 women in each decade), in 4 ethnic groups, Caucasian, Chinese, African, and Latino. Facial biopsy samples were obtained, RNA was extracted from laser-capture micro-dissected sebaceous glands, and transcriptomic profiling was conducted using Affymetrix HG-U219 gene arrays. Total sebocyte area was measured by histo-morphometry. Propionibacterium acnes obtained from facial swabs was assessed by 16S rDNA sequencing.

Results: Facial sebum levels increased in females aged 20+, although maximal output differed by ethnicity: 20s for Indians, 20-30s for Caucasians, 30s for Chinese, 30-40s for Africans, and 40s for Latinos. Sebum levels decreased post-menopause, mirrored by a decrease in total sebocyte area, expression of genes related to synthesis of sebaceous lipids, and P. acnes.

Conclusions: Facial sebum and sebaceous glands change profoundly with aging across different ethnicities, impacting skin condition/appearance and the skin surface microbiome.