

## Male Grooming

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John Woodruff

After many fits and starts it appears that men are now taking a serious interest in how they look and male grooming products are here to stay. This belief is based on figures from Euromonitor that show a 5% rise in sales of male toiletries excluding shaving items in 2013. Mintel reported that approximately 60% of all men between 18 and 34 use facial moisturisers and in the UK 11% of men frequently use a bronzer.

Why should men have gender-specific moisturisers? Well it appears that there are physiological differences that make this a good idea. The author (that's me) [Ref 1] undertook an extensive literature research in 2013 for the SPC feature on Men's' Grooming that year and reported that male and female skins differ in hormone metabolism, hair growth, sweat rate, sebum production, surface pH and fat accumulation. It was reported that male skin is approximately 20% thicker than female skin; women have a thicker layer of subcutaneous fat than men but men have more collagen and lose collagen at a slower rate than women when past middle age. Males sweat more, produce more sebum and are more prone to develop alopecia, acne, and skin cancers although the latter may be due to males generally living a more outdoors lifestyle and taking less care about sun exposure.

Published data supports the hypothesis that male facial skin undergoes significant challenges from environmental insults that lead to a more damaged condition compared with female skin. These changes occur both from acute insults and from the impact of cumulative chronic exposure and appropriate sun protection should be viewed as an important step in male skin care and grooming habits [Ref 2].

Skin care in general is aimed at those areas exposed to public view, which in men is the face. The stratum corneum (SC) of facial skin is thinner, being composed of smaller layers of corneocytes than that of the trunk and limbs. It

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shows unique functional characteristics to provide hydrated skin surface but relatively poor barrier function. There are site-dependent differences in the SC of facial skin such as the cheek shows the lowest trans-epidermal loss (TEWL) in contrast to the perioral region that reveals the highest one. The eyelid is associated with poor skin surface lipids and a thin SC cell layer composed of large corneocytes that brings about high surface hydration but poor barrier function [Ref 3].

In summary, men produce more sebum than females, have drier skin and are more affected by environmental insults, particularly solar radiation. This feature will focus on these attributes and possible means of overcoming any problems that they cause. Also the obvious facial difference between males and females is the beard so some suggestions for mitigating shaving problems will also be discussed.

Excessive sebum production leads to skin disorders such as acne, pore dilation and unattractive shininess in both adolescents and adults. Under exposure to environmental oxidants unsaturated skin lipids are oxidized to form compounds that damage skin and contribute to comedone formation, glutathione depletion, photoaging, inflammatory responses and wrinkling [Ref 4, 5]. Sebum production is stimulated by dihydrotestosterone, which is converted from testosterone by  $5\alpha$ -reductase enzymes. If the activity of  $5\alpha$ -reductase can be inhibited sebum production can be reduced.

DermalRx CKW from **Biocogent, LLC** is described as a suitable ingredient to be incorporated in almost any personal care formulation designed to alleviate these disorders. It comprises extracts of *Curcuma wenyujin*/*Curcuma kwangsiensis* rhizomes that are members of the Zingiberaceae (ginger) family, which is related to turmeric. Both species are rich in sesquiterpenoids and research shows that DermalRx CKW potently inhibits  $5\alpha$ -reductase activities

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and reduces sebum levels. Dermal CKW also has antioxidant properties, which help protect the skin from environmental issues and photographs in the brochure show a significant reduction in facial sheen and redness.

Another material claimed to reduce sebum production through inhibition of 5 $\alpha$ -reductase is Mat-XS Clinical from **BASF**. It is synthetic sarcosine in an aqueous/ glycolic solution that is shown to reduce shine, tighten pores and reduce sebum secretion when topically applied from a suitable cosmetic base. **BASF** also supplies Asebiol LS 9853, which is an aqueous/glycolic preparation containing pyridoxine HCL, niacinamide, panthenol, hydrolyzed yeast protein, threonine, allantoin and biotin. Although aimed to reducing greasy hair it also reduces sebum secretion on facial skin.

Products that improve the barrier function of the skin and impart extra moisture are required but men prefer non-greasy products, which must be easy to apply and be readily absorbed, have a pleasing texture and preferably be multifunctional. A survey of male cosmetic needs by **Evonik** found that the average man spends 10 minutes or less preparing for the day, which leaves little time for applying multiple products.

The **Evonik** survey [Ref 6] also looked at what affected the buying decision of men and found that 77% looked for product efficacy; 75% looked at the product scent and 74% were affected by its price. The brand affected 52% and ingredient claims were important to 35%. The most important claims were to improve dry skin (68%); reduce razor burn (53%); for sensitive skin (51%) and to provide UV protection (51%).

This survey is available from **Evonik** and besides giving more details about male skin care requirements it suggests formulations for products such as a Recovery Boost Eye Refresher using Tegosoft SH [Stearyl heptonate] to impart a silky smooth and cooling effect; Tego Pep 4-17 [Tetrapeptide-21] for reducing

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the appearance of fine lines and wrinkles and Tego Arjuna S [Terminata arjuna bark extract] to reduce eye puffiness. Full formula details are given including the results of an in-vivo study illustrated with photographs to show the product efficacy. Similar descriptions are given for shower and shampoo products, an antiperspirant and after shave and various facial skin care products.

Soothing and improving the eye area is also the function of Shadownyl from **Kemcare**. It is an algae extract from *Fucus vesiculosus* that targets an enzyme called Haem Oxygenase type-1 to encourage it to degrade the dark red degradation product of haemoglobin, haem. It is haem that causes dark circles and Shadownyl catalyses haem breakdown into catabolites, eliminating the dark pigment. The catabolites are also said to have anti-inflammatory, antioxidant and cytoprotective characteristics.

While the need for an efficient moisturiser is obvious if it can reduce razor burn, soothe irritated skin and reduce skin redness and the early appearance of wrinkles these are extra product benefits, which would appeal to the male user.

TRIGlyphix Sense from **Tri-K** is a botanically-based active extracted from *Hordeum vulgare* seeds designed to quell the discomfort and redness associated with skin irritation. *In-vitro* and *in-vivo* studies show TRIGlyphix Sense delivers superior soothing properties while enhancing the expression of genes involved in barrier function, stress response and repair mechanisms. Visible results of a clinical trial are a significant reduction in skin redness and subjects reported a reduction in burning and stinging.

An impaired skin barrier leaves the skin feeling dry and itchy and can activate signalling pathways that eventually lead to skin inflammation. Microorganisms and allergens can easily penetrate through the broken skin barrier and cause further irritation. An imbalance of the immune system is symptomatic of many skin disorders, among those atopic dermatitis, which is a chronic inflammatory

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skin disease. Careful skin care can help to control and alleviate everyday symptoms, such as very dry, rough and irritated skin and **Mibelle Biochemistry** has just been awarded the IFSCC Host award for its research in skin immunology.

This new knowledge was applied in the development of **Mibelle's** new active, CM-Glucan Forte. Beta glucan [Magnesium carboxymethyl beta-glucan] from baker's yeast is an active molecule designed to bring the immune system back into balance. When CM-Glucan Forte is regularly applied, the skin's immune system reacts to prevent allergic reactions and the result is a flawless and even skin.

Soothing irritated skin is the claimed function for Gatuline A from **Gattefosse**. It is an extract of *Ranunculus ficaria* or lesser celandine containing tri-terpenic saponins. Trials show that a single application of an aqueous solution containing 1% Gatuline A reduces erythematous redness by 16% one hour after application and by 18% after two hours. A second trial whereby an emulsion containing 1.5% Gatuline A was applied in an emulsion twice a day over 30 days reduced capillary dilation by an average 23% and 78% of the panellists noticed a visible reduction in skin redness.

**Rahn** recommends Defensil-Plus as a first-aid-treatment for razor burn that soothes stressed, sensitive and irritated male skin. Excessive inflammation affects the skin barrier function and can eventually lead to accelerated skin ageing (Inflamm'Ageing). Defensil-Plus is a solution of *Ribes nigrum* (Black currant) seed oil, *Helianthus annuus* (Sunflower) seed oil unsaponifiables, *Cardiospermum halicacabum* flower/ leaf/vine extract, tocopherol, *Helianthus annuus* (Sunflower) seed oil and *Rosmarinus officinalis* (Rosemary) leaf extract in octyldodecanol that reduces inflammatory processes and replenishes the damaged skin barrier.

## Male Grooming

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*Ribes nigrum* is also the active in Gemmocalm from **IMCD**. In this case the active principal is extracted from the buds, which are rich in flavonoids like catechines and proanthocyanidines that have strong antioxidant properties and prodelfinidines with strong anti-inflammatory properties. Gemmocalm is particularly recommended for post-shave products to sooth razor burn.

Catechines and proanthocyanidines are also found in Dragon's Blood from **Cobiosa**. In this instance they are to be found in a hydro/glycolic extract of the latex from the tree, *Croton lechleri*, and this has antioxidant properties and is also claimed to promote collagen production and improve the skin's barrier function.

Improving skin barrier properties and featured in its brochure Man Stuff [Ref 7] is Cremer Timola from **Kemcare**. This extract of *Bulbine frutescens* leaf juice increases keratinocyte activity and improves intercellular activity and lipid synthesis to enhance skin barrier properties. It is also shown to influence Aquaporin expression to improve water and glycerol transport in the basal layer of the epidermis thus alleviating dry skin.

The stated objective of the **3QP** company is the research and sustainable exploitation of natural resources of Peru for their application in the cosmetic industry. It claims the commitment to grant the highest priority to indigenous botanical ingredients aimed to the economic development of the local communities and under the principles of fair-trade. 3QP believes that the stratum corneum needs three types of lipids to perform an efficient barrier function: ceramides, cholesterol and polyunsaturated fatty acids (PUFAs). When there is a rupture in the number and compaction of the intercellular lipids, the barrier formed by the skin becomes permeable.

Linoleic acid is an important precursor of ceramides and is essential for the skin barrier function. Studies carried out demonstrate that, both by topical

## Male Grooming

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application and by intake with the diet, PUFAs can restore and improve dry skin. Inka Omega Oil [INCI: Plukenetia volubilis seed oil] from **3QP** contains one of the highest concentrations of polyunsaturated fatty acids among all the oily seeds used for human consumption. It reaches an average concentration of 48% content of alpha-linolenic acid (Omega 3), an average of 37% linoleic acid (Omega 6) and it also contains approximately 8% oleic acid (Omega 9). It is claimed to reduce TEWL, improve the barrier function of the skin, normalise the keratinization process and to prevent DNA damage and restore skin softness.

Inca Omega Oil is suggested as a beard softener. Another material for this application is Kahai Oil [INCI: Caryodendron orinocense nut oil] extracted by cold pressing the nuts of the Cacay tree by the **Kahai Company**. It has a high penetration capability, a dry skin feel, and a mild nutty scent. Its high content of natural Vitamin E, F & retinol nourishes, softens and repairs damaged skin and it is recommended for shaving oils and after shave creams. Olifeel SQ is a high purity squalane from **Brasca** that is stable against degradation and colouring. Squalene is a key component of the skin barrier, regulating moisture content and providing elasticity to the skin and is also recommended for shave and post-shave products.

A few drops of Tsubaki oil can be applied directly to soften and condition beards. It is available from the **IMCD Group** and 82% of Tsubaki oil is oleic acid and it is readily absorbed into beards giving shine, protection, moisturisation and flexibility. Tsubaki oil, [INCI: Camellia japonica seed oil] is well known in Japan and Korea for its hair care properties of shine, protect and repair.

Environmental damage is the result of solar radiation and Celligent from **Rahn** has been especially developed to protect the skin from the effects of UV

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irradiation and also support the body's own natural repair process to alleviate the symptoms of UV damaged skin. It is a multi-component mixture that includes ethyl ferulate, polyglyceryl-5 trioleate, Rosmarinus officinalis (rosemary) leaf extract and disodium uridine phosphate in Helianthus annuus (sunflower) seed oil.

Baldness in men is a common result of ageing but current fashion results in many men shaving their scalps. **DSM** conducted its own consumer survey and discovered that usually people don't consider applying sunscreen to their scalp and so DSM has proposed a product that will take care of the scalp and protect it against sun radiation. It is an SPF30 lotion that in addition to Parsol UV-filters, it contains Tilamar Fix A140 [Acrylates copolymer] to aid substantivity to the hair, ValvanceTouch 150 [Methyl methacrylate crosspolymer] to reduce the oil/sticky feeling of the high oil content formulation for good aesthetics and Pentavitin [Saccharide isomerate], which is a unique moisturising agent that binds to the scalp for added hydration and barrier protection.

Finally men may look for a quick fix before an important social event. Liftonin-xpress [INCI: Hydroxypropyl methylcellulose, pullulan, Porphyridium cruentum extract] from **Rahn** is described as an innovative, instant tightening and lifting active ingredient based upon the development of edible film used in the food industry. It contains a lyophilisate made from the microalga Porphyridium cruentum with macromolecular phycocolloids embedded in a film matrix made from natural polymers. The physical tightening effect is intense, immediately noticeable and lasts for several hours and Liftonin-xpress is said to smooth the area around the eyes by up to 74 % within one hour.

Note: Only the principal actives in mixtures are listed by their INCI names and those interested are advised to consult the suppliers for more information.

1. Male Grooming SPC 2013



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4. Kostyuk et al, 2012: *Plos One* 2012, Vol 7(8)
5. Chiba et al, 2000: *The Journal of Toxicological Sciences* 2000, Vol. 25 (2)
6. For men only; in a man's world (2013); presentation available from Evonik Industries
7. Man Stuff (2015); presentation available from Kemcare

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**[www.creative-developments.co.uk](http://www.creative-developments.co.uk)**