the science of beauty

Vol 5 No 2

October 2015

HARRISON Established 1923

people...product...performance

HYDRESIA® SF2

MOTHER NATURE'S DELIVERY SYSTEM
THE PERFECT BALANCE BETWEEN ALL-NATURAL & REAL PERFORMANCE

- **Powerful Emulsifier**
- **100% Natural**
- **Proven Delivery System**

✓ Palm free ✓ PEG free ✓ Ecocert approved ✓ NPA approved

To test Hydresia® SF2 today, contact us now.

HARRISON

A S HARRISON & CO PTY LIMITED
75 Old Pittwater Road, Brookvale, NSW 2100
T: +61 2 8978 1000 F: +61 2 8978 1050
E: ash.sales@harrison.com.au
W: www.asharrison.com.au

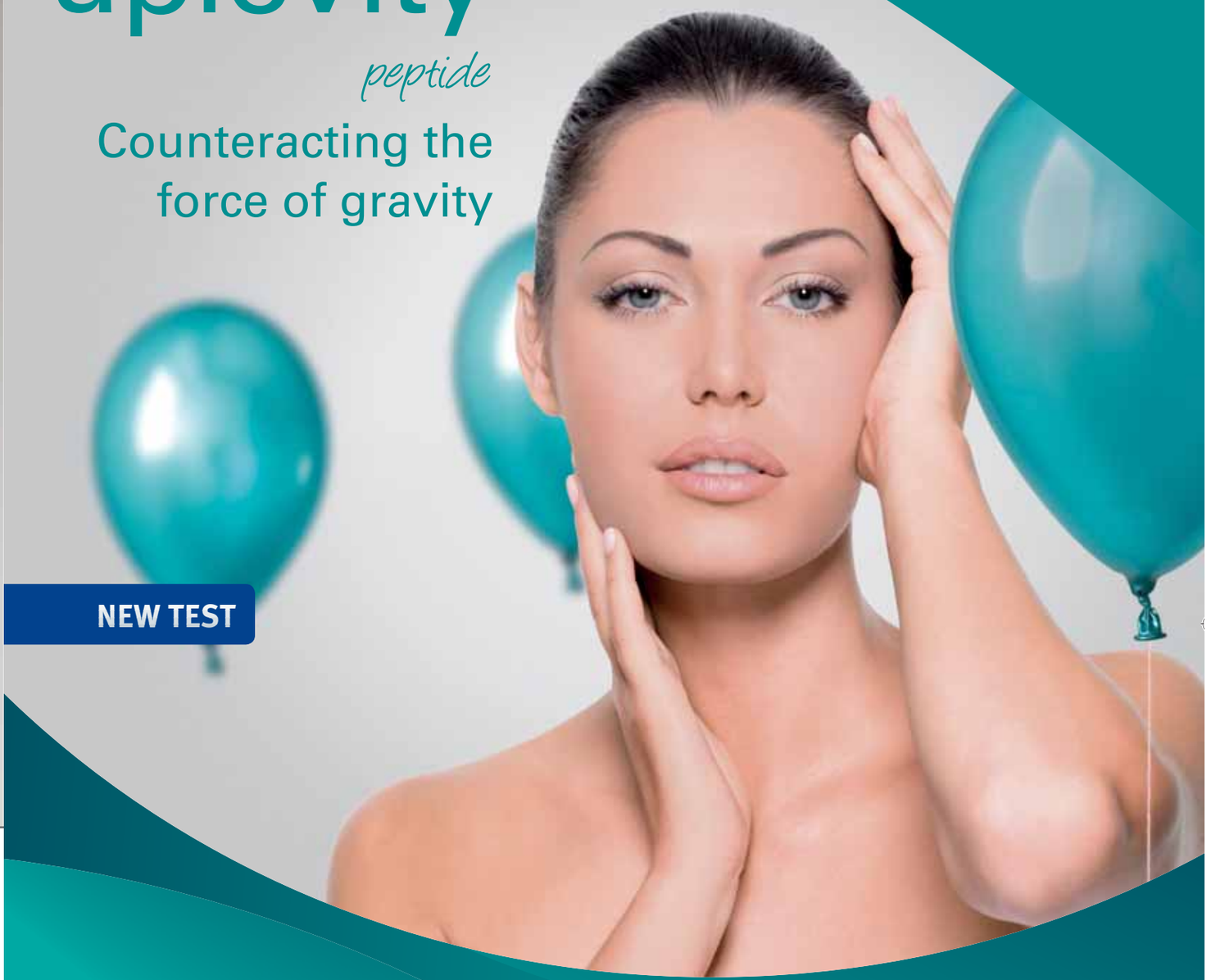
Established 1923

Aimtec®
peptides and synthetic molecules

uplevity™

peptide

Counteracting the force of gravity



NEW TEST

VISIBLY RESHAPES THE CONTOUR OF THE FACE

0 days

56 days

UPLEVITY™ *peptide* counteracts the effects of the force of gravity by increasing collagen and functional elastin synthesis as well as cellular support. Provides a better structure to the dermis improving the quality of mature skin. An *in vivo* study proved that **UPLEVITY**™ *peptide* solution significantly reduces sagginess of the face contour, showing a decrease of 0.13 cm at 2% after 56 days.

Lipotec Pty Ltd
28 River Street
Silverwater NSW 2128
Australia
Phone: +61 (02) 9741 5237
Fax: +61 (02) 9748 4924
E-mail: commercialanz@lipotec.com

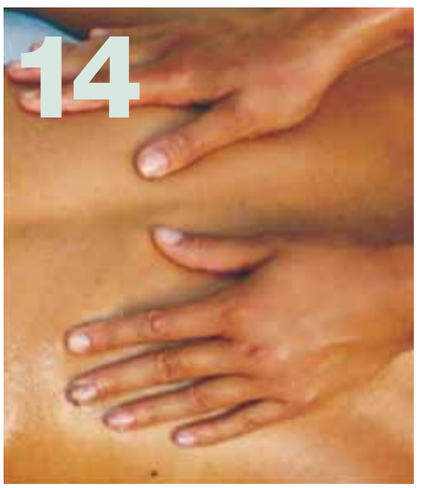
Lipotec
A Lubrizol Company

contents

Vol 5 No 2
October 2015

Business

Advertisers



Wellness

ASCC

Educational

Technical

Lycon
precision waxing™

Lydia Jordane - LYCON Founder & CEO

LYCON **MUST HAVES**
IT'S **IMPOSSIBLE** TO LOVE JUST **ONE!**

Every LYCON product is filled with the LYCON promise to provide beauty professionals with products and service that surpass expectations. Professionals can use LYCON with confidence to achieve completely hair-free results for all types of hair growth, every time. With a wide range of both hair removal and skin care products, LYCON supplies top spas and salons in over 60 countries. Contact LYCON COSMETICS for your nearest LYCON agent, any advice and further information.

THE **TRUSTED** NAME AMONGST PROFESSIONALS.
HAPPY LYCON WAXING!

The Science Of Beauty
ISSN: 1837-8536
Published Bi-monthly
(January March May July
September November)

www.thescienceofbeauty.com.au

Publisher
Manor Enterprises Pty Ltd
ABN 32 002 617 807

Editor
Joy Harrison
All correspondence should be sent to
The Editor
The Science of Beauty
PO Box 487
GULGONG NSW 2852
Mobile: 0418 541 998
Email: joyh@ozemail.com.au

Advertising
Tony Harrison
Advertising Manager
PO Box 487
GULGONG NSW 2852
Mobile: 0429 165 156
Email: tonyhar@ozemail.com.au

Subscriptions
The Subscription Manager
(PO Box 487 Gulgong NSW 2852)
$66.00 (per year) incl P/H (Aust.only)
$106.00 (2 year) 20% discount

meet the team...

LISA DELLA-BOSCA Lisa has been a professional skin therapist working in the industry for over 30 years.
After the first couple of years as a beauty therapist, Lisa had a driving force to understand the cause and treatment for the clients skin disorders she was managing, but at this stage could only treat superficially. The solution was to study natural therapies. For over 25 years Lisa has married the science of natural therapies especially nutrition with skin science with skin therapy to gain solutions for skin disorders and skin conditions.

KITTIRAT YOTNANGRONG or Akoi as she is known, is one of the very few people who have been a Buddhist nun and a runner-up in the Miss Southern Thailand Beauty Quest as a "mature" contestant. She is a 'practical' vegetarian who believes in herbs, healthy living, and meditation. An avid yoga fanatic, Kittirat is also an organic farmer. She regularly speaks to community groups in Malaysia and Thailand on empowerment, health through herbs, and spirituality.

WENDY FREE has degrees in science (B.Sc) and Technology Management (M.Tech Mngt) and is an active member of a number of industry associations including Australian Society of Cosmetic Chemists, Australian Society of Microbiologists, Association of Therapeutic Goods Consultants, MediQ and is a Fellow of the Australian Organisation for Quality. With more than 2 decades industry experience, Wendy is currently the Scientific Director of Quality Matters Safety Matters Pty Ltd providing expertise in product and quality systems development, specifically for the medicines and personal care industries. She specialises in regulatory compliance, commercialisation, troubleshooting and GMP systems. Wendy has participated in the development and successful launch of hundreds of products, and is passionate about everything she does.

PAM STELLEMA is the Principal Coach and founder of SalonSavy, and provides specialised industry based phone coaching to her clients. Pam has owned and operated several highly successful salons, and specialises in maximising salon productivity and profits. She has also authored the book "3 ½ Secrets to Salon Success"
Pam can be contacted via her website www.SalonSavy.com.au or phone 011 617 5529 6467 or 0431 975 515.

JOHN STATON has a background of over 40 years experience in the pharmaceutical and healthcare industries. John is a life member of the ASCC and serves in a number of industry representative roles with ASMI, ACCORD, TGA and Standards. He is the Australian representative to the ISO Committee on Sunscreen Testing-TC 217. (The committee for development of sunscreen standards). John is also in demand as a speaker on the International Conference Circuit.

WENDY LOCKYEAR founder and principal of Advance Massage Australasia has been in the natural and remedial therapies industry since 1972 and is an accredited member of the Australian Traditional Medicine Society, and an accredited training provider with over 26 years clinical experience and over 18 years in education, training and instructional skills, teaching a wide variety of remedial modalities from general interest and post graduate workshops to accredited units up to an Advanced Diploma level, Wendy travels extensively and delivers regular annual seminars. Wendy specialises in delivering her courses and workshops one or two on one and recommends this for any one seeking a maximum level of competency based training.

RIC WILLIAMS was educated in Sydney obtaining his Bachelor of Science in Pure and Applied Chemistry from the University of New South Wales (1980) and a Diploma of Environmental Studies from Macquarie University in 1983.
Ric has had 40 years experience in the industry working for many companies and operating his own consultancy business for many years.
He has presented many lectures and workshops at national conferences for the Australian Society of Cosmetic Chemists (ASCC), the Association of Professional Aestheticians of Australia (APAA), Cosmetic and Pharmaceutical Special Interest Group (CAPSIG) and also beauty colleges nation wide.

TINA ASPRES has worked as a Pharmacist for almost 20 years in retail, industry and academia as well as being a Cosmetic Chemist. Currently she works in industry and has vast experience in both the pharmaceutical and healthcare arenas. In addition to this she is a casual academic at UTS, School of Health, (Faculty of Pharmacy in Pharmaceutics). Tina has a great interest in clinical research in dermatology and the treatment of skin disease and conditions and is Clinical Trial Coordinator at South West Sydney Dermatology. She is a keen researcher in transdermal drug delivery systems. Tina is a Member of the Pharmaceutical Society of Australia and a Member of the Australian Society of Cosmetic Chemists. She regularly consults pharmaceutical companies in the area of acne, eczema and skincare especially in the area of cosmeceuticals and has devised and written numerous support, training and education material for companies aimed at both professionals and consumers. Tina consults for the Eczema Association Australasia and is on their Integrity Assessment Panel and has worked with Choice Magazine on numerous reports. Tina has presented at the Annual Scientific Meeting of the Australasian College of Dermatologists and has published within the pharmacy and medical literature in the area of sun protection, Vitamin D, skin cancer prevention and eczema as well as co-authoring the book 'All About Kids' Skin – The Essential Guide' published by ABC Books

MARG SMITH is the owner of Syndet Works – an Australian company established in 1984 to formulate and produce soap free skincare bars. Syndet has developed an enviable reputation for custom formulated and manufactured skincare that now extend well beyond the origins of the business.

EMANUELA ELIA is the Director of Ozderm, which specialises in *in vivo* testing and clinical trials for cosmetic and personal care products. Emanuela Elia has a law degree from Rome and a Master of International Business from the University of Sydney. She had collaborated with Australia's longest serving Contract Research Organisation Datapharm for a few years before setting up a cosmetic and personal care products testing facility in 2009. Emanuela is enthusiastic about improving the quality of cosmetic and personal care products' research in Australia through science.

EMMA SUTHERLAND is a successful naturopath and TV presenter, her mission in life is to inspire women to get their "Mojo" back. She is the expert nutritionist on the Logie nominated "Eat Yourself Sexy" on LifeStyle You. She is also a key contributor and expert panellist for the recently launched Woolworths Baby & Toddler Club. With over 10 years experience working with women, Emma is the woman to turn to if you want your Mojo back!

MURRAY HUNTER has been involved in Asia-Pacific business for the last 30 years as an entrepreneur, consultant, academic, and researcher. His first venture into the personal care industry was a joint venture with the Andrew Jergens Company in Australia in the late 1970s, later setting up a manufacturing plant, and marketing operation in Indonesia during the early 1980s. As an entrepreneur he was involved in numerous start-ups, developing a lot of patented technology, where one of his enterprises was listed as the 5th fastest going company on the BRW/Price Waterhouse Fast100 list in 1992 in Australia. Murray is now an associate professor at the University Malaysia Perlis, spending a lot of time consulting to Asian governments on community development and village biotechnology, both at the strategic level and "on the ground". He is a visiting professor at a number of universities and regular speaker at conferences and workshops in the region. Murray is the author of a number of books, numerous research and conceptual papers in referred journals, and commentator on the issues of personal care, psychology, entrepreneurship and development in a number of magazines and online news sites around the world.

JAMES GILLARD is the Principal of Insurance Made Easy whose services include – business insurance, travel insurance and financial services. Insurance Made Easy has a client list of over 2000 businesses from all industries. The relevant major insurance schemes are – Hair and Beauty, Pharmaceutical Companies and Natural Therapists.

everything you need to know about re-booking your clients

by Pam Stellema

If you've owned a salon for more than 5 minutes, you'll already appreciate the highly profitable strategy of client re-booking and pre-booking (that's where you book your clients in for several appointments in advance).

This one strategy alone, if done well, can bring in an extra $200 to $300 per client per year. You'll be pleasantly surprised when you see what this really means in real revenue for your salon.

Are you ready for it? Then let's look at the figures:

- *Let's say your salon sees 400 clients per month (that's 18.5 clients per day with a 5 day week)*
- *And the average client spend is $50. That's pretty realistic.*
- *Next, we'll assume your clients are coming once every 4 weeks (13 times per year), which is what they should be doing if you're rebooking them before they leave your salon.*
- ***So that means you have 400 clients x $50 x 13 visits = $260,000 revenue in one year.***

Now, let's take a look at what happens when you don't rebook your clients, and they drag their appointment times out to 6 weeks (which is exactly what they will do if not re-booked before they leave the salon). That means that instead of visiting 13 times per year, they visit 8.67 times instead.

Our new calculation looks like this:

- *400 clients x $50 x 8.67 = $173,400.*

Holy smoke; that's a whopping **reduction in revenue of $86,600**, and all because you let your clients decide when *they* wanted to return to your salon, instead of actively pre-booking them every 4 weeks.

Now that figure is going to go up or down depending on the size of your salon and how good the rebooking skills are of your team, but I think you'll agree, it can make a huge impact on your income.

So, how can you make this happen in your salon?

It's not really all that difficult, but of course you'll need to make some change to the way you currently do things.

First, your staff must know that there is an expectation (by you) that they will ***re-book all clients***. It must be part of their conditions of employment. It's your job to set monthly goals around the re-booking rates for each employee, monitor those figures closely, and then discuss the outcome with each staff member, each month.

If the figures are good then some form or recognition is necessary (perhaps even a small gift or bonus payment), and if the figures are not up the standard, then a discussion as to how it can be improved should follow. Once thing is certain, if your employees think you don't care about their rebooking rates, then neither will they. It's you who must be diligent and consistent when it comes to monitoring the figures and making improvements happen.

The next step

The next step requires that you give your employees the training they need to re-book their clients easily. During their time with their clients, employees should mention the client's 'next visit' and what will happen then. *"Grace, your skin in responding really well to this treatment, and so I think we might do a gentle peel next time".* This sets up the expectation of the next visit in the client's mind.

They must also begin the re-booking conversation before the client reaches the reception area, so that a re-booking naturally follows on. The re-booking must be done prior to the payment being accepted.

During the re-booking, it's critically important for the employee to determine the re-booking date. Under no circumstance should they leave that up to their client. Your employees are the professionals, and therefore it should be up to *them* to determine the right time frame around the client's next visit. It will generally always be sooner than the client would have made it if left to their own devices.

A simple but effective script that can be used goes like this *"Grace, I'm very happy with the way your skin responded to today's treatment, and I suggest we re-book you for 4 weeks time so that we can get continue to get even greater improvements. How does 9am on Wednesday 12th sound to you?"*

At this point the client will either say yes to the suggested day and time, or tell the employee that the time doesn't suit. If this is the case, the employee can ask which day that week will be better, and go from there to determine a suitable time.

Now, naturally you're never going to achieve a 100% re-booking rate, but if you aim for 80% and achieve it, you'll notice the difference in your income.

How do you encourage clients to re-book and pre-book their appointments?

In one word – SCARCITY.

Your clients need to feel that if they don't re-book each appointment in advance, then they're going to have a difficult job getting their next appointment scheduled at a time convenient to them. It's just so important that your clients never hear an employee say that the salon has been quiet, or that there's no need to rebook because it will be easy for them to 'get in' later on. This sends a message to the client that your salon isn't very busy (which is definitely not the impression you want to give to a client), and that re-booking isn't necessary for her to secure a good date and time later on.

If you ever hear team members say this to clients, you must take them aside and correct them immediately. Tell them what they must say instead with all future clients and explain why.

So to summarise your easy rebooking strategy:

1 Set re-booking expectations and goals for all your employees. Follow up each month with each team member regarding their performance. Offer advice and strategies to assist poor performers, but be consistent and don't drop your expectations.

2 Develop a simple natural sounding script that your employees will be happy to use. Better yet, ask them to develop their own scripts using the outline you give them. Role-play these scripts at training sessions until they feel and sound natural.

3 Never allow your clients to know if your salon is a little quiet. In their eyes, your salon should always be busy (this makes you much more desirable to them) and hard to get an appointment with at short notice.

4 Ensure your employees always re-book the clients using the correct time frame for optimal results.

5 Set a great example so your team members know that you walk your talk.

6 Watch your profits sky-rocket

Treatment Risk Insurance *VS* Medical Malpractice Insurance

by James Gillard

There are a lot of different terminologies used in the Insurance Industry for Hair and Beauty Salons and Cosmetic Businesses e.g. Treatment Risk, Medical Malpractice, Medical Indemnity, Medical Liability, Professional Indemnity. What do these terms mean? How do you choose the right cover for your Hair and Beauty or Cosmetician business?

Public & Products Liability Insurance including Treatment Risk Insurance

Most Hair and Beauty clients will take out coverage for Public & Products Liability Insurance which provides protection from claims due to their negligence causing Personal Injury or Damage to property of third parties arising from their business activities and this cover is generally Australia Wide covering the premises and mobile activities. The cover is triggered by a breach in duty of care due to negligence, for example a client enters a Hairdressers premises and slips over on a wet floor suffering a back injury.

This cover also provides for claims as a result of a product being sold which causes injury to a client e.g. a skin cream being sold and used before the consultant ascertains if the client has any allergies and as a result that client has a severe allergic reaction to an ingredient in the cream resulting in hospitalisation and inability to work.

As a further extension it is important that your Public & Products Liability (Broadform) Insurance provides cover for "Treatment Risk". Cover is extended for a range of treatments that are offered to clients. Please note that Treatment Risk excludes those treatments administered by medically qualified practitioners.

Some Example Covers of Treatment Risk

- Nose, ear, Eyebrow and Naval where gold, silver or platinum sleepers or studs are used
- Perming, Waving, Tinting, Colouring, Shampooing and all Hairdressing Treatments
- Cosmetic tattooing i.e. eyebrows, lips.
- Spray tanning
- Hair removal
- Facials
- Pedicures & manicures
- Hair cutting & colouring
- Medical Malpractice Insurance

Medical Malpractice, Medical Indemnity, Medical Liability Insurance, Civil Liability, or Professional Indemnity are terms used for the same cover and offers more extensive cover than Treatment Risk.

Medical Malpractice insurance is available for a range of medical and allied health professionals and provides a comprehensive cover combining Professional Indemnity and Public Liability for the business activities declared by an Insured Business including professional advice which has been given which may result in a claim.

This type of insurance is recommended for cosmeticians particularly where treatments are more involved e.g. piercing of the skin and/or injections such as Botox and dependent on the services offered, may be necessary for beauticians and hairdressers. This cover is essential for any treatment required to be administered by a medically qualified health care professional.

The major difference between a Treatment Risk and Medical Malpractice Insurance cover is that Treatment Risk cover provides for liability as a result of the effects of an administered and covered treatment whilst the Medical Malpractice also covers any wrongful advice given by the practitioner which results in liability

The insurance cost is minimal when compared to the consequences of the unexpected. If you are unsure about your current coverage and need a professional advisor to review your policy or risk, please contact our specialist friendly team at Insurance Made Easy for personal assistance to discuss your own individual circumstances and insurance needs 1800 641 260.

James Gillard
Managing Director

turmeric is the new green

by Emma Sutherland

Is turmeric the new "Superfood" on the block? If you go by any wholefood café, health magazine or the thousands of Instagram posts branded with the hash tag #turmeric, it would seem so! Move over kale, turmeric has just stolen your health food crown!

Turmeric has been used for medical treatment in Asia for thousands of years and is celebrated for its long list of health benefits. It seems that in Australia, we are starting to catch up with turmeric's Superfood powers. This brightly colored yellow spice, once only associated with Indian curries and other exotic dishes, is popping up in smoothies, teas and on menus across the country.

The reason to love turmeric is largely due to its curcumin content. Curcumin is a powerful antioxidant and anti-inflammatory agent. Did you know that turmeric is seven times more potent than the antioxidant Vitamin E?

Inflammation is the cause of many chronic diseases including hypertension, obesity, insulin resistance and cardiovascular disease. The high proportion of curcumin in turmeric can help to address these inflammatory based conditions.

A clinical study assessed patients with knee osteoarthritis after taking curcumin for six weeks. Compared to placebo, the people taking curcumin had a significantly greater reduction in pain.

On top of that, turmeric has also been found to:

- Fight against free radicals and reduce oxidative damage
- Improve the role of the pancreas and reduce insulin resistance
- Suppress the growth of certain cancers such as stomach, breast, lung and skin cancers.

To help you get more turmeric into your diet here is a tasty nightcap to enjoy!

Cleanse Night Cap – 1 cup almond milk, – tsp. powdered turmeric, pinch of ground ginger, a cinnamon stick, pinch of black pepper. Bring to boil and simmer gently for 5mins. Strain and enjoy!

References

http://www.ncbi.nlm.nih.gov/pubmed/24853120

Health-promoting properties of common herbs, Am J Clin NutrSeptember 199970:491s-499s

Spicing up a vegetarian diet: chemopreventive effects of phytochemicals, Am J Clin NutrSeptember 200378:579S-583S

how to make our lives happy

We go through our lives everyday going through all the emotions from happiness to dispair. Sometimes we feel nothing, while just muddling through the day, the week, the month, the year.

Throughout our life, we want this, we want that, we feel that we are important people, and let our ego drive our behaviour. For example our craving for food has made most of us way over weight than we need be.

We expect. We want so much more than we need, when actually all we really need is safety, the necessities, and enough food to nourish us.

Too much food makes us sick. Too much attention makes us egotistical, and too many luxuries can make us selfish.

We want a beautiful home, holiday house or condominium which actually force us to do so many things to look after them. Luxuries become a chore. The more we have the more it costs us.

Satisfying our wants is an impossible task.

We think that this is the road to happiness, but in reality this is the road to suffering.

Wanting this and wanting that, whether it be something personal, a work position, or some form of luxury can become a burden that takes us so far away from happiness, which is the very thing we thought we would obtain. We are too busy to even look up at the sky.

To have a happy life, we need to know what we really need, and what we really want to achieve.

These wishes to achieve and want need to be realistically balanced. Because if they are not, it's like eating too much good food, and what does that do to our body?

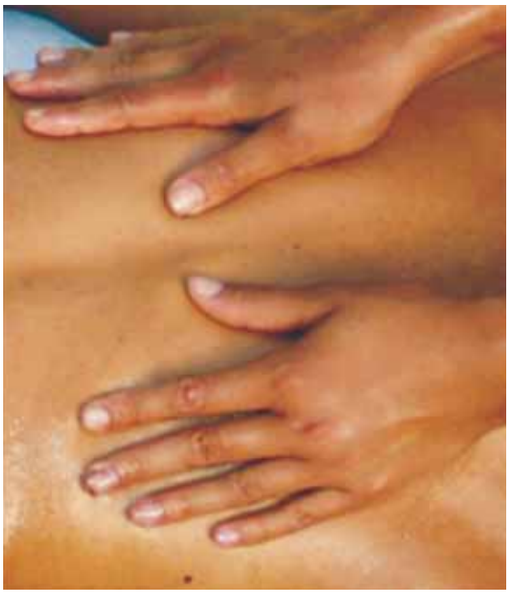
A realistic balance is the key.

And balance is a holistic principle. It's not just about balancing our wants, but about balancing our minds, i.e., do I really want to achieve this? Remember any imbalance will make us obese, be it mentally, within our cravings, lust, or ego.

Put aside some of your time to do things that benefit others. Doing things that benefit others can be enormously satisfying, and that helps to bring balance between yourself and being part of a greater world around you.

by Kittirat Yotnangrong

How to achieve memorable body treatments



This article includes how to determine exactly what your clients need by means of consultation, examination and assessment.

by Wendy Lockyear

This article includes how to determine exactly what your clients need by means of consultation, examination and assessment. We need to look at skin condition, stress, circulation, vascular and lymphatic flow, headaches and more detailed and in depth chronic or acute conditions such as pain related to physiological and musculo/skeletal dysfunctions that also determine body shape, being able to assess which appropriate treatment is applicable and applying various techniques that will produce the required results safely, whereby our whole attention is focused on our client and his or her individual needs, resulting in a satisfying outcome for both therapist and client.

Consultation

• Have the client fill out a consultation sheet outlining their physical history, previous injuries and current conditions, etc. Establish whether they have a physical or emotional condition.

For emotional conditions:

• Establish from your consultation whether they are suffering with grief, insomnia, stress, lethargy, anxiety, etc. It is important to note that physical conditions can lead to emotional conditions and vice versa, e.g: stress (emotional) can cause a headache (physical), and hormonal conditions (physical) can lead to emotional conditions such as mood swings.

For conditions such as these, relaxation treatments such as Swedish, Hot Stone and/or Aromatherapy Massage may be applicable and the client may not require further physical examination, they simply need to just come in and relax. These treatments will also stimulate the immune system, the vascular and lymphatic circulatory systems which will also work on a physical level to not only balance the emotions but also lift depression, produce more energy and leave the client with a feeling of improved wellbeing.

For physical conditions:

• Establish if the client has any pain, where the pain is located, whether the pain is acute (very recent) or chronic (long standing). Determine the cause, e.g: work, sport, etc. Many people come in with chronic conditions that flare up as acute pain. To treat these disorders massage techniques involve Swedish, Therapeutic, Deep Tissue, Remedial and or Sports Massage which includes neuro-muscular cross fibre techniques, transverse friction and trigger point therapy. Once you have evaluated the intensity of the soreness you can establish the level of pressure that you can apply and that is comfortable for the client, you will work effectively with your hands and body to present to your clients a method that will enhance your massage skills and add to your professional credibility. Deep stroking is to be done with the pads of the thumbs. The thumbs may be side by side, one behind the other, or (especially in the case of the beginner with weak fingers) one atop the other. In this way less pressure is put on each thumb to achieve the desired intensity. It will make the process a little more time consuming, however, as smaller areas will be covered with each stroke.

These strokes are to be given with sufficient pressure as to bring about a lasting hyperemia and stimulate the flow of lymph toward the heart via its mechanical effect upon the tissues (with muscles, the blood flows from origin to insertion). In order for this stroke to be effective the patient must be as relaxed as possible. Some will be able to withstand a great deal of pressure without tightening in resistance. Others, particularly during their first few sessions, may try to resist even when very little pressure is applied. Encourage them to relax verbally and breathe in through the nose and out through the mouth (unless the nose is blocked, otherwise ask them to breathe in through the mouth).

The amount of pressure applied must of course be regulated by the bulk and condition of the muscle you are working on. To reach deeper structures more pressure is required. It is not necessary to make your subject howl in agony, but in the case of athletes, relatively deep

pressure is beneficial for removing waste from the deep tissues. This builds the formation of adhesions within the myofibril. It also breaks down the adhesions which have formed in the past. We need to conduct the following examination before proceeding with any massage treatment. Following treatment we reassess the clients' physical alignment.

- Have your client stand up and assess their general posture and shape, look for postural misalignments such as a shoulder drop, pelvic tilt or curvatures.
- Once the client is lying on the table continue to assess all of the above by means palpation (feeling for painful areas, tight muscles, etc.) and checking skin tone and colour.
- Determining the presence of a Pelvic Tilt and Realignment.

This structural condition, if undiagnosed and untreated can lead to lower back, sciatic, knee, pelvic and foot pain.

1. Check the level of the pelvis by looking at the length of both straightened legs by checking the level of the ankles and heels of the feet together. If there is still a pelvic tilt after massage to the legs and gluteals then proceed with the following mobilisation of hip joint and stretch.
2. Cross short leg/ankle over the other foot/ back of ankle and apply a firm pressure into the gluteals while simultaneously stretching the crossed leg at the ankle.
3. Bend the short leg at the knee and rotate full circle then pull outwards to the side of the body and at the same time press into the gluteals.
4. With leg bent back towards buttocks, press into gluteal crease using either thumb or heel of hand.
5. Gently pull short leg three times while supporting ankle.
6. Re-check the length of the legs.

Examples of common conditions that can affect the muscular/skeletal alignment of the body are:

Scoliosis

A sideways lateral curvature and deviation in the normally straight vertical line of the spine. This can occur at any age and is most often noticed during adolescence when there is an accelerated growth rate and the deformity progresses to a severe curvature in a very short period of time. This can be a result of an injury or accident, physical activity such as sports, dancing, gymnastics, horse riding or surfing.

Kyphosis

Abnormally increased convexity in the curvature of the thoracic spine (also commonly known as hunchback). This condition may be the result of an acquired disease, an injury or a congenital disorder or disease. It never develops from poor posture. One of the most common causes of Kyphosis is post menopausal osteoporosis.

Lordosis

Forward curvature of the lumbar spine. This condition is very prominent with pregnant ladies particulary during the third trimester due to extra weight being pulled out in front putting stress on the lower back. Other examples of this are overweight people particularly men with pot bellies.

Neck Pain

The most common syndrome associated with neck pain is the one variously described as cervical postural syndrome. The chin becomes protracted usually as a result of prolonged poor posture. Different abnormalities of the muscles and fascia develop in association with this postural abnormality or as a result of other minor strains or repetitive movements of the neck. Headache is often associated with neck pain. The other common site of referral of pain from the neck is to the shoulder and upper arm.

Shoulder pain

There are numerous structures that can cause shoulder pain such as rotator cuff, instability, the AC joint and referred pain. Injuries to the rotator cuff muscles and tendons may be acute, chronic or acute on chronic. Acute injuries include muscle strains or tendon tears. Overuse injuries include tendinopathy and tightening and focal thickening of the muscle bellies. People with rotator cuff injuries frequently present with shoulder impingement. Pain resulting from shoulder instability may be due to sprains of the interior shoulder as well as acute dislocation. The shoulder is a common site for referral of pain from the cervical spine, the upper thoracic spine and associated soft tissues, especially the trapezius, levator scapulae and rotator cuff muscles. In the patient with chronic shoulder problems there are usually a number of factors contributing to the pain. Cervical and thoracic joint dysfunction, soft tissue tightness and trigger points are often present.

Wendy Lockyear

Advanced Remedial Therapist
Advanced Massage Australia
http:/www.advancemassage.com.au

Australian Society of Cosmetic Chemists

cosmetics, fragrances & toiletries

ASCC Council

President: Matthew Martens
Vice President: Robert McPherson
Secretary: Trish Maharaj
Treasurer: Henry King
Immediate Past President: Jenny Brown
Registrar: Julia Hudson
Publicity Officer: Belinda Carli
Education Officer: Iman Irhimeh
Parliamentarian: Margaret Smith
Councillors: Julian Jones
Administration Coordinator: Kate Paulett

NSW Chapter

Chairperson: Marie Toyne
Vice Chairperson: Robert McPherson
Secretary: Lynne Mitchell
Treasurer: John Warby
Publicity Officer: Marianne Cochennec
Committee Members: Jenny Brown, Julia Hudson , Pato Arlegui, Andrew Sepansky

Southern Chapter

Chairperson: Margaret Smith
Registrar: Nicholas Urquhart
Committee Members: Julian Jones, Barry Hunt, Frank Arrigo, Jerry Wang, Matthew Martens, Iman Irhimeh, Helen Pearce

Queensland Chapter

Chairperson: Belinda Carli

Technical Committee

Chairperson: John Warby
Vice Chairperson: Ric Williams
Secretary: Nick Urquhart
Technical Editor: Pam Jones
Committee Members: Marilyn Jones, Joan Chiu, John Staton, Malie Zauber, Henry King

Membership

The benfits of membership are:

- Connection to the international cosmetic science network through the ASCC's affiliation with the International Federation of Societies of Cosmetic Chemists (IFSCC) and the Asian Society of Cosmetic Chemists (ASCS).
- Members' rates for regular lectures, seminars, workshops, networking functions and internationally attended annual conference.
- Complimentary subscription to The Science of Beauty magazine and the SCC E-Newsletters.
- Direct access to the latest news on relevant products, services and technologies.
- Tapping into a veritable expertise database from formulating to packaging, to product testing to marketing to fragrances.
- Eligibility for various education and travel awards where the prize includes travel to present at the IFSCC conferences or congresses (held on alternate years around the world).
- So much more . . .

Membership is open to individuals working in/or interested in the cosmetics, toiletries and perfumery industries. Our members branch beyond Formulation Chemists to include Brand Owners, CEOs, Marketers, Sales Professionals, Students, Claim Substantiation Experts, Academics, Production Personel through to Business Advisors. All new members are invited to attend their first lecture diner free-of-charge, so visit www.ascc.com.au to join now.

48th Australian Society of Cosmetic Chemists Conference

CHAIRPERSON'S INVITATION

INVITATION TO ATTEND

Fond memories remain with us of the recent ASCC/ASCS combined conference in sunny Cairns earlier this year. The 2015 Organising Committee did an outstanding job of putting together a world class event!

Looking forward, we turn our attention to the 48th Annual Conference of the Australian Society of Cosmetics Chemists. On behalf of the ASCC, the 2016 Conference Organising Committee warmly invites you to attend the 2016 ASCC Conference to be held in Hobart from Wednesday 27th April to Friday 29th April 2016.

TASMANIA

35,000 years ago the indigenous people of Australia traversed the land bridge that once joined the Australian continent to Tasmania. At the time of the Ice Age, the land bridge flooded and Tasmania became an island separated from the mainland by Bass Strait.

Hobart, Tasmania's capital, is Australia's most southerly city, and is sheltered by the 1270 metre Mount Wellington. Life here centres around the Derwent River.

Why not plan ahead and make the most of your time in Hobart. The world famous Salamanca markets will be open on Saturday morning, visit the historic Port Arthur penal colony, meet a Tasmanian Devil and spend some time at Constitution Dock where the Sydney to Hobart yacht race winners are turned into legends.

WREST POINT HOTEL

The conference will be based at the Wrest Point Hotel which is the perfect size venue for our event, capable of accommodating all delegates on the one site. Numerous accommodation levels are available to meet your requirements. Views from the Tower rooms overlook the beautiful Derwent River or stately Mount Wellington. Wrest Point Hotel has its own gym, in-house salon, tennis courts, mini golf and you can even abseil from the tower if you wish.

SPONSORSHIP

Helen Pearce has released her aptly named "Find Your Element" premium sponsorship opportunities. Have you found your element...Platinum, Gold, Silver or Bronze?

Exhibition booths went on sale 12th October and tend to sell out fast. For those interested in

Exhibition space please find further details on the ASCC website (www.ascc.com.au) or send an email to ascc@ascc.com.au.

The ASCC relies on the generosity of our sponsors to ensure we can continue to put together such an event. All sponsors will be duly acknowledged throughout the event and it also represents a great way for you to get your brand out there for all to see.

SOCIAL

Connie Pisa has created what promises to be a very memorable Social Program.

Wednesday night's Welcome function will be held at the renowned MONA

A visit to MONA (Museum of Old and New Art) will heighten your senses and challenge your way of thinking. It is both contemporary and controversial.

Friday night's Gala Dinner will be held in the Ballroom of the Wrest Point Hotel. It is sure to be full of fun and surprises as we officially close the conference Vegas Style. It will be show time for the "ASCC Oceans 16 Night". Put on your bling and dress up in Red or Black.

TECHNICAL PROGRAM

A full and final detailed program will be available shortly after 'Call For Papers' submission date ends on our website: www.ascc.com.au. The Conference Technical Committee is also looking at holding **pre-conference workshops**, and for something a little different we will also have a focus for **Brand Owners**. More details to be announced, so please stay tuned.

CALL FOR PAPERS

A reminder to all that the 'Call For Papers' has been released and we will be accepting submissions until 20th December 2015.

Submissions are to be sent to **Marg Smith marg@syndet.com.au** and **Frank Arrigo FArrigo@fgb.com.au**. *All questions can be directed to Marg Smith either by email or telephone 03 9761 6726.*

COMMITTEE MEMBERS

Chairperson:	Iman Irhimeh
Vice-Chairperson:	Julian Jones
Treasurer:	Matthew Martens
Technical Committee:	Marg Smith, Frank Arrigo and Joshua Gosling
Sponsorship:	Helen Pearce
Social:	Connie Pisa
Publicity Officer:	Jerry Wang
Committee Members:	Bree Webster

We are also grateful for the help we have received from Nick Urquhart and Barry Hunt.

GETTING THERE

Hobart is easily accessible with regular flights from all major cities on the mainland. Wrest Point Hotel is 30 minutes from Hobart airport by car. Another option is to take the fully refurbished "Spirit of Tasmania" Ferry from Port Melbourne to Devonport, which is about a 3 hour drive to Hobart.

GET TO THE POINT!

Tasmania is 42 degrees south. If anyone follows the "Hitchhikers Guide to the Galaxy" you will know that 42 is the answer to everything!

We look forward to seeing you in Hobart next year.

Make a date
and mark your calendars

EVENTS 2015

ASCC Southern Chapter Halloween Party
30th October 2015
Palace Hotel Camberwell

In-Cosmetics Asia
3-5 November 2015
Bangkok

Cosmoprof Asia
11-13 November 2015
Hong Kong

NSW Chapter Christmas Party
27th November 2015
Cedus Lebanese Restaurant Ryde

NZSCC Christmas Function
27th November 2015
Langham Hotel Auckland

South Australia Cosmetic Industry Networking Meeting
1st December 2015
BioSA Incubator Conference Centre
Thebarton SA

EVENTS 2016

Salon Melbourne
6-7 March 2016

Cosmoprof Worldwide
17-20 March 2016
Bologna

In-cosmetics France
12-14 April 2016
Paris

ASCC Annual Conference
27-29 April 2016
Tasmania Australia

NZSCC Annual Conference
4-7 May 2016
Napia NZ (To be confirmed)

IFSCC Congress
23-26 October 2016
Orlando Florida, USA

For further details on any of the above events please go to the respective website

NZSCC

New Zealand Society of Cosmetic Chemists

. . . from the land of the Long White Cloud

NZSCC is excited to introduce the 2015 committee, including two new committee members: Eve Storer-Blake and Archana Kumari. Over the next year, the NZSCC committee will once again be working hard to bring some more exciting events and aiming to ensure that the society is of value to all members.

As a result of the AGM at the recent Conference, the 2015 NZSCC Committee is as follows:

President
Sigrid Vorwerk

Vice-President
Maree Raffles

Past President
Amanda Chisholm

Treasurer
Hana Fuhiniu

Secretary
Tulaki Tu'inukuafe

Communications Officer
Angela Hayes

Committee Members
Travis Badenhorst
Kevin Parr
Patrycja Pytel
Eve Storer-Blake
Archana Kumari

L-R Tulaki Tu'inukuafe, Pat Simmons, Terry Simmons, Maree Raffles, Bruce Barrack, Ngaire Barrack and John Banks

NZSCC Life Members

At the AGM three new life members to NZSCC were appointed. Bill Jennings received his award at our conference at the Chateau; while we held a lunch at Howick Historical Village to present the awards to Bruce Barrack and Terry Simmons.

Bill Jennings

History has a way of repeating itself as Bill emailed me before the conference to say "Will be good to go back to the Chateau - was my first conference in 1980. Stayed up the whole night drinking and playing pool with Paul Grant, Willis and co". Bill and Rosemary have attended all the conferences since 1980 missing only 1 in 35 years. Bill joined the Society when he worked as a development chemist with McGaw Ethicals. In 1982 he joined PSM again as a development chemist and was responsible for the manufacturing plant. Bill is still working in the cosmetic industry developing formulations through his Totara Creek Business from his home in Ruakaka.

Bruce Barrack

Bruce is now 86 and retired from the Industry. He was part of the original group of cosmetic chemists that met at the Tanui Tavern in Panmure that formed the NZSCC in 1974. He was working for Nicholas Products extracting Vitamin A from shark liver oil. He started there as a chemist in 1958 and progressed to Production Manager. At Warner Lambert, Bruce developed the protocols to gain GMP status. The Ministry of Health were so impressed they offered him a job with the Ministry. The NZ Institute of Chemistry recognised this work and made him a Fellow of the Institute of Chemistry. He was the first NZ employee of Avon cosmetics. He built the cosmetic plant in Cannon place which opened on time and under budget. Again history repeats itself and C & R Packers have refurbished the original Avon plant to make cosmetics 30 years later. Bruce was the President of the Society from 1983-85. Bruce and his wife Ngaire were very proud to receive the award and would love to keep in touch.

Terry Simmons

Terry and his wife Pat joined us for lunch. I met terry in 1984 when he had just purchased a cleaning products company from Peter Wheeler. Auckland Cleaning Supplies had a factory under the waterbed shop in Avondale. This was an open space with a large roller door and production batches were mixed in 44 gallon drums with broom handles or bigger batches in milk vats. He moved the business to a purpose built plant in Stock Street in Avondale. With a few other moves Terry joined C & R Packers working in the plant Bruce built. Terry has formulated many household a products and stream-lined production to make bulk goods competitively. Terry was on the committee from 2001-2003. Terry and Pat have semi retired to Owera. Terry is still involved in the industry offering his many years of production and product development experience to the industry. If you would like to contact Terry let us know.

Bruce and Terry have endless stories about the industry and sharing a lunch with them was an honour.

Bruce Barrack and Terry Simmons

Upcoming Event

NZSCC christmas function

SAVE THE DATE for our annual NZSCC Christmas function!
DATE: 27th November 2015
VENUE: The Langham, Auckland

For all information and to contact the New Zealand Society of Cosmetic Chemists please email: info.nzscc@gmail.com

MATMARINE™

blue ingredient for an immediate mattifying effect that lasts all day long

Along with shininess, imperfections are a main concern faced by people with oily/combination skin. Acne scars, blackheads and enlarged pores can lead to an uneven and unattractive appearance that usually requires the application of make-up. In response to this market need, BB creams – combining multiple benefits in one product – were developed, first in Asia and quickly expanding throughout the world.

Following this trend, Lipotec presents a new study based on the application of a BB cream containing 2% MATMARINE™ blue ingredient. Caucasian female volunteers with combination skin used the active cream on one side of the face, and the placebo on the other. Measurements of gloss of the skin were taken throughout the day. At the initial time of the study, immediately after the application, a 28.3% gloss reduction was observed, and 2 and 8 hours later, a prolonged effect of 25.2% and 14.9% respectively.

Such great immediate results plus the all day long effectiveness complete the good performance of MATMARINE™ blue ingredient, previously demonstrated on Caucasian and Asian skin where an improvement of skin appearance was observed decreasing visible pores and shininess after just 14 days.

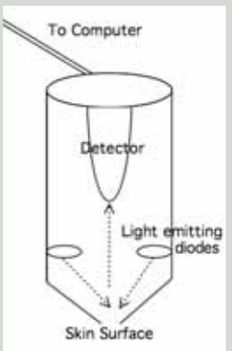
Contact:
Robert McPherson
Lipotec Pty Ltd
28 River Street
Silverwater NSW 2128
Australia
Tel: +61 (02) 9741 5237

SUPPORTING SKINCARE CLAIMS

John Staton
Dermatest Pty Ltd
Sydney, Australia

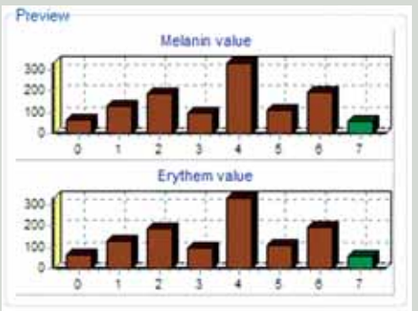
STEPS

No. 20 Melanin Measurement



1. Probe Construction

2. SKIN



3. DATA OUTPUT

Reflectance measurement of skin haemoglobin and melanin

Supportable Claims

- Estimation of skin melanin
- Assessment of changes after treatment
- Depigmentation studies
- After sun protection claims
- Soothing effects

Principle

The Mexameter® is a diffuse reflectance instrument specifically designed for measurements at 3 specific wavelengths. Two of these are appropriate for Melanin measurement. A photodetector is used for analysis.

Test Subject Recruitment

All Fitzpatrick Skin Types and Ethnic groups can be recruited, according to the study objective.

Measurement

Measurements take place in a darkened room. Diffuse and scattered light is measured. Multiple readings are taken and the mean determined. Melanin pigments are discriminated by the two specific wavelengths.
The measurement scale for Melanin ranges from 1 to 100 for Type I skin, up to 450 to 999 for Type IV. Both irritating effects and soothing effects can be quantified.

Assessment of Change

The sensitivity of the instrument is high and very small changes can be observed.

Additional Values

The Mexameter® simultaneously measures the Erythema and these values can be quantified according to the following scale.

No erythema = 0 - 170

Minimal erythema = 170 to 330

Diffuse Redness = 330 to 450

High Erythema = 450 to 570

Extreme Erythema > 570

References

1. *C. Galzote, R. Estanislao, M.O. Suero, A. Khaiat, M.I. Mangubat, R. Moideen, H. Tagami, X. Wang;* **Characterization of facial skin of various Asian populations through visual and non-invasive instrumental evaluations: influence of age and skincare habits; Skin Research and Technology 2013;19; 454-465**

2. *K.Y.Roh, D.Kim, S.J.Ha, Y.J.Ro, J.W.Kim,H.J.Lee,* **Pigmentation in Koreans: Study of the Differences from Caucasians in Age, Gender and Seasonal Variations. British Journal of Dermatology 3958, 2001**

3. *J.W. Feather, D.J. Ellis, G. Leslie,* **A portable reflectometer for a rapid quantification of cutaneous haemoglobin and melanin, Vol.33, No 6, 711-722, Phys.Med.Biol., 1988.**

John Staton is founding Director of Dermatest Pty Ltd, Sydney, Australia and has been conducting SPF testing and skin efficacy and evaluation studies continuously since 1997.

Keratosis Pilaris

by Tina Aspres

The appearance of persistent prickly little spots on the sides of the upper arms and upper legs that won't go away are a common dermatological problem. These spots are not itchy, and whilst not bothersome to many, do cause an aesthetic concern for a small group of people. The skin is often described as having a 'chicken-like' or 'goose bump' appearance.

The diagnosis of this condition is more than likely to be keratosis pilaris (or KP), one of the most common dermatological skin conditions in the world and very easy to identify. KP initially appears in childhood and peaks in adolescence.

KP is more of a cosmetic concern rather than a medical condition.

What is keratosis pilaris?

Keratosis pilaris is a very common condition in which there are numerous small, rough, follicular papules appearing on the skin. These may be red, brown or skin coloured in appearance. Most often they appear on the outer part of the upper arms (most prominent area affected), but may also appear on the upper thighs and buttocks and occasionally on the cheeks (not common). Rarely does KP occur on the foreams or the upper back.

Keratosis pilaris initially appears in childhood (may be present in babies), is most obvious during the teenage years and may persist into adult life. However, it is uncommon in the elderly. Keratosis pilaris is particularly prevalent in those who are overweight, or have celtic backgrounds or suffer with dry skin conditions (eg: dermatitis/eczema).

Keratosis pilaris tends to be more severe during the winter months or other times of low humidity -which tends to cause skin to dry out. Although unsightly at times and causing a lot of concern, it is completely harmless.

What causes keratosis pilaris?

Keratosis pilaris is considered to be 50 – 70% genetic in origin and dry skin conditions seem to exacerbate KP, but the precise cause has not yet been determined.

What is known is that KP is a disorder of keratinisation, meaning that the skin cells lining the affected pores are not functioning properly, leading to a persistent plug of dead skin cells instead of exfoliating. This causes the pore to widen, giving it an obvious appearance. When the top of a papule is removed, a coiled or twisted hair is often seen underneath.The reason as to why this happens is unknown, although it may be a genetic 'malfunction' as the condition is hereditary.

Signs & Symptoms

The diagnosis of KP is often very easy to make due to its distinct appearance and features. Often the condition goes unnoticed, and is only noticed by those that are concerned by the poor aesthetic appearance of their skin.

KP is usually symmetrical, asymptomatic but occasionally there may be some pruritus. It classically affects the back of the upper arms but as mentioned above, other areas of the body may be affected. In KP, the skin has a rough texture and resembles 'goose bumps'

(hence often referred to as chicken skin or goose skin). On closer examination, a small (1-2mm) creamy plug of keratin is evident in the pores. Sometimes the skin around the plugged pore is inflamed, hence the redness and halo-like appearance.

Treatment

KP is a chronic dermatological condition that requires long-term treatment, but is harmless and does not prevent one taking part in any activities.

No cure is available and the condition is persistent, however, there are treatment measures that can be taken that may help alleviate symptoms and improve texture and appearance of the skin.

In mild cases, an emollient cream is enough to alleviate the appearance of the rough skin surface, whilst in other more persistent cases, a keratolytic, eg salicylic acid, may be useful. A regular skin care regime is recommended, treatment needs to be regular and there is no single treatment that is effective for everyone.

In some individuals who respond to treatment, hyperpigmentation of the skin may be evident once the condition clears.

Useful treatment tips for KP:

- use soap-free cleansers (soap may exacerbate the dryness)
- short warm baths and showers
- moisturiser applied twice daily (moisturisers containing urea, salicylic acid or alphahydroxyacids may be helpful)
- avoid greasy moisturisers (these may block pores)
- the use of a pumice stone or a loofah in the shower or bath to help exfoliate (gentle exfoliation only - no vigorous rubbing; do not irritate or abrade skin)
- glycolic acid peels
- microdermabrasion
- extraction of keratin plugs
- Topical retinoid gels or creams (available on prescription)
  For the first few weeks of treatment, redness and peeling of the treated areas may occur with these medications.
  Topical retinoids are not suitable for young children and must not be used in pregnancy.
- Laser (IPL) may reduce the redness (at least temporarily), but not the roughness
- Laser hair removal to help reduce hair growth in the affected area may also be of benefit in some cases
- photydnamic therapy (PDT)

It is important to remember that treatment can only improve the condition, not cure it. On occasions the condition may spontaneously clear.

sunscreen highlights

by John Staton

Activity on sunscreen actives

'Im' PASS for Coalition in USA?

The Public Access to SunScreens (PASS) Coalition, a consortium of sunscreen active suppliers, dermatologists, sunscreen manufacturers, concerned citizens, public health organizations and experts, successfully lobbied the Obama Administration to take some action in an attempt to stimulate activity within the FDA for expediting the approvals of eight sunscreen actives, which have been held up in the Time and Extent Application (TEA) fast track, many for more than 10 years.

The US President signed the Sunscreen Innovation Act (SIA) in December 2014 with the directive to implement action and, subsequent to that, the FDA issued responses to all applicants requesting further evidence.

As the recent FSCC Sunscreen Symposium in Florida, USA, there was a sense of hope that there might be progress. However, Dr. Michelle Walker, when presenting FDA's perspective on the Act[1], pointed out what industry should not expect from the SIA process directives. This was essentially that the due process of full safety assessment still applied – Generally Recognized as Safe and Effective (GRASE) requirements.

FDA have now requested the TEA applicants to provide data based on the MUsT test which involves systemic absorption measurement after application to most of the skin surface over an extended period.

From the PASS perspective, Dr. Olga Dueva-Koganov[2] points out that the this test was never applied for the currently approved actives. Molecular weights of 6 out of 8 of the proposed TEA actives was greater than 500 (the Dalton Rule for skin penetration) compared with currently approved actives, 8 of which have molecular weights below 300.

Dr. Dueva-Koganov also pointed out that the number of launches of new products in Australia since the signing of the SAI was greater than in the USA. This is an indicator of how the FDA position is stifling innovation.

ZnO for the E.U.

Status of this currently is that the E.U. is now massaging the final wording of the approval covering Zinc Oxide for formal use in Europe. Part of the delay was the consideration of the status of nano grade ZnO.[3]

A 2 B

BASFs latest active Tris-Biphenyl Triazine (TinosorbA2B®) obtained E.U. approval back in 2014. Whilst it might be a very long process for approval in USA, the submission to Therapeutic Goods Administration (TGA) should be progressing. This will probably be one of only a new actives we will see in the next few years. It seems to tick a lot of boxes[4].

References

1. Sunscreen Innovation Act: FDA's Perspective – FSCC Sunscreen Symposium Sept 2015
2. Public Access to SunScreens Coalition Efforts to Support Sun Care Innovation in the United States - FSCC Sunscreen Symposium Sept 2015
3. http://ec.europa.eu/health/scientific_committees/docs/citizens_zinc_oxide_en.pdf
4. https://www.ulprospector.com/documents/1316618.pdf?bs=1133&b=237766&st=20

Stability
the formulator as an acrobat

by Margaret Smith

There are many things that none of us want to admit. For many, one of those things is aging and while aging is inevitable for all of us (unless you happen to be a vampire) there isn't a great deal that one can do about the general process. And the more abuse (sometimes known as fun) we subject our bodies to, then the more the ageing process begins to make itself unfortunately evident.

Ageing is a process that doesn't apply only to living things. The products of our industry are subject to ageing just as surely. Fortunately for us we don't have to be stamped with a 'best before' or 'use by' date. However I have thought otherwise with some of us.

The difference with cosmetics and us is that to some degree we are able to anticipate the journey that cosmetics may have and plan and test for that life journey. In this way we can test and make allowances for the safety and stability of products under a range of conditions that the product is likely to encounter.

Here is the food trade analogy – it's extremely difficult to send perishable product with a short shelf life to overseas markets where refrigerated storage in the distribution network chain is uncommon.

As with perishable foods, the conditions of storage for cosmetics can have a huge bearing on their shelf life and how they perform over their planned lifespan. We need to be a little smart here. What works for Melbourne's weather and shop conditions aint going to cut it for Islamabad.

Cosmetic stability can be a bit of a grey area. Consultants and Labs can be helpful when it comes to testing for stability but that isn't and can't be where the concern ends. Brand owners also need to make a lot of very responsible decisions to ensure that their products are suitably formulated for the conditions they anticipate the products will be sold under. When the desire to make marketing claims is at odds with the need for product stability, something has to give and it shouldn't be left up to a "Waddya think?" to the manufacture/formulator.

I have written previously about my Mum being "scientific" and undertaking many food experiments with all sorts of food. Her favourite piece of lab equipment was the fridge. But what my mum thought was that the fridge was "safe". It was something that was marketed as keeping food fresh. Yep, it was a real trap.

MARG SMITH is the owner of Syndet Works – an Australian company established in 1984 to formulate and produce soap free skincare bars. Syndet has developed an enviable reputation for custom formulated and manufactured skincare that now extend well beyond the origins of the business.

In many respects a well equipped lab shares much in common with a kitchen. Both have refrigerators and ovens that are used for the manufacture and storage of small scale productions. The difference in the lab is that the equipment is used to develop and test formulations. We tend

to use them to hope that our formulas will remain pristine while we freeze and heat and spin the begeezus out of them.

My Mum did find out that if you don't follow the manufacturer's instructions regarding storage temperatures and expiry dates, the "experiment" became unusable, inedible or plain dangerous. I reckon we all know about manufacturer's instructions, so my Mum wasn't unique for ignoring or forgetting the message. I think any fridge or pantry whether it be at home or in an office, is likely to contain a variety of opened and unopened things no longer fit or safe to consume. Time for a new kitchen monitor.

Which gets us back to cosmetics. We all want our stuff to last, not least my Mum. No question.

How long should a product formulation last?

How do we determine the shelf life?

Can we test?

And then how do we ensure (insure) it, so that the product remains safe to use over its intended lifespan?

How long should a product formulation last?

As a formulating manufacturer we are pretty much asked to ensure a three and even five year shelf life for each and every product, every time we formulate something. Actually we usually get asked after we have done the formulation.

No matter what, the product must be able to stand up to trials and tribulations that are encountered in a two to three years of a product lifespan. Unfortunately, formulators are usually not told of the type of shelf a product has to endure for its three years.

To complicate matters, I have also banged on in another article how raw material suppliers continue to shorten their standard shelf lives to one or two years and take no responsibility for the material beyond this.

Heck, we manufacturers should indeed just choose the shortest life span raw material used to make the product. That is – say a 12 month shelf life.

Legislators around the world INSIST that a product like a hand cream has to have a printed date of manufacture, an expiry date, then a Period After Opening length of time. Retailers find they cannot sell anything that is 6 months before the expiry date. Oh hard times indeed. So we are asked to give a 3 year or five year expiry date on something that really has a two year lifespan.

Well we cannot do that in all good faith. We just cannot. Not without some co-operation.

So there we all are between a rock and a hard place. A very big expectation rock and an Alcatraz type place.

Ah I shall hark to "back in the day" when parabens, pegs and mineral oil were not the social media pages pariahs that they are today.

Back in that day, formulators could put together a functional and almost bullet proof product. We could hand on heart say 3 years, but irony has it we were not asked . . . ever. No-one seemed to care because there were no problems. Ah the chemicals we have come to fear and despise in many ways were stable, stout even. But then a few showed they were unsafe and the whole world fell apart.

We are really in a transition at the moment. Between what we thought was safe and the demands of everything guaranteed to be safe . . . forever almost.

The so called "synthetic" products with mineral oil, a peg or two and a paraben or three exist in vast quantities on the market, and really have the market share. Their makers and owners know they perform time in time out in all sorts of conditions and end up not hurting anyone. And everything else on the market is compared against their robustness.

So the answer to this question 'How long should a product formulation last', is that it depends, on the raw materials first and then the actual formula and lastly the conditions.

Five years really is not out the question, if that is the most important consideration. However it needs to be understood that a five year lifespan eliminates a lot of nice but inherently unstable ingredients because they won't last the distance. On the other hand, mineral oil is like plastic, almost an infinite lifespan!

Marketers understand that many consumers want a natural or organic stamp on products because it gives them a sense of security that what they or their family is consuming is safe.

Thus a natural product, depending on the ingredients again, and what sort of preservative is used should be OK for the length of time of the weakest raw material. A vegetable oil may go rancid, or a vegetal extract may go mouldy. If the preservative is robust and passes all its tests then if all else is well then two years MAX.

How do we determine the shelf life?

I fear that much of the time the product (now called Tessie the tube) is kept in pretty crappy and unfriendly conditions, even in moderate climate countries. This is because we have fallen into the 'Safe Refrigerator' trap of having perfect skincare products for so many years, that we now have unreasonable expectation that all skincare products (regardless of ingredients or preservative systems) should have an equally long shelf life.

But now most of the new kids on the block do tend to fade or greatly discolour, split or just go off, under lights on a display shelf, in a window facing the sun (can be anywhere in the world), sitting in a carton high up in a high bay in a tropical warehouse, in a container languishing in the Singapore sun or being frozen in an Arctic circle storage space.

It's almost an impossibility to have a same product using the same formulation and packaging to be able to cope with climatic conditions as diverse as those experienced in Norway, the Sahara sun or in the Caribbean. If we do then hmm, go back to ingredients that have stood the test of time and crappy conditions. After nearly 30 years in the business I have seen and heard most of the cases of product abuse and of the expectations of

brand owners, wholesalers and retailers. I have also seen failure of product that I swear could not have been predicted by standard testing, although this is rare.

By far and away the greatest abuses experienced by products occur in tropical or desert regions where products may be stored under conditions in the warehouse with temperatures (in particular) and humidity well outside of ranges that are comfortable for the human body. Day after day and month after month.

Then they go and sit in an un-air-conditioned shop window until some poor bugger buys it.

Can we test?

So the only way is the "stability test". What a misnomer for these conditions, really any conditions. The standard test is three months in a 45°C oven with humidity sometimes. Then a -10 freeze to thaw test maybe three rounds.

However you cut it, stability and PET's are at best an approximation of real world situations and provide NO guarantee of how products will be stored, used etc. The closer you can get to real world the more reliability can be placed on results. That obviously starts with conducting tests using the final primary packaging that the product will be sold in.

Most sources will say that if Tessie passes those tests then one can be fairly confident in the products stability. But standards wise there are no rules just heresay that these tests will determine and guarantee a 2-3 year shelf life in the face of uncertainty as to the real world actual conditions that the product will experience in its lifetime.

A PET (preservative efficacy test) is mandatory, especially if there are ANY natural products in the formula. At least that gets you somewhere close to ensuring one aspect of the product works well.

If one is bulging with cash and time then more tests like a light stability test of sitting in the lab windowsill or in front of a few globes will determine any colour fading or changes.

Then a centrifuge test . . . that is a good one and quick to boot. Raw materials that want to separate from the rest of the gang will do just that when spun around at a decent speed. I like the centrifuge. One must test it all in the pack . . . the FINAL pack . . . not just something like it. In fact no formulation should even be begun before a final pack is presented.

Well the easiest solution is to give the product to a lab, let them do all the standard tests and let them take the rap if it fails. Commercial Labs are lovely and dispassionate, all about the results. All about the science. But it can be hard for the formulator to make any sense from the results.

I look at stability tests in a different sort of way. Not so much from the perspective of if it fails, more from how, why and when it fails. Then adjustments can be made. I tend to push things to their limit to find the breaking points, as to do otherwise often involves learning hard and potentially expensive lessons.

First questions I ask a brand owner now is how it is to be used? Where will it be kept? What countries is it going to? Then I kinda determine what torture we put Tessie through.

And I do tend to use some Marg type tests.

- the handbag test. (leave it in the handbag to see if the lid falls off etc).
- The car seat or glovebox test. Lovely in hot weather especially.
- The bathroom test lying in a pool of icky water for a few weeks just to see if the lovely natural things tend to replicate.

And of course there are many other tests that one can perform. But I find that customers may not want to pay for this or wait the time. Crazy, crazy people. Didn't your mum tell you better safe than sorry? Oops my mum probably forgot that one too, at least when it came to whatever came out of the "safe" fridge.

To be frank, I think if Tessie passed the lab type tests, it does not ensure the Tessie will be stable on the shelf in Timbuktu. However you do have some sort of insurance that if the product fails inside the determinants of the tests then some comeback can be addressed to the Lab.

And then how do we ensure (insure) it?

Based on experience, here's what I think is the safest way to go about getting close to making a natural Tessie the tube last for the duration in the hands of a happy consumer without falling to bits. For a product intended for places where it is hot, un-air-conditioned etc:

- Keep formulations SIMPLE, no extracts to turn brown or smell funny. Or use extracts that are mere shadows of themselves. Simple and light fragrance, very simple and very light. Natural oil esters, not vegetable oils that will go rancid. The more of any essential oil or natural vegetable oil, the more likely the product will change.
- Choose the BEST and I mean the best AIRLESS packaging one can afford. No corner cutting on this one, none at all.
- Conclude that some product groups are not suited to natural and every climate. For example natural beeswax and oil lip balms most likely won't be suitable. Yes there are stabilisers, but most natural ones in my experience just do not cut it for efficacy. Just plain give up on some categories for natural.
- Accept that sometimes a hybrid of so called synthetic ingredients and natural ingredients will be best choice, as they will make a good and stable product when it was not possible with a totally natural one.
- One may also have to bite the bullet that really natural things have a "BEST BEFORE" lifespan just like vacuum sealed salmon or eggplant.
- If you insist on all the natural and organic bells and whistles, then please warn the customer, that the product is natural, will discolour with age or exposure to air, may thin in consistency in hot weather or smell a bit funny. OR tell them to keep it in the fridge, so it will be safe!
- Get insured and carry the appropriate insurance.

Margaret Smith

Watch the cosmetic claims!

by Emanuela Elia

Today's industry

Being professionally involved with cosmetic products can be very rewarding. In most countries the cosmetic industry is experiencing steady growth and cosmetics hold an important place in people's everyday life (both children and adults). In such a fast paced market, there is always room for new products to be developed, which either through their innovation or their marketing have the potential to become best sellers. Today's consumers are more keen to learn and understand about products, and many of them buy based on informed decision. On the other side, successful cosmetic companies display deep understanding of customer's needs when creating and or marketing a product.

Making claims

Once new products are launched, to survive in such a competitive market cosmetic products need to provide customers with the ability to quickly recognise their benefits. It is very effective for cosmetic products to drive consumer interest by stating and emphasising their particular features. This is referred to as "making a claim". Cosmetic product claims have been well defined in Europe as any public information on the content, the nature, the effect, the properties or the efficacy of the product[1]. Claims can be made in different ways. They can consist of words but also images and can be represented in any product material or form of marketing.

False claims are damaging our industry

As clinical research professionals, over the years we have sometimes come across claims associated with cosmetic advertising presented in the printed media, on-line or product packaging in Australia, which are either:

- conveyed incorrectly (e.g. inconsistency with the definition of cosmetic product); or
- clearly not sustained by appropriate level of evidence or data; or
- not sustainable at all (i.e. pseudo-science).

Along with the skilled researchers, there is a growing portion of the general public who is starting to question some of those ads as well. Cosmetic claims that are not substantiated often lead to false and misleading advertising, which is damaging consumers' confidence as well as fair competition. It also sends the wrong message to other cosmetic marketers that feel you can 'get away' with making false claims. It can indirectly impact also on other industries, such as the pharmaceutical industry, where advertising is under a lot more regulatory scrutiny.

Consumer protection

In Australia cosmetic advertisement and consumer protection are the responsibility of the Australian Competition and Consumer Commission (ACCC). The ACCC addresses the issue of 'false or misleading representations' by stating: "It is unlawful for a business to

EMANUELA ELIA is the Director of Ozderm, which specialises in *in vivo* testing and clinical trials for cosmetic and personal care products. Emanuela Elia has a law degree from Rome and a Master of International Business from the University of Sydney. She had collaborated with Australia's longest serving Contract Research Organisation Datapharm for a few years before setting up a cosmetic and personal care products testing facility in 2009. Emanuela is enthusiastic about improving the quality of cosmetic and personal care products' research in Australia through science.

make false or misleading representations about goods or services when supplying, offering to supply, or promoting those goods or services"[2]. On several occasions, the view of the commission has been that businesses are free to make claims in the promotion of their products, "as long as their claims are truthful and have a reasonable basis". "Consumers should have confidence that they are able to rely on product information provided by businesses when selecting products to purchase." […] "Businesses have a responsibility to ensure that accurate information is given to consumers about the performance characteristics and benefits of their products. This is particularly the case where consumers may pay a premium to purchase products that are promoted as delivering particular benefits"[3]. In essence businesses have a corporate responsibility to make sure any claims they make are accurate and backed by adequate scientific and/or technical evidence.

Consumer complaint

Where the corporate responsibility of a cosmetic company is lacking and the ACCC is unable to directly identify issues with certain cosmetic claims, reporting of potential breaches by third parties has traditionally proved very effective. Consumers and/or business competitors can lodge a formal complaint in writing, on the phone or on-line to the ACCC explaining the reasons for their concerns.

Can more be done?

However, to deal with the issue of questionable cosmetic claims, which can quickly escalate by word of mouth and provide fertile ground to more ambiguity, it seems reasonable to suggest that there is a need for cosmetic claims (and any science behind it) to be looked at more closely. In an industry that concerns so many people and is constantly called to provide more certainties to its consumers, we would like to make a call for claims substantiation expertise to be utilised to assist regulators in identifying and assessing cosmetic claims. Independent experts could also be involved in providing support as required in the decision making process.

Let's take the opportunity to discuss how scientists and cosmetic research experts might be able to contribute in properly addressing some of the issues surrounding certain cosmetic claims. We look forward to the prospect of living in a world where there is no more room for false and misleading cosmetic advertising.

References

1 COLIPA "Guidelines for the Evaluation of the Efficacy of Cosmetic Products" (2001)

2 Australian Consumer Law, "Avoiding unfair business practices. A guide for businesses and legal practitioners" (2010)

3 ACCC Media Releases, "ACCC institutes proceedings against Dulux for alleged false and misleading paint advertising (2012)

wash your hands

by Wendy Free

Many decades ago, it was drummed into us. How many of us can read this line "Wash your hands" and not continue to say "Wash your hands Jeffery, with the Solvol, Jeffery"…In researching this article I was delighted to see this mainstay of my youth, unlike so many other products, is still around.

In those days, soap was soap, unless it was Solvol or Palmolive Gold (don't wait to be told); today it's far more confusing! Basic cleaning products can be now either soap or 'cleansing bars' and then there are liquid wash products, some of which are 'anti-bacterial' and some of which are 'liquid soaps'. What should be use? And why?

Back-to-basics

- Washing removes debris, odour, germs, pollutants, chemicals, sweat, dead skin and more.
- Surfactants are 'surface-active agents' that combine with water to help solubilise 'greasy' materials that aren't water-soluble.
- Surfactants (also called detergents1) include soap and synthetic-detergents (syndets).

Let's start with soap

Soap is manufactured using fat/oil (animal or plant derived) and lye (alkaline materials such as sodium or potassium chloride) as the base materials with or without other (fancy) bits like milk, perfume (like essential oils), colour as well as potentially pumice, oats etc to added to help physically remove debris. Soap can be in bar form or as a liquid. In most regulatory environments only soaps can be called soap, but not all marketers know this . . .

Sometimes we silly claims on soaps too, like various milks have naturally low pH and this is good for your skin; once its saponified, the pH will be alkaline, so if its low pH you're looking for, soap is not your best option.

So how do I tell if its soap?

- Check the ingredients, if the FIRST few ingredients include the word "Soap" and/or "sodium tallowate, sodium cocoate, and/or sodium palm kernelate etc" you're probably looking at soap;
- If the ingredients list start with "Sodium Cocoy[1] Isethionate, Stearic Acid" its not 'soap'.
- If it has an alkaline pH, its probably soap
- If its transparent, its NOT soap[2]

According to the Centre for Disease control in the USA **Washing hands with soap and water is the best way to reduce the number of microbes on them in most situations.** If soap and water are not available, use an alcohol-based hand sanitizer that contains at least 60% alcohol[3].

What is the right way to wash your hands?[4]

- Wet your hands with clean, running water (warm or cold), turn off the tap, and apply soap.
- Lather your hands by rubbing them

together with the soap. Be sure to lather the backs of your hands, between your fingers, and under your nails.
- Scrub your hands for at least 20 seconds. Need a timer? Hum the "Happy Birthday" song from beginning to end twice.
- Rinse your hands well under clean, running water.
- Dry your hands using a clean towel or air-dry them.

Take home message; using SOAP is an inexpensive, "chemical-free" way of maintaining good skin, hygiene.

"Cleansing Bars" (Syndets)

Synthetic detergents are promoted and perceived as "milder than soap".

In a double blind-comparative study over 10 weeks 2 groups of 25 women used either soap or a syndet bar[5], measurements were taken and perceptions measured. The measurements did not show any significant changes on skin sites, except for a small increase in skin pH with the classical soap bar. However, a trend appeared, showing that the alkaline soap bar is perceived by the subjects themselves as more of an irritant than the syndet bar.

Mildness is desirable from a skin softness point of view, but unlike soap, syndet alone does not 'kill germs'. To do this we need to add anti-microbial agents.

Some anti-microbial agents are considered 'natural' such as tea tree, or other essential oils. Others such as chlorhexidine gluconate, triclosan are "Chemicals', and in the case of triclosan, persistent in the environment[6]. Unfortunately just adding these chemicals to your syndet/wash does not ensure that they are effective as anti-bacterial preparations.

Personal investigations have demonstrated that to be effective as an anti-bacterial, Triclosan must be included at least 0.8%, however at levels above 0.3% it's a 'scheduled poison" in Australia[7]. What this could mean is that a bit of triclosan can be added for 'claim purposes', enough to be of environmental concern, but not enough to be effective at killing germs at the sink. (Not happy Jan?)

Anti-bacterial claims

Household and cosmetic products are (under prescribed conditions) permitted to make antibacterial claims. (Note; NOT anti-fungal, anti-viral, antiseptic or sanitising).

In order to make this claim, you should have evidence to support this…. and a MIC[8] is not enough.

There are a number of 'in-use' tests you may wish to consider potentially including *ASTM E1174-13 Standard Test Method for Evaluation of the Effectiveness of Health Care Personnel Handwash Formulations*. This procedure involves soaking the hands in known bugs and then evaluating their removal using the designated wash and tap water at 40°C. Alternatively for a more stringent assessment (ie TGA/OTC) use BS EN 1499:2013 Chemical disinfectants and antiseptics — Hygienic handwash — Test method and requirements, to validate the suitability.

If your product is a 'leave-on' preparation (noting that sanitisers are not permitted as cosmetic claims) you'll want to consider ensuring the product's suitability using ASTM E2276-10 Standard Test Method for Determining the Bacteria-Eliminating Effectiveness of Hygienic Handwash and Handrub Agents Using the Fingerpads of Adults or the more stringent (TGA/OTC) BS EN 1500:2013 Chemical disinfectants and antiseptics — Hygienic handrub — Test method and requirements.

This test should provide you with reliable evidence of just how effective the wash is at the basin in real-life situations.

About the Australian regulatory environment[9]

Possibly only slightly less complex than sunscreens, regulation of personal cleansing products spans various

regulatory bodies[10]. Let's start at the top

AUST R (TGA OTC or Complementary Medicine[11]) will include

- Claims: Named microbe &/or serious disease (including influenza/flu) or condition &/or use in piercing, tattooing, surgical etc as well as 'sanitising' claim and/or
- Actives: Subject to SUSMP or non-listable actives.

AUST L (Complementary medicine TGA)

- Claims: Linked to general anti-bacterial, general anti-fungal (ie possibly tinea?/dandruff)
- Actives: Listable only

Cosmetic:

- Claims: Antibacterial (germs)
- Actives: (Cosmetics don't have actives 'as such', but the formulation must be such that as whole, when used as directed/expected it is capable of passing the designated test regimes, that is kills germs.

And also……..

Soaps

- Manufacturers need to be registered with NICNAS as 'Introducers'[12]
- Bar soap can be labelled with a weight statement qualifier "when packed"[13]

But wait! If your product is for cleaning and/or disinfecting things and surfaces, it's could be a medical device, or a household disinfectant, and then at the very least it needs to comply with (for now) TGO54.

So what to use?

Syndets feel nice, detergents look pretty, but for combined performance and green credits, old-fashioned soap is probably the best.

Yours in hygienic hands,

Wendy

References

1 This word is usually used in industrial and non-personal care markets, but has the same meaning)

2 TEA Stearate, Triethanamine, Sodium Tallowate, Glycerin, Water (Purified), Sodium Cocoate, Sodium Ricinoleate, TEA Oleate, Tocopherol (Natural Vitamin E).

3 http://www.cdc.gov/handwashing/show-me-the-science-hand-sanitizer.html

4 http://www.cdc.gov/features/handwashing/

5 A comparative study of the effects on the skin of a classical bar soap and a syndet cleansing bar in normal use conditions and in the soap chamber test DOI: 10.1034/j.1600-0846.2001.70208.x

6 http://www.nicnas.gov.au/communications/publications/information-sheets/existing-chemical-info-sheets/triclosan-factsheet

7 https://www.tga.gov.au/publication/poisons-standard-susmp

8 Minimum Inhibitory Concentration.

9 This is GENERAL advice and does not cover all cases. Seek expert advice.

10 Its also included in some state regulations, but because everyone else ignores this, so will I for now.

11 If its not for use on people but on things, it's a device

12 http://www.nicnas.gov.au/regulation-and-compliance/registration/registration-fact-sheets/soaps-and-soap-making

13 National Trade Measurement Regulations, Regulations 4.28 / 4.32

Wendy Free is the principal consultant at Quality Matters Safety Matters Pty Ltd, she has 25 years industry experience and can be contacted obligation free via talktous@qualitymatterssafetymatters.com.au

formulator's
forum

Part 25 –

Antiperspirants, deodorants, deo-colognes and perfumes

by Ric Williams

by Ric Williams B.Sc.; Dip.Env.St.
Cosmepeutics International

This column is intended not only as an education tool for non-technical people or beginners in our industry, but as a forum for those wishing to enlighten all about recent technology advances and new ideas. I hope experienced scientists will also contribute to this ideal and if you wish to do so please email me at: ric@cosmepeutics.net.au

Sweat Glands

There are 100-200/cm^2 sweat gland pores on the skin's surface and two types of sweat glands and hence two types of sweat produced.

The production of sweat is designed to assist in eliminating the body's waste products, to control body temperature and as a means of producing body odours, such as identity odours and sex attractants. Each individual has a unique blend of body odours. Recent studies have indicated that, even in the relatively deodorized culture of the modern West, most people can recognize the characteristic body odour of close relatives. Parents, for instance, are able, by smell alone, to correctly pick out shirts worn by their children. From a biological standpoint, human body odours probably played an evolutionary role in self and group identification, in regulating reproductive cycles, and in sexual attraction.

Body odor can smell pleasant and specific to the individual, and can be used to identify people, though this is more often done by dogs and other animals than by humans. An individual's body odor is also influenced by diet, gender, genetics, health and medication. Propionic acid (propanoic acid) is present in many sweat samples. This acid is a breakdown product of some amino acids by propionibacteria, which thrive in the ducts of adolescent and adult sebaceous glands. Because propionic acid is chemically similar to acetic acid with similar physical characteristics including odor, body odors may be identified as having a vinegar-like smell by certain persons. Isovaleric acid (3-methyl butanoic acid) is the other source of body odor as a result of actions of the bacteria Staphylococcus epidermidis, which is also present in several strong cheese types.

The Apocrine glands are coiled glands that produce sweat, delivering it to the hair follicle via narrow ducts. They are found in the axilla, pubic region and the nipples, where they produce a viscous secretion from puberty onwards. Apocrine sweat consists mainly of sialomucin (An acid mucopolysaccharide containing sialic acid as the acid component). Although odorless initially, as apocrine sweat comes in contact with normal bacterial flora on the surface of the skin, an odor develops. Apocrine sweat is more viscous and produced in much smaller amounts than eccrine sweat, (which actually is the wet portion of axillary sweat). The exact function of apocrine glands is unclear, although they are thought to represent scent glands.

The Eccrine glands are also coiled but are connected to small pores on the skin's surface. They are distributed in all areas except the lips and nail beds. They function from birth and produce a very watery sweat that is primarily to regulate body temperature. Eccrine sweat is produced via merocrine secretion in the coiled gland, and is composed of water, sodium, potassium lactate, urea, ammonia, serine, ornithine, citrulline, aspartic acid, heavy metals, organic compounds, and proteolytic enzymes.

Note: it is not sweat that has the bad odour as fresh sweat is generally odourless, however contained in sweat, horny layer residues and skin surface grease are many organic compounds which are considered unwanted by-products of the skin. The natural bacteria living on the skin uses these organic compounds as food and as a consequence need to expel their unwanted by-products. It is these enzymatic decomposition products that have an odour. As it is with most cases there are exceptions to the rule and the skin exuding garlic odour after an Italian meal is the most obvious.

The range of forms is also wide with the most common being the sprays (based on a thin solution of active in alcohol / water mixture), the roll-ons (based on a thickened solution of active in alcohol / water mixture), the sticks (based on a solid gel solution of active in alcohol / water mixture) or the older cream form.

The action of Antiperspirants, Deodorants, Deo-Colognes and Perfumes are quite different although designed to create the same effect - that of reducing body odour.

Antiperspirants

An Antiperspirant will cause the protein in sweat to coagulate resulting in blocked pores. When the pores are blocked no more sweat is produced and odour cannot form. This works by:

1 The antiperspirant matrix with active particles is applied to skin.
2 Perspiration absorbs and dissolves the active particles where they are deposited in the sweat ducts.
3 The dissolved active ingredient works with the perspiration to form a temporary gel plug near the surface of the skin thus preventing the underarm wetness from spreading onto the skin.

While this does reduce odour and also reduce the unsightly wet patches associated with sweating, many believe this is not a good idea. Firstly the sweat is your body expelling unwanted by-products (particularly via the underarm sweat glands via the Lymphatic drainage system) and the accumulation of these in the body is undesirable. Secondly a function of sweat is to allow the body to cool during times of high temperature or exercise. By reducing sweat the body can overheat. Antiperspirants should not be used all the time and should only be used when absolutely necessary.

Common active agents used are the chemical agents Aluminium Chlorhydroxide, Aluminium Chlorhydroxy Lactate, Aluminium/Zirconium/Glycine complexes, Zinc Phenolsulfonate, or the herbal extracts Witchhazel Extract or Green Tea Extract. Usage is in the range 5 - 20%.

A typical Stick Antiperspirant formulation is

Purified water	33.00%	Carrier
Propylene Glycol	32.50%	Humectant
Sodium Aluminium Chlorhydroxy Lactate	20.00%	Antiperspirant
Sodium Stearate	8.00%	Gelling agent (Soap)
Fragrance	1.50%	Perfume
PEG-35 Castor Oil	5.00%	Fragrance solubiliser

A typical Roll-on Antiperspirant formulation is

Purified water	14.20%	Carrier
TetraSodium EDTA	0.05%	Water softener
Hydroxyethylcellulose	0.25%	Thickener
Propylene Glycol	10.00%	Humectant
Aluminium Chlorhydrate	30.00%	Antiperspirant
Triethyl Citrate & BHT	2.50%	Deodorant
Ethanol	40.00%	Drying agent
Fragrance	0.50%	Perfume
PEG-35 Castor Oil	2.50%	Fragrance solubiliser

A typical Spray Antiperspirant formulation is

Purified water	15.00%	Carrier
Aluminium Chlorhydrate	30.00%	Antiperspirant
Triethyl Citrate & BHT	2.50%	Deodorant
Ethanol	50.00%	Drying agent
Fragrance	0.50%	Perfume
PEG-35 Castor Oil	2.00%	Fragrance solubiliser

Deodorants

A Deodorant will not block the pores, hence not prevent the body from sweating, but can have three basic actions (depending on which chemical is used) all of which prevent the sweat from causing an offensive odour ie.

Some chemicals (antibacterial agents) act by killing the bacteria that live on the skin hence malodours cannot form. This is not wise as some skin bacteria are necessary for complete skin protection and should not be eliminated.

Materials such as Triethyl Citrate inhibit the enzymatic decomposition of perspiration substances.

Others (eg. Zinc Ricinoleate) absorb the malodours so that they cannot be detected.

A typical Stick Deodorant formulation is

Purified water	20.40%	Carrier
Propylene Glycol	65.00%	Humectant
Sodium Stearate	8.00%	Gelling agent (Soap)
Triethyl Citrate & BHT	3.50%	Deodorant
Triclosan	0.10%	Antibacterial agent
Fragrance	0.50%	Perfume
PEG-35 Castor Oil	2.50%	Fragrance solubiliser

Deo-Colognes

A Deo-Cologne will not act as an antiperspirant (stop sweating), nor will they act as a deodorant (kill bacteria, absorb odour or inhibit odour formation). They are generally composed of long-lasting substantive fragrance materials that cover any malodour formed with their pleasant smell.

A typical Spray Deo-Cologne formulation is

Purified water	22.00%	Carrier
Ethanol	70.00%	Drying agent
Substantive Fragrance	2.00%	Perfume
PEG-35 Castor Oil	5.00%	Fragrance solubiliser

Perfumes

"Perfumery can be described as the art and science of creating perfumes which, in their simplest form, can be described as "a blend of odourous materials, providing a pleasant small, which is used as the odorous part of a marketed product"; from the "Handbook of Cosmetic Science and Technology" by Knowlton & Pearce 1st edition.

Further from this reference "A typical perfume is normally a mixture of between three and several hundred ingredients, some of which may be of natural origin and some synthetic (some nature identical). An important property of these materials is their different volatilities, some being very volatile, others less so. Blending of materials with different volatilities in a perfume formulation, determines how the fragrance will be perceived".

A fragrance is described as having a;

Top notes: The scents that are perceived immediately on application of a perfume. Top notes consist of small, light molecules that evaporate quickly: they form a person's initial impression of a perfume and thus are very important in the selling of a perfume. The scents of this note class are usually described as "fresh," "assertive" or "sharp." The compounds that contribute to top notes are strong in scent, very volatile, and evaporate quickly. Citrus and Ginger scents are common top notes. Also called the head notes.

Middle notes: The scent of a perfume that emerges after the top notes dissipate. The middle note compounds form the "heart" or main body of a perfume and act to mask the often unpleasant initial impression of base notes, which become more pleasant with time. Not surprisingly, the scent of middle note compounds is usually more mellow and "rounded." Scents from this note class appear anywhere from two minutes to one hour after the application of a perfume. Lavender and Rose scents are typical middle notes. Also called the heart notes.

Base notes: The scent of a perfume that appears after the departure of the middle notes. The base and middle notes together are the main theme of a perfume. Base notes bring depth and solidity to a perfume. Compounds of this class are often the fixatives used to hold and boost the strength of the lighter top and middle notes.

Perfumes are often used by themselves as a fine fragrance and more often as a means to hide an unpleasant odour of the base product, convey a message or theme of the product, or bring together different product forms into one product range.

The traditional classification which emerged around 1900 comprised the following categories;

Single Floral: Fragrances that are dominated by a scent from one particular flower; in French called a soliflore. (e.g. Serge Lutens' Sa Majeste La Rose, which is dominated by rose.)

Floral Bouquet: Containing the combination of several flowers in a scent.

Ambery: A large fragrance class featuring the scents ofvanilla and animal scents together with flowers and woods. Can be enhanced by camphorous oils and incense resins, which bring to mind Victorian Era imagery of the Middle East and Far East.

Woody: Fragrances that are dominated by woody scents, typically of sandalwood and cedar. Patchouli, with its camphoraceous smell, is commonly found in these perfumes.

Leather: A family of fragrances which features the scents of honey, tobacco, wood and wood tars in its middle or base notes and a scent that alludes to leather.

Chypre: Meaning Cyprus in French, this includes fragrances built on a similar accord consisting of bergamot, oakmoss, patchouli and labdanum. This family of fragrances is named after a perfume by Fancois Coty. A notable example is Mitsouko (meaning mystery in Japanese) by Guerlain.

Fougère: Meaning F ern in French, built on a base of lavender, coumarin and oakmoss. Houbigant's Fougère Royale pioneered the use of this base. Many men's fragrances belong to this family of fragrances, which is characterized by its sharp herbaceous and woody scent

Since 1945, due to great advances in the technology of perfume creation (i.e., compound design and synthesis) as well as the natural development of styles

and tastes; new categories have emerged to describe modern scents:

Bright Floral:	combining the traditional Single Floral & Floral Bouquet categories.
Green:	a lighter and more modern interpretation of the Chypre type.
Oceanic/Ozone:	the newest category in perfume history, appearing in 1991 with Christian Dior's Dune. A very clean, modern smell leading to many of the modern androgynous perfumes.
Citrus or Fruity:	An old fragrance family that until recently consisted mainly of "freshening" eau de colognes due to the low tenacity of citrus scents. Development of newer fragrance compounds has allowed for the creation of primarily citrus fragrances
Gourmand:	scents with "edible" or "dessert"-like qualities. These often contain notes like vanilla andtonka bean, as well as synthetic components designed to resemble food flavors. An example is Thierry Mugler's Angel.

Odor Descriptors used in describing Perfumes

Aldehydic	Sharp, fatty or soapy, marine odors, (straight chain aldehydes in the range C8 to C12.)
Amber	Sweet, warm, slightly animalic, frequently vanilla-like.
Animalic	Animal-like odors, includes civet, musk, ambergris and castoreum.
Balsamic	Warm, sweet and resinous with a faint medicinal note, vanilla character.
Camphoraceous	Medicated, smells of camphor, sage and eucalyptus.
Chemical	usually harsh, aggressive and basic odors, typified by products such as Amyl Alcohol, Acetophenone and Diphenyl Oxide.
Citrus	Fresh, tangy and zesty, smelling of Lemon, Lime, Orange, Mandarin, Grapefruit, Bergamot.
Earthy	usually a combination of green, rooty and dank odors. Smells of damp humid earth after rain.
Fatty	having the odor of animal or vegetable fats and oils.
Floral	having the odors of flowers particularly carnation, honeysuckle, jasmin, lily, rose, violet or ylang ylang.
Fresh	Subjective depending on personal taste and experience; commonly citrus, light floral, green or fruity.

Fruity	Any natural fruit note.
Green	light intense, odor of freshly cut grass or freshly crushed leaves.
Herbal	Fresh plant odors eg Lavender (floral), Rosemary (medicinal), Camomile (fruity), Basil (culinary), Coriander (spicy).
Leather	Phenolic, warm, animalic.
Light	Discrete, usually floral, green, citrus or combinations.
Medicinal	Phenolic, Camphoraceous, Herbal, often pungent.
Metallic	smells of metal coins, or freshly cut steel.
Minty	Peppermint, Menthol, Spearmint
Mossy	Earthy, woody, phenolic, green, from lichen, algae or fungus. Normally from trees..
Nutty	Sweey, oily, natural nut odors.
Pine	odors of pine wood, needles and resins.
Powdery	Soft, gentle, sweet, often balsamic, ambery and musky.
Resinous	Warm, sweet, balsamic, sharp in the top note.

Spicy	Pungent, hot and culinary eg. bay, cardamon, cinnamon, cloves, cumin, ginger, nutmeg, pepper.
Sweet	Heavy, cloying, notes of vanilla and sugary mixes.
Warm	Typically ambery, animalic, balsamic and sweet.
Waxy	Reminiscent of Candle wax.
Woody	natural (freshly sawn) wood notes eg. sandalwood, cedar and oregano.

There have been many theories on perfumes but the best I have seen is where the fragrance, colour and shape all must be right to convey the message.

An example is the Norsca range of toiletries of the 1980's where they all had a pine fragrance (good), all had a green colour (also good) but those with a tall thin shape (eg the antiperspirant can) sold well while the shampoo and conditioner in short squat, wide bottles did not. In these latter cases the shape was wrong for the perfume and colour. Other examples are where rose fragrances should be accompanied by a pink colour and a round soft shape, or a fruit fragrance accompanied by the colour associated with that fruit and the shape that typifies the fruit.

Another example of this is often used as a good "party trick" where different jellies are prepared, a yellow banana flavour, a green lime flavour and a blue orange flavour. Everyone will pick the banana and lime flavour but only very few will know the orange flavour as the colour blue does not fit the image of an orange.

For those who wish to know more about this concept of matching fragrance, colour and shape I suggest you contact Barrie Dean (Ungerer) who has a wealth of knowledge in this area as well as writing papers on the subject.

Thank you.

The next issue I will discuss "More on perfumes".

The New Argan Oil is NSO DESERT LIME SEED OIL

Create new marketability with the latest in carrier oils

34 unique Australian NATIVE SEED OILS

Visit nativeextracts.com to request datasheets, and valuable matrixes on new sources of fatty acid profiles and comparisons to replace Sweet Almond, Jojoba, and other popular carriers.

NATIVE SEED OILS

NATIVE EXTRACTS

enquiries@nativeextracts.com
www.nativeextracts.com
P +61 2 6624 5191

USDA ORGANIC

NSO_297x210_Science of Beauty_OCTOBER_2015

advertorial

New publication of skin studies highlights the unique efficacy of collagen peptide intake on the restructuring of deep skin layers

The first comprehensive scientific publication of research into the anti-aging benefits of Peptan® collagen peptides has just been released.[1] Appearing in the Journal of Cosmetic Dermatology, this latest paper elevates the science behind collagen peptides taken as a supplement for skin beauty to the next level by revealing strong clinical evidence to prove Peptan's ability to restructure the collagen network in deep skin layers. This represents a true breakthrough in skin anti-aging science. The newly published data also presents a statistically significant effect of Peptan collagen peptides on skin hydration explained by the stimulation of hyaluronic acid production.

This new compilation of skin health research[3] performed by leading dermatological institutes Laboratory Cosderma and EC Biolab in France and the Souken Laboratory in Japan, features evidence from two double-blind placebo-controlled clinical trials on Asian and Caucasian women with different skin types, backed by further ex vivo studies on skin tissue.[2] The clinical research showed highly important skin anti-aging benefits: Peptan significantly decreased the fragmentation of collagen in the deep layer of the dermis by -18% after 4 weeks and as much as -31% after 12 weeks of intake. Peptan also significantly increased the density of collagen in the dermis by + 9 % after 4 weeks of intake. Skin hydration increased by an impressive 28%, counteracting the appearance of the dry skin that typically occurs through aging. The ex vivo studies demonstrated Peptan's anti-aging effects from a mechanistic point of view with key findings including the positive impact of Peptan on the skin cell's (fibroblast's) ability to produce collagen fibers and glycosaminoglycans (GAGs) such as the moisture-trapping hyaluronic acid.

Commenting on the published data, Dr Jérôme Asserin of Laboratory COSDERMA said: "At COSDERMA we are specialised in the analysis of safety and efficacy of ingredients for the skin, ensuring a high level of scientific research quality and independence of the studies. The actual results for women who took the collagen peptide supplement show a real effect on restructuring the collagen network by decreasing fragmentation."

Dr Elian Lati of the BIO-EC Laboratory added: "The results delivered by Peptan collagen peptides within the skin tissue were real: there is a particularly high stimulation of GAGs such as hyaluronic acid. The ex vivo study provided important insights into the mechanisms of collagen peptides on tissue level which provide the basis for its skin anti-aging effects".

The Journal of Cosmetic Dermatology's review provides the first ever publication of data to show skin restructuring effects after taking a nutraceutical ingredient. These data are substantiated by a high level of scientific research and the only results to date to demonstrate the underlying mechanism of how collagen peptides help strengthen and rejuvenate the deeper skin layers and maintain the cohesive and dense collagen network that is key to prevent wrinkles and sagging. The significant effect of Peptan collagen peptides on skin hydration is also noteworthy – as maintaining well hydrated skin is crucial for smooth, plump skin and prevent the formation of micro relief wrinkles. The paper provides clear, compelling evidence to support the use of collagen peptides

in ingestible 'Beauty from Within' products and gives manufacturers a proven ingredient solution when looking to enter the dynamic nutricosmetic market.

Peptan collagen peptides are safe, bioactive peptides, optimised through a careful hydrolyzation process to make them easily digestible, highly bioavailable and able to promote specific benefits in the target tissue. Globally recognised as the preferred bioactive ingredient of leading nutricosmetic brands, Peptan is now benefiting from a notable increase in popularity in Western markets thanks to the growth of the nutricosmetics industry outside of Asia. Credible scientific research provides nutricosmetic manufacturers with vital information when looking to create clear differentiation for their products in a competitive market place.

References

1 Assarin J. et al. 2015. The effect of oral collagen peptide supplementation on skin moisture and the dermal collagen network: evidence from an ex vivo model and randomised, placebo-controlled clinical trials. Journal of Cosmetic Dermatology, 0, 1-11.

2 The studies have been performed by independent institutes commissioned by Rousselot.

3 Postlethwaite, A.E. et al. 1978. *Chemotactic attraction of human fibroblasts to type I, II, and III collagens and collagen-derived peptides.* Proceedings of the National Academy of Sciences of the United States of America. 75(2): 871-875.

Shigemura Y, et al. 2009. *Effect of prolyl-hydroxyproline (Pro-Hyp), a food-derived collagen peptide in human blood, on growth of fibroblasts from mouse skin.* Journal of Agricultural and Food Chemistry 57(2), 444-449.

Ohara H, et al. 2010. *Collagen-derived dipeptide, proline-hydroxyproline, stimulates cell proliferation and hyaluronic acid synthesis in cultured human dermal fibroblasts.* Journal of Dermatology, 37: 330-338.

Cosmetic claim substantiation for Natural Beauty: *quo vadis?*

by Prof. Dr. Karl Lintner
KAL'IDEES S.A.S., France

The cosmetic industry world wide is facing an increasing amount of regulation; while until recently the bulk of regulatory activity was concerned with the safety of cosmetic products, pressure from consumer groups and other lobbyists has led to a new and more thorough scrutiny of claims made in all media of communication about cosmetic products.

What is a cosmetic claim? A cosmetic claim can be described as "a statement made, usually in advertising, with regard to a product's functions", although a broader view would regard wording on the packaging, on inserted leaflets and even the non-verbal style of presentation as potential "claims" directed at the consumer's perception.

The Cosmetic Product Regulation (EU: CPR) stipulates in article 20 on "Product claims":

In the labelling, making available on the market and advertising of cosmetic products, text, names, trade marks, pictures and figurative or other signs shall not be used to imply that these products have characteristics or functions which they do not have.

The Regulation also requires that

"The product information file shall contain […], where justified by the nature or the effect of the cosmetic product, proof of the effect claimed for the cosmetic product".

The question of "what constitutes proof" was never addressed in this Directive and claims were rarely challenged by authorities.

With time, organisations such as the BVP in France *(Bureau de Vérification de la Publicité,* now renamed ARPP), and the ASA (Advertising Standards Authority) in the UK have attempted to establish rules and guidelines for acceptable advertisements and claims made therein. In spite of both organisations' claim to constitute an "authority", they are not part of the government administration; adhesion to these organisations is voluntary and so is compliance with the rules, although great pressure can be exerted on non-compliant members and even non-members whose advertisements (and claims therein) are challenged and disputed.

Furthermore, these two (major) organisations have not concerted their activity amongst themselves nor has there been a push toward European (or world wide!) harmonisation with other, similar organisations, although the European Advertising Standards Alliance (EASA) might have been such a platform to address these questions before legislative activity created new straightjackets for the cosmetic industry.

In response to insistent requests for more harmonized product information from various lobbies, on July 10, 2013, the EU Commission laid down the "common criteria for the justification of claims used in relation to cosmetic products." (EU 655/2013).

This text is divided into 6 items which cover 1) Legal compliance, 2) Truthfulness, 3) Evidential support, 4) Honesty, 5) Fairness and 6) Informed decision making.

Each item is then discussed in a few more details and general sentences (such as on Honesty: "presentations of a product's performance shall not go beyond the available supporting evidence"…).

This document is almost a joke, given the extremely general wording of the "criteria". In fact, this is roughly the situation of today: there is no EU wide standard or agreement on what constitutes an admissible cosmetic claim; different stakeholders made widely different attempts at interpreting the old requirement of "proof for the effect claimed"; and thus we see sometimes forced withdrawals of advertisements, withdrawals that are loudly displayed and commented upon in the media.

While criteria #1 to #5 are rather self evident, partly redundant (#2 and #4) and need no further discussion here, it is in particular the item #6 mentioned above that is and will be the focus of controversy, which says: "claims should be clear and understandable to the average end user. Claims […] shall contain information allowing the average end user to make an informed choice."

The threat is posed by the requests of Consumer Groups such as BEUC (European Office of Consumer Organisations) to establish **"objective criteria** allowing the consumer to choose cosmetic products based on proven claims and performance".

Here is the problem with this request:

The mention of an SPF value on a sunscreen does indeed allow the consumer to choose the "right" sun protection for her skin (and thus theoretically enabling her to compare different brands with respect to SPF and price and to make an "informed choice"); this makes sense inasmuch as Sun protection is truly related to health of the consumers, a certain consensus having been reached on standard SPF and UV-A measurements: one claim (protection), one parameter, one result.

But such an idea is not possible, nor at all desirable, with respect to "anti-wrinkle effect", "moisturizing power", "skin toning", "firming" and all other explicit or implicit claims ("DNA repair", "stem cell protection"…).

If this demand were to be taken up for all cosmetic claims and made into legislation, it would be necessary to impose standard test methods (to the exclusion of any others, including innovative and thus novel protocols and instruments) for studying e.g. wrinkle effects; AND it would require minimum threshold values of "before" and "after" data, with statistical significance also thrown in.

This notion is patently absurd: does anyone really believe that a product from company A tested on 30 people in one city in spring and showing a 22% reduction of the volume of the main wrinkle after one month is significantly better (or less efficacious) than a product from company B tested in a different country in autumn that shows a 18% (or 35%) reduction respectively on a different panel? Will consumers then do a price/wrinkle-reduction-factor (WRF) calculation? Will it lead to an inflation of meaningless test results ("58%, 160%, 280% increase in skin hydration!")?

Such an effect of the call for regulation and standardisation has been observed in the case of the claims for "natural", "organic", "sustainable" or "green"… To calculate the "naturalness" of an ester that is made of plant derived palmitic acid and petrochemical oleic alcohol based on their respective molecular masses in order to determine if the cream containing it at X% reaches the >50% (or 75% or 90% or 98%...) "natural" mark for a certified label does not make any more sense.

And have we not seen the "100% natural" claims, and the "chemical free" claims *ad nauseam*?

Cosmetic product development and marketing face a major problem: after 25 years of making claims of "anti-age", "anti-wrinkle", "oil control" , "anti-cellulite", "skin whitening", "skin firming", "dark circle and puffy eyes treatment" etc. etc., basing these claims on increasingly sophisticated *in vitro* and clinical data, the market arrives at saturation:

Who needs another plant extract (or polysaccharide or peptide) that "reduces wrinkles by ≈20% in 2 months on 20 panellists"? There are >100 ingredients offered on the market by specialty suppliers and used for this specific claim in finished products, and shown (claimed) to be active via genomics, proteomics, molecular biology (with the caveat of "tested in vitro" and FOITS pictures in the less frequent clinical trials…

The various official authorities (US-FDA, EU countries with their individual regulatory bodys, K-FDA in Korea, S-FDA in China) and the above mentioned consumer groups and organisations scrutinize such claims with increasing frequency.

The "natural" wave is subsiding, the reports on X% increase in launches not withstanding. A "natural" claim in itself is not sufficient to attract consumers, given that the overwhelming majority of purchases are not based on this criterium and that most labels and certifications are badly understood and/or ignored by the end-users.

How then can the industry create interesting and comprehensible messages for the consumer AND avoid the frequent criticism directed against present claims and advertisement texts?

A trend is emerging that I and others call "back to the future": simply stated it means, put the sensorial benefits, the "well-being" and the pleasure back into products and into the Marketing messages, but with a new twist: "well-being claimed – well being measured!"

Cosmetic usage (from the purchase experience to using and applying the products to the satisfaction with the texture and the smell and ease of use and all the way to chatting with others about the products) has always been about **Pleasure!** But this message got smothered these last two or three decades with increasingly sophisticated scientific (or pseudoscientific) language and claims. One reason for this might have been that 30 years ago it would have been difficult to promise " this cream will increase your self esteem by X%".

But today we have access to sophisticated but easily understood scientific methods of measuring hedonistic aspects, "well-being", pleasure, self esteem, confidence… all things that the right cosmetic product can claim and actually give to the consumer.

The idea is to measure emotions, both positive and negative, hoping that a product will boost the positive ones and reduce the negative ones. As Lord Kelvin said " only to measure is to know", meaning that today we can quantify these concepts.

There are three types of measurements that can be employed: biochemical techniques, physical (instrumental) methods and mental approaches.

Let us name but a few techniques that are being employed with increasing frequency:

Biochemical techniques go from measuring simple stress levels by quantifying cortisol (or other indicators such as DHEA, enzymes) in saliva to visualising and quantifying glucose utilisation in the brain with the help of fMRI and PET Scans; physical aspects can be observed and studied with electrodynamic instruments applied to the skin (modified polygraphs/"lie detector", Neurometer®, Stressometer®), with thermography, with speech analysis, with eye-tracking and many more; the emotional states of consumers before and after product use (be they immediate or long term effects) can also be evaluated by professional and well designed questionnaires of "well-being", of "Quality of Life" and similar protocols hailing from psychology/psychiatry domains.

Can we expect that a well-documented claim of such nature on pleasure, emotions, well-being will evoke less (if any) criticism than the perpetual "reduces fine lines and wrinkles"? It is to be hoped. Of course, all claims of whatever nature should be based on valid protocols, on a sufficient number of volunteer participants and follow Good Clinical Practice guidelines.

The industry (both suppliers and formulators) is already experiencing this important paradigm shift. Other than the mentioned saturation of skin biology claims, regulatory restrictions in China make the introduction of new innovative ingredients in cosmetic products very difficult, even impossible. Hence the search for a new language, new messages. Eye-tracking to record the perception of beauty ("beauty is in the eye of the beholder") has been used (and communicated about to the consumers), sensory analysis is being employed in new ways and leading to new quantifiable claims…

Some ingredient suppliers begin to combine the "activity" of their – preferably China compliant – products with "sensorial benefits" in order to participate in this new direction.

We will see more of it in the future months.

A last comment: can the "Natural Beauty" topic of this conference contribute to this new trend? Up to a point, my answer is YES. Although scientifically, the notion of "natural" (as opposed to "chemical" or "synthetic") makes no sense, the popular perception that "natural" is safer and/or better and/or more efficacious is much reinforced by the media and some pressure groups. This notion is of course nonsense. However it is clear that "plant imagery" and "flower smells" reminding the consumer of some "natural" experience will work better on positive emotions than the story of a new active ingredient with unpronounceable chemical nomenclature… But the talk about "natural" should be limited to these emotional aspects, rather than continuing the endless discussions about the definition of "natural", "nature-identical", "inspired by nature", "organic", etc. and their official certification.

Cosmetics, whatever they are, are luxury products, meaning we can live without them. We'd live less well for sure, but nobody dies for want of a shower gel, lipstick, anti-wrinkle cream or conditioning shampoo, contrary to food and medicine. Hence the question becomes: why do consumers buy cosmetics? For their functions (washing, deodorising, decorating, hair straightening and sunprotection properties)? Yes. For their claimed biological "efficacies", more or less understood but hardly believed? Certainly not or the market would have shrunk years ago.

Hedonics have always been the real, unconscious driver of this market, and will increasingly be the dominant factor with the difference that we can make it more scientifically interesting and measurable than in the past.

IBR®

INNOVATION INSPIRED BY NATURE

IBR-Dragon®

INCI name: Hylocereus Undatus Fruit Extract

THE LEGEND AND THE SKIN

INSTANT & ETERNAL, NATURALLY RADIANT BEAUTY

- **For immediate and long term brighter, luminescent and naturally radiant skin** (in vitro and in vivo)
- **To preserve youth and prevent aging** (in vitro and in vivo)
- **For the adaptation to harsh conditions** (in vitro and in vivo)

According to an ancient Chinese legend, the Dragon Fruit was created thousands of years ago by a fire breathing dragon. During a battle when the dragon breathed fire the last thing that came out of its mouth was the fruit. It is believed that those who nurture on the flesh of dragon fruit are endowed with the strength and the immortality of the dragon.

IBR-Dragon®, now with new brilliant activities, contains dormins to slow down cell proliferation, keep skin looking young and prevent signs of aging. For brighter, luminescent and naturally radiant skin, IBR-Dragon® also produces a natural blue fluorescence under UV light.

This recent discovery shows that IBR-Dragon®, when illuminated with sun and UV light, emits light in a bluish tone which is percieved as immediate skin brightening effect to the human eye.

Capitol Ingredients IMCD

President's Report

by Matthew Martens

I have to start off by thanking everyone for their fantastic support and best wishes since I started my role of President of the ASCC. It has been a whirlwind 6 months and whenever I have spoken to members I have been excited and humbled by the support and trust that members of our society believe in what the ASCC Council is putting forth. I have a great team willing to think outside the square so that we can continue to provide you as member's new benefits so we can continue to move forward. Please continue to let me know anything that you would like to see the society do for you in the future.

The warmer weather is already upon us and with this focus has already turned to the festive season fast approaching. Our industry continues to be in a state of flux due to continued uncertainty both here and overseas. I still believe that we can overcome any of this due to the hard work and innovation that our companies here in Australia are capable of. The majority of our products and materials may be sourced from abroad but it is the expertise and forward thinking of our members which ensures local brands will continue to grow and thrive in such a competitive marketplace.

Christmas parties are already being planned and the Southern Chapter has this year decided to get members to unleash their inner ghoul with a Halloween party at the end of October. Both Queensland and NSW have already set their dates for their Christmas party as well so mark these events in your calendar as they are always events not to be missed. Most Chapters will also have at least one more lecture dinner before the end of the year so please continue to support your local chapter functions as it provides a great opportunity to learn something new and to network with like-minded members in the industry. If you have just joined the society also remember your first lecture dinner is on us so make sure you check out what is happening in your own state via the ASCC website.

There has been a flurry of activity in the background over the last few months which are worth mentioning. The 2016 ASCC Conference organising committee has been working extremely hard to ensure everyone is catered for and nothing is left to chance so we can all "Get to the Point" in Hobart next April. Iman Irhimeh and her committee have put together some fantastic plans for the conference and planning is going full steam ahead. For those wanting to submit a paper the Call for Papers is out and the Conference Technical Committee would welcome your submissions. The Sponsorship packages and Exhibition booth sales are already in full swing and selling fast so make sure you contact the organising committee to lock in your preferences before you miss out. Further details can be found in this issue via Iman's Chairpersons Welcome.

The ASCC Technical Committee has published a Position Paper on Animal Testing which can be viewed on the ASCC website. I encourage all members to read this in order to get a better understanding on some of the happenings in this area and has been summarised by Ric Williams and Nick Urquhart as authors of this paper. You will also be able to find all previous Position Papers on the website including Nanoparticles and AHA's which are well worth a read.

Belinda Carli has been working on improving the online presence of the ASCC through our Facebook and Linked In pages. I encourage all members to sign up to receive notifications from both of these Social Media platforms. This is one way to ensure you keep up to date with the latest news and events but also network and share views with

your fellow members. To enhance these improvements further the ASCC Council is looking at options to upgrade the current website to make use of the significant technology improvements currently available and provide members with increased value for their membership. Please keep an eye out for even more changes in the near future.

Julian Jones recently attended both the CiTE exhibition in Japan and the IFSCC Conference in Zurich on behalf of the ASCC. While attending both of these events Julian attended the IFSCC Zone 2 meetings as well as the IFSCC Council Meeting. I was also lucky enough along with a number of ASCC members to attend the NZSCC Conference as well and along with the spectacular scenery the event was well attended and the conference program was well put together. The New Zealand Society has gone from strength to strength in recent times and it is a credit to Sigrid and her team. The importance of attending these events will allow Australia to continue to remain relevant to other IFSCC member societies and allow the opportunity in the future to host international conferences such as the IFSCC Conference in Melbourne 2009 and ASCS Conference in Cairns earlier this year. We have been able to significantly strengthen our relationships with many of the regional societies and the importance of these partners for local brand owners, manufacturers and suppliers will be extremely important. I also wish to highlight the opportunities for ASCC members to present at an IFSCC Conference or Congress. There are scholarships available for members who have original research accepted for presentation to help cover the costs of flights and accommodation and more details can be found on the ASCC website.

It is a busy time of the year for everyone but please remember to "smell the roses" every once and a while as you never know what you may be missing out on. Be an active member of your local Chapter by attending organised events and volunteering for committees. The ASCC is an organisation run by members for the members so we are always looking for new people wanting to be a part. It is a fantastic opportunity to be a part of shaping how our industry evolves in the future.

Matthew Martens

ASCC President

Nocturnin waves and cellulite control

Alicia Gimenez, Cristina Davi, Elena Cañadas, Albert Soley, Raquel Delgado, Albert Calvillo
Lipotec S.A.U., Gavà, Spain

Abstract

Cellulite, a highly prevalent condition characterised by the appearance of irregularities on the skin surface, results from an excess of subcutaneous differentiated adipose tissue. Like many other physiological processes, adipose tissue metabolism has been found to follow circadian rhythms.

Circadian rhythms comprise several biological processes with endogenous oscillations every 24 hours. These rhythms are synchronised by external and internal factors. The intracellular biological clock is controlled by a network of feedback loops composed of activators and repressors, the levels of which oscillate along a 24-hour period. The central clock genes in the network are *Clock* and *Bmal1*, and regulate the expression of hundreds of downstream circadian genes. Among these genes is *Nocturnin,* which shows a rhythmic transcription pattern with a peak by early night. *Nocturnin* is greatly expressed in adipocytes and is involved in lipid metabolism through the direct binding to Peroxisome Proliferator-Activated Receptor γ (PPARγ), enhancing the transcription of adipogenic genes.

Lipotec proposes a new biotechnological ingredient capable of reducing Nocturnin levels, and thus lipid accumulation in adipocytes, in order to improve smoothness in cellulite condition specifically during nighttime.

Introduction

The treatment of cellulite can be approached considering that the mechanisms that give rise to its formation have a cyclic nature and are controlled by biological clocks. Cellulite characteristic and anti-aesthetic skin irregularities in the thighs, hips, and buttocks are experienced by approximately 90% of women [1]. The unevenness in the skin relief appears as the result of the excessive development of subcutaneous adipose tissue, due to an increased lipid accumulation by mature adipocytes. In addition, a decrease of collagen and elastic fibres weakens connective tissue allowing adipocytes to move towards the surface of the skin to form visible fat nodules. Furthermore, microcirculatory alterations sustain the formation of cellulite [1, 2].

Like many other physiological processes, adipose tissue metabolism has been found to follow circadian rhythms. Circadian rhythms comprise the biological processes that show daily oscillations. The term circadian comes from the Latin phrase *circa diem*, which means 'about a day'. The sleep-wakefulness cycle and the changes in body temperature are examples of circadian rhythms. For instance, body temperature decreases at night and rises during the last hours of sleep [3]. Synchrony of the organism with its external environment is critical to health and well-being. Desynchrony between biological and social time, which is more and more frequent in contemporary lifestyles, has negative consequences for health and can lead to physical changes, including overweight [4].

The majority of cells and tissues of the body modulate their activity on a circadian basis, for example in the liver, pancreas, skin and, as already mentioned, the adipose tissue [3,5]. Several physiological parameters of human skin exhibit circadian fluctuations, including epidermal cell proliferation, sebum production, hydration, permeability and blood flow. For instance, sebum production peaks around noon and is minimum at midnight, whereas blood flow and permeability are highest at night [6,7]. Adipose tissue function also shows important daily variations in processes like adipogenesis, lipogenesis and lipolysis [5,8]. Some of the genes

that regulate adipogenesis increase their expression at night, promoting the differentiation of adipocytes [9].

The circadian processes that take place all around the body are regulated by an internal biological clock that receives external signals and maintains the synchronisation with the 24-hour period. The most important external signal in the setting of circadian rhythms is light. The central biological clock, which resides in the brain's suprachiasmatic nucleus (SCN), receives light signs from the retina and, through neuronal and hormonal signals, coordinates the activity of peripheral clocks located in different tissues throughout the body (e.g. adipose tissue, skin). During the day, light-induced activation of the SCN prevents the production of the hormone melatonin in the brain. Melatonin indicates the 'biological night' to the whole body, as it is one of the outputs of the central clock that distributes temporal signs to peripheral clocks [10].

Both central and peripheral clocks are governed by the same molecular mechanism, which consists of clock genes. The main clock genes are *Clock, Bmal1, Per* and *Cry*. These genes control their own expression and, in addition, coordinate the timing of expression of hundreds of downstream effector genes known as Clock-Controlled Genes (CCGs). CCGs have precise cellular functions and are responsible for the rhythmic execution of circadian processes [5,11]. The activity of clock genes oscillates daily, forming a network of regulatory feedback loops. In the morning

CLOCK/BMAL1 protein heterodimers activate the expression of CCGs and of genes Per and Cry, leading to an increase in their protein levels along the day. At night, PER/CRY protein complex inhibits CLOCK/BMAL1 activity in the nucleus, suppressing the expression of further Per and Cry. The next morning, PER and CRY protein levels have decreased and no longer inhibit their own transcription by CLOCK/BMAL1 [5,11].

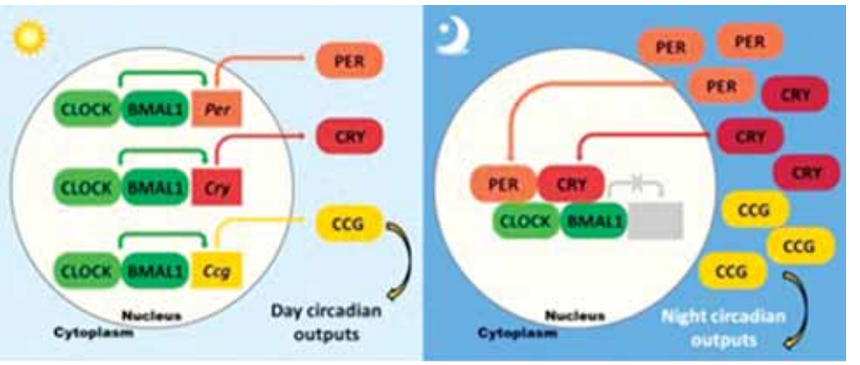


Fig. 1. Schematic view of the regulation of the biological clock by clock genes.

Nocturnin is a CCG that plays a role in the regulation of adipose tissue metabolism. It shows a rhythmic transcription pattern with a peak occurring by early night [12]. Nocturnin protein controls adipogenesis and lipid metabolism by modulating the activity of Peroxisome Proliferator-Activated Receptor γ (PPARγ). PPARγ is a key transcription factor in the adipogenesis process. Nocturnin directly binds to PPARγ enhancing its nuclear translocation, and thus its transcriptional activity, which results in increased adipogenesis and incorporation of lipids into adipocytes [12]. Nocturnin is upregulated in early adipogenesis in preadipocytes and is necessary for the stimulation of their differentiation to mature adipocytes [9,12]. Interestingly, Nocturnin knockout mice were found to have normal food intake and activity levels, but were resistant to diet-induced obesity, had reduced lipid storage and exhibited a lean phenotype [13]. In addition the expression of PPARγ is increased with age, and seems to be related to the higher accumulation of fat associated with the aging process [14].

Taking advantage of the Nocturnin circadian rhythm, Lipotec introduces a new biotechnological ingredient capable of reducing Nocturnin levels to diminish subcutaneous fat deposits and improve cellulite appearance. The new ingredient is an Exopolysaccharide (EPS) that reduces lipid accumulation and increases lipolysis in adipocytes. In addition, it has been shown to enhance in type I collagen levels, being able to provide a firming effect.

Methodology

Reduction of nocturnin protein levels

Human subcutaneous preadipocytes were synchronised to a day-night circadian rhythm during their differentiation to adipocytes in Preadipocyte Differentiation Medium 2 (PDM2). Day-night synchronisation of the cells was achieved by alternating 12h incubations in PDM2 alone (induced day) with 12h incubations in PDM2 with 1 nM melatonin (induced night) at 37°C 5% CO_2 for four consecutive days.

After four day-night cycles, the cells were maintained for 6h under induced day or induced night conditions and Nocturnin protein levels were assessed to confirm the induction of the day-night synchronisation. To test the effect of the new ingredient on Nocturnin protein, synchronised cells were treated with 0.1 mg/mL of the EPS for 6h under induced night conditions.

Intracellular Nocturnin protein levels were quantified by optical density using an Enzyme-linked Immunosorbent Assay (ELISA). In parallel, total protein concentrations were obtained by the colorimetric Bicinchoninic Acid (BCA) assay. The ELISA data were normalised by total protein concentration and the relative Nocturnin protein levels were calculated.

The EPS was assayed in four independent triplicate experiments. Data are given as mean with standard error of the mean (SEM). Student's t test was performed to evaluate statistical differences.

Induction of lipolysis

Human subcutaneous preadipocytes were synchronised for four day-night cycles during differentiation as previously described and subsequently treated with 0.1 or 1 mg/mL EPS in Hank's Balanced Salt Solution (HBSS) buffer or with HBSS buffer alone (Differentiation control) for 6h in induced night conditions (with melatonin).

Lipid mobilisation from adipocytes involves hydrolysis of triglycerides into glycerol and free fatty acids. Therefore, the release of glycerol by the adipocytes was measured to assess the efficacy of the EPS on the induction of lipolysis. Glycerol levels in the cell supernatants were quantified by fluorescence using a Free Glycerol Assay kit. The fluorescence of each condition was normalised by total protein concentration determined by BCA. Glycerol release relative to the Differentiation control was calculated.

Statistical analysis was performed using the Student's t test. The mean represents the data from three independent experiments in duplicate. Error bars represent the SEM.

Lipid droplet content in the cells after the different treatments was observed using a bright-field microscope (Carl Zeiss Axiovert 40C).

Decrease of lipid accumulation

Human subcutaneous preadipocytes were induced to differentiate into adipocytes by incubating in PDM2 alone (Differentiation control) or in the presence of 0.1 or 0.01 mg/mL of EPS, for eight days at 37°C and 5% CO_2. As a positive control of inhibition of lipid accumulation, the cells were treated with 0.2 mg/mL caffeine in PDM2. Preadipocytes maintained in normal growth medium were used as a Non- differentiation control.

Nile Red staining (AdiporedTM reagent) was used for the quantification, by fluorescence, of intracellular lipids in the adipocytes. The signal of each condition was normalised by the mean fluorescence value of the Non-differentiation control and the percentage of lipid accumulation relative to the Differentiation control was calculated.

Data are given as mean and SEM of from at least three independent quadruplicate experiments. A Student's t test was performed to show significant differences between each sample and the differentiation control.

Type I collagen induction

Human Dermal Fibroblasts from adult (HDFa) were treated with 5 µg/mL or 10 µg/mL EPS. Non-treated cells were used a Control. After 48h of incubation at 37°C in 5% CO_2, the fibroblasts media were collected.

The concentration of type I collagen in the media from HDFa was evaluated by an ELISA. Collagen concentrations were obtained using the standard curve and the percentage of induction with respect to control was calculated. Unpaired Student's t- test statistical analysis respect to Control was performed.

Results and discussion

Reduction of nocturnin protein levels

Nocturnin was differentially expressed in primary human subcutaneous adipocytes at night. Adipocytes in induced night produced significantly higher (18.4%) Nocturnin levels compared with adipocytes in induced day conditions, mimicking what happens in nature.

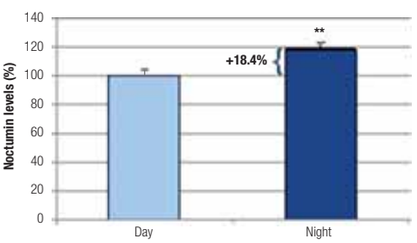


Fig. 2. Nocturnin levels in adipocytes synchronised to induced day or induced night states (** p< 0.01).

The new EPS significantly decreased Nocturnin protein levels (-22.5%) in adipocytes during induced night.

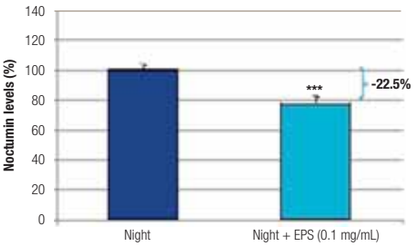


Fig. 3. Nocturnin levels in synchronised adipocytes during the night (*** p<0.001).

Induction of lipolysis

Glycerol release increased significantly (23.6-34.5%) after the treatment with the EPS at the tested concentrations, indicating the efficacy of the new product in inducing lipolysis in adipocytes during the night.

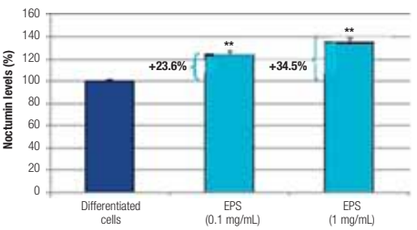


Fig. 4. Free glycerol release in synchronised adipocytes during the night (** p< 0.01).

Decrease of lipid accumulation

By reducing Nocturnin levels, the EPS significantly decreased lipid accumulation in human adipocytes. The effect was dose-dependent and, reached up to a 37.4% decrease in lipid accumulation.

Type I collagen induction

The EPS showed a positive effect on type I collagen synthesis in HDFa. It induced collagen I production by 38.1% at 5 µg/mL and by 37.2% at 10 µg/mL. The results were statistically significant (*** $p < 0.001$) at the tested concentrations.

Conclusion

A novel approach to the treatment of cellulite has been undertaken by Lipotec with the development of a new ingredient that targets the protein Nocturnin.

Nocturnin expression is controlled by clock genes in adipose tissue and shows a peak in the first hours of the night. This protein modulates the transcriptional

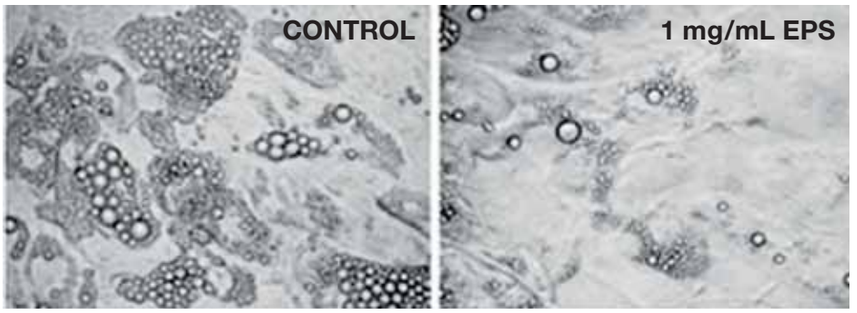


Fig. 5. Microscopy images showing the reduction of lipid droplets caused by the EPS in synchronised adipocytes.

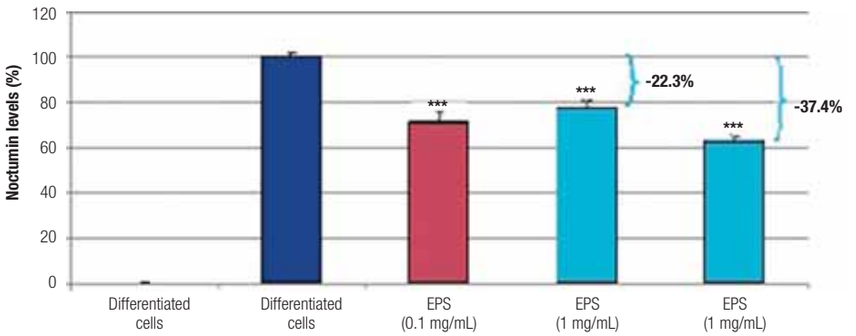


Fig. 6. Lipid accumulation in human adipocytes (*** p<0.001).

activity of PPARγ, increasing adipogenesis and the incorporation of lipids into adipocytes. Nocturnin is upregulated in early adipogenesis and is necessary for the differentiation of mature adipocytes.

Lipotec's new ingredient reduces Nocturnin expression during the night, increases lipid degradation and decreases lipid accumulation in human subcutaneous adipocytes. Additionally it enhances the production of type I collagen.

This novel EPS is the first ingredient acting on processes that contribute to cellulite development during sleeping hours. It provides an innovative approach in slimming and anti-cellulite treatments conceived for a nighttime application, due to its proven efficacy through circadian rhythms.

References

1. Rawlings AV. Cellulite and its treatment. *International Journal of Cosmetic Science.* 28:175–190, 2006.

2. Storsberg J, Stickelmeier L. Cellulite - A (Well-) Known Cosmetic Challenge. *SOFW Journal.* 137: 2-8, 2011.

3. Ramsey KM, Marcheva B, Kohsaka A, et al. The clockwork of metabolism. *Annu. Rev. Nutr.* 27:219-40, 2007.

4. Eisenstein M. Stepping out of time. Nature. 497: 10–12, 2013.

5. Shostak A, Husse J, Oster H. Circadian regulation of adipose function. *Adipocyte.* 2(4):201-206, 2013.

6. Mehling A, Fluhr JW. Chronobiology: biological clocks and rhythms of the skin. *Skin Pharmacol Physiol.* 19:182-189, 2006.

7. Soudant E. Chronobiology applied to the skin. *Expression Cosmetique.* November, 2011.

8. Gimble JM, Sutton GM, Ptitsyn AA, et al. Circadian rhythms in adipose tissue: an update. *Curr Opin Clin Nutr Metab Care.* 14:554-561, 2011.

9. Johnston JD, Frost G, Otway DT. Adipose tissue, adipocytes and the circadian timing system. *Obes Rev.* Suppl 2:52-60, 2009.

10. Albrecht U. Timing to perfection: The biology of central and peripheral circadian clocks. *Neuron.* 74(2):246-60, 2012.

11. Okamura H. Clock genes in cell clocks: roles, actions and mysteries. *J Biol Rhythms.* 19:388-399, 2011.

12. Kawai M, Rosen CJ. PPARγ: a circadian transcription factor in adipogenesis and osteogenesis. *Nat Rev Endocrinol.* 6:629–636, 2010.

13. Green CB, Douris N, Kojima S, et al. *Proc Natl Acad Sci U S A.* 5;104(23):9888-93, 2007.

14. Imbeault P, Vidal H, Tremblay A. et al. Age-Related Differences in Messenger Ribonucleic Acid Expression of Key Proteins Involved in Adipose Cell Differentiation and Metabolism. JCE & M. 86(2) 828-833, 2001.

Jojoba Esters: improved skin barrier function and maintenance

by Tiffany Oliphant, M.S., C.C.R.C. and Robert A. Harper, Ph.D.

Floratech, 291 E El Prado Court Chandler, AZ, USA 1-480-545-7000
tiffany.oliphant@floratech.com

Abstract

Jojoba oil derivatives (jojoba esters and hydrolyzed jojoba esters) have been shown to possess properties that are beneficial to the skin, and are currently found in multiple finished personal care formulations in the global market place today. The current paper presents data in two new areas of research involving the jojoba derivatives: 1) jojoba esters enhancing skin barrier function and 2) hydrolyzed jojoba esters enhancing maintenance of artificial color on the skin and skin hydration.

In the first area of research, skin barrier function was compromised using sodium lauryl sulfate (SLS), and the recovery of the barrier was measured using transepidermal water loss (TEWL). One application of jojoba esters in a simple lotion formula before the insult with SLS reduced the SLS-induced increase in TEWL by 90% ($p<0.001$) in a dose dependent manner. Treatment of the skin with jojoba esters after SLS exposure produced greater than 75% in barrier recovery ($p<0.01$). In both studies jojoba esters were equivalent to treatment with petrolatum ($p>0.05$). A second method of compromising the barrier used "dry" shaving of the skin to produce an altered barrier, followed by treatment with jojoba esters. The lotion formulas containing jojoba esters produced up to 81% barrier recovery as compared to bisabolol at 47% ($p<0.05$) and the vehicle at 37% 24 hours post-shave ($p<0.001$).

Concerning the area of maintenance of artificial skin color and skin hydration, subjects' backs were treated with one application of several sunless tanning formulations containing 5% dihydroxyacetone (DHA). Formulations varied with regard to pH and the amount of hydrolyzed jojoba esters (Floraesters K-20W Jojoba), acrylates/octylacrylamide copolymer, and erythrulose. Skin color and hydration measurements were taken before treatment, and 24, 48, 72, and 96 hours after treatment. Test articles containing K-20W (at 1%), or a combination of K-20W and erythrulose (0.5-1%), produced the greatest retention of skin color compared to the vehicle ($p<0.05$). These test articles also produced higher levels of skin hydration 24 hours after test article application. In addition, the sunless tanning formulation containing 0.5% K-20W was preferred over the vehicle formula in a consumer preference study.

These results show that naturally-derived jojoba esters can provide skin barrier protection and increase the speed of barrier recovery. In addition, the hydrolyzed jojoba esters can enhance the effectiveness of sunless tanning formulations – a safe alternative to sun exposure.

Introduction

Previous research has shown jojoba oil and jojoba oil derivatives to have multiple skin benefits associated with anti-inflammation[1] and skin hydration.[2] The current research explores the action of jojoba esters in accelerating skin barrier recovery due to SLS treatment and the action of hydrolyzed jojoba esters in maintaining the artificial skin color, in addition to skin hydration, in a sunless tanning product.

All studies were conducted in the Clinical Testing Laboratory at Floratech, Chandler, Arizona. Institutional Review Board approval and a written informed consent from each subject were obtained before any protocol-related procedures were undertaken. All study participants were healthy males and females with normal appearing inner forearm skin, backs, or outer leg skin (as applicable). Upon arriving at the testing facility for each study, subjects acclimated for 30

minutes in a controlled environment with a temperature of 20-22° C and a relative humidity ess than 50%. All studies were carried out in a double-blind, vehicle-controlled, randomised fashion.

Data Analysis

The original data was captured on case report forms and then transferred to a Microsoft® Office Excel 2003 (Microsoft Corporation, Redmond, WA, USA) spreadsheet. Data was analyzed using GraphPad InStat 3 (GraphPad Software, Inc., La Jolla, CA).

For Studies 1 and 2 the Mann-Whitney Test (nonparametric, two-tailed p value) was used to determine any statistical significance ($p<0.05$) using the raw data at baseline and the final evaluation time point for each test article. For Study 3, the Kruskal-Wallis Test (nonparametric ANOVA) with the Dunn's Multiple Comparisons Post Test was used to determine any statistical significance ($p<0.05$) between baseline and each evaluation time point for each test article. For Study 4, the Repeated Measures Analysis of Variance with the Bonferroni Multiple Comparisons Post Test was used to determine any statistical significance ($p<0.05$) between baseline and each evaluation time point for each test article.

The raw data was also used to calculate the percent improvement in SLS-induced TEWL (relative to the water control) in Studies 1 and 2, the percent barrier recovery from post-insult (untreated) back to baseline (pre-insult, untreated) for each measurement in Study 3, and the percent change in skin color and hydration from baseline for each evaluation time point for Study 4. In all cases, these changes were averaged for each subject. This data was then analyzed using GraphPad InStat 3. For Studies 1, 2, and 3 statistical significance ($p<0.05$) was determined between the various test articles at each evaluation time point using the Kruskal-Wallis Test (nonparametric ANOVA) with the Dunn's Multiple Comparisons Post Test. For Study 4

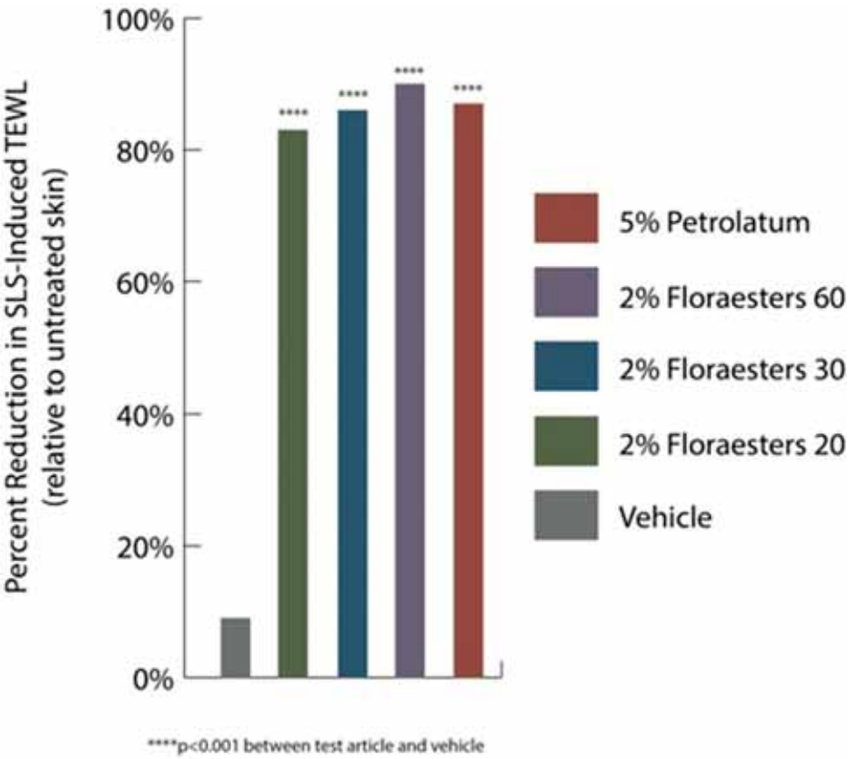


Figure 1

statistical significance ($p<0.05$) was determined between the various test articles at each evaluation time point using the One-Way Analysis of Variance (ANOVA) with the Tukey-Kramer Multiple Comparisons Post Test. Outliers were removed from the mean percent changes using Chauvenet's Criterion for rejecting data.

For Study 5, the consumer preference study, the original preference questionnaire data was transferred to a Microsoft Office Excel 2003 spreadsheet, preference choices were tallied, and percent preference was calculated.

Jojoba Esters – Evaluation of Barrier Function (Pre-SLS Treatment)

In Study 1, a total of six, one inch by one inch, test sites were assigned to each subject (n=8) as follows: the vehicle lotion, 2% Floraesters 20, Floraesters 30, or Floraesters 60[3] in the vehicle lotion, 5% petrolatum in the vehicle lotion (positive control), and untreated skin (negative control). Each test site was demarcated on the inner aspect of the lower arms, located between one inch below the elbow and one inch above the wrist.

Following test site demarcation, baseline TEWL readings (in duplicate) were taken at each site using the Tewameter TM 300 (Courage + Khazaka, Köln, Germany) followed by one application of each test article. At time zero, 20 µl of each test article was applied to the appropriate skin test site using a one milliliter syringe and spread evenly over the site with a finger cot. For the untreated site, a finger cot was rubbed across the site to mimic the test article application process. After 15 minutes, a 19mm Hill Top Chamber® (Hill Top Research Incorporated, St. Petersburg, FL, USA) containing 60 µl of a 0.3% solution (w/w) of SLS[4] was placed in the center of each test site. Each chamber was then taped with First Aid Secure- Comfort® Soft Tape (Johnson & Johnson Corporation, New Brunswick, NJ) and then overlaid with Coban® Self-Adhering Wrap (3M Company, St. Paul, MN). Subjects were then permitted to leave the testing facility and instructed to leave the chambers undisturbed for approximately 12 hours without getting them wet.

Subjects returned to the testing facility, Day 2, and the Hill Top Chambers were removed. The subjects equilibrated

for approximately 30 minutes in an environment with a temperature of 21.4-22.2°C and a relative humidity between 40-50% followed by final TEWL readings. The results are shown in Figure 1.

In Study 1, the test article containing 2% Floraesters 60 produced the highest percent reduction in SLS-induced TEWL. This was followed by 5% petrolatum, 2% Floraesters 30, and 2% Floraesters 20. All formulas outperformed the vehicle ($p<0.001$). There were no statistical differences among the test articles containing jojoba esters, or between the test articles containing jojoba esters and 5% petrolatum ($p>0.05$).

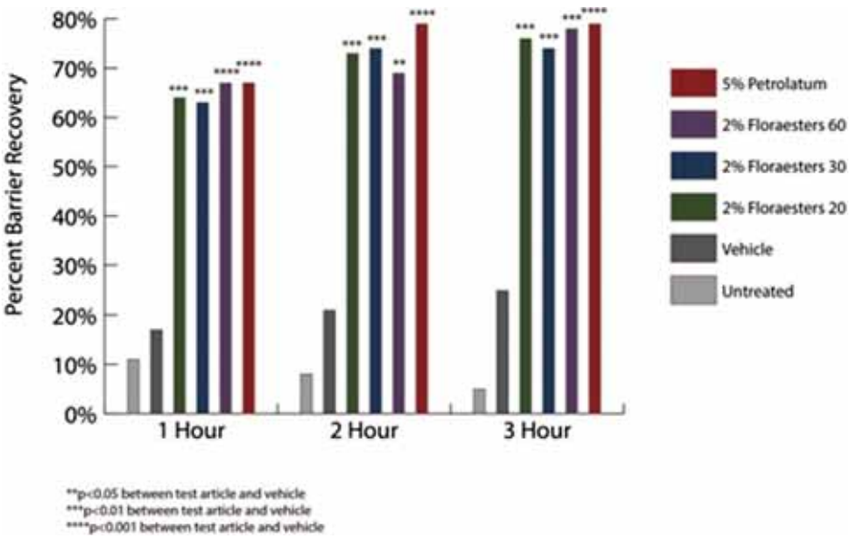


Figure 3

Study 2 was a dose response study conducted in the same manner as Study 1. Five concentrations of Floraesters 60 (20 µl each) were evaluated (2%, 1.5%, 1%, 0.5%, and 0.2%). A total of eight test sites were demarcated on each subject (n=15): the vehicle lotion, Floraesters 60 at five concentrations in the vehicle lotion, 2% petrolatum in the vehicle lotion (positive control), and untreated skin (negative control).

The dose response curve for Floraesters 60 revealed that a maximum inhibition of SLS induced TEWL occurred at approximately 1.0% Floraesters 60 (see Figure 2). Additional increases in the concentration of Floraesters 60 did not produce additional efficacy. The test article containing 2.0% petrolatum inhibited the SLS induced TEWL approximately equal to that of the 1.0% Floraesters 60. The test articles containing 1.0% Floraesters 60, 1.5% Floraesters 60, and 2.0% Floraesters 60 along with the test article containing 2.0% petrolatum produced statistically significant decreases in TEWL over that of the vehicle ($p<0.001$).

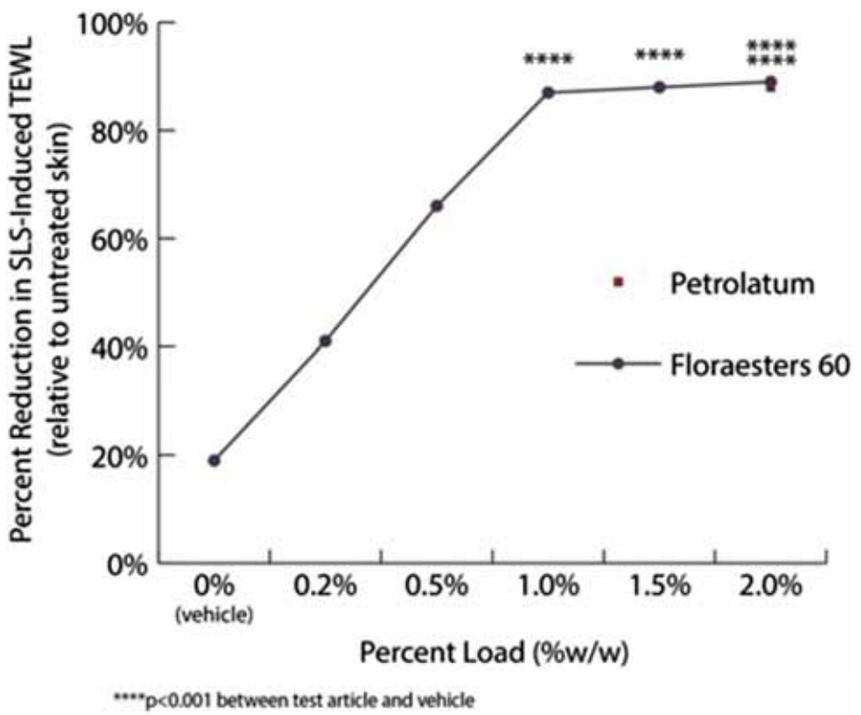


Figure 2

Jojoba Esters – Evaluation of Barrier Recovery (Post-SLS Treatment)

In Study 3, six approximately one inch by one inch squares were demarcated on the inner aspects of the lower arms of each subject (n=12), between one inch below the elbow and one inch above the wrist. These included the vehicle lotion, 2% Floraesters 20, 2% Floraesters 30, or 2% Floraesters 60 in the vehicle lotion, 5% petrolatum in the vehicle lotion (positive control), and untreated skin (negative control).

Following test site demarcation, baseline TEWL measurements were taken at each test site in duplicate using the Tewameter, followed by disruption of the barrier using a solution of 0.3% SLS applied under occlusion in Hill Top Chambers. Subjects were then permitted to leave the testing facility. Approximately 18 hours after SLS application the subjects returned to the testing facility, Day 2, where the Hill Top Chambers were removed. Following a 30 minute acclimation period under controlled environmental conditions, TEWL measurements were taken at each site. Test articles (20 µl) were then applied to each site hourly for a total of three applications. TEWL measurements were repeated one hour after each test article application.

The results of the skin barrier recovery study are depicted in Figure 3. After

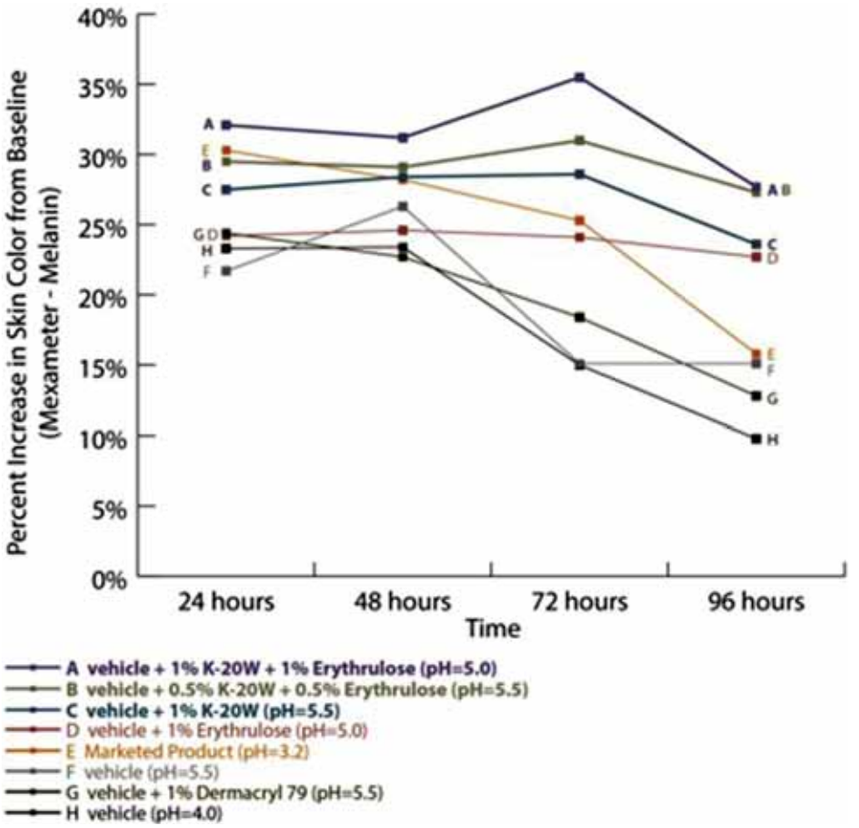


Figure 4

three applications, the test article containing 5% petrolatum produced the greatest percent barrier recovery. This was followed closely, in order, by the test articles containing 2% Floraesters 60, 2% Floraesters 30, and 2% Floraesters 20. However, at every evaluation time point, the test articles containing 2% Floraesters 20, 30, and 60, produced barrier recoveries statistically equivalent to that of 5% petrolatum ($p>0.05$). All formulas outperformed the vehicle at all time points ($p<0.05$).

Hydrolyzed Jojoba Esters – Evaluation of Color Retention and Skin Hydration

In Study 4, eight approximately one and a half inch by one and a half inch squares were demarcated on the lower backs, above the beltline, of each subject (n=15). These included the vehicle sunless tanning lotion (pH=4.0), the vehicle sunless tanning lotion (pH=5.5), a marketed sunless tanning product (pH=3.2), and 1% Floraesters K-20W Jojoba (K-20W)[5] + 1% erythrulose[6] (pH=5.0), 0.5% K-20W + 0.5% erythrulose (pH=5.5), 1% K-20W (pH=5.5), 1% erythrulose (pH=5.0) or 1% Dermacryl-79[7] (pH=5.5) in the vehicle sunless tanning lotion. All vehicle sunless tanning lotions contained 5% DHA.[8]

Following test site demarcation, baseline skin color and skin hydration measurements were taken at each test site in triplicate using the Mexameter MX 18 (Courage + Khazaka, Köln, Germany) and Corneometer® CM 825 (Courage + Khazaka, Köln, Germany), respectively, followed by one application of each test article (40 µl). Skin color measurements were repeated 24, 48, 72, and 96 hours after test article application, and skin hydration measurements were repeated 24 hours after test article application.

The results of the maintenance of artificial skin color are depicted in Figure 4. The test articles containing Floraesters K-20W Jojoba enhanced skin color retention in a sunless tanning formulation better than the two vehicle test articles at the 72 and 96 hour time points ($p<0.05$). There was no statistical difference between the color retention of 1% erythrulose and 1% K-20W. Test Articles D and E also produced statistically significant results over the vehicle (pH=5.5) at the 96 hour time point ($p<0.05$). Lastly, the combination of K-20W and erythrulose (Test Articles A and B) produced better retention of color than the test article containing 1% Dermacryl 79.

The results of the skin hydration portion of Study 4 are found in Figure 5. All test article containing Floraesters K-20W Jojoba increased skin hydration in the sunless tanning formulation containing 5% DHA better than all other test articles at 24 hours ($p<0.05$). There was no statistical difference in skin hydration between Test Articles A, B, and C ($p>0.05$).

Hydrolyzed Jojoba Esters – Evaluation of Consumer Preference

In Study 5, one approximately four inch by four inch square was demarcated on the outer aspect of the lower leg, halfway between the ankle and the knee of each subject (n=27). The two test articles were 0.5% K-20W + 0.5% erythrulose (pH=5.5) and 1% erythrulose (pH=5.0) in the vehicle sunless tanner lotion.

Following test site demarcation, test articles (250 µl) were applied daily for three days for a total of three applications. A preference evaluation containing a list of various skin sensory and formula attributes were given to each subject on Day 3 and Day 7. Each subject was asked to choose which of the two test articles they preferred or to choose "no preference".

Data from the preference study, of those that chose a preference, are depicted in Figures 6 and 7. The test article with 0.5% Floraesters K-20W Jojoba was chosen by 83% of consumers for "Overall Product Preference" compared to the test article without 0.5% Floraesters K-20W Jojoba. More than twice as many consumers preferred the smell of the test article containing 0.5% Floraesters K-20W Jojoba, as well as the slide and spread across the skin,

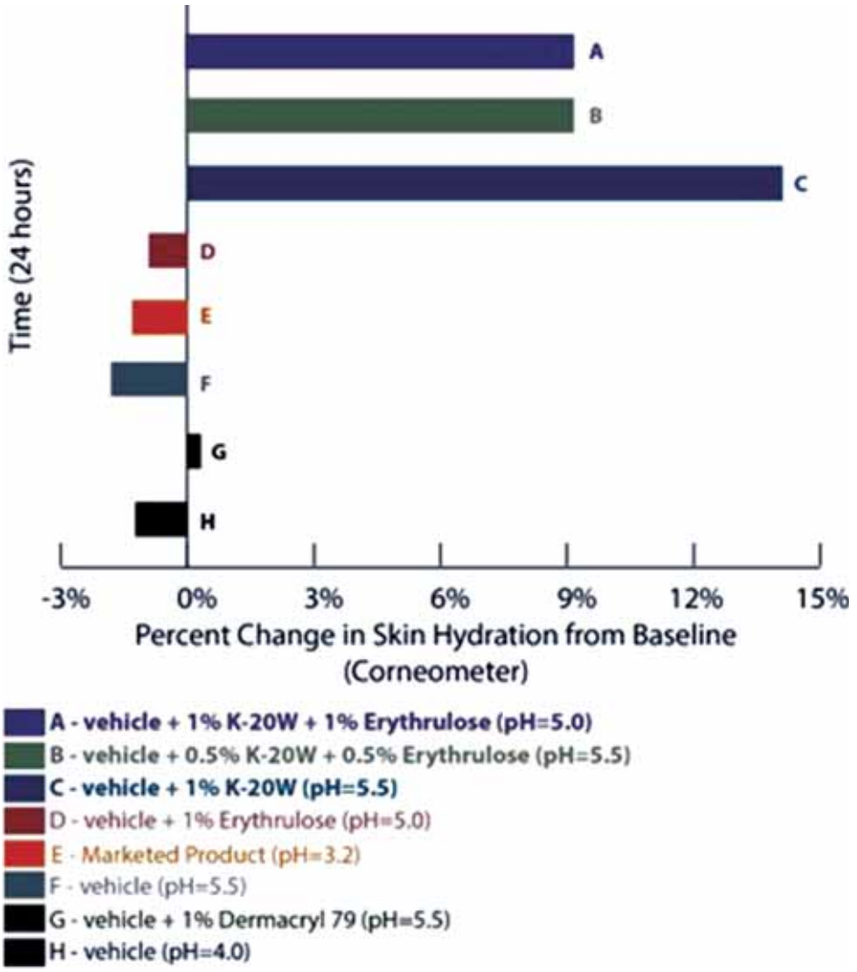


Figure 5

compared to the test article without. In addition, the test article containing 0.5% Floraesters K-20W Jojoba produced a more even tan, a longer tan, a better tanning experience, better color and resulted in greater overall preference by at least two to one compared to the test article without 0.5% Floraesters K-20W Jojoba.

Conclusions

Jojoba esters were again proven to be beneficial in improving damaged skin. With regard to skin barrier function, the SLS induced increase in TEWL was inhibited more than 80% with only one application of 2% Floraesters 20, 30, and 60 before SLS treatment. The reduction in TEWL by the jojoba esters was highly significant over the vehicle ($p<0.001$), and did not show a significant difference in activity as compared to 5% petrolatum ($p>0.05$). A dose response curve was generated for the inhibition of the SLS induced TEWL by Floraesters 60, and the data clearly showed that only 1% Floraesters 60 was necessary for maximum inhibition and there was no statistically significant difference between 1% Floraesters 60 and 2% petrolatum ($p>0.05$). Three applications of the 2% Floraesters following SLS treatment of the skin revealed a significant increase in barrier recovery over the vehicle at 1, 2, and 3 hours ($p<0.001$). Again there was no significant difference between the jojoba esters and 5% petrolatum ($p>0.05$). These data show that naturally-derived jojoba esters jojoba esters produce an undeniable benefit for finished skin-care products geared toward maintaining an effective barrier.

With regard to maintenance of artificial skin color and skin hydration in the presence of DHA, hydrolyzed jojoba esters maintained color retention over the vehicle at the 72 and 96 hour time points ($p<0.05$), as well as increased skin hydration over all other test articles ($p<0.05$) 24 hours post application. The inclusion of 1% Floraesters K-20W Jojoba was also as effective for the retention of artificial skin color as the inclusion of 1% erythrulose ($p>0.05$). The products containing Floraesters K-20W Jojoba also enhanced consumer perception of multiple skin and product attributes such as overall product preference, smell of product, moisturization, longevity of tan, and evenness of tan. Since DHA is known

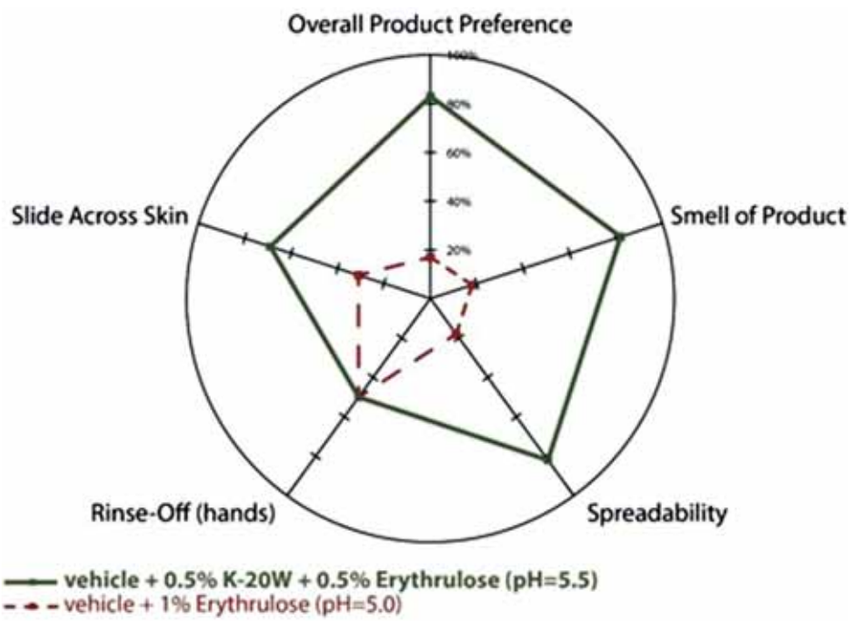


Figure 5

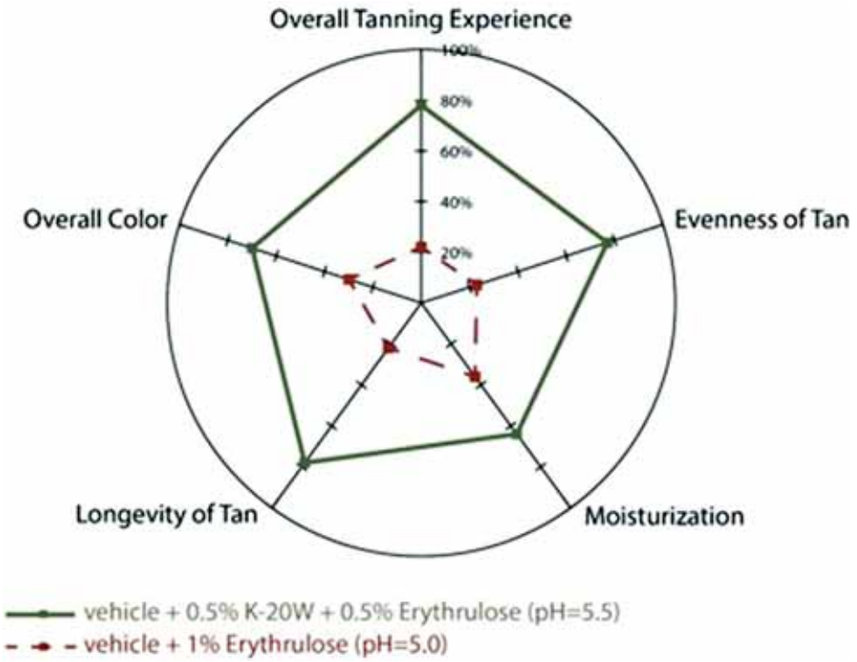


Figure 7

to both dry out the skin and have an unpleasant odor, the above attributes could be very useful in this finished product application, again demonstrating the beneficial effects of jojoba oil derivatives.

References

1 Habashy RR, Abdel-Naim AB, Khalifa AE, and Al-Azizi MM. Anti-inflammatory effects of jojoba liquid wax in experimental models. Pharmacological Research. 2005; 51: 95-105.

2 Rheins LA, Harper RA, Sondgeroth JB, Ashley DA, Oliphant TN, Marshal BD. The Role of Hydrolyzed Jojoba Esters as a Unique Botanical Technology for Long Acting Moisturization. The 67th Annual Meeting of the American Academy of Dermatology. American Academy of Dermatology. San Francisco, CA. 6-10 March 2009.

3 Floraesters 20, Floraesters 30, and Floraesters 60 [INCI: Jojoba Esters] was supplied by Floratech (Chandler, AZ, USA.

4 Sodium lauryl sulfate was purchased from Lubrizol Corporation (Cleveland, OH, USA).

5 Floraesters K-20W Jojoba [INCI: Hydrolyzed Jojoba Esters and Water (Aqua)] was supplied by Floratech (Chandler, AZ, USA).

6 Erythrulose was purchased from DSM Nutritional (Parsippany, NJ, USA).

7 Dermacryl-79 [INCI: Acrylates/ Octylacrylamide Copolymer] was purchased from Akzo Nobel Chemicals (Pasadena, TX, USA).

8 Dihydroxyacetone (DHA) was purchased from EMD Chemicals Inc. (Billerica, MA, USA).

resultime

BY COLLIN PARIS

Created by **Dr Eugene Lapinet** *in 1957 with a world first* **Brevet Patent in Vectorised Micro-Peptide Collagen Technology.**

A professional brand that transforms your business.

What is Vectorised Micro-Collagen ?

Vectorised Micro-Collagen is a new anti-ageing complex that transports a small bioactive fragment of Collagen: Micro-Collagen, to the heart of the skin cells and increase its effectiveness.

Vectorised Micro-Collagen has a double action on cell and tissue metabolism, providing exceptional results on the production of Collagen* and Hyaluronic Acid*: respectively +49%* and +78%* in just 48 hours. It also produces a significant increase in the number of cells to regenerate the epidermis!

***In Vitro test.**

Exclusive Offer for New Clinics

- Technical Training
- Free Education
- Sales and Business Support
- In-Store Promotion
- No Minimum Opening Orders
- POS Merchandise and Apparel

PLUS - BONUS LUMA-LUX LED Photo Dynamic Therapy Device **VALUED** at $9500*

*Terms & Conditions Apply

It's time for results

ANTI-AGEING SKINCARE WITH VECTORISED MICRO-COLLAGEN

P: 61 2 9009 6666 E: info@resultime.com.au W: www.resultime.com.au

THE MOST SOPHISCATED & ADVANCED SKINCARE PLATFORM EVER INVENTED!

Medical Patented + Instant Results
Amazing Glow!

geneO+™ by Pollogen

EXPECT MORE

Wrinkle Reductions
SkinTightening
Exfoliation
Skin Nourishment
Oxygenation
Collagen Generation

Pollogen
EXPECT MORE

Karpati Advanced Technology Group Pty Ltd /Pollogen Australia
T (02) 9009 6666
E info@pollogen.com.au
W www.pollogen.com.au
youtube videos/pollogen oxogeno

GENUINE INNOVATION Pollogen INSIDE

Scan the QR CODE and see the amazing 5-in-1 Next Gen Super Facial