



CONSULTING ROOM

Your Aesthetic Partner

Consulting Room | Volume 1 : Issue 1 | January - March 2018



IN THIS ISSUE:

WELLNESS & INTERNAL MEDICINE IN AESTHETICS



SUNLESS TANNING

From spray tans to molecular science



VITAMIN D DEFICIENCY

Are we getting enough of the 'Sunshine Vitamin'?



WILL YOU BE GDPR READY?

May 2018 deadline for the General Data Protection Regulations



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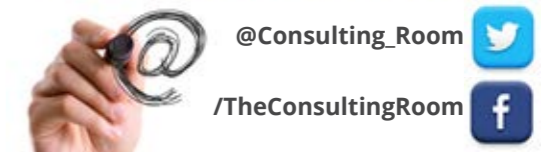
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Welcome to the 2018 Winter Issue of the Consulting Room Magazine

This year marks 15 years since the inception of Consulting Room by Ron Myers and Martyn Roe. As colleagues at a well-known pharmaceutical company, they saw a gap in the market for a portal to ethically market aesthetic treatments to the public, and help clinics to reach their target audience. The website (www.consultingroom.com) was born in May 2003, and, like the company itself, has continued to grow from strength to strength. In 2016, we won the *Safety in Beauty Diamond Award for Best Industry Media Portal*.

The portfolio of The Consulting Room Group includes an online information resource and clinic directory, training, recruitment and classifieds directories, CPD certified business events, clinic ownership and multi-brand distribution. We have a reputation within the UK aesthetic marketplace for our in-depth understanding of the sector.

As Editor of the site since 2003, I have written many articles and commented on the aesthetic sector to a trade audience - starting out with a simple email newsletter, moving to a monthly digital member magazine, and to where we are today...

I welcome you to the first of our quarterly-published aesthetic medical specialty magazine. I look forward to introducing four issues of this magazine during 2018. This first issue encompasses *Wellness & Internal Medicine*. You can look forward to future issues which will cover *Complications Management*, *Body Contouring* and *Emerging Products & Technologies*. All with the help of our expert Editorial Board and contributors.

Lorna Jackson | Editor



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To download a CPD Reflective Learning Form, produced in association with the British Association of Cosmetic Nurses (BACN), please use the QR code or visit bit.ly/CR-CPD in your web browser.

Consulting Room Editorial Board...

Consulting Room has a long history of working with key figures within the global medical aesthetic community, many of whom are advisers on our website. We are honoured to welcome many of them, and others, to the Editorial Board of our quarterly magazine. Without their wealth of knowledge and expertise in this diverse sector, we would not be able to provide the levels of educational content on clinical, nutritional and business topics that you will find within this magazine.

Aesthetics & Clinical



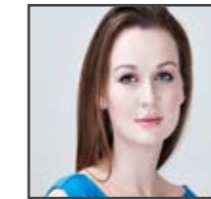
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20 years in Medical Aesthetics and a Private GP. Clinical Director at MediZen. Local Country Ambassador for Allergan and lead investigator in many clinical trials.



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Dr. Uliana Gout

Educator & Speaker. British College of Aesthetic Medicine & Int. Peeling Society Board Member. Founded London Aesthetic Medicine Clinic & LAM Academy.



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Save Face Clinical Director. Nurse specialising in cosmetic medicine since 1998. Co-founder & past-Chair of the British Association of Cosmetic Nurses.



Dr. Niro Sivathanan

Sydney-based aesthetic and restorative surgeon with international registrations. Senior trainer for pharma in Australia. Director of Harley Academy.

Business



Ron Myers

Co-Director of The Consulting Room Group and MediZen clinics. UK distributor of HydraFacial™, Perk™ & ZENii™. Scientific Co-ordinator of FACE conference.



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Co-Director of The Consulting Room Group and MediZen clinics. UK distributor of HydraFacial™, Perk™ & ZENii™. Specialised business consultant.



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Alan S. Adams

Award-winning business coach and bestselling author. Passionate about helping clinics increase turnover, client retention and overall growth.



Mike Regan

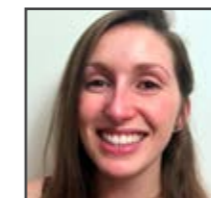
Certificated Laser Protection Adviser and Chair of the Association of Laser Safety Professionals. Actively involved in laser safety and CEN standards.

Nutrition



Dr. Johanna Ward

Award-winning Cosmetic Doctor, GP & co-founder of ZENii Skincare. Expert in cosmetic dermatology and medical nutrition.



Madi Myers

Biological Science graduate with a Masters (ANutr) in Human Nutrition from University of Aberdeen; an Association for Nutrition accredited course.



Greg Williams

Hair Transplant Surgeon at the Farjo Hair Institute with a special interest in the regulation of Hair Restoration Surgery in the UK.



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Member of Chartered Institute of PR. Award-winning business strategy & comms expert. Founder of Kendrick PR & E.L.I.T.E Reputation Programme™

Contributors in This Issue...

Aesthetics



Dr. Desmond J. Tobin

Professor of Cell Biology and Director of the Centre for Skin Sciences at University of Bradford. He holds a BSc from National University of Ireland (Maynooth), a PhD from University of London (St. John's Institute of Dermatology) and post-doctoral training from New York University Medical School's Dept. of Dermatology. Over the past

20 years he has researched in basic and applied skin/hair sciences, with a particular focus on the biology of human melanocytes/pigmentation and hair growth disorders (immune based). Fellow of Royal College of Pathologists; Royal Society of Biology, and Institute of Trichologists (Vice-president). He has published over 170 publications and his H-Index is currently 54 (2017).



Dr. Johanna Ward

BA Hons MBBS DRCOG MRCGP Dip Clin Derm (Distinction). An award-winning Cosmetic Doctor, GP and co-founder of ZENii Skincare. She is known for her depth of knowledge on all things skin related and is considered an expert in cosmetic dermatology and medical nutrition. Johanna is also a certified trainer. She studied English Literature at Oxford

University prior to moving to London and studying medicine at Guys and St Thomas' Medical School. After graduating she worked in various London hospitals, spending 3 years working in several busy trauma centres before moving into General Practice and specialising in dermatology and minor surgery. As Medical Director, she has led a first class team in her award-winning skin and laser clinics.

Business



Ron Myers

Ron has decades of experience in the pharmaceutical industry and was involved in the launch of Botox® into the UK marketplace in 1994. He launched his own consultancy business with his business partner, Martyn Roe in 2002. Co-director of the Consulting Room Group which started as The Consulting Room - www.consultingroom.com -

and is now the largest specialist aesthetic membership website in the UK. The Consulting Room Group have pioneered, 'Sweat Smart Centres' - a novel clinic concept for treating problem sweat and also distribute HydraFacial™, Perk™, and ZENii™ supplements and skincare. Ron is the Scientific Co-ordinator for the FACE conference and a Director of Midlands based cosmetic clinic and clinical trial centre, MediZen.



Simon Etheridge

Business Development Manager at Admiral Leasing.

Simon has worked in business finance for the past 20 years, predominantly with Admiral Leasing & Loans, specialising in arranging bespoke equipment finance. The majority of the finance he provides is for the medical, aesthetic and beauty market, but he also finances a variety of other industries, meeting a wide variety of people.

Admiral Leasing & Loans have been established for over 25 years and are an independent funder providing a fast and flexible service for well-established blue chip companies to new start businesses.

Nutrition



Madi Myers

ANutr. Madi is a Biological Science graduate (First Class) from the University of Reading. Having specialised in Microbiology she spent time in New Zealand working in the Plant Pathology Dept. of a Forest Research Institute. On returning to the UK she gained a Masters in Human Nutrition from the University of Aberdeen; an Association

for Nutrition accredited course. Madi is passionate about education for all regarding healthy lifestyles to improve both physical and mental health and how we can improve the sustainability of our diets. Her Master's research studied the psychology behind why we eat what we eat and methods of unhealthy habit disruption; she gained the *Professor Geraldine McNeill Prize for Best Research Project in Nutrition* for this research. Madi now works for a nutrition education charity.



Lorna Jackson

A graduate of Management Science and Spanish, Lorna has been Editor of Consulting Room since 2003. She is a well-known commentator and analyst on a many areas related to the aesthetic industry. Lorna has written clinical and regulatory focused articles which have been published in *Aesthetic Medicine*, *Cosmetic News*, *Journal of Aesthetic*

Nursing, *Body Language*, *PMFA News* and *Aesthetic Dentistry Today*, as well as consumer supplements in *The Times* and *The Independent on Sunday*. She has also presented at various industry events, including SMART Ideas, FACE and CCR Expo. Lorna was awarded *Journalist of the Year 2014* at the MyFace-MyBody Awards. She also sits on the independent expert advisory boards for the PSA accredited Save Face register and the Cosmetic Redress Scheme for alternative dispute resolution.

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SOCIAL MEDIA AND SURGERY

Ethical quandary with no guidelines

Social media, whether *Facebook*, *Twitter*, *You Tube*, *Snapchat* or *Instagram* is HUGE - who knew that these platforms would come to not only take over a considerable amount of our waking hours, but also become an advertising marketplace and 'go to venue' for those seeking cosmetic enhancement. Anyone in their forties or fifties may feel something of a dinosaur when it comes to how to interact with these platforms, but the *Millenials* are a different breed entirely, and have fully embraced the desire to 'share', maybe even 'over-share', in our now

selfie-obsessed world. So whilst image is a key factor to society today, which can in itself cause mental health concerns, it seems that those involved in aesthetic 'tweakments' and 'nips & tucks' are all lining up ready to please, and hawking their services on social media. Most businesses will take an ethical stance to such advertising, but let's face it, not every business is ethical and this has caused a certain amount of outcry against those who appear to be exploiting the sometimes vulnerable users of such platforms for their own financial gains. Social media is filled with deals and trivialised images of before and after 'boob jobs' with sad- to smiley-faced emoticons all over them. Add to that the trend for live streamed videos of surgeries on networks like *Snapchat* and *Periscope* and it all seems a bit like banal reality TV. A paper published in *PRS* in October 2017 by Robert Dorfman et al sought to review the literature on the ethics of sharing plastic surgery videos on social media. They commented that the sharing of such videos have 'blurred the lines between entertainment and patient care'.

Pointing out that to date no official guidelines exist for plastic surgeons to follow regarding video sharing on social media, and no structured oversight is in place in the USA, they suggested some ethical and professional guidelines surrounding patient consent, including the right to refuse, withdraw or change their mind without it affecting their care, and the censoring of patient identifiers. As yet, nothing similar has been considered by UK regulators or trade associations, but The Cadogan Clinic has voiced its concerns in the national press and asked for more awareness of the impact of social media on self-image and the quest for body perfection, saying many young people are coming in with unrealistic images and asking to look like them. MYA was also recently forced to back track last minute and cancel a planned live-streaming event for a breast augmentation of an employee following pressure from the Royal College of Surgeons (RCS) who believed that the event was 'inappropriate' and would 'trivialise' cosmetic surgery, despite the clinic chain believing it to be 'educational'. UK guidelines would be welcome.

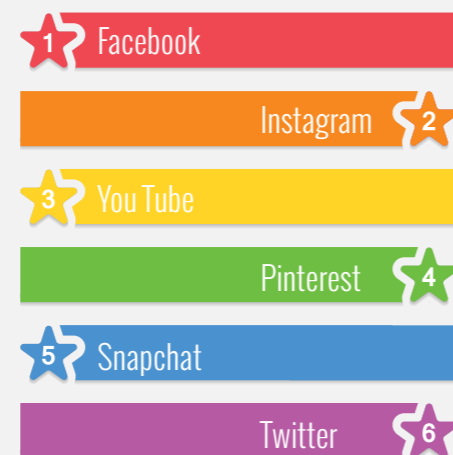
CONSUMER TRENDS

Favourite social platforms...

According to study co-author Dr. Furnas, plastic surgeons using social media to attract patients should know their audience's preferred social media platforms, and the types of posts of greatest interest.

His study, based on a survey of 100 patients and published in *Plastic and Reconstructive Surgery*®, the official medical journal of the American Society of Plastic Surgeons (ASPS), also suggests that patients rely on the plastic surgery practice's website over social media when seeking important information.

Top social media platforms reported by patients:



Influence of social media...

2% of facial plastic surgeons are seeing people who are requesting facial plastic surgery to look better on social media.



Annual statistics from the American Academy of Facial Plastic and Reconstructive Surgery (AAFPRS).

Follow @Consulting_Room on Twitter for more social media insight and daily updates.

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EXPERT ADVICE FROM RON MYERS

How do I sell my aesthetic business for the most amount of money?

At some point or other in the journey of most aesthetic business owners, there comes a point where they decide that they need to try and extricate themselves from the day-to-day constraints of running a business. This could be for health reasons, wanting to spend more time with the family, or on hobbies and other interests. Or it may be that the enjoyment that they once experienced in running a business has been overwhelmed with some of the stresses and strains that can come as part and parcel of life as an entrepreneur.

Depending on the structure of your business, there are different options that can be explored – however, extracting maximum value out of your business, that you feel you might be due for all the hard work and effort that you have put into building it, does require a flexible approach, an understanding of tax implications (always talk to a tax advisor), and a certain realism concerning what an investor is prepared to pay.

If the business revolves solely around you to generate the income – you don't really have a business that you can sell to the more sophisticated investors seeking to buy into, or expand their profile in the aesthetic market. A practical approach to extract some value may be to find another practitioner who you can train to take over your client base, with some form of ongoing revenue over a defined period after you have left the business. If you have a clinic with staff who are generating income in the business, apart from yourself,

a similar plan could be implemented. If you work daily in the business as a practitioner, or in any other role, and want to leave straight away and get as much cash out as you can in a lump sum – you need to be realistic about the valuation if you extract your earnings in dividends as these will not show up in the post-tax profit figures. Investors will need to calculate the cost of your replacement's wages and deduct this from the profit figure before applying any multiple to calculate valuation, as businesses are often valued on a multiple of the gross annual profits.

This could be between 2 and 5 times annual profits, depending on how critical you are to the business. The valuation essentially relates to the amount of time (2 to 5 years) that it would take an investor to recoup his/her investment in your business.

In reality, if you want to sell a business and generate the maximum value, you need to plan well ahead. If you are a practitioner delivering treatments, you need to build a structure of employees or practitioners with practicing privileges to replace you – so that you are more of a figurehead and less responsible for the actual

earnings in the business. This makes it easier to convince an investor that the profits generated by the business are sustainable upon you leaving. Pruning unnecessary expenses and maximising the return on investment of your marketing budget over a period of a couple of years can give a prospective investor a healthy-looking set of accounts, showing a trend of good growth in sales and profits. An investor will also need to see the potential for future growth in the business in order to offer a higher multiple. To get the maximum

value out of your business you need multiple suitors and multiple offers – and there is a process to marketing your business to get multiple bids that is outside of the scope of this brief article. However, if you're seriously looking to sell within the next couple of years, I'd highly recommend the free seminars run by BCMS (www.bcms.com)

who provide excellent advice about how to prepare for a sale. The Consulting Room Group can also make your business visible to potential investors via our classifieds website (www.cosmeticclassifieds.co.uk), and other routes, (if you're seeking a private sale). Consulting Room members can access free advice on selling their business directly from me via the *Ask Ron* section of their *Members Area*.



Got a burning question about running an aesthetic business? Then why not Ask Ron. He has almost three decades of experience within the pharmaceutical and aesthetic industry, as well as over a decade of experience in running a successful aesthetic clinic business, and running business training events. Send your question to our Editor, lorna@consultingroom.com for consideration within another issue.



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SUNLESS TANNING: SPRAY TANS TO MOLECULAR SCIENCE

Lorna Jackson talks to Prof. Desmond Tobin about small molecule research now driving the race to the fake tan marketplace.

Tanning, especially that induced by ultra-violet radiation (UVR) exposure, is a controversial topic. Many people have something of a 'love-hate' relationship with it – knowing the potential dangers, but wanting it nonetheless.

Having a 'sun-kissed' glow is considered a desirable attribute, adding a 'healthy' aspect to an individual; making it a sought-after skin accompaniment. Not wanting to look 'pale' and 'pasty' is all the driving force that most of us need to acquire a tan, whether naturally or unnaturally.

Have a UVR-induced tan can never really be called a 'healthy tan' – the reaction that your skin demonstrates when exposed to UVR is that of a fighter protecting itself, putting up a shield, but some of the targeted wounds will still get past and inflict minor wounds in the form of long-term DNA damage, made worse by cumulative exposure or multiple 'battles'.

Most of us are aware of the inherent dangers of pursuing the sun, or sunbeds, for that all-over body bronzing – worst case we could end up with a serious melanoma or skin cancer, but there are plenty of other undesirable consequences including wrinkles and lax skin or pigmented age spots, alongside the dreaded 'leather-look' that all comes from

sun-tanning. 80 to 90% of skin ageing on our faces is due to cumulative exposure to UVR, with intrinsic ageing playing only a minor role in this decline.

We know that we should wear high sun protection factor (SPF) sunscreen – "doesn't that defeat the object though", many wanting a tan will say – or that we should avoid the sun completely or cover-up (especially at the hottest times of the day), to be fully protected from UVR exposure. Artificial tanning beds are becoming more of a no-no in the public conscience. Regulators around the globe have implemented prohibitions on the availability of indoor sunbeds to those under 18 years of age, to curb UVR exposure in the young, yet policing and monitoring remains an issue. The stark reality that we should all be aware of is that studies have shown that there are more skin cancer cases due to indoor tanning with sunbeds than there are lung cancer cases due to smoking.¹ Medical professionals are only now starting to see an explosion in incidents of melanoma in women entering their middle age who have had considerable exposure to UVR through tanning beds in their youth.

With this in mind – the desire for a tanned look, but the fear of health implications from a UVR-induced tan – has pushed many people to seek alternative ways to provide

the 'tanned' colour change seen by natural melanin production, neomelanogenesis, in their skin upon sun exposure. The market growth in the self-tanning product manufacturing industry has seen projected revenues rise from \$609.3m in 2012 to \$1.017bn in 2017.²

Some look at ways to 'eat yourself to a tan', others look to stain the skin to create an artificial or fake tan effect through spray-on chemicals or natural stainers, and finally there are ways to stimulate the pigment cells to produce the desired melanin – so called melanogenesis stimulators. But now scientists are more interested in looking at new sun-less tanning options including topical peptide-derived and small-molecule solutions. The race to market is now on between researchers from the USA and the United Kingdom to bring a whole new option to the self-tanning marketplace.

Two such scientists, Professor Desmond J. Tobin and Dr. Suman Kumar Singh from the Centre for Skin Sciences at the University of Bradford are at the frontline of the UK's ambitions to achieve this goal, through the development of a topical peptide-derived solution. Speaking to Prof. Tobin, he explained the current marketplace and the exciting innovation he's now able to share.

Current methods of sunless tan

Food

There are ways to 'eat yourself to a tan' through consumption of copious quantities of carotenoid-laden carrots and lycopene-filled tomatoes which produce a golden pigment. Usefully, this also carries UV protection qualities in the skin, but issues exist with over-dosing the body with beta-carotene, due to the vast amounts needed to be consumed to achieve a 'tan'.



Another option is Monk's Pepper, *Vitex Agnuscastus* to give it its Latin name, which is a Mediterranean shrub with black berries reputed to have been used by monks as an aphrodisiac, due to its light β -endorphin effects. Beta-endorphin is a hormone from the pro-opiomelanocortin family and has been marketed successfully as MelanoBronze in combination with acetyl tyrosine.³ The product gives a type of stain to the skin which builds up gradually.

Fake Tan

Artificial tanning products or fake tans include creams and spray-on solutions which are aimed at staining or tinting the skin. The majority of these products contain DHA, a dihydroxyacetone, also known as glycerone. DHA has been a self-tanner since the 1960s, and products usually contain between 1 and 15% DHA depending on their cost. Glycerone can be derived from a natural source, from sugar cane or sugar beet, or it can be manufactured in the laboratory via the fermentation of glycerine.

Typically, it takes 24 – 48 hours to achieve the 'tanned' result; often put on overnight. Formulations of fake tanners have improved dramatically over the years - getting rid of the streakiness and the more dramatic colouring effect from early products.

As a rule, these lotion or cream delivered products will stain the hands during application, so special mitts are usually worn. Ideally, users should exfoliate before application to keep the tanned effect for longer, and must then avoid further exfoliation, because as soon as the skin desquamates, the stained surface layers will come off and the impact of the 'tan' is reduced, with reapplication required.

Skin turnover is the main enemy of fake tanners. Cheaper products are also known to simply rub off or come off with sweating. DHA is not without issues though, and the use of it within self-tanning products, particular in spray form, has raised concerns. Back in the 1970s, the American Food & Drug Administration (FDA) approved the use of DHA to be 'externally applied' within a topical skin cream. At the time, a spray-tan product had not been developed. The FDA is now however concerned about its use as a spray and has placed restrictions on its use, such that the use of DHA in 'tanning' booths as an all-over spray has not been approved by the FDA.⁴ The issue is that when you aerosolise DHA, and it's then taken into the lungs, there is a potential risk for mutagenesis or carcinogenesis, although the exact risks are still unknown. To date the European Union, through the EC Scientific Committee on Consumer Safety asserts that DHA spray tanners do not pose a risk, yet industry insiders point to a bias in the data provided to the committee for review towards this conclusion.

It's also worth noting that, even though the skin may look darker with the use of these self-tanning products, and in contrast to the effect achieved from ingesting carotenoids, there is no



intrinsic photoprotection provided by the fake tan.⁵ There might be, one or two hours afterwards, when there is a little bit of very low grade protection, but thereafter it's completely gone, so consumers cannot assume that because their skin looks darker, that there's any increased protection from UVR, thus should continue to apply SPF.

This has led to an increasing amount of news and publicity about the potential dangers from DHA and spray-tanners. Some of the online scare stories must be taken with a pinch of salt, but other aspects of it are important to be aware of, not least the growing popularity of spraying DHA-based products, and the fact that we don't really know to what extent it's fully integrated into the skin.

Previous thinking was that it stayed on the surface of the skin, but increasingly there's evidence to suggest that it may go deeper, as well as some evidence that it may block the skin's native ability to make Vitamin D⁶, because you synthesise that in stratum sinosum and stratum granulosum keratinocytes. That is significant, and worthy of further study, because it is vital for the body to have the ability to make Vitamin D and that should not be compromised.

To stain the skin using DHA, to cause a pigmented effect, the chemistry involved is known as a Maillard reaction. DHA darkens the skin by reacting with amino acids in the skin's surface. Studies have shown further understanding of this reaction, and raised concerns about the dangers of sun exposure for those with a DHA-induced 'tan', as well as the potential for accelerated cell ageing.

The Maillard reaction causes the formation of irreversible advanced glycation end-products (AGEs), implicated in the ageing process; adding UVR exposure on top of this could accelerate the ageing process. In 2008, Jung et al performed tests and noted that DHA on the skin exposed to UVR can lead to a huge increase in the amount of reactive oxygen species at the skin

lead to a huge increase in the amount of reactive oxygen species at the skin

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level, compared to untreated skin. They suggested therefore that the exposure duration in the sun must be shortened when self-tanners are used.⁷ However, the Skin Cancer Foundation and the American Academy of Dermatology maintain that self-tanning, with concomitant sunscreen use, is safer than tanning by ultraviolet radiation.⁸

For the first time, we are now starting to see self-tanning products being formulated with the addition of an SPF, as well as instant bronzers. Such products aim to give an immediate tanning effect via the bronzer, protect from UVR via the SPF, as well as producing a longer-lasting staining of the skin via the DHA. Yet most products on the market require separate application of SPF, and the consumer is not readily made aware of this fact. Self-tanning products not containing DHA also exist including botanically-derived and certified organic options.

Melanogenesis Stimulators

There is another class of tanning entities, based on alpha-melanocyte-stimulating hormones (α -MSH), called Melanotan I and Melanotan II.

Melanotan I, afamelanotide, has been approved in Europe for the treatment of phototoxicity in people with erythropoietic protoporphyria, to try and boost the pigment level in the skin for these people who are, in a sense, sun phobic. It is also being trialled in the treatment of vitiligo with the aim of dermal repigmentation.

Melanotan II, often just referred to as Melanotan, has caused something of a cult following with a subculture of people self-injecting or spraying it up their noses. It causes significant stimulation of pigmentation, but carries huge risks, and now has a widespread ban. The company that made it stopped all commercial development, but unlicensed and untested counterfeit products still exist, often sold over the Internet.

Sunless tanning innovation

The team at the Centre for Skin Sciences at the University of Bradford are at the forefront of alternative thinking to understand skin pigmentation at a molecular level. They strive to develop products that

stimulate pigmentation via mechanisms that would be efficacious, safe, topically applied and increase natural melanin levels rather than staining; as well as potentially benefiting from the enhanced photoprotection this additional melanin may provide for the skin. Long-term, such a discovery would have implications for both the cosmetic tanning market, but also in the treatment of vitiligo, post-inflammatory hypopigmentation and other pigmentary concerns.

This has led them to research a pathway called BMP (Bone Morphogenetic Proteins) signalling. BMPs are a group of signalling molecules that belongs to the Transforming Growth Factor- β (TGF- β) superfamily of proteins. Initially discovered for their ability to induce bone formation, BMPs are now known to play crucial roles in all organ systems.⁹ The team has made significant discoveries, which have now been patented and protected by their University. The Bradford researchers found an unusual effect of BMP6, in that it stimulated pigmentation and modulated the skin melanin level.¹⁰

The UK discovery has led them to seek a way to mimic the natural peptide involved in the BMP6 signalling pathway in order to develop a sunless tanning solution. So, they took it back to basics and this is what they learnt. Upon exposure to UVR, melanin is created in the lower part of the skin, the basal layer of the epidermis, by melanocytes. Melanocytes are characterised by their upside-down spider-like appearance with dendrites and filopodia (tiny nanotubes) extending upwards like legs. Melanocytes and melanin synthesis is under the influence of the levels and activity of the tyrosinase protein.

The melanin produced in the melanocytes must be transferred through the dendrites and into the recipient keratinocytes via the connecting filopodia which form and elongate to drive the melanin (found to be in granule form) into the keratinocytes by phagocytic force. They discovered that the action of the filopodia is driven by a motor protein called Myosin-X.

The production and transfer of melanin reinforces the keratinocyte army with the shields that it needs to defend against the UVR attack ongoing on the skin. Ultimately melanin degrades and breaks down over several weeks,

depending on the individual and a UVR-induced tan will fade over time as normal pigmentation levels return in the skin, mostly through natural skin exfoliation.

Not content with the discovery of Myosin-X, they started to look beyond to see how it is regulated and found the action of BMP6. Lab tests showed that the presence of BMP6 increases the number of dendrites and filopodia that are present in the skin. Adding BMP6 to cultures that contained both the melanocyte and the keratinocyte, they found that it significantly increased the amount of melanin transferred into the keratinocyte.

Having created a useful assay test to see what would stimulate melanin production - and the transfer of it between the melanocyte that makes it to the keratinocyte that receives it - they started to look at the interaction between the BMP6 molecule and receptors on the surface of the melanocyte to see if they could design very, very short peptides which would be able to penetrate the skin. Then, they would be able to test those small peptides, given that peptide technology is well developed in skin care, to see if they would also stimulate pigment production in assays, and ultimately in humans. Embarking on the process they started in melanoma cells, moving to normal human melanocytes, then melanocyte:keratinocyte cultures, and then onto a 3-dimensional skin equivalent called Melanoderm from a company called MatTek that has melanocytes and keratinocytes, which form a near normal pigmented epidermis which grows open to the air.

They applied the peptides into the culture medium, onto the Melanoderm surface, to see if they would stimulate pigmentation. Some of the peptides tried were able to make more melanin, in contrast to the control, but two of those tested showed significant up regulation of normal brown/black melanin in the human skin equivalents. The next step is human ex-vivo skin testing to establish if they can also get into intact human skin and if successful, clinical testing will follow. While the skin equivalent (Melanoderm) has a stratum corneum, it may have a slightly more permeable stratum corneum than in a typical human, so they need to make sure that the peptides will transfer evenly and effectively into the skin.

What else is out there?

It's fair to say that a large group of the scientific community is looking at the influence of single molecules on melanogenesis; but typically, it's the Americans that are shouting the loudest! Prof. Tobin and his team have kept quiet, and away from publishing papers and mainstream media attention until they establish precisely what they are going to do with the peptide technology that they have been working on for almost 10 years.

You could argue they have been pipped to some of the glory when a team headed by Prof. David E. Fisher, MD from the renowned Harvard Medical School Labs at Massachusetts General Hospital in Boston hit the headlines in June 2017 by claiming to have the first small molecule to be shown to drive up normal melanogenesis in a UVR-independent manner. First, by dint of publishing about it perhaps, but certainly not the only one as Prof. Tobin will testify.

Their published paper¹¹ suggests the development of a small drug molecule, not a cosmetic, that is skin permeable, called a SIK inhibitor or Salt-Inducible Kinase inhibitor. The authors explain that the presence of dark melanin (eumelanin) within human epidermis represents one of the strongest predictors of low skin cancer risk. Topical rescue of eumelanin synthesis, previously achieved in 'redhaired' (Mc1r) melanocortin-receptor-1-deficient mice, demonstrated significant protection against UV damage. However, application of a topical strategy for human skin pigmentation has not been achieved, largely due to the greater barrier function of human epidermis. Salt-inducible kinase (SIK) has been demonstrated to regulate microphthalmia-associated transcription factor (MITF), the master regulator of pigment gene expression, through its effects on CREB-regulated transcription co-activator (CRTC) and cAMP-responsive-element-binding protein (CREB) activity.

They are now able to demonstrate the development of small-molecule SIK inhibitors that were optimised for human skin penetration, resulting

in MITF upregulation and induction of melanogenesis. When topically applied, pigment production was induced in Mc1r-deficient mice and normal ex-vivo human skin (taken from breast reduction surgeries). They conclude that these findings demonstrate a realistic pathway toward UV-independent topical modulation of human skin pigmentation, potentially impacting UV protection and skin cancer risk.

Despite not performing tests on live human skin yet, they were able to demonstrate pigment stimulation, and an increase in melanin levels, after approximately eight days of application, independently of UV irradiation. Notably, they sometimes had to re-rub it in to try and increase the transfer through the upper layers of the skin. The topical application of this small molecule has yet to be examined in humans and would require careful consideration with respect to safety. It is not clear if this drug could be used for cosmetic purposes, like sun-less tanning, at least not until substantial safety testing would be conducted.

Conclusion

This is a most exciting time for research and development activities into strategies to meet the clear cosmetic market demand for skin tanning. We urgently need alternatives to unprotected UVR-derived tanning, either under natural sunlight or under artificial bulbs (i.e., in tanning salons). Both represent significant public health concerns, as both increase skin cancer risks. Sun avoidance behaviour however, can lead to de/insufficiency in Vitamin D levels - detrimental to optimal health and cancer protection. The introduction of natural skin pigmentation stimulators, provided topically and safely to skin, would provide multiple benefits in one go; cosmetic self-tanning, exploitation of melanin's intrinsic sun-screen, and correcting sun avoidance behaviour to facilitate more optimal Vitamin D synthesis in skin.

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VITAMIN D DEFICIENCY: A GLOBAL HEALTH PROBLEM

Dr. Johanna Ward explains why getting enough of the 'sunshine vitamin' is vital to body and skin health; but not always possible.

Vitamin D deficiency currently affects in excess of 1 billion people globally, and as such is classified as a global public health problem.

Most of our recent understanding of Vitamin D has come from the last 15 years where we have discovered that Vitamin D is important, not just for bone strength, but for cancer prevention, immunity, cardiovascular protection, brain health, skin health, muscle health and disease prevention.

Vitamin D is known as the *Sunshine Vitamin*.

We need to make it every day and we do this with the help of sunshine. But in many parts of the world such as the UK, Northern Europe, North America & Canada there isn't enough sunshine at the right UV index to allow this to occur, leaving many people deficient.

Given the lack of available sunshine in the UK, Public Health England in 2016 advised that all Britons take a minimum of 10 micrograms (400IU) Vitamin D3 in supplement form to prevent against rickets, osteomalacia, bone pain, muscle aches, and all the other health conditions related to Vitamin D deficiency.

How can you get Vitamin D?

Most people get about 90% of their Vitamin D from sunshine, and approximately 10% from their diet. Sunlight exposure is the primary source of Vitamin D for most people. Solar UVB radiation (290-315nm) stimulates the production of Vitamin D3 from 7-dehydrocholesterol (7-DHC) in the keratinocytes of the stratum basale and the stratum spinosum of the skin. It enters the circulation and is then transported to the liver, and afterwards the kidneys, where it is transformed into 1,25-dihydroxyvitamin D3. This is the most bioactive and potent form of Vitamin D.

We can make Vitamin D through regular sun exposure, but the problem is that people living at certain latitudes cannot synthesise enough during the Winter months. The other problem is that many people nowadays work long hours in offices where exposure to natural light is scarce. Numerous factors affect the ability to produce Vitamin D, including latitude, season, time of day, UV Index,

age, skin colour, sunscreen use and BMI.

In the UK, in the months from September to May, the sun is too low in the sky for us to make Vitamin D through UVB exposure. If you cannot make enough Vitamin D from sunshine, then some foods are an alternative source. These include oily fish like salmon, mackerel, herrings and sardines, plus some red meats and eggs. The problem is many of us don't eat enough of these foods, like salmon and eggs every day, to make adequate Vitamin D from our diets.

At risk groups

- Anyone over 55 (who are less efficient at making it)
- Anyone with darker skin e.g., Asian, Mediterranean, Afro-Caribbean
- Anyone who covers up in the sun, or who wears sunscreen
- Teenagers who don't get outside much
- Those on restricted diets/post weight-loss surgery
- House bound people
- Infants and children
- Anyone who is overweight

Darker skin types

Melanin competes with 7-DHC for the absorption of UV light and hence acts as a natural sunscreen, further reducing the effectiveness of epidermal Vitamin D production. Melanin can effectively reduce the skin's ability to manufacture Vitamin D by 93-95%, meaning that darker skin types need approximately 3-5 times more sun exposure than fairer skin types to make the same amount of Vitamin D.¹ This is true of Vitamin D3 supplements as well.



The difference was thought to be in the release of Vitamin D, from the skin into the circulation. It is believed that the fat under the skin in obese individuals can hold onto the (fat-soluble) vitamin instead of releasing it.

after similar exposures, but 24 hours later, there was 57% less Vitamin D in the blood of the obese subjects. Both groups had a similar capacity of the skin to produce the vitamin.

Infants and children

These are a high-risk group and all under 5s in the UK should be on supplemental Vitamin D3, which is provided free of charge on the NHS.

In the last five years, the number of children with Vitamin D deficiency has increased by more than 200%, according to a study commissioned by the UK-based public awareness campaign *Vitamin D Mission*.⁴ This is to do with many factors, but fussy eating, poor parental knowledge and poor information from the HealthCare sector about the importance of Vitamin D are the most likely causes.

Pregnancy

Vitamin D optimisation is hugely important in pregnancy. Studies have now shown that maternal Vitamin D deficiency is linked to increased incidence of infantile asthma and eczema, plus increased risk of children developing Type 1 diabetes, Multiple Sclerosis, Rheumatoid Arthritis and Crohn's disease in later life.



Practical tips for getting natural Vitamin D

Experts agree that the best way to get Vitamin D is through natural sun exposure. The important thing is to never burn the skin in pursuit of native Vitamin D production. But for many people, due to the latitude at which they live, it means all year round sun exposure isn't possible.

For natural Vitamin D production you should allow sunshine onto your lower arms or legs, (without sunscreen), from late March to late September, between the hours of 11-3pm. After 15 minutes, (or as the skin starts to change colour), apply sunscreen to protect the skin.

If you have darker skin, (with more abundant melanin), you will need to spend longer in the sun, unprotected, to make the same amount of Vitamin D as someone with lighter skin. This is likely to be 3-5 times the amount of sun exposure that a lighter skin type will need.

Supplements

If you can't get enough Vitamin D through sun exposure, or your diet, then supplements are essential. Supplements should be taken in the Vitamin D3 (cholecalciferol) form as it's more effective and bioavailable than the D2 (ergocalciferol) form, and is more constant in the blood.

Studies have consistently shown that Vitamin D3 is more effective than D2. A 2012 meta-analysis comparing supplementation of D3 versus D2 and their effect on serum 25 OH measurements showed D3 to be significantly superior in raising serum 25 OH levels.⁵ Another review of over 50 Vitamin D studies also showed that Vitamin D3 offers a noticeable decrease in overall mortality, performing significantly better than D2 in reducing death rates from all causes.⁶

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Vitamin D deficiency is a global health problem with significant and profound impact on an individual's health and wellness.

It is well evidenced that optimisation of Vitamin D levels should form part of all community preventative health programs. Vitamin D deficiency is easily correctable with oral Vitamin D3 supplementation and has little to no side effects or risks. Public Health England advises that all Britons consider taking a Vit D supplement during Autumn and Winter.

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AESTHETIC: VITAMIN D

In addition, Vitamin D3 supplementation has also been shown to maintain serum Vitamin D levels better, which is especially of benefit in the long, cold winter months.

large observational studies have shown a link between Vitamin D deficiency and fatigue. In fact levels below 20ng/mL were linked to fatigue and tiredness.⁸

Vitamin D slows down the process of DNA ageing, through anti-inflammatory action on the skin.⁹ More studies need to be conducted on the potential link between anti-ageing and Vitamin D.

Importance of Vitamin D

The Vitamin D endocrine system plays a primary role in the maintenance of normocalcaemia. The association between Vitamin D deficiency and bone disease, such as rickets, osteomalacia and osteoporosis are well recognised and documented, but in the last 15 years we have increasingly seen a link between Vitamin D deficiency and many other aspects of health. Indeed it is now well evidenced that Vitamin D helps maintain proper immune function, muscle health, protects against cancer (especially breast, prostate and colon), reduces the risk of cognitive decline, arthritis, MS and low mood. All of the actions are due to Vitamin D's Prohormone status and the fact that almost all cells in the human body have Vitamin D receptors, known as VDRs.

Crohn's & Vitamin D

Crohn's disease: A recent analysis of 63 studies on Crohn's disease found that there was a 57.7% prevalence of Vitamin D deficiency in CD patients. They also found that the more severe the CD was, the lower the circulating Vitamin D levels were.

Fibromyalgia & Vitamin D

The exact relationship between low Vitamin D levels and fibromyalgia (FM) is unknown at this time, but there is an increased deficiency risk in people with FM. In a study of 150 patients with FM, 93% had deficient levels of Vitamin D. In another study of 103 patients with FM or muscle pain, 75% had low Vitamin D levels. Treating the deficiency resulted in 90% of them having improvements in their symptoms.

Anti-ageing & Vitamin D

Kings College Hospital in 2007 studied 2160 women between the age of 18-79 and showed that higher levels of Vitamin D reduced age related changes in the skin as assessed by telomere length. Telomeres are a biological marker of ageing. The study is exciting because it suggests that

Skin Health & Vitamin D

Studies conducted in Australia in 2012 showed that pregnant mothers with Vitamin D deficiency had more chance of having a baby with infantile eczema in the first year of life and that every 4ng/mL increase in Vitamin D was linked to a 13% lower chance of a baby having eczema.¹⁰ Another study done in 2012 looking at the link between Vitamin D and eczema gave people over age 14 with eczema either 1600 IU of Vitamin D or a placebo daily for 60 days. The researchers then compared eczema severity and symptoms between the 2 groups and found that the Vitamin D group showed more improvements in eczema symptoms than the placebo group and that the severity of eczema was much lower after people took Vitamin D supplements.¹¹

Multiple Sclerosis & Vitamin D

MS is a chronic inflammatory demyelinating disorder of the neurological system that is determined by genetic and environmental factors. It has been long suspected that Vitamin D deficiency is related to MS because MS is found much more commonly in climates with higher latitude where



access to higher intensity UVB is limited. Several studies have shown that optimisation of Vitamin D levels is associated with decreased risk of MS, especially if the sun exposure occurred during childhood and adolescence.^{12,13} Studies have also shown that an infant's birth month is correlated with their MS risk - so individuals born in the Autumn months (mothers were exposed to summer sunlight during pregnancy) have a low MS risk whilst infants born in the spring have higher MS risk.¹⁴ Persons who are at risk for MS (e.g., anyone with a first-degree relative with MS or patients with a single episode demyelinating attack) should be screened for Vitamin D deficiency and treated appropriately. Patients with established MS should keep their Vitamin D levels optimised as optimised levels are related to minimisation of disability. Experts suggest that maintaining 25(OH)D levels between 75 to 125 nmol/L in MS patients is ideal. The established link between Vitamin D and MS has huge importance. The mechanism of protective action of Vitamin D and MS risk is thought to be due to the immune modulating activity of Vitamin D.

Cancer prevention & Vitamin D

Many epidemiological studies have shown that Vitamin D optimisation protects against colon, breast and prostate cancer. A PubMed database search yielded 63 observational studies of Vitamin D status in relation to cancer risk, (30 for colon, 13 for breast, 26 for prostate, and 7 for ovarian cancer), which found a protective relationship between sufficient Vitamin D status and lower risk of cancer. The evidence suggests that optimisation of Vitamin D levels through use of supplementation could reduce cancer incidence and mortality with few or no adverse effects. These kinds of studies create impetus for ensuring adequate Vitamin D intake in order to reduce the risk of cancer.¹⁵

Symptoms of Vitamin D deficiency

Sometimes people with Vitamin D deficiency are totally asymptomatic which makes diagnosis harder. Generalised symptoms include:

- Bone pain
- Muscle aches/atrophy
- Depression/low mood
- Weakness/fatigue
- Poor wound healing
- Reduced immunity
- Falls
- Cognitive decline

How to get tested?

A quick and simple blood test (for 25-hydroxy vitamin D) by your GP can diagnose Vitamin D deficiency.

Summary

Vitamin D deficiency is a global health problem with significant and profound impact on an individual's health and wellness. It is well evidenced that optimisation of Vitamin D levels should form part of all community preventative health programs. Vitamin D deficiency is easily correctable with oral Vitamin D3 supplementation and has little to no side effects or risks. Since 2016, Public Health England has advised that all Britons take an oral Vitamin D3 supplement.

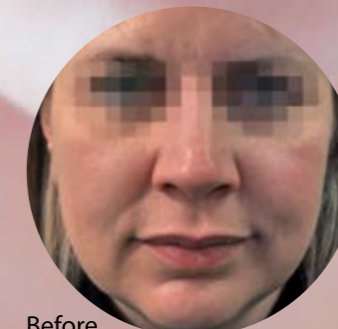
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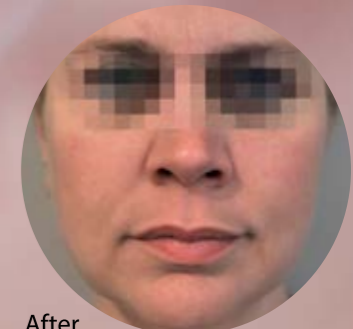
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WHO CAN CALL THEMSELVES A NUTRITIONIST?

Madi Myers, a Nutritionist, explains why she feels passionately about the protection of titles in her profession.

In the age of the internet where 'anyone can be an expert' just by using the search bar of a web browser it can be difficult to know who to trust for advice on healthy living and nutrition. The rise of bloggers and so called 'nutrition experts' have only confused matters by throwing out advice based on anecdotal and personal experiences, with claims that particular nutrients or diets mean you too can 'get the glow'. While some of the seemingly strongest voices in the media have absolutely no qualifications to support the advice they provide, there is a small army of highly qualified dietitians, nutritionists and other healthcare professionals quietly engaged in fighting the plethora of pseudo-science based nutrition claims, so-called 'nutribollocks', that we are bombarded with on an everyday basis.

To help make some sense of who to turn to for the best, evidence-based nutritional advice and support I will be exploring the accreditation system for nutrition professionals in the UK; laying out who can be trusted when it comes to the important decisions regarding what we should be eating to support good health.

Dietician

Dieticians are the only nutrition professionals in the UK that have any

statutory regulation governing their practice; essentially making dietitians the 'gold-standard' for food and nutrition advice.

"... only those registered with the Health and Care Professions Council (HCPC) can legally call themselves a Dietician."

They are also the only qualified health professionals who can assess, diagnose and treat diet and nutrition problems both at an individual and public health level. Specifically, this involves the application of the latest nutrition science to devise eating plans and food practices as a treatment of complex medical disorders or to alleviate symptoms of disease; as well as working with healthy clients.

Dieticians work in a wide range of settings including within the NHS in hospitals and medical practices, private practice and in wider-reaching public health roles in government,

non-government organisations (NGOs), the media, research and education.

To become a registered dietitian a four-year undergraduate or Health and Care Professions Council (HCPC) accredited postgraduate degree must be obtained, both of which include a period of supervised clinical practice. Dietitians must adhere to a strict ethical code ensuring they work to the highest standards and only individuals registered with the HCPC can legally call themselves a dietitian.

The British Dietetic Association (BDA) is the professional association for dietitians representing the entire dietetic workforce; their website is a fantastic first stop for information regarding nutrition advice, healthy eating tips and to find appropriately qualified dietitians.

Nutritionist

Unfortunately, the same strict guidelines do not regulate the currently unprotected title of 'nutritionist' in the UK. In theory this means that anyone can legally call themselves a nutritionist; which, in my opinion, is extremely dangerous for consumers, many of whom are unaware of this. However, to try and provide some level of protection for both qualified nutritionists and the public alike the Association for

Nutrition (AfN) holds the UK Voluntary Register of Nutritionists (UKVRN) and is the only professional body for nutritionists. The purpose of this charity is to "protect and benefit the public by defining and advancing standards of evidence-based practice across the field of nutrition".

Registration to this body is an assurance that the individual has met AfN's rigorous standards of competence and professionalism recognising high quality, relevant nutrition training.

To become an Associate Nutritionist (ANutr) a three or four-year undergraduate degree in nutrition science or a one-year postgraduate course accredited by AfN must have been undertaken.

To become a Registered Nutritionist (RNutr) a further three years of practice experience and continuing professional development are required, allowing that individual to specialise in one of 5 areas: Public Health, Sports and Exercise, Food, Animal Nutrition and Nutrition Science.

"...unfortunately anyone can legally call themselves a Nutritionist in the UK, because the title is unprotected."

Nutritionists create and apply scientific knowledge to promote an understanding of the effects of diet on health and provide information about healthy eating. Both Associate and Registered Nutritionists work in a diverse range of settings including research, public health, media, sports, within the food industry, for government and NGOs and as freelancers. Although nutritionists can

provide nutrition advice directly to individuals and groups they are not qualified to provide information about special diets for medical conditions or disorders and cannot work in hospital settings without supervision from a dietitian.

Any nutritionist, whether registered with AfN or not, attempting to provide advice regarding specific disorders should not be trusted, unless they have dual-registration with the HCPC or another medical body such as the General Medical Council (GMC).



Nutritional Therapist

Nutritional Therapists are the other nutrition professionals to look out for; they have different roles to nutritionists with a different set of standards and registration requirements, meaning they are not eligible to register on the UKVRN or HCPC.

Nutritional therapists tend to work mainly in therapeutic settings with individual clients and their guidance is recognised as a branch of complementary medicine; therefore, different from nutrition and dietetics as advice is not entirely evidence-based.

Nutritional Therapists can voluntarily register with the British Association for Nutritional Therapists (BANT) - their professional body - and the Complementary and Natural Healthcare Council (CNHC) if they have completed an accredited distance learning, short course, diploma or three-year undergraduate degree in nutrition therapy. It is worth bearing in mind though that these courses often do not go to the same depths of learning as accredited nutrition and dietetics courses.

Nutritional therapists are described by BANT as being "practitioners who assess and identify nutritional imbalances allowing them to help correct these to support maintenance of health and wellbeing".

Do Your Research

Anyone offering a 'quick fix' or promoting highly restrictive diets for the general health of the population should immediately provide a red flag as someone not to trust. Government recommendations on healthy eating are formulated based on some of the most highly scrutinised research available and should not be scorned at.

I want to reinforce the importance of seeking advice from a GP or other medical professional - who may refer onwards to a dietitian - before making any changes to your, or your client's diet, no matter how insignificant they may seem. Nutritionists and nutritional therapists should also refer individuals to a medical professional to seek their advice before making drastic dietary changes, or in relation to clinical symptoms.

Searching the registers on the websites listed below is an easy way to find dietitians and nutritionists in your local area if you are looking for a referral route or a partnership for aesthetic and nutritional services for your clients. You can also use them to check the credentials of people providing healthy eating advice on the internet through blogs, articles and on social media.

Remember that the titles of 'nutritionist' and 'nutritional therapist' are not protected, highlighting the importance of double-checking qualifications!

Any nutritionist not registered with AfN may not have had sufficient evidence-based, scientific education to provide appropriate advice and therefore should be approached with caution. The same goes for 'wellness experts' or 'life coaches' offering dietary advice. So, in a nutshell, please don't trust everything you read on the internet or in the tabloids and do your research!

Useful Links

British Dietetic Association (BDA)
www.bda.uk.com

Association for Nutrition (AfN)
www.associationfornutrition.org

British Association for Nutritional Therapists (BANT)
<http://bant.org.uk>



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MYTHS ABOUT NUTRITION

Nutritionist, Madi Myers debunks common nutritional claims.

There is often a worrying disconnect between good science and public understanding or beliefs regarding nutrition. If you trust the tabloid headlines, as many people do – clutching to the concept that if it's made it into print then it must be backed by some truth, you can be forgiven for not having a clue about how to lead a healthy, balanced lifestyle.

Contradictory headlines such as: 'Bad news for chocoholics: Dark chocolate isn't so healthy for you after all'; 'Two chocolate bars a day can SLASH the risk of heart disease and stroke'; and 'Chocolate makes you smarter, proves 40-year study' mean that it's not surprising many people have given up listening to any nutritional recommendations – even those provided by government and public health professionals, which are based on solid evidence.

Scientists develop novel theories and publish new research daily. As these theories are tested repeatedly, they can come to generalisable conclusions for the population in question. However, it's when these conclusions are drawn too early, lack sufficient evidence or draw from studies with poor research design, that it creates controversy and therefore confusion among the public.

In this article, I will debunk some common nutrition myths that often confuse and mislead, setting the story straight by focusing on the only thing that really matters when analysing claims about our diet – the strength of the science supporting them.

Eating saturated fat will give you heart disease

A quick Internet search for "does saturated fat cause heart disease" yields over 800,000 results, with drastically conflicting answers.

The first few come from what can be described as credible sources, (i.e. the NHS and the British Heart Foundation), followed by various articles written by doctors, nutritionists, 'health experts', and blog writers with strong opinions or hidden agendas.

Some cherry-pick studies that support the case that they're making; a recent example of which is the case that eating large amounts of saturated fat – most of which we get from dairy, meat and processed foods such as pastries – will not increase your risk of cardiovascular disease (CVD).

For example, one meta-analysis of prospective cohort studies evaluated the effect of saturated fat intake

on CVD; this contained nutritional data from 21 different studies encompassing almost 350,000 individuals, (Siri-Tarino et al. 2009). They also took into consideration age, sex, smoking status and measured against CVD outcome; conclusions being that there was no association between total saturated fat intake and CVD risk. So clearly, we had it wrong and saturated fat is not intricately in heart disease? Well, it's not quite as simple as that...

Prospective cohort studies are observational in nature, to determine if a certain exposure, (saturated fat in this case), is associated with an outcome, (CVD), overtime. The problem with using this type of study for the question at hand is that it cannot account for factors such as individual genetic variability and behavior, and does not directly imply causation.

Early studies measuring saturated fat intake under controlled clinical conditions show that LDL cholesterol levels (a predictor of CVD) do rise and fall in relation to total saturated fat intake, but how much depends on the individual, (Clarke et al. 1997). For instance, two different individuals could consume half a stick of butter every day for a month; we would expect both individual's LDL cholesterol to increase, but



not necessarily at the same rate. The same applies for when the two individuals remove saturated fat from their diet; we would not expect the drop in their LDL cholesterol to be the same.

A 2010 meta-analysis of randomised controlled trials (RCTs) found that replacing saturated fat with mono- and poly-unsaturated fats reduced the risk of cardiac events by 14%, (Hooper et al 2012).

Additionally, basing food intake off any subjective data, as in cohort studies, is prone to criticism. It is well acknowledged that self-reporting dietary assessments are unreliable in determining someone's habitual diet and cannot be entirely relied upon for dietary guidance and public health policy, (Subar et al. 2015). This is due to under- and over-reporting intake, or simply people not being honest in their reporting on what they ate.

The relationship between any individual nutrient and disease pathology is complicated, but as Public Health England's Chief Nutritionist Dr. Alison Tedstone puts it; *"It's a risk to the nation's health when potentially influential voices suggest people should eat a high-fat diet, especially saturated fat"*.

Myth Busted!

Having small amounts of saturated fat in your diet is not going to definitively give you CVD, being that it's a multi-factorial disease. However, there is strong evidence that replacing saturated fat with unsaturated fats can be beneficial for reducing risk of CVD.

Dairy causes acne

With an estimated 8 in 10 UK adults having been affected by acne at some point, it is not surprising that diet is often implicated, with many individual foods - from chocolate and sugar to dairy products and 'junk food' - being blamed for its seeming rise in incidence. However, the evidence for

the role of diet in the development and persistence of acne has been controversial.

There are countless anecdotal success stories online of women and men stripping dairy products out of their diet to battle the breakouts. However, is there any real evidence supporting this practice?

Epidemiological evidence indicates that populations, such as the Canadian Inuits, who over recent years have transitioned from their traditional diet to a more Westernised diet, incorporating increased amounts of fizzy drinks, red meat, dairy products and highly processed foods, had a subsequent increase in acne, (Kucharska et al. 2016).

Two prospective studies found a positive correlation between milk intake and acne prevalence in a cohort of several thousand adolescent boys and girls, (Adebawmo et al. 2006 and 2008). A larger retrospective study, by the same authors, used the *Nurses Health Study* cohort of American nurses and also found an association between high dairy consumption in high school and the most aggressive levels of teenage acne, (Adebawmo et al. 2005).

There are many theories over why this association may be found, including exposure to hormones present in milk due to pregnancy, such as α -reduced steroids and α -lactalbumin, or because milk products can increase stimulation of insulin-like growth factor 1 (IGF1), (Aizawa et al. 1995). This increase in hormones, beyond natural levels, may over-stimulate the pilosebaceous unit to increase sebum production, (Smolinski and Yan 2004).

To date, there have been no well-designed, large scale clinical trials examining the effect of dairy on acne, meaning cause and effect have yet to be truly established. Because of this the scientific evidence supporting increased dairy intake with acne is weak, and future, long-term RCTs are warranted before evidence-based guidelines can be provided. There are other modifiable factors with stronger associations

with acne, including obesity, as well as increased incidence in those with an overall unhealthy dietary pattern constituting high intake of sweets, cakes and chocolate, and low intake of fruit, vegetables and fish, (Grossi et al. 2016). This is further supported by RCTS showing an improvement in the number of acne lesions for those on a low glycaemic index diet, (Smith et al. 2007).

"... the scientific evidence supporting increased dairy intake with acne is weak."

In a healthy population there is no need to cut out dairy completely; this being only essential for individuals with a milk intolerance or allergy. Removing whole food groups can be detrimental to health and lead to nutrient deficiencies.

Current guidelines recommend incorporating some dairy or dairy alternatives, (approximately 8% of the total diet), and choosing low-fat where possible to reduce saturated fat intake, or switching to dairy alternatives. Dairy products and alternatives provide a good source of Vitamin D (when fortified), K, B2 and B12, as well as calcium and potassium.

For those very concerned about acne, a carefully controlled elimination diet may be appropriate to see any benefits of removing dairy. However, this should be done with support from a nutrition professional to ensure nutritional deficiencies do not occur.

Myth Busted!

There is weak evidence associating high dairy intake with acne; stronger evidence supports a healthy, low glycaemic index diet to potentially improve the skin condition.

A vegetarian diet is always the best for good health

There seems to be a current thinking that if you are one of the, now, 1 in 8 vegetarian or vegans in the UK, then your diet must automatically be much healthier than that of omnivores.

However, when considering this statement, the overall quality of the vegetarian diet is necessary to ascertain; this is becoming more recognised in the literature, and therefore vegetarian diets are sometimes divided into 'healthful' and 'unhealthful'.

This is because a strict vegetarian diet could consist of chips, biscuits, cake and fizzy drinks; which I think everyone would agree is not exactly the healthiest. Even a legitimate vegan diet could constitute a huge proportion of starchy, refined carbohydrates with no fresh fruit and vegetables at all.

The term '*plant-based diet*' is being used more and more as the diet we all should strive for; this is defined as consuming at least two-thirds plant-based foods, with a focus on reducing animal products and highly processed plant-based foods.

A recent pooled cohort study that followed over 200,000 people indexed their diet to a "healthful plant-based diet index" (hPDI) - formed of more healthy plant foods such as fruit, vegetables, nuts and wholegrains - or to an "unhealthful plant-based diet index" (uPDI) where the diet was formed of less healthy plant foods such as juices, refined grains, crisps and sweets, (Satija et al. 2017). The findings showed that when comparing the 2 types of plant-based diets, adherence to the hPDI reduced risk of heart disease by 25% when compared to consuming the uPDI.

Current evidence from RCTs show that reducing the amount of animal products in the diet and moving to a more plant-based dietary pattern is beneficial for reducing risk markers for heart disease, type-2-diabetes and high blood pressure, (Dinu et al. 2017). There is also some evidence that a more 'healthful' plant-based vegetarian diet may be beneficial for weight reduction, (Huang et al. 2016).

Dr. Michael Greger, a well-known medical doctor advocating a plant-based dietary pattern for health, has been quoted as saying that *"it's less vegetarian and more vegetable-atarian"*; emphasising which aspect of a vegetarian diet is the most beneficial for good health.

Myth Busted!

Not all vegetarian diets are equal. The healthiest diets are those with a high proportion of fruits, vegetables and wholegrains, and smaller quantities of animal products.

Exercising to lose weight is pointless because it just makes you eat more

You might think that the more exercise you do - i.e. the more calories you burn - the more your body will want to make up for that deficit by over-eating. If you are aiming for weight loss then this may seem counterintuitive. We've all had the urge to have that extra treat because we've just been to the gym. However, the relationship between exercise and energy intake is much more complicated than just *'you do more so you eat more'* with the type of exercise and individual response to exercise playing integral roles.

A recent review of controlled studies in healthy young men found that exercise suppressed subjective hunger, correlating with a reduction in circulating ghrelin; one of the hormones responsible for making us hungry. Ghrelin also remained lower in those who completed exercise when compared with controls, who stayed at rest. The lower levels remained this way for longer in those who ran for the longest (up to 90 minutes) than those who went for a shorter jog. They also found that there was no subsequent increase in energy intake in those who had exercised compared to controls, (King et al. 2017).

This contributes to the current thinking that at least in acute situations where short term energy intake after exercise is monitored it has little effect on how much more we eat in total, (Schubert et al. 2014). However, this, and other studies, have shown that there are large inter-individual differences in response to exercise, with some having a more suppressed appetite

than others after exercise. When trying to ascertain what groups of people may be more susceptible to eating too much after exercising, it seems that leaner people get hungrier than those who are obese, and women tend to more than men, (Ebrahimi et al. 2013, Blundell et al. 2015).

Current evidence shows that to lose the most weight, exercise, as well as a healthy, calorie reduced diet, is the most effective way to produce a negative energy balance, (Hassan et al. 2016). This is especially effective when incorporated as life-long changes to lifestyle, improving weight maintenance.

There are many other, and more globally relevant, proven benefits to exercise independent of weight loss. These include stress reduction, mood and sleep improvement, as well as lowering risk of heart disease, type-2 diabetes and cancer by up to 50%, and overall mortality risk by 30%. Exercise is beneficial at all ages as it increases strength, which in older individuals reduces the risk of bone fractures, and if performed outside also increases Vitamin D levels due to sun exposure, (NHS Choices).

The latest estimates of physical activity in the UK show that 20 million adults (39% of the adult population) do not meet government recommendations of a minimum of 150 minutes moderate exercise a week, (BHF 2017). As it is estimated that 5 million deaths worldwide are attributed to physical inactivity, (Ding et al. 2017), if you find that you are tempted to consume more than you would if you hadn't exercised, don't use that as an excuse not to do it!

Myth Busted!

There are significant between-person responses in terms of appetite, weight loss and exercise, however the over-all health benefits of exercise demonstrate how important it is for all of us.



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Breakfast is the most important meal of the day

The age-old saying 'breakfast like a King, lunch like a Prince and dinner like a pauper' has been highlighted by many newspapers recently as more research examines 'chrono-nutrition' or whether meal timing is important for health.

Large cohort studies show an association between breakfast skipping and increased risk of overweight and obesity, as well as atherosclerosis; these studies also show breakfast skippers are more likely to have an unhealthy lifestyle in general, (Brown et al. 2013, Uzhova et al. 2017). However, it is harder to determine exactly why this might be the case. Is it breakfast itself leading to healthier lifestyles, or do overweight people skip breakfast to reduce energy intake and lose weight?

Studies have looked at different groups of individuals to assess the importance of eating breakfast at different life and health stages. One recent study in adolescent girls, particularly important due to their increased energy and nutrient requirements at this stage, found that total energy intake remained lower when breakfast was omitted, (Zakrzewski-Fruer et al. 2017). Studies in adults support this finding that energy intake during the day does not make up for the calories not consumed at breakfast, (Reeves et al. 2014).

However, when looked at in longer-

term controlled trials for weight loss there seems to be no difference in body weight between breakfast consumers and skippers, (Dhurandhar et al. 2014, Chowdhury et al. 2016). It is also important to look at the quality of the diet when breakfast is omitted, as usually subsequent meals do not alter. There is some evidence to suggest that daily intake of fibre and protein reduce, but fat does not; this could be potentially detrimental to health if continued in the long-term, (Dubois et al. 2009, Zakrzewski-Fruer et al. 2017).

... breakfast is possibly not as universally important as initially believed. "

Extended fasting - continuing the overnight fast - is also being put under the spotlight, as health benefits such as the potential to improve metabolic health are being determined, (Azevedo et al. 2013, Barnosky et al. 2014). However, breakfast skipping, or extended fasting, will not be suitable for some people, who experience drastically reduced blood sugar levels and concentration when breakfast is missed, (Zilberter and Zilberter 2013).

As current evidence is so conflicted and larger-scale, longer RCTs are necessary to determine any real causative effects between skipping breakfast and ill health, it seems to be that breakfast is possibly not as universally important as initially believed.

What is important is the overall quality of the diet and making sure we are not over-consuming energy. As with many other aspects of the diet, a one-size-fits all approach is bound to suit no-one.

Myth Busted!

There is no one optimum eating pattern as individual responses, stage of life and health status all play a role in determining when and how much is best to eat. My advice? If you're hungry when you wake up, eat something balanced and nutrient-dense; if not, there seems to be no need to force food down.

An evidence based approach is key

Arguably media and public interest in health and nutrition is at an all-time high, meaning provision of consistent advice is increasingly difficult. The responsibility of providing accurate information to the public falls on scientists, doctors, nutritionists - 'health experts', and those in the media who write about health. Many of these people may possess the rhetoric necessary to convince their readers that what they are writing is true, but they may not truly understand the difference between good and bad science. It can also be important to challenge your own, perhaps deep-rooted opinions; removing personal biases may open your eyes to accepting and acknowledging that the evidence base is the only place to go to determine what is fact and fiction in nutrition.



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A JAB TO MAKE YOU SKINNY?

Lorna Jackson investigates if Liraglutide fits with aesthetic practice.

The idea of a jab, or injection, that promises to 'make you skinny' is a very attractive and desirable proposal. We're not talking about injectable lipolytics or injection lipolysis here, which is now much more commonplace in the aesthetic medicine sector; I'm talking about liraglutide, and whether this is a 'bandwagon' that aesthetic practitioners should, or should not be jumping on.

Liraglutide is a derivative of human incretin (metabolic hormone) glucagon-like-peptide-1 (GLP-1) that is used as a long-acting glucagon-like-peptide-1 receptor agonist binding to the same receptors as does the endogenous metabolic hormone GLP-1 that stimulates insulin secretion. Put simply, liraglutide is similar to a naturally occurring hormone in the body called GLP-1 that is released from the intestine after a meal.

It is available as a prescription only medicine (POM), marketed as Victoza® (1.8mg dose/day) by the Danish company Novo Nordisk, and was originally developed as a daily drug dose to treat type 2 diabetes. It was noted in these patients that a degree of weight-loss was caused as a side effect, however it was not significant weight-loss. So, around three years ago, Novo Nordisk began marketing a separate product, with a higher 3.0mg dose/day of liraglutide, under the name Saxenda®, as a

treatment for adults who are obese, or overweight with at least one weight-related comorbid condition. Both forms of the drug are delivered via pre-filled pen injectors, which are prescribed for the patient to self-administer. It must be delivered subcutaneously, not intravenously or intramuscularly.

Saxenda was approved in the USA in December 2014, and in the UK in March 2015. In 2016, the company claimed to have launched the drug in 15 countries and to have gained market leadership, with 35% of the value of the obesity market in the United States. Sadly, generic liraglutide is also readily available from the Far East, so the ability for consumers to buy direct over the Internet, without medical oversight, is a real worry.

It is indicated as an adjunct to a reduced-calorie diet and increased physical activity for weight management in adults with an initial Body Mass Index (BMI) of 30 or greater, who are classed as obese, or those who are overweight with a BMI of between 27 and 30 and have at least one weight-related comorbidity such as dysglycaemia (pre-diabetes or type 2 diabetes mellitus), hypertension, dyslipidaemia or obstructive sleep apnoea.

Dr. David Eccleston is a former NHS GP, with a specialist interest

in dermatology. He is the Clinical Director at MediZen Clinic, a medical aesthetic and cosmetic clinic in Sutton Coldfield, as well as a private-practicing GP at the Oakley Partnership. He is the medical advisor at lifetrainme.com, who offer personalised weight loss programmes under the supervision of dedicated experts, and has a certificate in diabetes care from Warwick Medical School.

"Saxenda should not be used as monotherapy for weight-loss. It should not be used without making other changes to the diet, lifestyle, exercise, supplements and hormones. A comprehensive approach must be used to re-educate the patient"; warns Dr. Eccleston.

Treatment works by acting on receptors in the brain that control appetite, causing a person to feel fuller and less hungry. The idea being that this may help them to eat less food and reduce their body weight. The treatment programme must be effectively prescribed and monitored and should be discontinued after 12 weeks of the 3.0 mg/day dose, if a person has not lost at least 5% of their initial body weight. Although, liraglutide treatment can be delivered longer-term; if the patient doesn't continue to lose weight, then many recommend the cessation of use. It is certainly not a life-long solution to weight-loss, and is usually stopped

after a year, or at the point that they reach their target weight, if before. Long-term a patient must change their diet and lifestyle, or they risk relapsed weight gain.

The SPC¹ for the product lists an enormous quantity of special warnings and precautions for use, as well as interactions with other medications, which goes to emphasise its classification as a prescription only medicine which must be correctly prescribed, with monitoring throughout the treatment programme.

"You are altering someone's total metabolism," says Dr. Eccleston. *"You are changing the way that their insulin, glucagons and leptins work, as well as their gastric emptying time. There's no doubt about it, it requires you to be medically qualified, with a specialist interest in diabetes and/or weight management to understand how to do that. Any patient going on liraglutide needs to have a physical examination, BMI calculation, full blood count, renal and liver function tests and fasting lipids, as well as having a full medical history taken to establish any patient or family history of thyroid, pancreatic or gall bladder problems. If you were to give this to someone with a pre-existing bowel or stomach concern, it could have significant adverse effects."*

Failure to perform adequate pre-testing of the patient, particularly in relation to laboratory testing, means that you would not be ruling out underlying disease. Under-diagnosing or inappropriate prescribing, through unsuitable routes and practitioners, pose a real danger feels Dr. Eccleston.

"Liraglutide should only be prescribed by doctors who are diabetologists, such as hospital consultants, or GPs with an interest or skill in diabetes care, because, first and foremost it is a drug for treating diabetes, which was later found to influence weight-loss. It would also be reasonable to suggest that an advanced nurse prescriber or advanced nurse practitioner with specific skills in this specialty, who works with a doctor, would be suitable to prescribe in line with a protocol"; he urges.

Common side effects from use include nausea, vomiting, constipation and diarrhoea. Long-term use also carries risks of various cancers, including thyroid tumours, and renal damage.

Now I know what you're thinking... *this doesn't sound like something for the aesthetic medical specialty...*and you may well be correct; after all weight-loss management, diabetes and bariatric care is a specialism, but more and more cosmetic practitioners are now offering, or being tempted to offer this kind of treatment to their clients; whether they should, or should not is a matter for debate.

"This is something which should be done in a clinical setting," says David. *"The patient should be consulted, assessed, examined and tested and then monitored and reviewed monthly - this is not something that you pop into a beauty salon to have prescribed for you. In fact, inappropriate prescribing could be very dangerous indeed."*

It's fair to say that most of you won't have heard of liraglutide, and frankly neither had I until last summer, when the *Daily Mail*² broke a story about an Independent Nurse Prescriber who had been using liraglutide herself, for weight-loss, and was now said to be 'pioneering its use' and commercialisation in the UK, under her own registered trade mark, SkinnyJab™. The team behind it state that they carried out a year of research and auditing before they went public in the press, and have since successfully passed an audit visit from the MHRA.

With publicity like that, the public started clamouring for it. SkinnyJab Ltd have now set up a franchise-style business whereby SkinnyJab™ weight-loss programmes, and the managed patient journey, are promoted through a list of 'approved clinics' including beauty salons and cosmetic clinics. They offer a premium priced service, to include aftercare and support, as well as the provision of the liraglutide pens. The company note that a prescriber is provided for all appointments booked at an approved clinic, and they are actively inviting aesthetic clinics to take their 'brand' on board. However, if you are already a prescribing medical practitioner, and prescribing liraglutide falls within your scope, then is there any point in partaking in such a franchise opportunity? Who is really going to be tempted by this, and are they suitable practices? Novo Nordisk have their own issues with this business model, and the way that SkinnyJab Ltd is selling their product. They tell us that they have referred the matter to their legal department, but refuse to comment

further on their investigations.

For me, there is one obvious issue with this business model, and that is the indirect marketing of a POM to the public. This is no different, to my mind, than setting up a business model to offer prescribing services and consultations for botulinum toxins, whilst heavily marketing it to the public as the 'UnwrinklyJab', for example. The indirect promotion of a POM is the same, and goes against both *Part 14 of the Human Medicine Regulations 2012* and the *Committee of Advertising Practice (CAP) code*. Clinics choosing to flaunt this all over their advertising and website could face significant repercussions in the future.

As well as advertising regulations, one of the core issues with providing a weight management service is the regulatory requirement, which I have to say seems to be being overlooked by many who are enticed by this opportunity.

In England, the Care Quality Commission (CQC) requires that services in slimming clinics are registerable. They state that the regulated activity captures services provided in a slimming clinic that consist of 'advice or treatment and include the prescription of medicines for the purpose of weight reduction, and are provided by, or under the supervision of, a registered medical practitioner'. The provision of liraglutide to patients is therefore registerable with the CQC in England. Similarly, regulators in Wales, Scotland and Northern Ireland inspect independent clinics who provide weight-loss management and services. One wonders just how many establishments are now offering this treatment to the public without appropriate regulatory compliance in place.

I'm sure we will see, and hear, much more about liraglutide in the coming year, but this is not a treatment to be undertaken lightly, and requires a level of specialist knowledge which makes it an inappropriate treatment provision for most practitioners operating in the facial aesthetic world, let alone the beauty sector.

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TELOMERES, INFLAMMAGEING, DNA & DIETS

Lorna Jackson asks should we be addressing ageing from within?

We all know that the first signs of ageing appear outwardly on an individual – from wrinkles and lax skin, to pigmentation and photo-damage. But ongoing scientific investigation is leaning towards a need to address ageing from WITHIN, rather than focusing on the outer manifestations.

Words and phrases that you may have heard at a scientific conference in the last year include: inflammaging, senolytics, DNA tailored nutrition and skincare, telomeres, fast-mimicking diets and nutraceuticals. Of course, it would be very easy to just dismiss it all as just another 'band-wagon', or even 'pseudo-science'. But, if you delve a little deeper there is a lot of credibility to what is being discussed. It's probably worth learning if any of this could actually be of use to your patients; particularly as adjunctive protocols for the aesthetic treatments that you provide on a day-to-day basis.

DNA Tailored Skincare

The cutting-edge technology now involved in the development and advancement of the cosmeceutical market is driving the growth of ever more personalised skincare solutions. The fields of genetics and epigenetics make it possible to assess an individual's DNA and customise cosmetic preparations for them. This is readily available and sought after by the more sophisticated

and aspirational customer, who is willing to pay for it. A U.S. company, *Personal Cell Sciences* launched a unique, autologous stem cell enriched skincare product line called *U Autologous* in the summer of 2012. The product uses a small quantity (60cc) of adipose tissue, (and the stem cells within), extracted by a plastic surgeon and shipped off to their laboratory. The stem cells (mesenchymal) are extracted from the fat, grown and some stored for future use, with the rest cultivated to produce a blend of growth factors, cytokines and other proteins, which they call *Autokine-CM™*. This is then the main ingredient in a daytime moisturiser, night time firming serum and eye cream set, along with other ingredients including caffeine and green tea extract. Consumers can expect to pay \$3,000 for the 'set-up', to include the harvesting, storage, cultivation and creation of the first round of skincare products. After that it's \$1,500 a month to receive new batches of the creams. The jury is still out in terms of efficacy and safety though, as so far the only studies available are unpublished, company sponsored trials.

Inflammaging & Senolytics

When tissue ages, a common manifestation is low-level, chronic

inflammation. This has been given a new buzzword – 'inflammaging'. Senolytics are being proposed as a counter action to inflammaging. Senolytics is defined as 'ageing prevention through the selective pruning of senescent somatic cells'. Firstly, we must understand the concept of cellular senescence – this is deterioration of a cell with age, a loss of its ability to divide and grow. Although such cells can no longer replicate or function as they once did, they remain metabolically active and start to become a nuisance!

Age-related dysfunction in the body has been shown to be partly contributed to by cellular senescence. By eliminating these cells, scientists now believe that you can delay the age-related dysfunction. Trouble is chronological ageing causes the abundance of senescent cells to sky rocket, and they drive chronic inflammation by secreting pro-inflammatory proteases, cytokines and growth factors through Senescence-Associated Secretory Phenotype (SASP). The combination of chronic diseases and the spread of senescence, which can overcome and impede the function of healthy cells nearby, can increase overall cellular senescence, leading to a never-ending spiral of inflammation and age-related dysfunction in the body. This is why ageing is now being referred to as an inflammatory process.

Senolytics are small molecules, which can be both synthesised or derived from natural compounds, and may proactively remove senescent cells, essentially by making them commit suicide, and thus improve or prevent SASP-related ageing and chronic diseases. This presents therapeutic opportunities for all of medicine, which are based on the selective targeting of those senescent cells earmarked for removal due to their specific damaging effects. Human trials of some of the first senolytic drugs are now underway with the hope of firstly transforming geriatric medicine, through the rejuvenation of tissues and organs, as well as disease prevention and treatment. This is certainly one to watch out for as study data is increased over the coming years.

Telomeres

Telomeres are repetitive DNA sequences which form a protective cap at the ends of linear chromosomes; a bit like the plastic tip on the end of a shoelace. Scientists have now established that a marker of the ageing process is the length of these telomeres. Their function, in combination with the enzyme telomerase, is to stabilise the chromosome and prevent them being identified by cells as broken DNA. Telomeres are known to shorten because of cellular ageing. Eventually they become so short that the DNA is unprotected and the cell will stop functioning or die. Telomerase is an enzyme produced by the body to slow down telomere shortening, but production also declines with age.

A simple blood test can be used to test the length of telomeres in an individual, and such testing is now becoming more and more commercially available. The market leader is a company called *Life Length®*. Such biomarker testing is designed to reveal a person's biological age, based on comparison with profiles of people with similar physiology, to measure changes in the physical structures of the body. This may not be the same as their chronological age. Serial evaluation of an individual's telomere length is an indicator of how rapidly they are ageing. Such insight has led to the development of therapies which are designed to slow down the loss in telomere length, with a view to slowing ageing and treating age-related diseases. Much like patients are used to blood sugar testing or cholesterol checks, we may see a future where

telomere testing becomes part of a normal GP health check-up. Similarly, controlled trials could include this biomarker test. Telomere testing is also being used by some medical aesthetic practitioners as a marker for improvement with some treatments.

This knowledge has resulted in more research to find supplements which claim the ability to slow down the shortening, or even lengthen telomeres. Marketed products include terpenone, an ingredient aimed at preventing the degradation of telomeres. *TA-65® MD* from *TA Sciences* claims to be the only clinically proven solution for lengthening telomeres and reversing cellular ageing. Using a plant-based compound, derived from the Chinese herb *Astragalus membranaceus*, they have produced an oral supplement which is absorbed through cell membranes to activate telomerase. A one-year human study, published in *Rejuvenation Research* showed improvements in telomere length and immune system biomarkers for people taking TA-65 capsules. Another product, *CA-98®* from *Anti-Aging Labs* contains Cycloastragenol, a natural compound also extracted from *Astragalus* roots, which is an activator for telomerase.

Fast Mimicking Diets

We know that diet trends come a go – whether it's the cabbage-soup diet, the Atkins diet or the 6:1 diet - they all gather a cult following for a short period of time, often with celebrity endorsement. But, diets and dieting aren't all bad, and some have more scientific credibility than others. So much so that there is now a trend for 'nutritechnology' when it comes to diet plans and programmes.

One such concept, developed following a decade of research at the Longevity Institute of the University of Southern California (USC) is the fasting mimicking diet (FMD). This is designed to trick your body into thinking it is fasting for a 5-day period within one month, but you are still eating. In this case, you are eating a natural, gluten free, plant-based, meal programme marketed as *ProLon®*. The developers note that fasting with water alone can be both risky and challenging, but the FMD is more practical and provides nutrition. It is both scientifically proven and clinically tested to mimic fasting. The claimed benefits are cell regeneration, healthy ageing and fat driven weight loss.

The diet is comprised of low protein, low carbohydrate and high good fat ingredients. The idea of 'fasting with food' includes meals ranging from 770 to 1,100 calories per day. These are provided via energy bars, soups, snacks, drinks and supplements. The plant-based ingredients include fresh olives, vegetables, nuts, seeds, dark chocolate and herbal teas.

According to a 100-participant clinical trial published in *Science Translational Medicine*, researchers tested the effects of three ProLon cycles (5 days per month) on stimulating the body's own stem cells, on metabolic markers and on risk factors associated with ageing and age-related diseases. Findings in humans confirmed mice studies showing a spike in circulating stem cells and leading to delayed ageing by promoting regeneration in multiple systems. Body weight, BMI, total body fat, trunk fat, waist circumference, systolic and diastolic blood pressure, cholesterol, and insulin-like growth factor 1 (IGF-1), C-Reactive Protein (a marker of inflammation) were significantly reduced, particularly in participants at risk for diseases, while relative lean body mass (muscle and bone mass) was increased. No serious adverse effects were reported. On the face of it, this is not just 'another diet', making it an attractive retail opportunity for clinics with clients looking to lose weight and improve energy levels, skin health and their control over food consumption. The wholesale cost is £165 per 5-day programme box, with recommended retailing at £225 per box, discounted to £600 for 3 boxes. This does not take into account any monitoring charges. Performance of the programme can be monitored by measuring waist circumference, blood pressure and looking at metabolic blood values, including blood sugar and cholesterol, in addition to other markers of inflammation.

Summary

Finding the Holy Grail to define the exact cause(s) of ageing is still ongoing. It's true that a lot of progress is being made, and new findings, including inflammaging, are credible. The key is finding the cause(s), rather than things which are more likely an effect of the ageing process. Being able to treat, dare I say it 'cure' internal ageing factors inside the body could mean that treating the 'outside' becomes less of a requirement in years to come.



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BIA-ALCL: THE UK PERSPECTIVE

Lorna Jackson reports on updates from the London Breast Meeting

It's almost eight years since the scandal of criminally adulterated PIP or *Poly Implant Prothèse* breast implants erupted. This led to increased regulatory scrutiny and accountability for these medical devices through EU regulations.

Perhaps due to increased reporting, or global transparency in reporting, plastic surgeons now find themselves discussing the topic of BIA-ALCL or Breast Implant Associated Anaplastic Large Cell Lymphoma. This rare type of immune system cell cancer, and its link with breast implants, is being explored by all regulators, on all continents, and patients are being warned of the potential risk, yet understanding is still in its infancy, despite the first case, associated with a saline-filled breast implant, being reported in 1997.

Speaking at the last London Breast Meeting held on 7th – 9th September 2017, plastic surgeon, Mr Joe O'Donoghue explained the UK experience with BIA-ALCL from a cohort of twenty-one UK plastic surgeons, which was published in the *European Journal of Surgical Oncology*.

The data published was collected via BAPRAS (British Association of Plastic, Reconstructive and Aesthetic Surgeons) and the ABS (Association of

Breast Surgeons) and did not include the data gathered by the MHRA (Medical and Healthcare products Regulatory Agency) through the yellow card reporting system.

Having been concerned that not all cases of suspected BIA-ALCL were being reported to the MHRA, due to the length of time taken to process and verify claims, BAPRAS and ABS put a team together to collect their own data. This confirmed that there was a reporting lag, and a disclosure problem, resulting in a difference in the reporting rates to the MHRA and what the team were hearing from their BAPRAS/ABS colleagues. It is felt that this is not a problem exclusive to the UK when gathering of BIA-ALCL data. Mr O'Donoghue stated that at the time of giving his presentation, the MHRA had 26 cases reported to them, but that not all had been confirmed. Yet, at the same time, the BAPRAS/ABS team were aware of at least 29 cases in 19 UK surgical centres. They expected this number to rise.

Currently, the issue of calculating incidence and risk of BIA-ALCL is up for discussion, with reports and published data varying around the world, from a risk of around one in 4,000 in Australia and New Zealand from Prof. Anand Deva, to one in 30,000 from the USA studies by Mark

Clemens MD; this makes deciding just how rare this is very tricky. Another study by representatives of the Italian Ministry of Health's medical device vigilance team, which was published in the *Plastic and Reconstructive Surgery Journal* (PRS) after the London Breast Meeting, noted that to date, 359 cases of BIA-ALCL have been reported worldwide out of more than 10 million implanted patients (a risk of approximately one in 27,800). They examined 22 Italian BIA-ALCL cases and concluded that the estimated incidence for Italy is 2.8 per 100,000 patients or one in 35,700. As yet, there is no conclusion incidence rate for the UK.

It has however been shown, and published, that the type of implant in place increases the risk of BIA-ALCL. One study published in the PRS reports on 55 cases of BIA-ALCL diagnosed in Australia and New Zealand between 2007 and 2016, in which all patients were exposed to textured implants. Surface area analysis confirmed that higher surface area was associated with 64 of the 75 implants used (85.3%). Biocell salt loss textured (Allergan, Inamed, and McGhan) implants accounted for 58.7% of the implants used. Comparative analysis showed the risk of developing BIA-ALCL to be 14.11 times higher with Biocell

textured implants and 10.84 higher with polyurethane (Silimed) textured implants, compared with Siltex (Mentor) textured implants. The authors concluded that higher-surface-area (macro-) textured implants significantly increase the risk of BIA-ALCL in Australia and New Zealand.

A multi-centre study including eight surgeons in the USA, UK, Australia and Sweden also published its findings in the PRS during September 2017. The paper highlighted that bacteria/biofilm on breast implant surfaces has been implicated in capsular contracture and BIA-ALCL, with macro-textured implants shown to harbour more bacteria than smooth or micro-textured implants, and associated with a significantly higher incidence of BIA-ALCL. Using techniques to reduce the number of bacteria around implants, specifically, through the 14-point plan, has successfully minimised the occurrence of capsular contracture, and so they hypothesised that a similar effect may be seen in reducing the risk of BIA-ALCL. Pooling their data, they analysed adherence to the 14-point plan, alongside the use of macro-textured implants (Biocell and polyurethane), against known cases of BIA-ALCL. A total of 42,035 Biocell implants were placed in 21,650 patients and a total of 704 polyurethane implants. The overall capsular contracture rate was 2.2% and there were no cases of BIA-ALCL. All surgeons routinely performed all 13 perioperative components of the 14-point plan; (with only two deviating on one point). The authors concluded that mounting evidence implicates the role of a sustained T-cell response to implant bacteria/biofilm in the development of BIA-ALCL, and that using the principles of the 14-point plan to minimise bacterial load at the time of surgery, the development and subsequent sequelae of capsular contracture and BIA-ALCL may be reduced, especially with higher-risk macro-textured implants.

Discussing the published UK paper, Mr O'Donoghue explained that between 2012 and 2016 they collected data on 23 cases from fifteen centres in the UK. They received full data on 18 of the patients who had a mean lead time to diagnosis of ten years. All patients had textured implants, and fifteen of them had macro-textured implants from different devices and manufacturers. Fifteen patients presented with Stage I disease, that's capsular confined disease, and

presented with late seromas, and three presented with extracapsular masses, classified as Stage IIA disease. Of those three patients, they all received CHOP chemotherapy. One of them progressed on her chemotherapy, but then responded with a complete pathological response to Brentuximab Vedotin. At the time of publication of the study paper, all patients had remained disease-free at a mean follow up of 23 months. He mentioned reports about two deaths in the UK from BIA-ALCL, but that these have not yet been confirmed as due to BIA-ALCL.

“... macro-textured breast implants are associated with a significantly higher incidence of BIA-ALCL.”

He went on to discuss B-cell lymphomas and BIA-ALCL, and speculated whether this is part of a spectrum of lymphomas that is being seen, or something new. He discussed the reported data on two cases of B-cell lymphoma in the UK, (one managed by him in Newcastle and another at the Royal Marsden involving polyurethane implants), plus a further two cases in North America. In the UK, these lymphomas have been discovered in the implant capsules of patients with macro-textured implants.

Mr O'Donoghue explained that the patient under his management had a textured Allergan implant, which was put in three years ago for an immediate breast reconstruction. The patient re-presented to him with a very tight capsular contracture. When he operated, she didn't have a large swelling and a seroma, she had a double capsule, and the inner capsule was very thick. He noted that the implant shelled out of the inner capsule well, and that interestingly what the pathologist found was Epstein Barr virus positive, B-discohesive, B-cell lymphoma on the inner side of the inner capsule. This is very unusual, and the first time that surgeons have come across it, with no prior reporting in implant capsules.

Discussing Epstein Barr virus positive B-cell lymphomas, he explained that of the few cases previously reported

around the world, they have all occurred in patients with a history of chronic inflammatory problems. Those patients seem to have a fairly indolent course in terms of their outcome, causing little or no pain and with very good outcomes. He surmised that chemotherapy may not be necessary for these patients. But added a note of caution, as surgeons are at the very early stages of knowing and understanding how to manage these patients. He left the audience, and the wider plastic surgeon community with many, yet, unanswered BIA-ALCL questions for them all to consider:

- Are we now looking at a spectrum of lymphomas, that can involve the capsules of patients with implants?
- What is the relationship of viruses and bacteria, and particularly Rickettsia to developing lymphomas?
- Is there a risk of ever developing BIA-ALCL in the future if you remove the patient's implants and leave the capsule behind?

The London Breast Meeting returns this year on 5th – 8th September 2018. www.londonbreastmeeting.com

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This **10th Annual** seminar features a triple CPD approved agenda hosted by **Consulting Room**; so you can rest assured that the event has been created and developed by business owners who have over 12 years experience launching and continuously developing their own medical aesthetic clinic. **This means that the information provided will not only be practically orientated but thoroughly tested too!**

So why not take a step back and spend time really investing in your business?

In 2018, our unique and detailed parallel agendas will provide marketing and strategy tips, techniques and SMART Ideas that are tried, tested and will work in your business. The day will cover a range of critical subjects related to maximising profitability from an aesthetic practice. Delivered by presenters who have real world experience in using these techniques in an increasingly competitive cosmetic market, the agenda provides fantastic value for anyone working in an aesthetic business.

We will also be running a series of practical, hands-on business critical workshops which will be led by specialists in their field of expertise.

Topics covered include a one and a half hour session on the impending issue of preparing for GDPR (General Data Protection Regulations) compliance, which will affect owners of businesses large and small, with legislation coming into effect from May 2018.

Issues relating to Health and Safety and Employment Law covering the HEE report and HSE will be explored in a special workshop run by a senior Health and Safety Advisor from XACT.

In addition, the latest information on VAT and impending changes related to tax will be discussed by an accountant specialising in the aesthetic market sector.

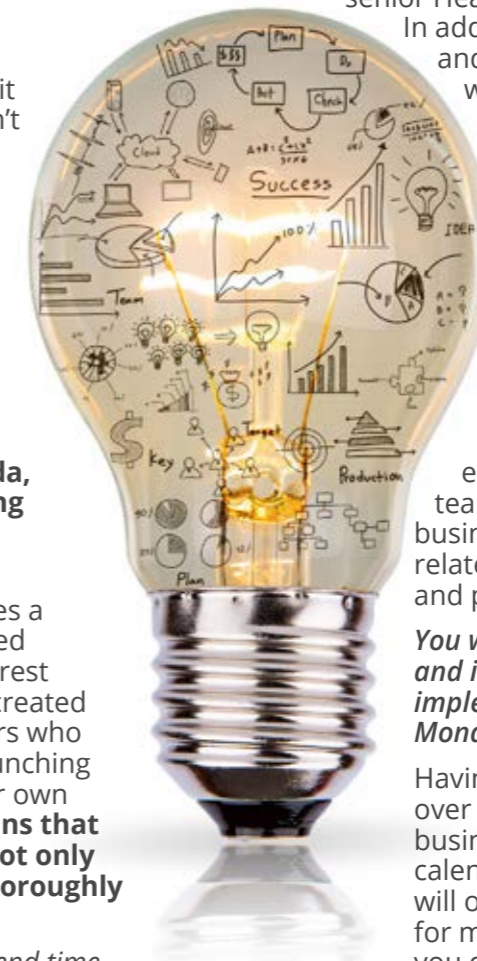
Whether you're a small clinic with just a couple of staff, or a multi-chain enterprise, our three track business agenda provides something for anyone in your team whose role focusses on business development and/or operational management. Taking a day out of a busy clinic environment with your management team to focus purely on strategy, business development and compliance related issues will help you to prioritise and plan effectively for the year ahead.

You will leave with tangible insights and ideas that you can take away and implement into your business first thing Monday morning!

Having run and developed SMART Ideas over the last decade as the biggest business focussed event in the aesthetic calendar, you can rest assured that we will once again bring you the best value for money CPD accredited day to help you develop and expand your business in 2018 and beyond.

Delegate rates for the day include multi-buy discounts (lunch provided), with special discounts available for Consulting Room Member Clinics, allowing you to invest in bringing your whole team along.

Register early and save £40 off day delegate prices with our early bird ticket prices. For more details and the full agenda, visit www.smartseminar.co.uk or call us on 01788 577 254.



Join us at SMART Ideas on 10th March 2018 in London
Register today to benefit from early bird ticket prices!



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ARE YOU CLUED UP ON THE NEW MEDICAL DEVICE REGULATIONS (MDR)?

Lorna Jackson explains what the new regulations mean

Did you know that new regulation governing the commercialisation of medical devices within the European Union (EU) came into force from 25th May 2017?

Despite the ongoing Brexit negotiations, the UK is still part of the EU and has therefore enacted this legislation. It will see improved market surveillance and traceability for medical devices, alongside strengthening legal transparency for manufacturers and importers/distributors of the devices. These new regulations were initially proposed in 2012, following the PIP scandal, and have taken five years to come to fruition.

Commenting on Brexit, the Medicines and Healthcare products Regulatory Agency (MHRA) state; "While negotiations continue, the UK remains a full and active member of the EU, with all the rights and obligations of EU membership firmly in place. Working with our partners, stakeholders and customers, our focus remains: protecting health and improving lives. Our role in regulating medical devices...remains integral. We oversee the essential work of the five UK Notified Bodies; together they are responsible for assessing the

majority of devices currently placed on the EU market. Our preparations to implement proposed new Regulations for Medical Devices continue."

The Medical Devices Regulation (MDR), which will directly affect the aesthetic sector, replaces the Medical Devices Directive (MDD) (93/42/EEC) and Active Implantable Medical Devices Directive (90/385/EEC) that were brought into law in 1993 and 1990 respectively.

Specifically, the new MDR is Regulation (EU) 2017/745 of the European Parliament on medical devices and amends Directive 2001/83/EC, Regulation (EC) No 178/2002 and Regulation (EC) No 1223/2009, and repeals Council Directives 90/385/EEC and 93/42/EEC. The MDR does not apply to cosmetic products which are covered by Regulation (EC) No 1223/2009. Now breathe...

The formal document for the MDR, or Regulation (EU) 2017/745, runs to some 336 pages and is available to download from the EU Commission website; for those who would like some bedtime reading. Hopefully, this update will extract the primary facts that those operating medical aesthetic

clinics within the UK need to know.

Thankfully, the new MDR rules have not just been sprung on the sector, but carry a transition period of three years from the point of entry into force. This means that compliance with the MDR must be achieved by the spring of 2020 and manufacturers have the duration of the transition period to update their technical documentation and processes to meet the new requirements.

The European Commission regards the MDR as establishing 'a modernised and more robust EU legislative framework to ensure better protection of public health and patient safety'.

The MHRA see it that 'the new regulations are a balancing act of proportionate responsibility and an increasingly technological approach to healthcare'.

Following several well-known medical device scandals, and the spotlight that this shone on the practices of Notified Bodies and the differing interpretations of the previous EU Directives on medical devices; the Commission acted to remove weaknesses in the legal system so

that patient and practitioner confidence in the safety of medical devices could be restored, by strengthening the medical device legislation within the EU, including that for in-vitro diagnostic medical devices (through the IVDR regulations).

It hopes that the new regulations will ensure a consistently high level of health and safety protection for medical device users within the EU; ensure the free and fair trade of the products throughout the EU; and that EU legislation is adapted and brought up to date to consider the significant technological and scientific progress that has occurred, and continues to occur, since regulations were last reviewed some twenty years ago.

What are the MDR and what do they cover?

As a means of modernising regulation and improving on what came before, and in some cases failed, the MDR includes a variety of new measures.

Under the scope of the MDR, it will continue to cover all devices that were previously covered by the MDD that it replaces, but will extend its scope to include additional devices, including certain cosmetically-indicated devices, which present the same characteristics and risk profile as other defined medical devices. This means that some products will become regulated under the medical device legislation for the first time.

Medical devices will still be divided into classes I, IIa, IIb and III, considering the

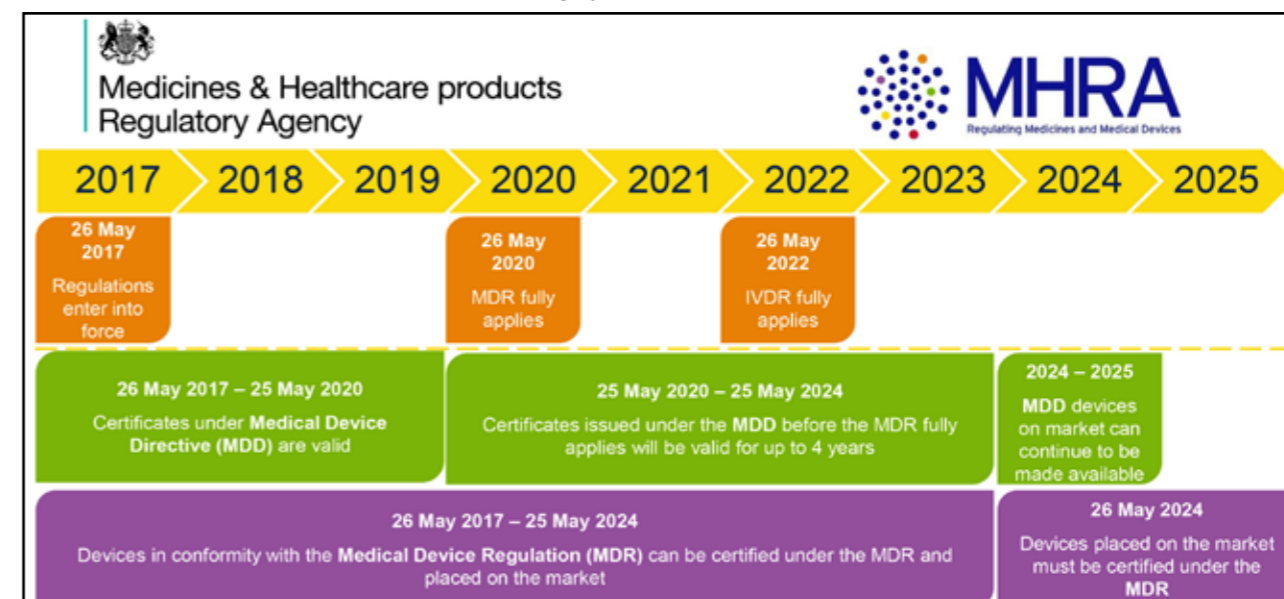
intended purpose of the devices and their inherent risks, in accordance with the MDR, Annex VIII. After assessing the duration of use (i.e. transient, short term or long term), and whether a device is non-invasive, invasive or active, various of the twenty-two rules can be applied and will determine an appropriate classification. Special rules exist in the MDR to define devices manufactured utilising tissues or cells of human or animal origin; as well as devices incorporating, as an integral part, a substance which, if used separately, can be considered to be a medicinal product, including a medicinal product derived from human blood or human plasma, and that has an action ancillary to that of the devices. Both of which are class III classifications.

Annex XVI of the MDR gives the full lists of products, without an intended medical purpose, which are now also included in the legislation. Many of these are directly related to the devices that we see in the aesthetic sector, such as dermal fillers and light-based treatments, as defined below.

1. Contact lenses or other items intended to be introduced into or onto the eye.
2. **Products intended to be totally or partially introduced into the human body through surgically invasive means, for the purpose of modifying the anatomy or fixation of body parts** with the exception of tattooing products and piercings.
3. **Substances, combinations of substances, or items intended to be used for facial or other dermal or mucous membrane filling by subcutaneous,**

4. **Equipment intended to be used to reduce, remove or destroy adipose tissue, such as equipment for liposuction, lipolysis or lipoplasty.**
5. High intensity electromagnetic radiation (e.g. infra-red, visible light and ultra-violet) emitting equipment intended for use on the human body, including coherent and non-coherent sources, monochromatic and broad spectrum, **such as lasers and intense pulsed light equipment, for skin resurfacing, tattoo or hair removal or other skin treatment.**
6. Equipment intended for brain stimulation that apply electrical currents or magnetic or electromagnetic fields that penetrate the cranium to modify neuronal activity in the brain.

During the transition period of the MDR, from May 2017 to May 2020, devices can be placed on the market either under the old MDD Directive as a valid certification, or by complying with the new MDR certification. If a certificate for a device is issued under the MDD before the end of this period, then it will be valid for up to a further 4 years (until 2024). Those devices placed on the market and certified after the end of this period (2020) will need to comply with the MDR. After 2024, all devices placed on the market must conform and be certified under the MDR. MDD certificates will no longer be valid and would result in a device being removed from the market.



What else will change?

Market surveillance is another core issue and focus of the MDR. There is to be stricter ex-ante control for high-risk devices, such as implants, via a new pre-market scrutiny mechanism with the involvement of a pool of experts at EU level before a device can be placed on the market.

The rules on clinical evidence are to be reinforced, including an EU-wide coordinated procedure for authorisation of multi-centre clinical trials, as well as improved coordination mechanisms between EU countries in the fields of vigilance and market surveillance. This also means that there is to be a strengthening of post-market surveillance requirements for manufacturers, as well as how they are marketed. Manufacturers will be required to collect data on the performance of their medical devices in the field, which can then be gathered at an EU level.

Manufacturers of medical devices will therefore need to meet various new obligations under the MDR, most of which are laid out in Article X of the MDR. They will need to ensure that the device has been correctly classified against the new risk classification criteria (MDR, Annex VIII). They will need to ensure that general safety and performance requirements are met, including for labelling, technical documentation and quality management systems (MDR, Annex I). That they have met the increased requirements for clinical evidence (MDR, Annex XIV). Also ensuring that they have a person responsible for regulatory compliance in place, economic operators in the supply chain are compliant and that sufficient financial coverage is in place, in respect of potential liability. Finally, ensuring that the new vigilance reporting timescales are met and that an annual, periodic safety update report is created.

All this new regulation, much of which emanates from the PIP breast implant and metal hip implant scandals, is designed to improve on the traceability of medical devices. There is to be improved transparency through the establishment of a comprehensive European Database of Medical Devices (EUDAMED), where device traceability to the patient will be mandatory based on a Unique Device Identifier (UDI). The

UDI is a series of numbers that enables the tracing of the manufacturer if the device (UDI-DI number) and the unit of device production (UDI-PI number). Patients will be given a so-called "implant card" which will contain information about implanted medical devices, should a future issue arise which requires patients to know the type of device they were given. This will also apply to resorbable implants.



As well as the good old-fashioned warning of Caveat Emptor – buyer beware – the onus to perform due diligence on the medical devices that you use to treat patients in your clinic rests firmly with you. This means continuing to ensure, and perhaps, more strictly so than previously, considering the new MDR rules, that any new products you taken on board to offer to your patients are compliant with the new regulation going forward. If a supplier cannot, or will not, supply you with adequate evidence of their CE mark certification and MDR compliance, then walking away is probably a good idea.

As we move through the transition period and beyond to 2024, make sure you speak to your medical device company reps, including those for dermal fillers, lipolysis and laser/light equipment, to ask for updates on their transition to the new MDR regulations, including post-market surveillance and traceability of the devices through the UDI, which is to be phased in over several years, starting with the highest risk devices. In future, labelling on medical devices will point the intended user to all the safety and clinical performance data for the device through the EUDAMED.

Despite the perceived red tape, the improved and extended regulation of medical devices that the MDR brings will be a positive for the aesthetic sector, as well as the wider medical community.

"After 2024, all medical devices placed on the market must conform and be certified under MDR"

In relation to Notified Bodies it will reinforce the criteria for designation of this status and the oversight processes in place. It has been unofficially discussed in the past that some Notified Bodies within the EU nations were regarded as 'more lax than others' if a manufacturer is looking to get a CE mark certificate, so much so that some manufacturers will use the implied 'tough' status of a Notified Body that they used, as a marker of excellence for their medical device product. This should become a thing of the past, as all Notified Bodies will need to be designated under the new MDR by their Competent Authority to qualify to begin auditing and issuing certificates under the new regulation. Manufacturers can still certify their products with any Notified Body within the EU.

How does this affect aesthetic clinics?

In short, the MDR regulation affects manufacturers, importers and distributors of medical devices more than it affects aesthetic clinics who use them; but that's not to say that you can, or should ignore it.

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GENERAL DATA PROTECTION REGULATIONS

Lorna Jackson asks if you are ready for 25th May 2018?

If you just answered that question with – “why, what’s happening in May 2018?” or “what General Data Protection Regulations?” – then it’s imperative that you keep reading.

The General Data Protection Regulations (GDPR) come into effect in the UK from 25th May 2018. You may already be familiar with the UK Data Protection Act 1998 (DPA). The GDPR will be broadly similar in nature, but brought up-to-date, and carrying many more legal requirements than the current legislative framework.

Part of an EU-wide reform, which will not be affected by *Brexit*, understanding the GDPR is vital for any organisation that carries a day-to-day responsibility for data protection, be that staff personal details or individual customer details (B2C and B2B). The UK agency responsible for enforcing the GDPR is the Information Commission’s Office (ICO).

The date by which businesses need to have compliant systems and policies in place is fast approaching, and no matter how large or small your organisation is, you simply cannot afford to ignore this legislation and think that it doesn’t impact on your operation. The potential penalties, should something ‘go wrong’, simply aren’t worth the risk.

The biggest change that the GDPR represents is in relation to the consequences if you lose data or if it is stolen, hacked or held to ransom by malicious criminals. Breaches of the GDPR and the enhanced data protection requirements will result in heavy and punitive fines which frankly could cripple your business and mean the end of it as a viable entity.

This article does not aim to give you the ‘whole story’, but should point out the vital considerations which will then allow you to seek advice from those who may provide you with IT systems such as Client Management Software (CMS), billing and accountancy software, email marketing systems, website, database or server hosting and cloud data storage. All of which may be repositories for storing personal data that must be fully opted-in correctly for you to use, and that you must protect from cyber threats or loss. Now is the moment to make

sure you have adequate controls in place before the date of compliance.

The importance of data

You might think that data itself isn’t a valuable thing, or something which needs much of your attention, but you’d be wrong. Granted it’s not cash, but you still wouldn’t want anyone to steal it, or to be proven guilty for not looking after personal information that your staff or clients trusted you to keep under lock and key, and away from casual eyes or thieves.

Data, particularly your client list, which you have built up over many years, probably is the most valuable thing in your business; without it you would have no business. So why wouldn’t you guard it with your life and make sure you keep it safe. Such data comes in a variety of forms and must be managed in different ways, and then protected. Personal data could



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include contact details from website enquiries who have yet to set foot in your clinic, but who receive email updates or newsletters from you, it could also be patients who have visited your clinic for a consultation, as well as those who have gone on to have a single treatment encounter, or who are regular, repeat clients. The amount of personal data that you hold about an individual client, including medical records, will vary, but can include names, addresses, telephone numbers, email addresses, dates of birth, and possibly payment information or financial plans. Add to that your staff information, including payroll, and you have a lot of data to protect.

Changes in the law

Existing DPA legislation requires that organisations process personal data for an individual in a fair and lawful manner, with consent to hold or use the data being implied, but not needing to be explicit. Those who are the subject of the personal data have the right to access the information held, and those who hold it must provide it within a 40-day time frame for a fee. There is a right to object to personal data being processed if it causes damage or distress, unless that is required as part of a contract, but individuals have the right to request that inaccurate data is destroyed or amended.

Significantly, and clearly a marker that the DPA regulation came about in 1998, when the Internet was still very much in its infancy, there is no obligation on those who hold and control personal data to report data breaches, and fines levied are capped at £500,000.

Under the GDPR, organisations that hold and process personal data for an individual must continue to do so in a fair and lawful manner, but it must also be held in a transparent manner – accountability is a core principle of the GDPR. Consent to hold personal data is no longer implied, but must be defined and unambiguous – properly opted-in, rather than assumed to be opted-in unless told otherwise. Individuals have the right to have their data withdrawn at any time. Access to the information is still a right, but the holder must provide it within one month and no fee can be levied. In line with the new requirement to obtain explicit consent, individuals have the absolute right to object to their data being processed and profiled for direct marketing purposes, so there

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is no implied opt-in. They can also restrict the disclosure of their personal information to third parties.

Unlike the DPA, data breaches carry an increased penalty. Any breach which leads to accidental, unlawful destruction or the loss or alteration of personal data must be notified to the ICO within 72 hours and to all affected individuals without undue delay. Failure to notify of a breach could lead to a fine up to €10 million or 2% of your annual turnover, whichever of the two is greater.

If you fail to obtain proper consent from individuals for the use of their personal data or follow the stipulations under the GDPR, you can risk a fine up to €20 million or 4% of your annual turnover, whichever of the two is greater.

The British Standards Institution (BSI) reports that, ‘despite the prospect of such significant penalties, recent business surveys suggest the majority of UK businesses have not yet started preparing for the new regulation’.¹

Clearly, the stakes are high with the new GDPR, so you’d be wise to get your ducks in a row. But, it’s not all doom and gloom. There are many companies out there who can advise on GDPR, but also some simple steps that you can do yourself.

Keeping a record of your journey to GDPR compliance is also a good idea as this demonstrates your willingness to meet the new rules and how you went about doing it.

What data?

The first thing to do is to look at what personal data you hold, your reason for holding it, and where the data originated from, plus identifying which third party providers hold information on your behalf, i.e., who you share the data with. Create an audited record of this and maintain it. This documentation is referred to as the ‘data register’ – this is the proof you need for accountability to the GDPR

and the ICO who enforce it.

As mentioned, third party companies could include cloud storage providers for your CMS or accounting systems, website hosting companies who host your web enquiry databases, email marketing processors etc. Once you have established exactly who is handling either your staff or client personal information on your behalf, then you can contact them to discuss the terms and conditions of your contract and their obligations under the GDPR. In this situation you are regarded as the ‘controller’ of the data, i.e. the entity that says how and why personal data is processed, and they are the ‘processor’, i.e. the entity that acts on behalf of the controller. Processors have significantly more legal liability under the GDPR than controllers, particularly if they are responsible for a breach, but controllers have an obligation to ensure that contracts with third party processors are compliant with GDPR. Doing your due diligence to ensure that any contract terms does not absolve them of liability for data held is imperative.



It’s a good job to audit all the data that you hold (before May 2018) in a spring cleaning exercise – like old clothes, we sometimes hold on to outdated data that is no longer relevant or fits with the business. This should be deleted or destroyed appropriately in time for compliance. In simple terms, the more data that you hold, the more people you have a responsibility to audit and potentially inform, in the event of a breach, so rationalising your data as you start your compliance with GDPR limits the potential costs and time incurred in the process.

time for compliance. In simple terms, the more data that you hold, the more people you have a responsibility to audit and potentially inform, in the event of a breach, so rationalising your data as you start your compliance with GDPR limits the potential costs and time incurred in the process.

Policies, procedures and consent

The next thing you will need to do is review your policies and procedures, and most likely update them. This includes things like privacy policies, consent processes, plus the audit trail and records that you keep which show



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Steps To Prepare For GDPR

Awareness

Make sure that decision makers and key people in your organisation are aware that the law is changing to the GDPR. They need to appreciate the impact this is likely to have.

Information you hold

Document what personal data you hold, where it came from and who you share it with. You may need to organise an information audit.

Communicating privacy information

Review your current privacy notices and put a plan in place for making any necessary changes in time for GDPR implementation.

Individuals' rights

Check your procedures to ensure they cover all the rights individuals have, including how you would delete personal data or provide data electronically and in a commonly used format.

Subject access requests

Update your procedures and plan how you will handle requests within the new timescales and provide any additional information.

Lawful basis for processing personal data

Identify the lawful basis for your processing activity in the GDPR, document it & update your privacy notice to explain it.

Consent

Review how you seek, record and manage consent and whether you need to make any changes. Refresh existing consents now if they don't meet the GDPR standard.

Data breaches

Make sure you have the right procedures in place to detect, report and investigate a personal data breach.

Children

Start thinking now about whether you need to put systems in place to verify individuals' ages and to obtain parental or guardian consent for any data processing activity.

Data Protection by Design and Data Protection Impact Assessments

Familiarise yourself now with the ICO's code of practice on Privacy Impact Assessments and work out how and when to implement them in your organisation.

Data Protection Officers

Designate someone to take responsibility for data protection compliance and assess where this role will sit within your organisation's structure and governance arrangements. Consider whether you are required to formally designate a Data Protection Officer.

International

If your organisation operates in more than one EU member state (i.e. you carry out cross-border processing), determine your lead data protection supervisory authority.⁵

how consent was given for the personal data that you hold and process.

Consent must be given freely, be informed, specific and unambiguous. Importantly it must be a positive opt-in, you cannot infer consent from silence or inactivity by an individual or via pre-ticked boxes that you provide. It must also be separate from any other terms and conditions that an individual is agreeing to with you. There must be simple ways in place to withdraw consent.

Above all, privacy policies issued by you, whether digitally through your website for example, or in hard copy to individuals present in your clinic, should be readily available and easy to find, as well as concise, written in clear English, and simple to understand. Your identity and reasons for wanting their personal data should be explained clearly and accurately, including how data will be used, i.e., your lawful basis for processing their data, how long you will retain their data, (you can define a retention period), and should include details of the complaints process and their right to complain to the ICO if they feel dissatisfied with your use or handling of their personal data at any time.

Defining your 'lawful basis for processing personal data', and putting this in your privacy policy, does have practical implications, because under the GDPR individuals have a stronger right to have their data deleted where you simply use consent as your lawful basis for processing. When explaining your lawful basis for processing there are many conditions laid out in the GDPR which you can reference. These broadly relate to things like contractual necessities, compliance under legal obligations, vital, public or legitimate interests, as well as others, and you would be advised to read them all closely.²

There is no requirement to refresh any existing consents that you sought under the DPA, but if you are relying on consent alone to process someone's data and you're not sure whether the consent you sought would be GDPR compliant in terms of being fully opted-in, clear and specific, as well as properly documented, then the advice is to alter your consent methods and seek fresh consent from your database of personal data, or find an alternative legal basis for processing, rather than just relying on consent.

The regulation is not designed to stifle businesses wishing to engage with individuals, but more to make sure that standards are in place for all, and question the motives and reasons why businesses are using personal information. Making sure that when you capture and record personal data, you have policies in place to obtain consent from the individuals for the use (processing) of that data is vital going forward. Data capture systems should make the individual agree to opt-in to your use of their data, and verify that they have read and understood your privacy policy.

The procedures that you put in place must reflect the enhanced DPA rights passed on to individuals by the GDPR, including the rights of access, rectification, erasure, being informed, restricting processing, data portability, objection and the right not to be subject to automated decision-making including profiling. Most businesses who are already DPA compliant will likely have a procedure in place for how they delete an individual's personal data if requested, or provide their data to them if they request it, so laying down these procedures shouldn't be too onerous. Data should be stored in a commonly-used electronic format which can be transferred from one data controller to another without hindrance.

Data breaches

Similarly, you will need to risk assess and put procedures in place to prevent a breach, as well as the handling of one should it happen.

In the first instance, auditing the security of IT systems is paramount – if you're wandering around the internet with your personal information database 'knickers' around your ankles then the ICO won't be very impressed with you. If you can't audit this yourself, then take time to employ an IT company or data

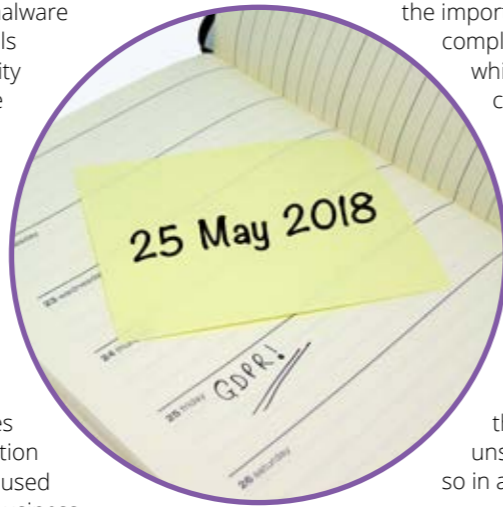
protection specialist agency who can ensure you have adequate virus checkers, anti-malware software, firewalls and other security features in place to protect personal data that you hold, or that third parties holding it for you are adequately protected.

This also includes checking encryption and the devices used as part of your business – laptops, tablets, smartphones may all be synced to cloud based CMS systems, for example, so cannot be unencrypted in the event of loss or theft. You should not be storing personal data on the hard drives or internal storage of such devices either. This of course extends to all staff members who may have devices which access your personal data store. Audit what happens with devices when they leave your clinic premises – we forget that many devices wirelessly sync with home hubs or wi-fi networks in cafes and bars, all of which have the potential to be 'sniffed' for data by the unscrupulous. Do devices which can access your database of third party personal information really need to leave your premises?

Often the weak link in any computer system is the human operating them. IT professionals will colloquially refer to the issue of PEBKAC – Problem Exists Between Keyboard And Chair – in other words the system is fine, but the operator is the weak link and needs training and advice on how to use it.

Staff training, particularly in respect of minimising the risk from data breaches is something else you will need to consider. This includes simple measures like understanding how to recognise a phishing email which might seek to download malware

onto your system with a view to accessing your data, as well as the importance of using complex passwords, which are regularly changed every couple of months, for accessing vital systems and software. Staff must feel able to report any suspicious or unusual activity, even if they are simply unsure, and to do so in a timely manner.



Conclusion

Although you may not have a legal obligation to formally designate a Data Protection Officer for your type of organisation, the ICO highlights the importance of someone in your organisation, or an external data protection advisor, taking proper responsibility for your data protection compliance, ensuring that they have the knowledge, support and authority to carry out that role effectively.

Many insurance providers are now offering policies to protect aesthetic businesses against the cyber and data breach threats covered by the GDPR regulation.

The ICO has also published plenty of guidance on GDPR, including a self-assessment tool kit which is available on their website.³ For more information on GDPR, I would recommend that you visit the ICO website to review their guidance for organisations.⁴

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IS EQUIPMENT FINANCE ONLY USED BY BUSINESSES THAT CAN'T AFFORD TO BUY IT?

Simon Etheridge from Admiral Leasing and Loans sets the record straight on leasing.

Equipment finance, usually known as 'asset finance' or a 'lease', is often frowned upon by cash-rich businesses and only offered to customers of equipment sellers who raise a price objection.

Managing your business finances is totally different to how you manage your personal finance. Any decent accountant will try and save you having to pay unnecessary tax on your profits. This is where equipment finance can help, not only businesses who don't have the cash to buy outright, but also the highly profitable businesses that pay a lot of tax.

There are a number of ways a business can borrow money to acquire equipment, with leasing being the most common option being offered by equipment sellers.

Leasing is a highly tax efficient way for a business to acquire equipment, as the equipment is bought by the leasing company and then rented to the end user. This means the monthly payments are an expenditure, which is 100% deductible from any taxable profits.

Below is a simple illustration of how this works, based on a business that pays at the standard corporation tax rate:

Cost of equipment:	£20,000 + VAT
Monthly repayments over 3 years:	£640 + VAT
Total repayments over 3 Years:	£23,040 + VAT
Tax Benefit over 3 years (based on corporation tax of 19%):	£4,377
Total payback over 3 years:	(£23,040 - £4,377) = £18,663 + VAT

Effectively saving you £1,337 + VAT off the cash price.

Leasing has many other advantages, with it being a rental, as it has no impact on your existing funding lines, the repayments are fixed through the term, so no sudden increases, and it allows you use the equipment now instead of having to save for it and miss out on any potential income. The cash you don't use to buy the equipment can then be used to market your new services, which will only increase your profitability.

Of course don't take my word for it, before buying the next piece of equipment for your business why not ask your accountant if a lease may be the best, most tax efficient way to fund it.



THE TRUE POWER OF SMALL CHANGE

Award-winning business coach and bestselling author, Alan S. Adams explores three steps to skyrocketing your clinic's profit.

Most plastic, maxillo-facial and aesthetic clinic owners I speak to and work with are so busy working *in* their business that they are rarely able to find time to work *on* it.

In this article I will share with you three simple and straightforward strategies which can help you to improve your clinic's profitability. This is about the power of small change, and how you can hugely enhance your business in just a few small steps with little requirement for additional resources. So, how do we go about doing this?

1. Database

The first area to consider is the number of clients you currently have, which should include both existing clients as well as those who have used your services in the past. It doesn't matter if it's a simple Excel spreadsheet with all your clients' details recorded, or a state-of-the-art CRM system. What does matter is that it works for you, and it's kept meticulously up-to-date.

Capture all data that is relevant for you and your business and make sure that you have a valid email address, postal address and phone number. As a side note, make sure that anyone on your database has the opportunity to opt-out of any future communications.

2. Communication

The second area you should consider is that of communication. You now have an expanded list of contacts on your database; so, you need to decide how to communicate with them. The key here is to communicate often enough that you are in their mind, but not so often that it feels pressured. And this is very much down to you and your own individual clinic, and how often you feel your contacts would prefer to receive information from you.

3. Lead Conversion

So, once you have completed all the steps above – the next stage is to turn all of these potential clients into existing ones. I would suggest that you have a timeline

worked out which details: when each individual contact was communicated with, when and how they were followed up, and by whom. You should avoid any potential confusion or inconsistency by developing scripts for your team and templates for emails and letters.

Small Change

The next step is to give some thought to how you can increase how often customers come to you. I understand that for some clinics this is easier than others, but remember that you are only aiming for a small increase. The work you have already done will have helped you to understand why your clients come to you in the first place, so use that knowledge to encourage them to come back more often.

While I know this all sounds great, it also sounds like a lot of work. However, it is quite minimal, as you don't have to implement all of these things straightaway. But if you do enough in each area to increase your current figures by 10%, this is what it could mean for your business.

A simple 10% increase across all the areas below adds over 50% on the amount of sales for a fictional clinic. If this same clinic was to undertake a subsequent phase of activity, again just adding 10% to each of the areas, total sales could rise a further 134%.

We are in a truly beautiful business, and with a few "nips and tucks", your clinic can offer the service to your clients, and you the lifestyle that you desire. Whatever you do, keep focusing on sculpting your ultimate clinic, and good luck!

Alan Adams | The Clinic Coach

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Tel: 0845 373 0046

www.TheTopClinicCoach.Com



	Current	Next Phase
Number of Clients	84	109
Number of New Contacts	100	110
% of New Contacts Now Clients	25%	27.5%
Total Number of Clients Now	109	139
Average Number of Purchases	6.1	6.71
Average Spend Per Visit	£230	£253
Total Sales	£152,927	£235,970



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ARE YOU SUPPLEMENTING YOUR TREATMENTS?

Ron Myers asks whether your clinic is missing out on the huge boom in nutraceuticals, probiotics and other oral supplements?

As clinic owners operating in the aesthetic/cosmetic/beauty market place, most of us have at least one cosmeceutical skincare range that we promote and offer to our clients. However, very few clinics have a strategy to capitalise on the boom in supplementation driven by the huge growth in “health and wellbeing” trends over the last few years.

According to Mintel (2016), as many as two thirds (65%) of all adults took some form of vitamins or supplement either daily, or occasionally in the last 12 months. It's also interesting to note that one third (32%) of women users say that they started taking supplements due to a recommendation from a health practitioner.

In recent years new categories have evolved within the oral supplementation market, including the word “*Nutraceutical*”. This is a broad umbrella term that is used to describe any product derived from food sources, with extra health benefits, in addition to the basic nutritional value found in foods. They can be considered non-specific biological therapies used to promote general well-being, control symptoms

and prevent malignant processes. The use of pre- and probiotics have also increased dramatically in line with research and improved understanding of the importance of our gut flora (or microbiome) for digestive and overall health. The term “*probiotic*” should be used only for products that meet the scientific criteria for this term, namely, products that contain an adequate dose of live microbes that have been documented in target-host studies to confer a health benefit.

Aesthetic clinic owners may be more familiar with oral collagen supplements, as evidence for these for improved skin health has amassed in recent years. Tablets, liquids and powder forms are now being directly promoted at aesthetic conferences, including Skinade, ZENii Collagen, Collagen Gold, Collagen Shots and Totally Derma, and have started to make their way onto clinic shelves as a result.

However, most clinics do not have a concerted strategy to educate themselves and their clients about the wide range of different oral supplements available on the market today. Long and complicated ingredient lists, concerns about quality

of ingredients and what supplement(s) are right for them can lead to confusion and unnecessary cost for consumers who browse the Internet or pick something off the shelf in a supermarket.

Specialist retailers, such as Holland and Barrett, have a mind-boggling range of supplements; from Raspberry Ketone complexes to Bee Propolis capsules and Horny Goat weed tablets, with nothing on display concerning any scientific evidence proving their health benefits. This, to me, provides an opportunity for professional clinics to be the advice providers and educators, in the same way that many of us are in the skincare market, educating your clients about evidence based ingredients, and formulations that are distinct from the hundreds of thousands of skin creams and lotions that can be bought today in the retail environment and online.

For clinics that have got to grips with this often overlooked aspect of the aesthetic market, the promotion of “*Intelligent Supplementation*” is the key to helping your clients improve outcomes. This concept revolves around providing evidence-based

advice with a potential solution that will enhance treatment outcomes, alongside having broader health and wellness benefits for your clients.

One of the variables in treatment outcomes is the nutritional status of your clients. And, although it is often said that you can get all the nutrition you need from a healthy, balanced diet, the reality is that this ignores how most people actually eat. A lot of people don't consume the full-spectrum of micronutrients needed to support optimum health, (or even macronutrients if they are on some form of restrictive fad diet). In addition, fast cropping and mineral soil depletion have led to concerns about the mineral content of the food we eat.

Recently published research in America analysed data from 10,698 adults from the National Health and Nutrition Examination Surveys (NHANES) 2009 to 2012.¹ Experts looked at intakes of 17 nutrients from food alone versus food plus vitamin and mineral supplements. The study found that taking vitamin and mineral supplements, at any frequency, significantly increased nutrient intakes and decreased the occurrence of inadequate intakes for most micronutrients. This was especially apparent in under-consumed nutrients such as Vitamin A and iron, as compared to food alone.

Increasing evidence for the use of probiotics to improve gut health and immunity to help counter inflammatory conditions, including acne and rosacea, make them useful adjunctive tools in the treatment of these conditions. Many clients with acne will have received long term courses of antibiotics that can adversely affect the gut; probiotics can help to restore gut health and have also been shown to improve treatment outcomes for acne in some studies.

The educational opportunity presented to discuss diet and potential deficiencies that could relate to skin health and overall wellbeing is there in each and every consultation with your client. In reality, they welcome the opportunity to be educated by a professional – either about what they are currently taking, and whether it makes sense; or about what they might be lacking that could improve the results that they are seeking. The reason for this is that they don't really have the opportunity to discuss nutrition and appropriate

supplementation in other professional settings – i.e. with their GP, or in the normal retail or online routes that promote these products.

Skin is the largest organ in the body, but can be the most nutritionally deplete as the brain, heart, liver and other essential organs are hungry for the macro- and micronutrients required for survival. Pretty much every woman who comes into your clinic is spending money on a skin cream; and clinics that are focussed on selling cosmeceuticals are generally upgrading them to more active, and expensive skincare. But, let's face it, when you're recommending skin protection against UVA/UVB rays, having a simple conversation with your clients about the benefits of oral supplementation with Vitamin D (supported by recommendations from Public Health England) can have a far more dramatic effect on your client's overall health and wellbeing than upgrading them to a more expensive sunblock.

In addition, if you're going to perform a peel or fractional treatment (either with a Laser, RF device or skin needling system) with the hope of stimulating collagen and improving the appearance of skin – it would seem sensible to add in some of the building blocks of collagen to maximise the results. We all heal differently when we are wounded, and part of this is due to nutritional status, as during the healing process having the building blocks of collagen in abundance is required. Hydrolysed collagen supplementation provides the complete chain of peptides that the body needs to build new collagen – taking away the guess work of which amino acid complexes, (you need up to 18 different amino acids in the right quantities and ratios to build a collagen molecule), might be available through their normal diet. The addition of a quality collagen supplement, that could cost the clinic as little as £20, into a treatment package that is being charged out at sometimes £1,000s to the consumer can differentiate you from other providers who ignore the importance of nutritional advice.

Your customers are becoming increasingly aware of different oral products that are being promoted for skin health, however the advertising messages are confusing and not necessarily evidence-based. When they visit you, they are looking for best advice; and an understanding around

the basic concepts of intelligent, evidence-based supplementation is required. Just advising people to buy a topical antioxidant or retinol based product without reinforcing how they feed their skin from within may not help your clients get the best results. Or, and I may be controversial here, clinics that offer occasional i.v. vitamin and mineral drips at £100s to a niche market without advising on the simpler, more evidence-based messages on oral supplementation discussed above, may also not be giving the best advice.

The concept of “healthy skin starts from within” is already being embraced by the leading clinics who want to help their clients achieve great looking skin, whilst also providing simple messages that can improve their overall health and wellbeing... whether they stock an oral supplementation line themselves or simply advise people to buy products from a retail channel. However, in our experience at our clinic, once you enter discussions concerning your clients diet and any supplementation they are taking, they are happy to receive advice – in the way that they are regarding the skin creams that they use. Having quality oral products available for them to buy that are specifically formulated and tailored towards our market, with a sensible price range, (starting from £20), is not difficult to sell to complement the topical recommendations.

In summary, if you're not currently routinely educating your clients about their diet and any appropriate supplementation that may support treatment protocols for acne, rosacea, dry skin and aged skin – then educating yourselves and your staff is the first stage. If you decide to stock a supplementation line, Doctor led brands such as ZENii – www.zenii.co.uk provide a wide range of products tailored to the aesthetic market, alongside the education and support required to ensure that you provide the right advice to your clients and make this a successful and simple additional revenue stream for your business.

References

1. **Nutrients.** 2017 Aug 9;9(8). pii: E849. **Impact of Frequency of Multi-Vitamin/ Multi-Mineral Supplement Intake on Nutritional Adequacy and Nutrient Deficiencies in U.S. Adults.** Blumberg JB, Frei BB, Fulgoni VL, Weaver CM, Zeisel SH.

LATEST CLINICAL INFORMATION

Hypertrophic Scars: Are Vitamins and Inflammatory Biomarkers Related with the Pathophysiology of Wound Healing?

Correia-Sá I, Serrão P, Marques M, Vieira-Coelho MA.

Obes Surg. 2017 Dec;27(12):3170-3178.

BACKGROUND: Hypertrophic scars are a consequence of wound healing.

OBJECTIVE: The objective of the present study is to evaluate vitamin D and inflammatory biomarker plasma levels during wound healing.

METHODS: A prospective study was performed in patients (n = 63) submitted to body contouring surgery. Blood samples were collected before (t 0) and 5 days after surgery (t 5). Blood cell count, protein inflammatory biomarkers, and circulating plasma levels of 25(OH)D, vitamin A and vitamin E were quantified. Six months after surgery, scars were evaluated and classified as normal or hypertrophic.

RESULTS: At the end of the study, 73% of the patients developed a normal scar (control group, n = 46) and 27% of the patients presented hypertrophic scars (HT group, n = 17). The patients in the HT group presented higher eosinophil ($0.145 \times 10^9/L$ vs. $0.104 \times 10^9/L$, $p = 0.028$) and basophil count ($0.031 \times 10^9/L$ vs. $0.22 \times 10^9/L$, $p = 0.049$) and C-reactive protein levels (6.12 mg/L vs. 2.30 mg/L , $p = 0.015$) in t 0 than the patients in the control group. At t 5, the patients in the HT group showed a decrease in neutrophil ($3.144 \times 10^9/L$ vs. $4.03 \times 10^9/L$, $p = 0.031$) and an increase in basophil ($0.024 \times 10^9/L$ vs. $0.015 \times 10^9/L$, $p = 0.005$) and lymphocyte count ($1.836 \times 10^9/L$ vs. $1.557 \times 10^9/L$; $p = 0.028$). Before surgery, vitamin D plasma levels were found to be decreased by almost 50% (23.52 ng/mL vs. 15.46 ng/mL , $p = 0.031$) in the patients who developed hypertrophic scars. Thirty-one percent of the patients submitted to bariatric surgery had more hypertrophic scars, versus 24% of the patients with no previous bariatric surgery.

CONCLUSION: There is a different systemic inflammatory profile response in the patients during the formation of hypertrophic scars. Vitamin D plasma levels are marked reduced in these patients. Considering the powerful anti-inflammatory effect of vitamin D, these findings could be related.

This study highlights another role that Vitamin D appears to play in skin health. Giving Vitamin D supplementation to patients who are booked to undergo invasive aesthetic treatments, which could result in scarring, may be a useful prophylactic approach to mitigate hypertrophic scar formation.

Modification of Chin Projection and Aesthetics With OnabotulinumtoxinA Injection.

Hsu AK, Frankel AS.

JAMA Facial Plast Surg. 2017 Dec 1;19(6):522-527.

IMPORTANCE: Because of the soft-tissue envelope and the dimensional complexity of the muscular contraction of the mentalis muscle, the projection and shape of the chin is not determined by only the bony projection. In a subset of patients with a seemingly underprojected chin, a hyperactive, high-riding mentalis muscle contributes to a blunted chin contour.

OBJECTIVE: To evaluate the use of onabotulinumtoxinA (botulinum toxin A) for improving chin aesthetics in patients with an underprojected bony chin and a high-riding hyperactive mentalis muscle.

DESIGN, SETTING, AND PARTICIPANTS: This case series and photographic analysis included 11 patients presenting with an underprojected bony chin and a high-riding hyperactive mentalis muscle at a private facial plastic surgery practice from August 25, 2006, to November 10, 2012. Data were analyzed from November 13, 2012, to April 9, 2013.

INTERVENTIONS: Injection with 12 to 15 U of onabotulinumtoxinA into the mentalis muscle.

MAIN OUTCOMES AND MEASURES: Photographic analysis of the vertical and horizontal positions of the pogonion relative to fixed facial points before and after injection. A patient satisfaction scale was also used to assess improvement in overall chin aesthetic.

RESULTS: Eleven patients (3 men and 8 women; mean [SD] age, 46.3 [16.4] years) participated in the study, including 2 who had undergone prior chin implantation. The vertical position of the pogonion was more inferior after injection in 10 of 11 patients (mean [SD] vertical position, 1.36 [0.18] preinjection and 1.44 [0.18] postinjection; $P = .005$). Although the horizontal position of the pogonion changed in all patients, this change was not statistically significant (mean [SD] horizontal position, 0.11 [0.13] preinjection and 0.14 [0.13] postinjection; $P = .32$). All patients experienced improvement in their overall chin aesthetic and a subjective decrease in chin tension. Chin contour was improved, with soft-tissue volume overall displaced more inferiorly with a rounded rather than blunted appearance. No adverse effects were reported after injection.

CONCLUSIONS AND RELEVANCE: OnabotulinumtoxinA is effective at improving chin aesthetics by altering the position of the pogonion. In this first photographic analysis to date of the influence of onabotulinumtoxinA treatment, patients demonstrated a measurable change in the position of the pogonion, in addition to improvements to the chin contour on profile. This nonsurgical mentoplasty may be used as an independent procedure or as an adjunct to optimize traditional chin augmentation in carefully selected patients.

Vitamin D Deficiency in an Alopecia Referral Clinic During a 3-Month Period: The Need to Pursue Systemic Screening.

Siddiqui Z, Rashid RM, Mirmirani P.

Skinmed. 2017 Oct 1;15(5):339-341.

Abstract: Alopecia is typically viewed as a localized process, and comorbidities are not usually analyzed. The authors examine the prevalence of vitamin D deficiency among patients attending an alopecia clinic during a 3-month period. The data showed that 79% of patients had vitamin D deficiency, and the average value of low vitamin D was 19.1 mg/mL in patients. Vitamin D levels have not been examined extensively in skin disorders, and it is not clear whether vitamin D levels are correlative or causative in alopecia. The co-occurrence of both findings at such a dramatic level suggests the need for evaluation of this laboratory value in the alopecia population.

This highlights the need for more study into Vitamin D deficiency in the population, and whether it is a contributory factor to many common dermatological and hair loss conditions, including alopecia.

Paradoxical Adipose Hypertrophy (PAH) After Cryolipolysis.

Stroumza N, Gauthier N, Senet P, Moguelet P, Nail Barthelemy R, Atlan M.

Aesthet Surg J. 2017 Nov 14.

BACKGROUND: Cryolipolysis is a minimally invasive technique used to decrease local adipose tissue by thermal cooling. Paradoxical adipose hypertrophy (PAH) is a rare complication of cryolipolysis with important aesthetic consequences.

OBJECTIVES: The objective of this study was to describe four cases of PAH after a cryolipolysis treatment.

METHODS: Between January 2014 and January 2017, all patients who had undergone a cryolipolysis treatment in a single center were reviewed. The device used was a CoolSculpting device and the same operator performed all the cryolipolysis treatments. We retrospectively included all patients who had a suspicion of PAH.

RESULTS: In our study, 398 patients underwent a session of cryolipolysis. Four patients presented with a voluminous painless swelling in the treated area, between 2 and 4 months after the cryolipolysis session. One patient was treated with liposuction. Histological analysis of the adipose tissue in this patient revealed a nonspecific panniculitis. The other three patients did not receive any additional treatment, and their symptoms stabilized after several months.

CONCLUSIONS: Although cryolipolysis generally yields good results, it can be complicated with PAH, which tends to occur a few months after the cryolipolysis treatment. Patients should be informed of the possibility of developing this complication and encouraged to attend regular follow up for at least 6 months, so that this condition can be readily

detected. Surgical treatment should be offered if there is no spontaneous improvement of the symptoms.

Influence of Large-Volume Liposuction on Metabolic and Cardiovascular Health: A Systematic Review.

Sailon AM, Wasserburg JR, Kling RR, Pasick CM, Taub PJ.

Ann Plast Surg. 2017 Dec;79(6):623-630.

BACKGROUND: Evidence suggesting that adipose tissue is a metabolically active tissue has generated debate on the effects of large-volume liposuction (LVL) on metabolic and cardiovascular health. Given the inconsistency in the literature, the authors performed a systematic review to identify available evidence in order to elucidate the potential impact of LVL on metabolic markers and cardiovascular risk factors.

METHODS: A PubMed search using relevant keywords was conducted. Articles were screened using predetermined inclusion and exclusion criteria. Large-volume liposuction was defined as greater than 3.5 L of lipoaspirate. All studies included evaluation of patients' preoperative and postoperative cardiovascular risk factors, inflammatory cytokines, and/or insulin resistance/sensitivity. Relevant studies were evaluated and assigned a level of evidence.

RESULTS: A total of 12 studies that met the inclusion criteria were reviewed, of which 1 was a continuation of a previous study. All reports were prospective studies, 2 were randomized control trials, and 3 included a control group. A total of 364 patients were pooled for analysis. The mean volume of lipoaspirate was $7440 \pm 1934.9 \text{ mL}$. The mean body mass index at baseline and postliposuction was 30.7 and 28.4, respectively. Seven studies reported a trend toward decrease in total cholesterol levels with an overall mean reduction of $0.21 \pm 0.05 \text{ mmol/L}$ from $4.6 \pm 0.79 \text{ mmol/L}$ to $4.4 \pm 0.74 \text{ mmol/L}$. After LVL, leptin was reported to significantly decrease in 4 studies, and TNF- α was reported to significantly decrease in 2. Adiponectin was reported to significantly increase in 2 studies. IL-6 decreased significantly in 2 studies. Two studies included participants with type II diabetes mellitus, whereas 10 studies evaluated insulin sensitivity. Of these, 6 studies reported improvement in insulin sensitivity. Six studies represented level IV and 6 represented level II evidence.

CONCLUSIONS: Liposuction is among the most common aesthetic procedures performed with advances that make it possible to remove considerable amount of adipose tissue within a short period. Current data, although conflicting, appear to support the notion that LVL can affect cardiovascular risk factors, metabolic balance, and insulin resistance in positive ways. Future research with prospective studies is needed to clarify the role of LVL in improving overall health.

This study shows a result from the analysis of available literature which may surprise many. Practitioners have historically been cautious with large-volume liposuction, considering the risk-reward ratio, yet this study notes the positive effect it may have on the health of some patients.

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DISSECTION OF A LAWSUIT

The Royal College of Physicians and Surgeons, Glasgow, 19th February 2018.

In recent years, the medical aesthetic industry has seen a sharp rise in medical negligence claims. With a shared desire to improve patient and clinic outcomes, Taimur Shoaib and Sue Thomson have developed an informed and interactive workshop, 'Dissection of a Lawsuit', which will take place in Glasgow on the 19th of February 2018.

This newly-developed workshop not only provides an opportunity for delegates to learn from medical, legal and insurance experience, but includes 'real and actual' case study exercises, both successfully and unsuccessfully defended, helping to prevent and best prepare for potential medical negligence claims presented in the future.

'Dissection of a Lawsuit' will review the current legal and insurance statistics whilst discussing considerations when working with not only the patient, but the wider clinic team. Delegates will hear from a variety of expert medical speakers in regards to complications that can arise, focusing on key medical aesthetic procedures, how best to avoid them and how to manage them if and when they do arise, whilst ensuring patient safety at all times.

The afternoon sessions will incorporate real, anonymised case studies, enabling delegates the chance to work together in small groups to analyse the study, share their thoughts and feedback on how they would proceed using their new and updated knowledge



Speaker panel will include:

- Enhance Insurance
- Hill Dickinson
- Dr. Cormac Convery, Aesthetic Complications Expert Group
- Mike Murphy, General Secretary of the Association of Laser Safety Professionals, University of Strathclyde
- Taimur Shoaib, Consultant Plastic Surgeon, La Belle Forme Clinic, Glasgow

For more information, please contact Sue Thomson on sue@cobalt-panacea.co.uk.

AESTHETIC BOTULINUM TOXIN A-Z

The Brighton & Sussex Medical School (BSMS), 10th & 11th February 2018.

Dr. Asif Hussein and Dr. Vania Hiratsuka Dalmedo welcome you to a new philosophy in aesthetic training - H&H aesthetic training.

When they decided to develop the *Aesthetic Botulinum Toxin A-Z* course, they had one aim in mind...to be the UK's reference course in aesthetic botulinum toxin training. They set out to give as much as they could, not take as much as they could. They did not want to develop an academy that offers multiple courses without perfecting one. They have spared no expense:

- University teaching facilities
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- Fresh heads - 1 to 5 delegates
- Invited Speakers
- 2 full days, NOT a 1-day course
- Course dinner and networking

Dr. Hussein and Dr. Hiratsuka firmly believe that nobody gives as much to their delegates on a botulinum toxin training course as this one. This is not a quick morning of talking and an afternoon of model injecting. They see their delegates as future colleagues and not a source of income. Their driver is reputation, and to be the best, not short term financial gain. All of those teaching on the course also have extensive clinical practice. They are honoured to invite specialists like:

- Dr. Patrick Treacy - the multi-award winning President Elect of the Royal Society of Medicine (London) Aesthetic Faculty
- Mr Charles Nduka - who runs the largest facial paralysis & rehabilitation service in the UK
- Dr. Cormac Convery from ACE Group (Complications Management)



There is no intention to subdivide this into multiple, fee paying units for increased revenue. Everything is here in one place. Perhaps not the best business strategy but then their strength is teaching and not business. Price for the course is £1,500 including social dinner. For further information and to book a place, please visit hhat.co.uk, email info@hhat.co.uk or call 07878 638270.





Dates For Your Diary...

7th National Aesthetic Nursing Conference - Wednesday 24th January 2018, in Manchester

Conference for aesthetic nurses and doctors, mobile aesthetic practitioners, NHS nurses who are considering moving in to aesthetic practice and clinic managers.

For more information, please visit www.aestheticnursingconference.co.uk

IMCAS 2018 - Thursday 1st to Saturday 3rd February 2018, at The Palais des Congres de Paris, France

IMCAS 2018 will be celebrating their 20th anniversary.

For more information, please visit www.imcas.com

10th Annual SMART Ideas - Saturday 10th March 2018, at Radisson Blu Portman Square, London

Unique one-day CPD approved seminar, hosted by Consulting Room featuring three parallel agendas - a Business agenda and a Digital Marketing Workshop.

For more information, please visit www.smartseminar.co.uk

Aesthetic Medicine Live 2018 - Saturday 17th & Sunday 18th March 2018, at London Olympia

Learn from industry experts via free business workshops and demonstrations.

For more information, please visit www.aestheticmed.co.uk

ACE 2018 - 27th & 28th April 2018, at The Business Design Centre Islington, London

Free access to the Expert Clinic, masterclasses, Business Track, networking event and exhibition. Also offering the *Elite Training Experience* with four leading trainers.

For more information, please visit www.aestheticsconference.com

FACE 2018 - Thursday 14th to Saturday 16th June 2018, at The QEII Conference Centre, London

FACE 2018 sees the regular INJECTABLES, BODY, SKIN, HAIR and THREADS Agendas.

For more information, please visit www.faceconference.com



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IF YOU WOULD LIKE TO FIND OUT MORE ABOUT PERK AND SEE WHAT IT COULD DO FOR YOUR BUSINESS OR ARRANGE FOR A FREE DEMONSTRATION CONTACT US TODAY:
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