

HOT, HOTTER, HOTTEST!!!

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Welcome, Dear Readers, to the third issue of this 28th Volume of *Laser Therapy*. If there is anyone in the world who is in any doubt about the reality of the phenomenon of Global Warming (apart from a certain gentleman with blow-dried and bouffant-styled hair who lives in Washington DC), this year has shown more than ever that our climate is changing, and changing so rapidly. Japan this year was trying to rival some of the desert countries with temperatures nudging and exceeding 40°C, and there was a stretch of almost 4 weeks where the night-time temperatures did not drop below 35°C. This was of course accompanied by humidity reading in the mid to upper 90s, and problems with summer-ripening crops which need rain as well as sun. Of course, not just Japan, but also Europe has had till now a furnace of a summer with plumes of super-heated air blown up from the Sahara desert, but in the UK, exposed as it is to the massive weather patterns and wrath of the Atlantic Ocean, these spells of hitherto unprecedentedly high temperatures have been rudely interspersed with severe storms including a month's rain in three days, and winds strong enough to uproot trees. Both the high temperatures and the storms have resulted in fatalities.

In a stunning contrast the Sahara Desert enjoyed an extremely rare snowfall, and even though it gets bitterly cold there at nights there is not usually enough water around to allow anything in the way of precipitation. Most alarmingly, wildfires are raging out of control in the Amazonian Rain Forest, one of the major sponges for soaking up CO₂, a massive O₂ generator and safekeeper of tremendous biodiversity in the world. This terrible problem is thanks in no small part to the extremely short-sited deforestation policies of the current government, which is robbing native human and animal populations of their natural habitat. In a complete contrast to forest fires, on the other hand, but in a perfect global warming connection, scientists, researchers and inhabitants in Iceland met a few days ago to hold a memorial service to say goodbye to the glacier Okjökull, which was the first glacier ever to lose its status as a glacier. It won't be the last. In addition, Greenland researchers have announced. Greenland's glaciers are believed to be melting at unusually high rates as a result of warming conditions. It is often said the flutter of a butterfly's wing in the Ama-

zon changes the weather worldwide ... what will these catastrophic Amazonian forest fires do to our entire Mother Earth?

To come closer to where I am writing, even our Japanese harbingers of summer, the cicadas or "*semi*", seemed stunned by the heat into semi-silence, if you'll pardon the pun, by the heat and it is only in the past week or so as the temperatures have dropped to a more reasonable norm in the Kanto region that the droning, heat-inducing 'nee-nee-nee' is ringing out from the trees across the central belt of Japan. Actually, that's the song of only one of many of our *semi*, but it's most prevalent in the hot, hot days of mid-summer I always wonder what goes through a cicada's mind, having spent two to three years as a nymph buried underground, to emerge from the soil, climb the nearest tree or rough surface, cling on and undergo the metamorphosis to a translucent winged, full-sized cicada, only to spend a frenetic couple of weeks zinging around, then to mate, and die. Through nature, the semi reminds us of the vanity and intransience of existence, but of course by the time you read this the *nii-nii semi* will have given way to my favourite, the *tsukutsuku-boshi semi* with its complex song, which tells us that the welcome cool and bountiful season of autumn is approaching. I can't wait.

Sometimes We've Got To Go Back to Go Forward

Over certain volumes of *Laser Therapy*, from some time ago, I penned a series of articles on my effect-based classification of laser bioeffects in tissue (see, amongst others: 1996; 8: 185-190, 233-239; 2004; 14 (*Pilot Issue 2*): 2005; 14: 11-17, 11-17; 2011; 20: 11-15). These all stemmed from my visualization of a laser impact in biological tissue as having an apple-like form, hence the genesis of the Ohshiro Laser Apple. From the very beginnings of the indication of the laser in surgery, it was noted that certain operations performed with the laser, which had hitherto been performed with the cold scalpel, resulted in significant reductions in blood loss, postoperative edema and erythema and pain compared with scalpel-based procedures.

It was this phenomenon which led the Godfather of laser therapy, the late professor Endre Mester, to investigate and develop what he termed photobiostimulation,

which later became low level laser therapy, or LLLT (thanks to Ohshiro and Calderhead in 1988). The extension from this for me was that, at the very periphery of a surgical laser beam, at the outer edge of the range of photothermally-mediated destructive bioreactions there exists a zone where photon intensity is high enough to evoke a clinical reaction through photoactivation or photobiomodulation of the cells absorbing the low-incident level of photon energy, but in an athermal and atraumatic manner. This was first termed the 'Alpha Effect' in the very early 90s, but I tightened up the terminology with a more scientific effect-based classification, using the term "autosimultaneous LLLT". In other words, this peripheral zone of LLLT-mediated photobiomodulation, happening simultaneously with the desired surgical effect, was exerting a beneficial influence on the entire procedure thereby resulting in less pain and less erythema, but with good wound healing.

Naturally stand-alone LLLT as monotherapy has many interesting and proven indications, including wound healing, pain attenuation and LLLT for infertility which has achieved reported and proven success and led to the formation of the Japanese Society for Laser Reproduction (JaSLaR), one of the groups which has *Laser Therapy* as its official journal. However, it seems that clinicians are ignoring the autosimultaneous occurrence of LLLT together with a surgical laser indication, or perhaps are not aware of it, and therefore do not comment in the Discussion section of their articles on why the results are so good compared to previous methodologies. From the early experiments to elucidate this beneficial factor, wounds were created with the cold scalpel or the electro-surgical knife, which heat was the added electrothermal energy, and compared, but no other method produced the helpful side effects initiated with the use of laser energy as the so-called 'light knife', delivering its photothermal effect as light energy is transformed through absorption into heat. This needs to be acknowledged by authors using laser in their treatment strategies.

In addition to LLLT as monotherapy or as a simultaneous benefit to a laser surgical procedure, however, particularly with the introduction of the new generation of highly quasimonochromatic light-emitting diodes (LEDs) which prompted the photobiologist Kendric C Smith to reclassify LLLT 19 years ago as low level LIGHT therapy ('Laser and LED photobiology'. *Laser Therapy*, 2010; 19: 235-236), the adjunctive use of LLLT is becoming more and more popular in aesthetic and cosmetic medicine, and even in plastic surgical procedures. I believe that this aspect of LLLT is one which is currently undervalued and underutilized, and therefore needs further amplification as it is an ideal application for LLLT. Not only that, it speeds up the resolution of any side effects such as erythema, edema, bruising and pain; accelerates and improves wound healing; and acts as prophylaxis against

hypertrophic scars. It does not matter how aggressive, minimally-aggressive or nonaggressive a procedure is when performed with conventional, laser-based or energy-based devices, the addition of LLLT at appropriate parameters will make happier patients, and these are the people we all care most about. I urge readers to add LLLT at an appropriate wavelength and parameters to whatever other procedure they are performing: you will not regret it. Then, naturally, please write your experiences up in *Laser Therapy*!

Laser Dentistry Articles: The Tooth, the Whole Tooth and Nothing but the (NEW) Tooth

This next piece is a cautionary note to anyone contemplating writing an article on laser dentistry for the journal, and is written with the full approval of Professor Hisashi Watanabe, our *Laser Therapy* Co-Editor for Dentistry. Readers will have noted the surge of articles in the laser dentistry field in the journal, and we are very happy to see this field receiving good press. Sadly there is a downside which is the number of prospective articles which are simply repeating work that has already been published in this and other journals. As an example, laser etching is no longer news, it is old news and much reported news, A very large number of articles are being turned away even before going out for review because they are on a subject already over-reported. Professor Watanabe has asked me to include a plea for **papers on Original Research**, not simply repeating experiments done and reported many times over. Professor Watanabe does not like rejecting papers from authors who have written up their work with the best intention, but with the number of good papers coming in we need to be super-selective, so please, when considering your work for a paper to be submitted to *Laser Therapy*, please ask yourself; "Is it really original?" If it is not, then save yourself the disappointment of a rejection, and look for a new project in a new field within the dental laser arena. Original research will never be rejected, provide all the other good writing criteria for the journal are met.

End Notes

As the first of my End Notes, I have an **Update to our Editorial Board**. I am very pleased to welcome Hirofumi Matsui MD PhD (Japan) to the *Laser Therapy* International Editorial Board. Dr Matsui is a preeminent photobiologist, and will add his photobiology and cell biology expertise to the Editorial Board's pool of expertise. One of Dr Matsui's fields of research has included the establishment of both the normal and cancer mutant versions of a rat gastric mucosal cell which he called RGM1. Through the use of both versions, Dr Matsui has been able to elucidate specific cancer-cell related mechanisms. He will be a valuable addition to our Editorial Board.

Birthday Greetings!! Next, I'd like to wish, on behalf

of all of us older laser therapy aficionados and aficionadas, a very happy 80th birthday to **Felix Kramer**. Felix is one of the “grand old men” of laser therapy, and was an ardent supporter of the International Laser Therapy Association (ILTA, 1998 – 1994), which then morphed into the World Association for Laser Therapy (WALT, 1994 ~). Felix was also a staunch devotee of the journal in its early (and later) years, supporting us with regular advertising for the LLLT-associated products of Lasotronic, his company which is based in Switzerland. Like Felix, Lasotronic is going strong, and long may they both continue to do so!

Naturally, no End Notes is complete without a plea for more and more good papers, of course on original subjects, please. It is not just the laser dentistry field which tends to suffer from repetitive writing. Please note that the journal is actively seeking papers on the use of laser or light in the veterinary field. We used to have a

fair representation of laser veterinary science, but that seems to have trickled off. We welcome papers from the physical therapy and physiotherapy arena: case reports are quite legitimate, provided all parameters are given and the method is clearly laid out to enable your colleagues to corroborate your good results. We have had several excellent papers from laser nurses, giving us their side of the picture, I'd like more, please.

Finally, may I remind you that you have only one more issue in this volume to get your paper in with a chance of winning one of our awards. Sadly there is no longer the financial incentive as there was previously: the global economical crisis affects us all. However, the prestige of having your paper selected for an award is still high, and that counts for a great deal more than mere money. Happy writing!

Tokyo, August 2019