

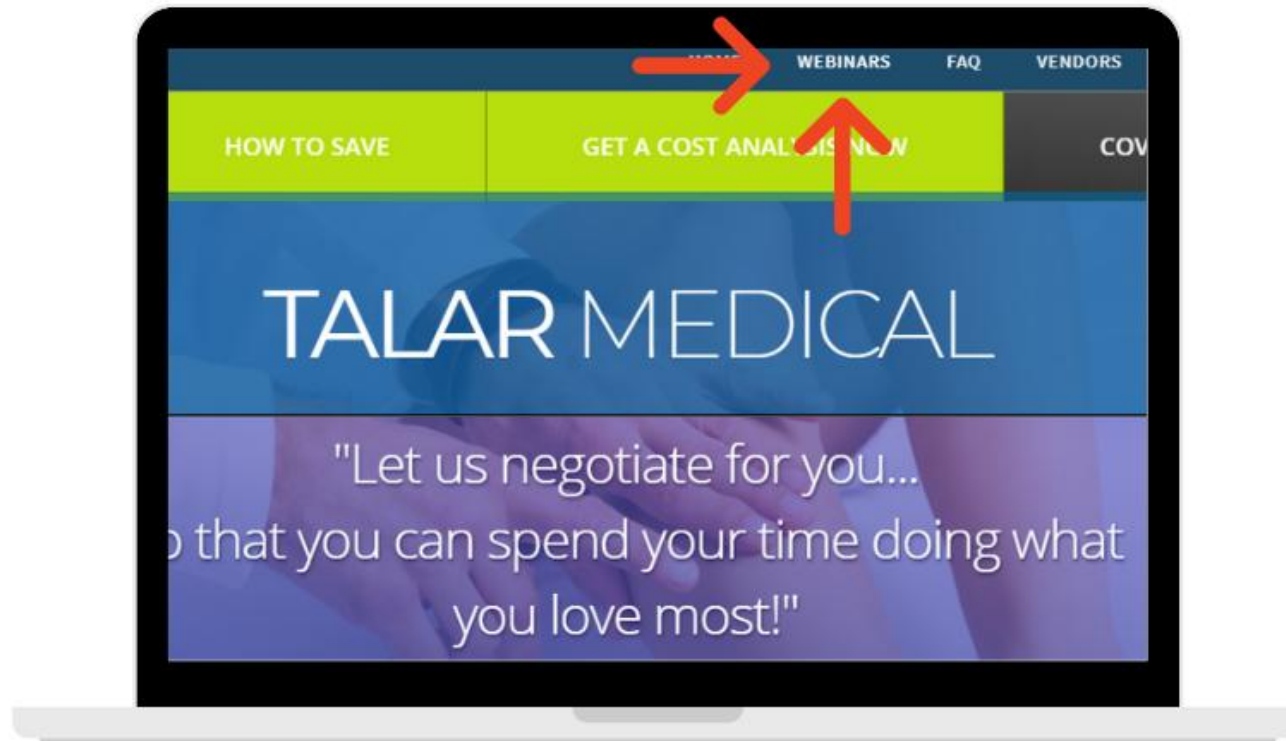
The Wonderful World of Warts: A deep dive into one of podiatry's most challenging conditions and what we can do about it.



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Medicine



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FASPS



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What is Swift and why should I pay attention?



Differentiate for Enhanced Patient Flow

Find a Provider

WartInfo / Find a Provider

ZIP CODE, CITY, OR STATE:

📍 MY LOCATION

Austin, TX, USA

Austin Foot and Ankle Specialists |

Westgate Office

Dr. Craig Thomajan, DPM, FACFAS, FAENS

6.4 km away

2312 Western Trails Blvd., Suite 103, Austin, TX 78745 USA

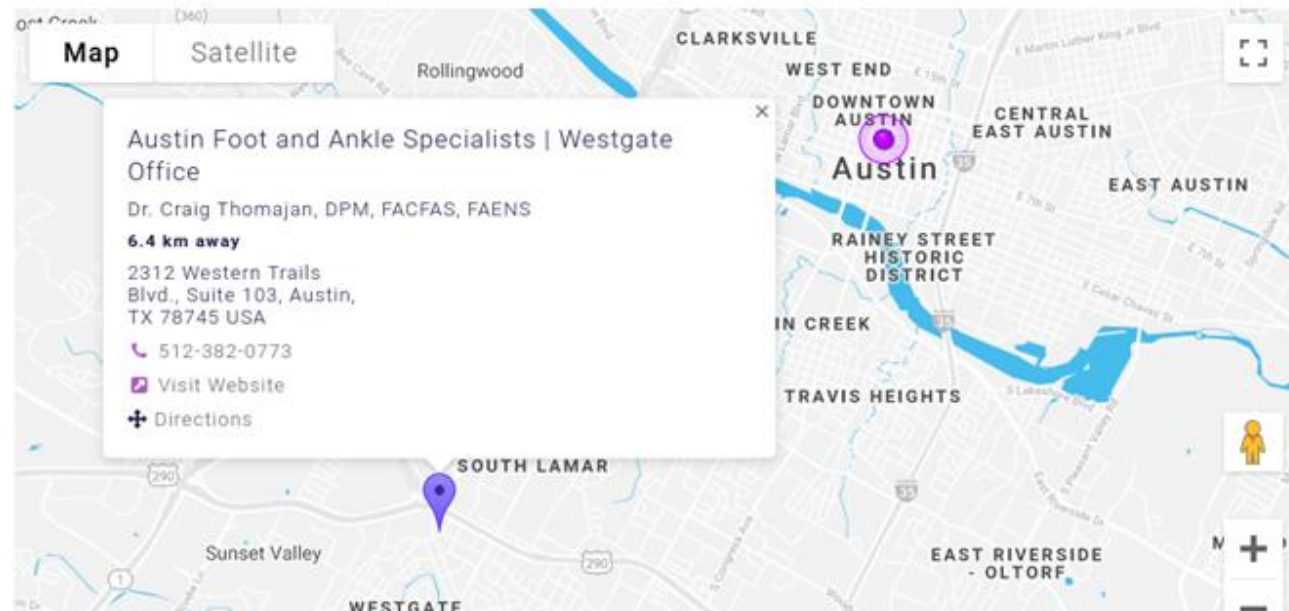
📞 512-382-0773

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➔ SHOW ON MAP

Austin Foot and Ankle Specialists |

Westlake Hills Office



Drive conversions with digital presence

Swift Treatment for Plantar Warts

Most people will develop one or more warts on their feet at least once in their lifetimes. And while foot warts may not be as “serious” as, say, an ankle sprain, they can still be irritating, embarrassing, and sometimes painful.

Worse, warts can spread to other areas of your body (or even other people), and traditionally have been very resistant to treatment. That is, until now.

We’re proud to be the first clinic in Texas using a new wart treatment called **Swift**, which we’ll talk more about in a moment. First, let’s take a closer look at the condition itself.



Swift Financial Metrics

132%

Average Annualized ROI

The average 5 year ROI is 662%, which when broken down into an annualized number comes out to 132%. (This includes lease payments)

- Average Payback within 11 months
- Returns to not include IPK impact
- 179 Tax implications reduces total cost of ownership

30 pts

Patient Payback Requirement

After Section 179 implications are factored in, you only need 30 patients converted to Swift in order to pay off the device. This typically happens within 10 months of owning the device.

- Average Swift Patient Value = \$546
- Average # of Treatments = 3
- Most providers lease, which results in profitability from month 1.

70%

Average US Based Patient Conversion to Swift

How many patients will choose Swift vs traditional, reimbursed therapy? We can now report that figure to be 70% across our 200+ US based providers.

- Conversion driven by patient frustration
- Out of pocket costs are comparable
- Confidence in treatment after seeing results drives further conversion.

Practice Management Impact



 **saorsa**
"It's played an amazing
role in growing the
practice."

Dr. Rachel Balloch
Advanced Foot and Ankle Specialists



The Wonderful World Of Warts

TRACEY C. VLAHOVIC, DPM

CLINICAL PROFESSOR

TEMPLE UNIVERSITY SCHOOL OF PODIATRIC
MEDICINE, PHILA, PA



THE CAUSE: HUMAN PAPILLOMAVIRUS

ds DNA virus, multiplies in basal layer keratinocytes, induces skin tumors

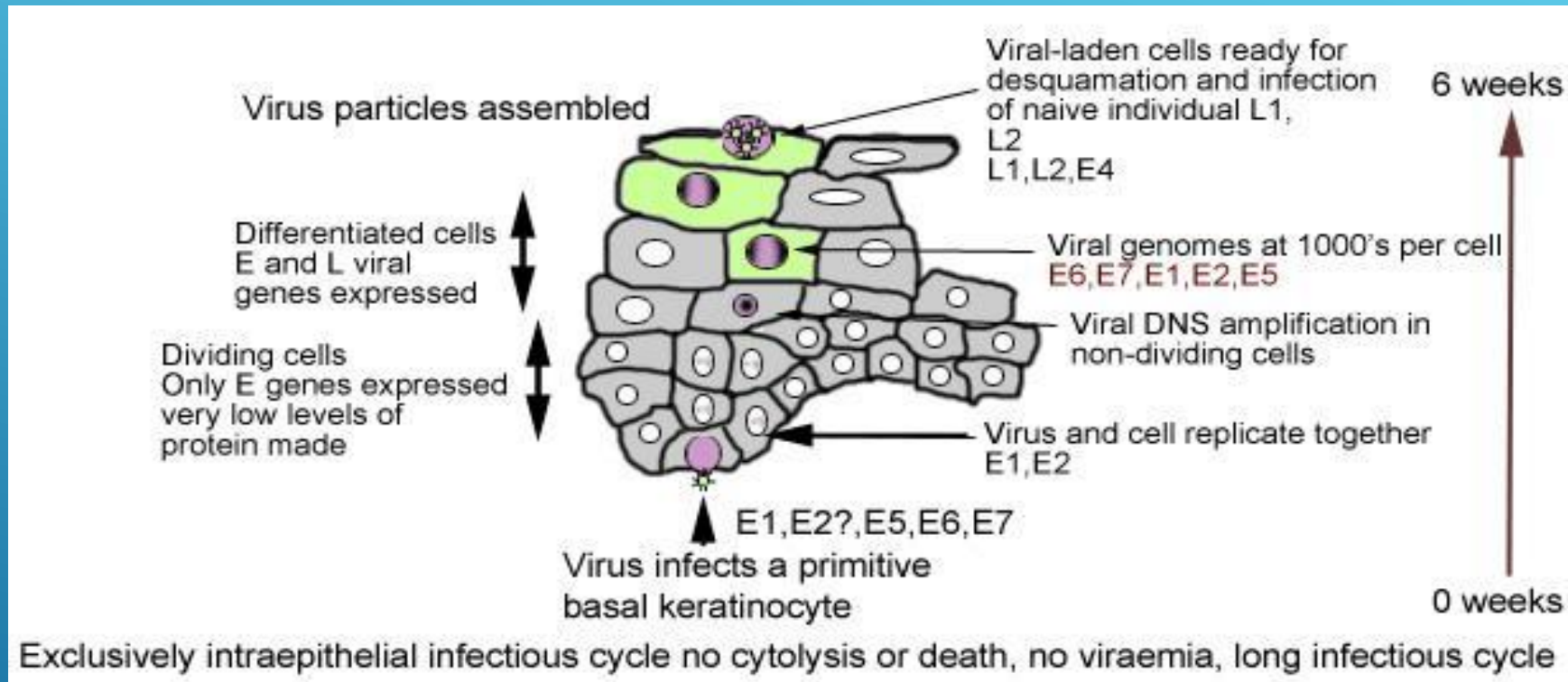
- Subtypes: HPV-1, -2, -3, -4, -27, -29, -57, -60, -63, -65, -66, and -69
- Strictly intraepithelial, slow growing

Viral gene expression in keratinocytes

- Most viral genes are not activated until the infected keratinocyte leaves the basal layer
- Production of virus particles occurs only at the epithelial surface where the cells are ultimately sloughed into the environment
- HPV infections have not been shown to be cytolytic; rather, viral particles are released as a result of degeneration of desquamating cells.

WARTS ARE ONLY IN THE EPIDERMIS!!!!!!

INFECT AND SHED VIRAL PARTICLES...



****an individual with plantar warts can spread the virus by walking barefoot****

NO COMPLETELY EFFECTIVE THERAPY EXISTS

Cosmetic or pain

Goal: to restore the skin appearance and clear the visual appearance of the lesion

Spontaneous regression: 67% within 2 years, but I never see those patients

Must discuss risks/benefits of therapy with patient before therapy; ie SCAR

VERRUCA—WHY ISN'T IT A ONE SIZE FITS ALL TREATMENT?

- ▶ Plantar warts commonly have HPV types 1, 2, 27, 57
 - ▶ 86% of warts will have one of these
 - ▶ HPV 1 will most commonly occur in children plantarly—better response and disappear faster
- ▶ Article differentiated between plantar and common warts; clinical appearance and HPV type
- ▶ Black dots strongly show the presence of active HPV infection
 - ▶ Some warts had no detectable HPV DNA ---- These were older lesions, and some had no black dots
- ▶ Authors developed an assay HSL PCR/MPG to determine HPV genotype
- ▶ HPV type may relate to treatment success, ie HPV 2 and 27 had a DECREASED response to combo salicylic acid and cryotherapy, but HPV 1 does respond well to this therapy

CHARACTERISTICS FOUND

- ▶ Presence of HPV infection: black dots, well defined border, callus present
- ▶ HPV 27 found plantarly with white skin flakes
 - ▶ HPV 2 and 27 types do not respond well to monochloroacetic acid or combo cryo/sal acid
- ▶ HPV 57 found in multiple confluent warts without black dots
- ▶ HPV 1 solitary warts, sharp border, black dots in children
 - ▶ Combo of cryo and sal acid worked best



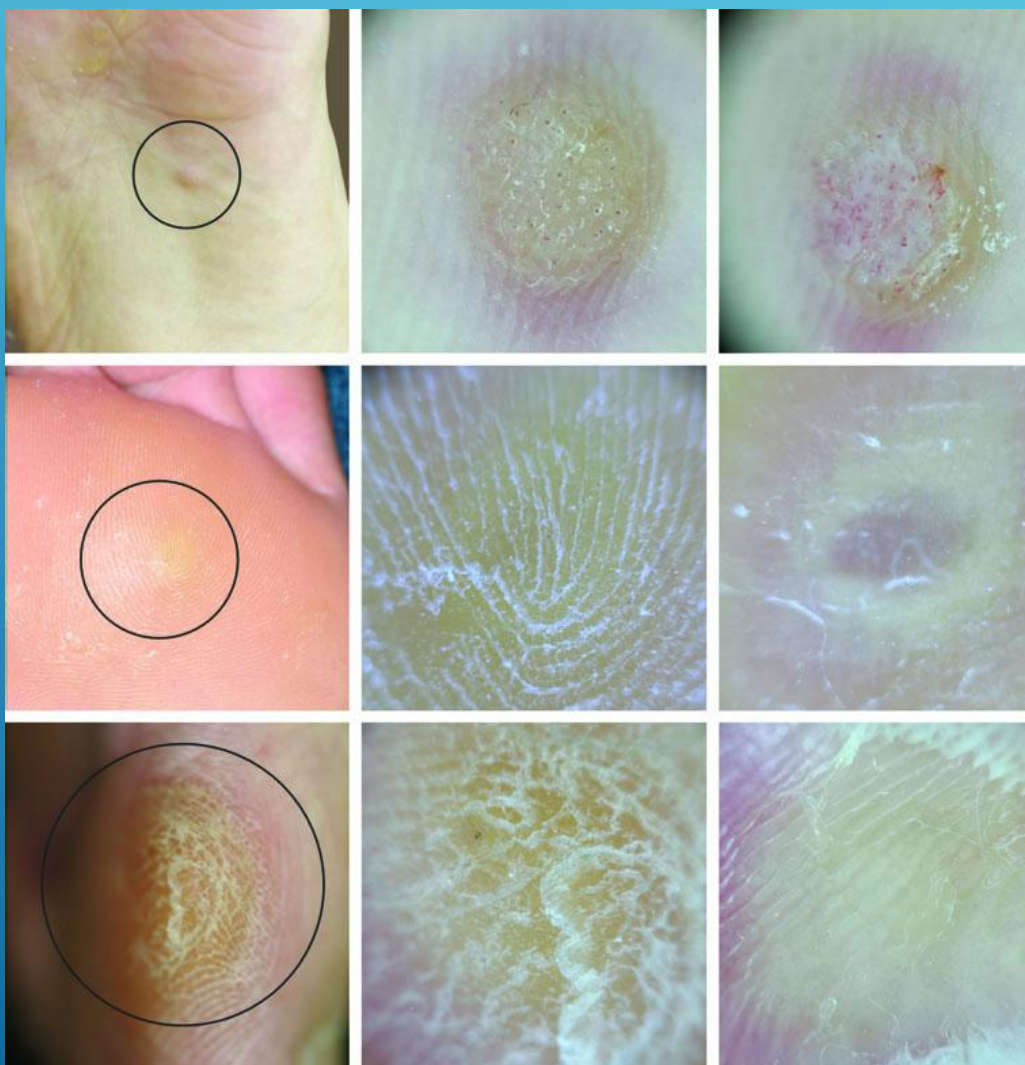


ANOTHER BARRIER TO RESOLUTION

- ▶ Koebnerization can cause new lesions in areas of trauma



DERMOSCOPY TO DIFFERENTIATE WART VERSUS CALLUS



DERMOSCOPY TO DIFFERENTIATE WART VS CALLUS

►JM Bae,BJD 2009, pg 220-222

Debride

Freeze

Blister

Laser

Excise

Inject

Microwave

WHAT OPTIONS DO WE HAVE?

TYPICAL SKIN IMMUNITY PROCESS

- Microbes and Virus produce antigens: detected by Langerhans cells to stimulate an immune response
- Langerhans cells “Latch” on particles - Retreat to lymph nodes and present to CD8+ lymphocytes
- T-Cells are triggered, cloned and migrate to the infection site to eliminate the infection

Langerhans Cells = Critical to Immunity

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Single Case

The Successful Use of a Novel Microwave Device in the Treatment of a Plantar Wart

Ivan Robert Bristow^a Christopher Webb^b
Michael Roger Ardern-Jones^{c, d}

^aFaculty of Health Sciences, University of Southampton, Southampton, UK;

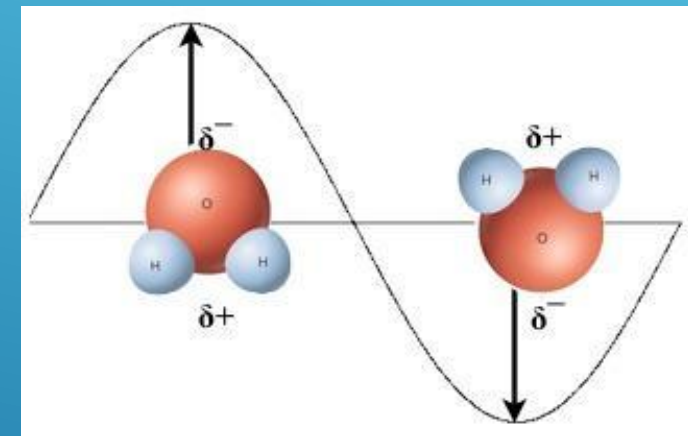
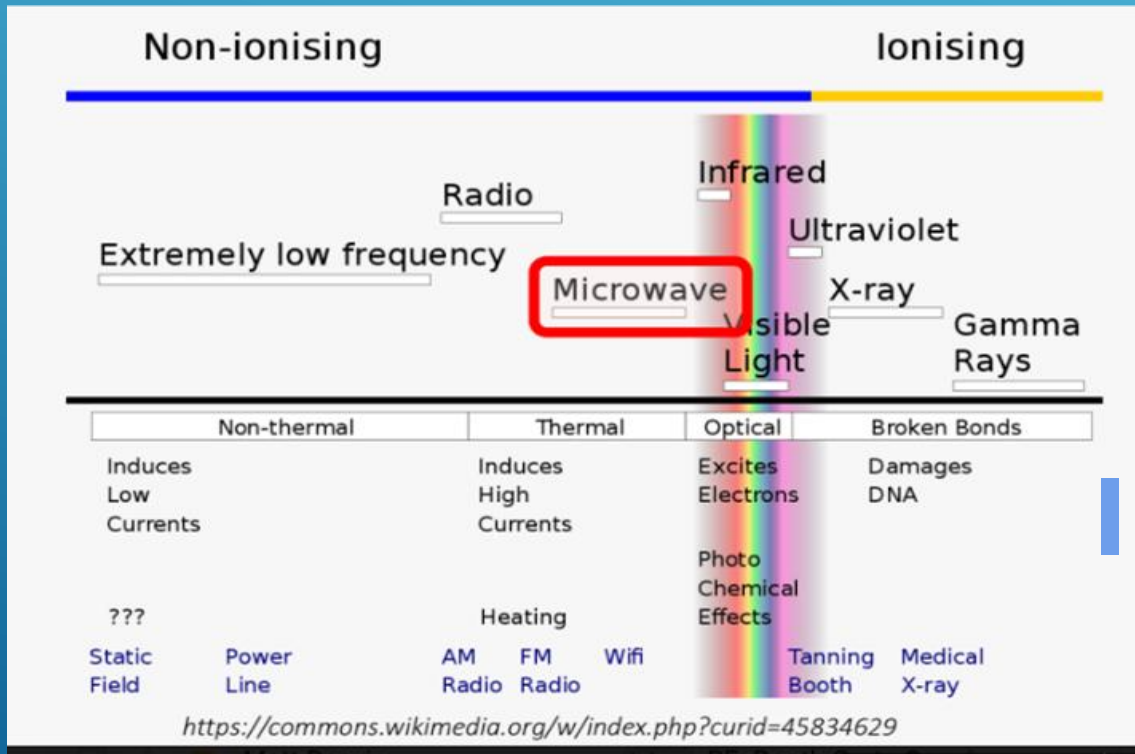
^bThe Podiatry Centre, Portsmouth, UK; ^cFaculty of Medicine, University of Southampton, Southampton, UK; ^dDepartment of Dermatology, University Hospitals Southampton NHS Foundation Trust, Southampton, UK

MICROWAVE IT

PRIMARY ADVANTAGES OF MICROWAVE

- ▶ Rapid treatment time
- ▶ Easy to use
- ▶ Device is predictable and repeatable
- ▶ No anesthesia required
- ▶ No smoke produced
- ▶ No post-operative dressings or special advice required
- ▶ No patient downtime

MICROWAVE ENERGY: RAPID HEAT PRODUCTION



Water molecules align to the microwave field

Collisions create friction = Rapid Heat

MICROWAVE POWER COMPARISON



Mobile phone

GSM 0.8 – 1.9GHz Power: 2 W

WiFi & Bluetooth 2.45 – 5.0 GHz Power: 100 mW

Skin Treatment System

8 GHz Power: 10W

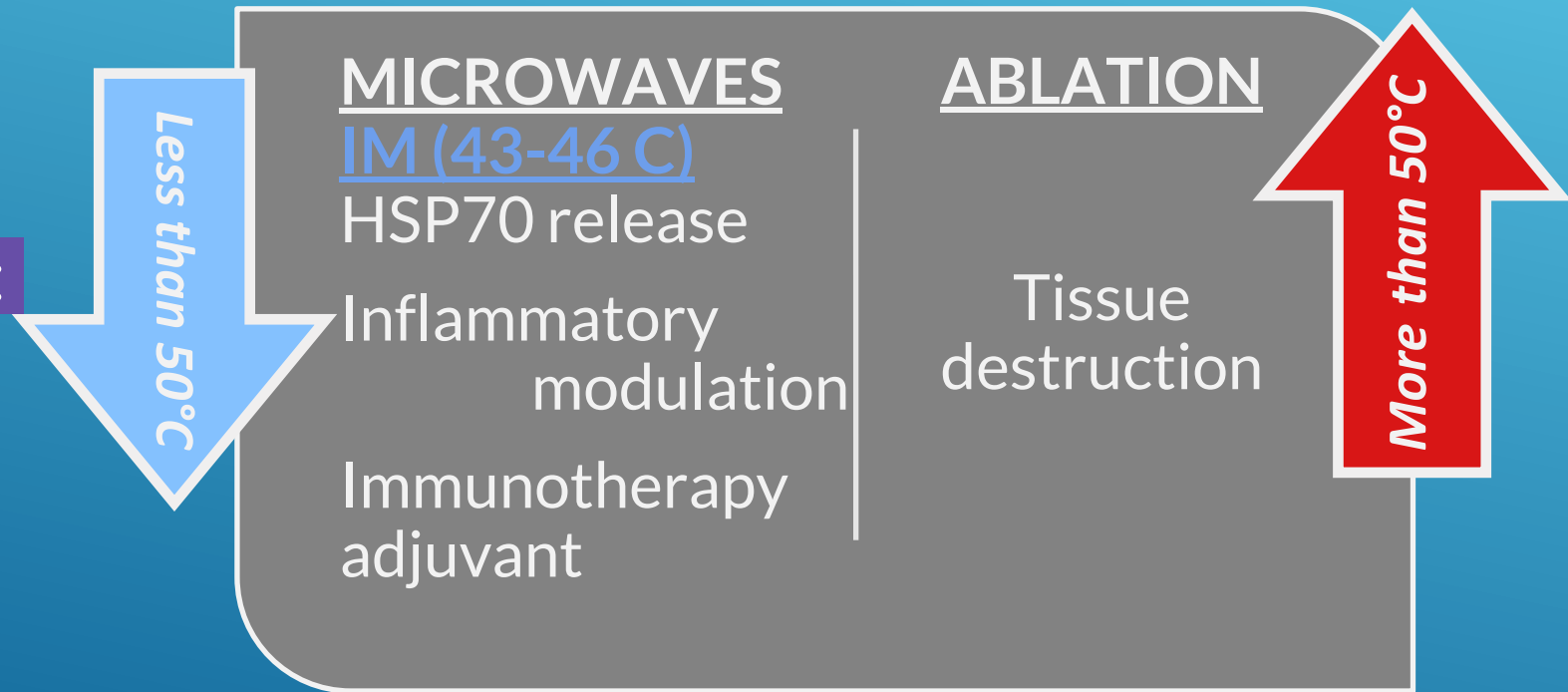


Microwave oven

2.45 GHz Power: 1000W

NON-ABLATIVE IMMUNE MODULATION (IM)

Microwaves works by rapidly elevating tissue temperature into the Hyperthermic Range: 43-46 C



DISRUPTION IN HPV

Summary of Findings

(2 conference papers, more in draft)

- **Increased** Apoptosis (Caspase3 marker)
- **Reduced** proliferation of immortal cells
- **Upregulated** HSP70
- **Upregulation** G3BP/stress granules
- **Re introduced** p53
- **Decreased** E6 and E7 proteins
- **Decreased** NICD



00199

GROWTH POTENTIAL AND APOPTOSIS IS INHIBITED BY LOCALISED TOPICAL MICROWAVE ENERGY IN HPV16-POSITIVE CERVICAL TUMOUR CELLS IN 3D TISSUE CULTURE MODELS

01. Viral and molecular biology

M. Conley ¹, A. Stevenson ¹, M. Kidd ², S. Graham ¹

¹University of Glasgow - Glasgow (United kingdom), ²Emblation Limited - Alloa (United kingdom)

PRIMARY STUDY RESULTS

Demonstrated Immune Response

Of the 54 warts treated:

- 41 had resolved (75.9%)
- 13 (24%) unresolved of which:
 - 9 remained unresolved (16.7%)
 - 3 warts (n=2 patients) had withdrawn from the study (5.6%)
 - 1 patient was lost to follow up (1.9%)

Therapy

Eur J Dermatol 2017; 27(5): 511-8

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Microwave therapy for cutaneous human papilloma virus infection

Background: Human papilloma virus (HPV) infects keratinocytes of the skin and mucous membranes, and is associated with the induction of cutaneous warts and malignancy. Warts can induce significant morbidity and disability but most therapies, including cryotherapy, laser, and

this process. *Conclusion:* Keratinocyte-skin dendritic cell cross-talk is integral to host defence against HPV infections, and this pilot study supports the concept of microwave induction of anti-HPV immunity which offers a promising approach for treatment of HPV-induced viral warts and potentially HPV-related cancers.

TREATMENT PROTOCOL

83%

PW specific resolution rate

<1%

Recurrence



3-4 treatments
4 weeks apart



Follow up 12 weeks
after final treatment




8-10 watts / 2 seconds
5 applications

Energy dosing varies based on (a) lesion type and (b) skin thickness



Jan to March






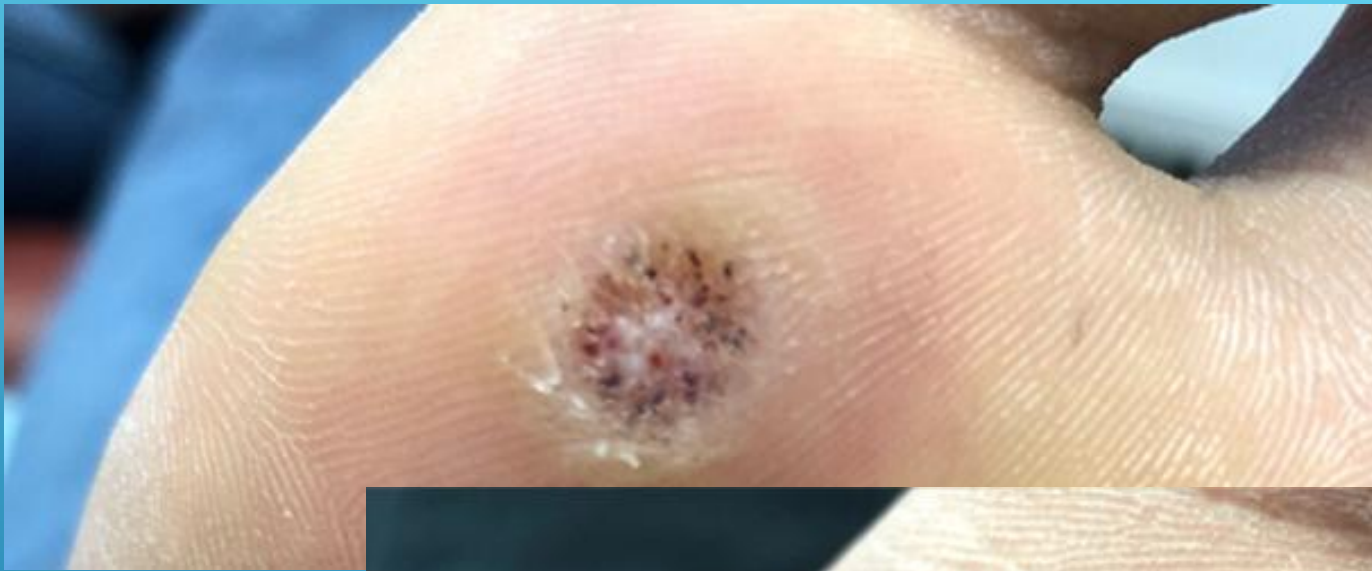
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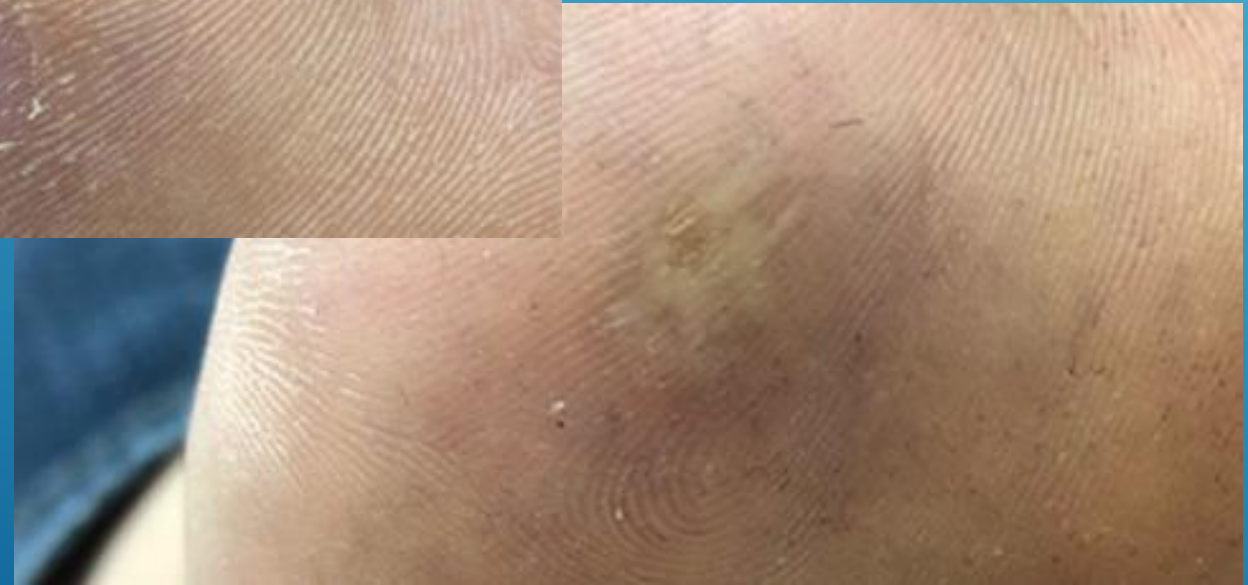
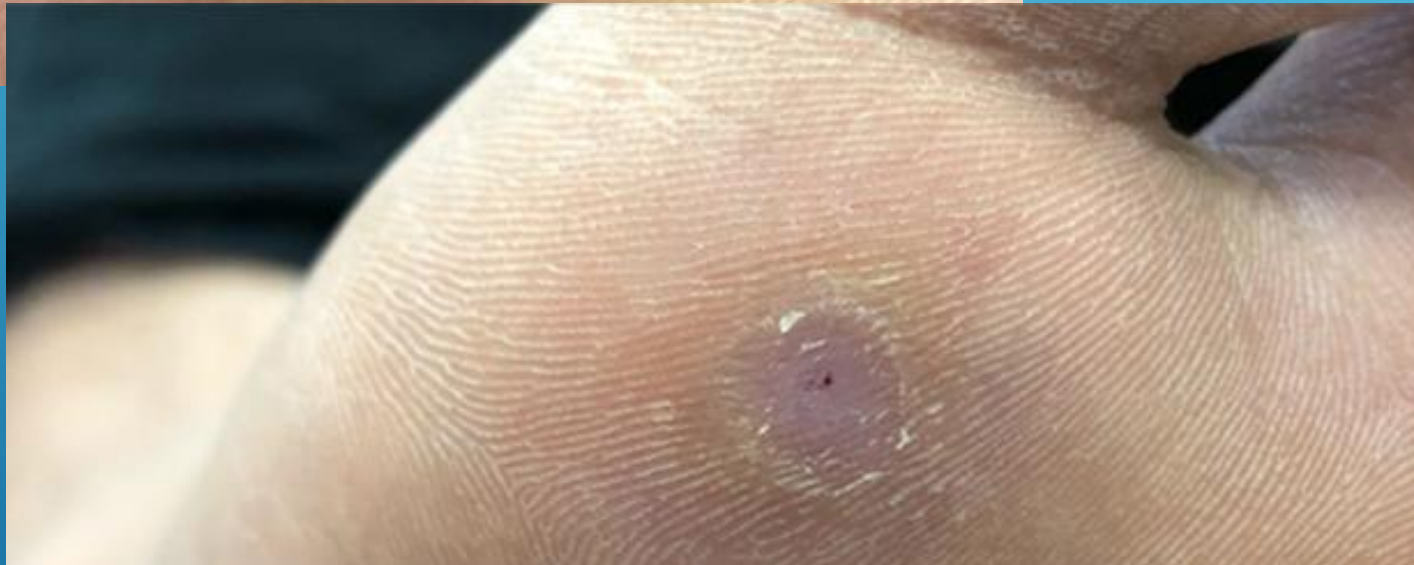
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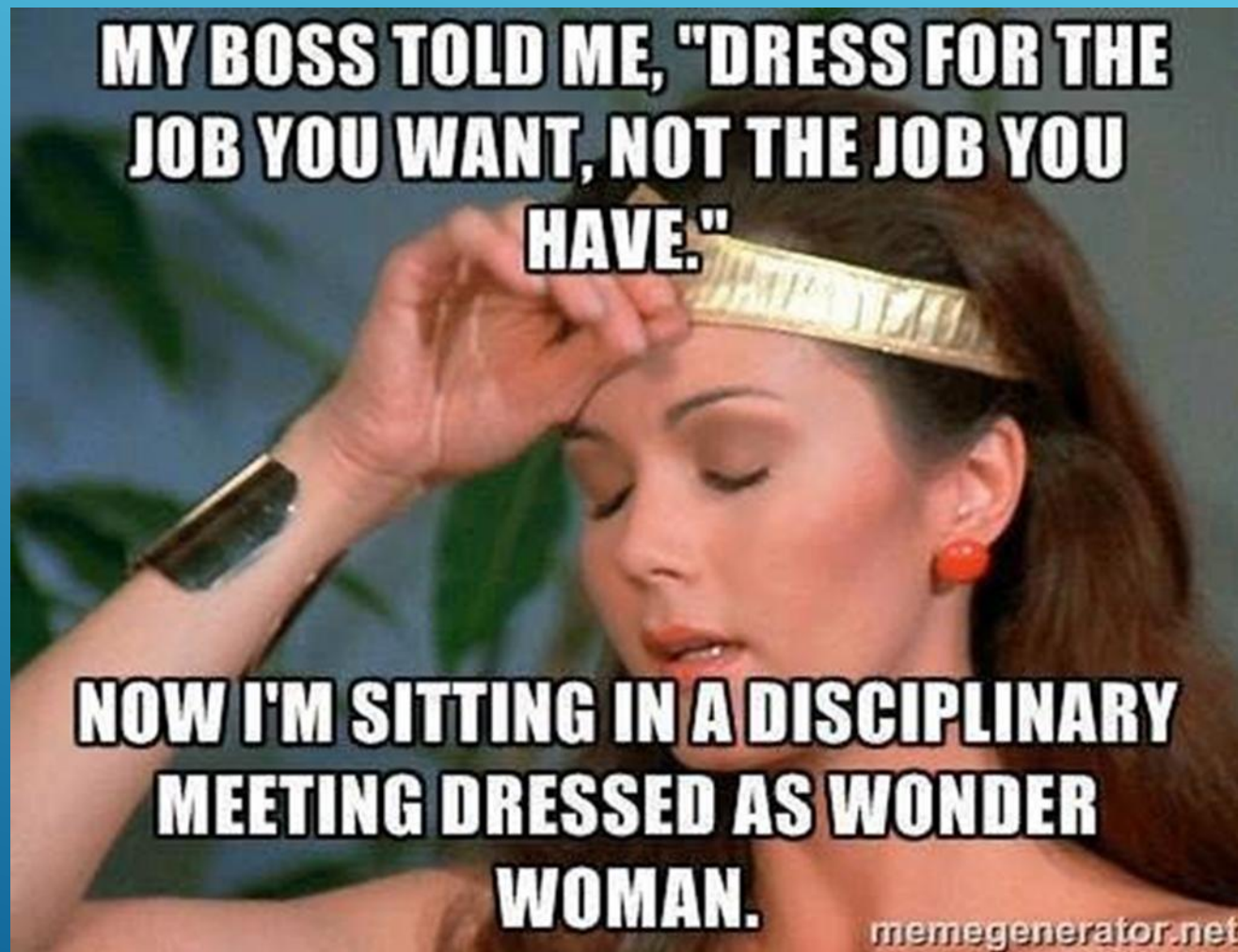


Mar 18



Jan-Feb-Mar





THANK YOU!!
TRACEYV@TEMPLE.EDU

Studies/Future Indications

Condition	Study Status	Targeted Publication	Institution
Actinic Keratosis	Complete	Published	U. of Dundee
IPKs	Underway	Late 2021	Private Clinics
Onychomycosis	Underway	Early 2022	Private Clinics
Pre-Cervical Cancers	Lab Testing	TBD	U. of Glasgow
Common and Plantar Warts	In Design	TBD	Ruhr-Universität Bochum (RUB)

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Please join us next #TalarTuesday November 2nd at 5:00 PM
PST/ 8:00 PM EST

for

**“Carbon Fiber AFOs – What you need to know...Clinical
applications, custom modifications, and billing.”**

Presented by:



Joseph DeHeer

Co-Founder of Thrive Orthopedics



Kris Kail, CPO

Owner of Prevail Prosthetics &
Orthotics, Indianapolis, IN