WE HAVE REDISCOVERED HEALING DENTISTRY

LESS IS MORE

THANK YOU!

www.ukdent.com

LIMITED TIME SPECIAL OFFER ON NEW HEALOZONE x4

HealOzone / Fuji Triage: 6 months by Prof Ray Bertolotti

NEW TECHNOLOGY: CAN I AFFORD TO WORK WITHOUT IT?

NEW EQUIPMENT

DECISIONS, DECISIONS

HOW TO MAKE THE RIGHT PURCHASE DECISIONS, FIRST TIME, EVERY TIME, FOR EVERY PRACTICE

ROI

RETURN ON INVESTMENT

Return on investment (ROI) is a measure of the success of an investment. It is calculated by dividing the net benefit (profit) by the cost of the investment. For example, a certificate of deposit returning $50 on a $1000 investment has an ROI of 5% per year.

Many Dentists report earning the full cost of the HealOzone within one month

Treatment of all cavity preparations with the HealOzone
Clinical Adhesive Techniques
Less Tooth Destruction
Edward Lynch
MA,BDS,FDSRCSEd,FDSLond,PhD,FDA,FE
Specialist in Endodontics, Prosthodontics, Restorative Dentistry and BUPA Consultant in Oral Surgery.
Head of Dentistry
University of Warwick, UK

Warwick Dentistry
Advancing Dental Education

Warwick Dentistry Location
Located on the border of Coventry and Warwickshire, providing easy access to the major city of Birmingham and the beautiful historic towns of Warwick, Kenilworth, Royal Leamington Spa and Stratford upon Avon.

University of Warwick

- > 20,000 students
- 4,000 from overseas
- 120 nationalities
- Alumni: 125,000 from 171 countries
- 290 hectare campus
University of Warwick
Academic Excellence

Ranked 9th in the University League Table for 2011

Warwick Dentistry

“To be a leading medical school in the UK, internationally renowned for the high quality and relevance of our education programmes and for the excellence and significance of our research.”

CPD - Facts and Figures

- Serve a very wide range of health professionals
- Largest provider in the UK
- >10,000 people have enrolled on one of our CPD programmes
- 1,000 students currently on postgraduate programmes
- Overall numbers are increasing yearly
- Over 20 masters degrees available
- 100 accredited modules

Warwick Dentistry

- Orthodontics
  - Lingual Orthodontics
- Diploma Orthodontic Therapy
- Endodontics
- Prosthodontics
- Periodontology
- Restorative Dentistry
- Oral Surgery
- Implantology
- eMasters in Aesthetic Dentistry Distance Learning
- 3 years full time supervised clinical training

One to one mentoring

University guide 2011: University league table


Table: University League Table

<table>
<thead>
<tr>
<th>Ranking</th>
<th>Name of Institution</th>
<th>Guardian score</th>
<th>Academic score</th>
<th>Teaching score</th>
<th>Student satisfaction</th>
<th>Graduate prospects</th>
<th>Overall score</th>
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<tr>
<td>1/17</td>
<td>Oxford</td>
<td>106.7</td>
<td>103.8</td>
<td>77.6</td>
<td>79.7</td>
<td>79.8</td>
<td>79.7</td>
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<tr>
<td>2/12</td>
<td>Cambridge</td>
<td>84.9</td>
<td>79.2</td>
<td>69.6</td>
<td>69.6</td>
<td>69.6</td>
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<tr>
<td>3/11</td>
<td>Nottingham</td>
<td>80.8</td>
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<td>4/23</td>
<td>St Andrews</td>
<td>81.6</td>
<td>80.8</td>
<td>73.8</td>
<td>73.8</td>
<td>73.8</td>
<td>73.8</td>
</tr>
</tbody>
</table>
Peri-implant mucositis is a major clinical problem.

Welcome to Warwick Dentistry

Janina
Toothpaste
Mouthrinse
Spray
From Dental Directory or CTS

Why look for Gum disease?
**Why look for Gum disease?**

Feb 28th 2009

---

**Perio-systemic link**

---

**Periodontal disease is a risk marker for coronary heart disease**

Periodontal disease and coronary heart disease incidence: a systematic review and meta-analysis. Humphrey LL, Fu R, Buckley DL, Freeman M, Helfand M.

**Conclusion:**

Periodontal disease is a risk factor or marker for CHD that is independent of traditional CHD risk factors, including socioeconomic status.

Further research is warranted in this important area of public health.

---

**Periodontal treatment could improve glycaemic control in diabetic patients**


**Conclusions**

The present meta-analysis represents the best information available to date that addresses this issue, and suggests that periodontal treatment could improve glycaemic control.

---

**Celebrity Endorsement!**

“Smoking kills…….. If you are killed - you’ve lost a very important part of your life”

Brooke Shields - smoking

---

**Can we seal in caries?**

**No**

70% of “sealed in” occlusal caries progressed


---

**Some examples of minimal invasive dentistry using HealOzone**

---


Cariogenic microorganisms found despite sealed restoration with soft and moist dentine, ie active caries under the sealed restorations.
Caries progressed in 5% of the SDF/SnF₂ group and 11% of the SDF/SnF₂/minimal preparation cavities/composite resin group in 18 months.


No remineralisation beneath GIC or GIC/Ca(OH)₂ or Composite resin “sealants” after 3-4 months. UMIS and SEM-BSE methodology in Archives of Oral Biology 2004.

Some examples of arrested Root Caries follows using Ozone.
Selection of relevant references are in the following slides which have been requested.

Almost 100 publications are accessible on [www.iadr.org](http://www.iadr.org) and the Pan European IADR and divisional web sites, proving the efficacy of the HealOzone.
Effect of ozone on the oral microbiota and clinical severity of primary root caries.

Baysan A, Lynch E


Antimicrobial effect of a novel ozone-generating device on microorganisms associated with primary root carious lesions in vitro.

Baysan A, Whiley RA, Lynch E


BENEFITS

• CONSERVES TOOTH STRUCTURE
• 1 DAY ENDOodontics
• CLEANSES PERIO POCKETS EFFECTIVELY with McKenna adaptation
• IMPROVES APICECTOMY SUCCESS
• MORE PREDICATABLE TREATMENT
• FASTER TREATMENT

Benefits for the general dentist

• Effective: at least 99.99% of all oral bacteria (incl. Enterococcus Faecalis) are being killed.
• Fast Treatment.
• Easy: Integrable in existing treatment procedure with no need for special measures.
• Safe, with no side-effects: Ozone does not affect the healthy surrounding tissue. No known side-effects

Benefits for the patients

• Painless
• Root canal treatment in a single visit
• Improves implant augmentation success rate
• "Inflammation free" dental pocket after perio treatment
• Less risk of pulpal exposure in treating deep decay
• Less trauma for children and dental phobics
• Reduces the need for local and systemic antimicrobials

Application:

• Thermal Assisted Light Polymerization

Features:

• Heats composite material to 98°F (37°C), 130°F (54°C) or 155°F (68°C)
• Maintains constant temperature
• Increases degree of cure

ADDENT AND CALSET

– www.ukdent.com

-Warming units that raise the temperature of composite in compules or syringes to 54°C or 68°C
Benefits:
• Shortens curing time by over 80%
• Improves composite flow by 68%
• Reduces Microleakage
• Improves physical properties

Sylc™
Therapeutic Cleaning & Polishing, Desensitization and Regenerative Treatment

Sylc is an innovative new calcium phosphosilicate prophylaxis powder that provides three clinical benefits in one treatment:

- Cleans & Polishes
- Desensitizes Immediately
- Rebuilds Enamel

Sylc™ Product Configurations

- Sylc Bottles
- Sylc Stick Unit Dose/Sample Packs
- Sylc Disposable Delivery System

Sylc™ cleans faster and better than Sodium Bicarbonate

Look at the superior results with Sylc in just 20 seconds.

Sylc Powder
Pre Cleaning 20 seconds

Sodium Bicarbonate
Pre Cleaning 20 seconds

Sylc clearly out-cleans traditional air polishing powder

Clinical Benefits

- Stain Removal
- Surface Finish
- Desensitisation
- Remineralisation

Stain Removal

Extracted Tooth
Sodium Bicarbonate
Sylc powder

Effect on Tooth Surface

Control
Alumina
Sodium Bicarbonate
Sylc™

<table>
<thead>
<tr>
<th>Material</th>
<th>Surface Reduction (Microns)</th>
<th>Surface Roughness (Microns)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>0 +/- 1.3</td>
<td></td>
</tr>
<tr>
<td>Alumina</td>
<td>250-300 +/- 1.5</td>
<td></td>
</tr>
<tr>
<td>Sodium Bicarbonate</td>
<td>10-30 +/- 1.6</td>
<td></td>
</tr>
<tr>
<td>Sylc Powder</td>
<td>10-30 +/- 0.84</td>
<td></td>
</tr>
</tbody>
</table>
if you are going to watch something you have to be very sure of what you are watching

Hidden Caries

The CarieScan PRO

How the PRO works

- The product platform is based on the application of a technique called AC impedance spectroscopy (ACIST).
- The measurement relies on the application of small electrical signals through the tooth while monitoring the response to the sensor.
- Analysis of the impedance response relates to the physical structure of the tooth.

World Beating Accuracy

- 94.8% accurate at detecting caries
- Fewer than 7% false positives and 7 times less than our nearest competitor
- Increase your and your patients confidence that the correct diagnosis has been made

Simple to use…..

- Simply air dry the tooth as you would for a visual examination
- Place the sensor on the tooth/site
- A measurement will be displayed immediately
- To take another reading simply place the sensor on another tooth/site
- No calibration required
...and understand

- The PRO has a simple 0-100 scale
- 0-50 - Low probability of caries
- 51-90 - Medium probability of caries
- 91-99 - High probability of caries
- 100 - Operative Care Advised
- Quantifiable and repeatable output allows for on-going patient monitoring and an increase in repeat preventative treatments.

Increase Practice Revenues

- Locate more decay
- Identify decay earlier
- Reduces the need for X-rays allowing an increase in the frequency of monitoring
- Preparation work can be passed to Hygienists saving time and money

Clinicians Report

- ‘Easiest and fastest to use’
- ‘Performed better than all previous products in rigorous trials’
- The only product to be marked as ‘excellent’ in any categories (2)

Performance Comparison

Using the CarieScan PRO

Testimonials

- What sets the CarieScan PRO apart from other units is its improved sensitivity and specificity with an unmatched accuracy. This high degree of accuracy means fewer false positives, giving me more confidence in my diagnosis.
  - Dr. Michael Miyasaki, DDS (Sacramento, CA, USA)

- I can confidently tell you that among the 11 devices we have in our caries detection clinic, CarieScan is the most reliable and accurate device for detection and monitoring of initial carious lesions on all surfaces.
  - Prof. Bennett T. Amaechi, BDS, MS (SATX, USA)

Testimonials

- I use a CarieScan PRO daily. I have found it to be an invaluable device. The PRO has been 100% reliable for the detection of early carious lesions and is now routinely used in place of radiographs.
  - Ian Robertson, BDS (UK)

- ‘It is so simple, patients have responded well to it and it has increased visits to the dentists in the practice’
  - Mhari Coxon, RDH (UK)
Edward Lynch
Evidence-based efficacy of ozone for root canal irrigation.

Efficacy of ozone on survival and permeability of oral microorganisms
Nagayoshi M, Fukuizumi T, Kitamura C, Yano J, Terashita M, Nishihara T.

Antimicrobial Effect of Ozone on Bacteria Invading Dentinal Tubules
Nagayoshi M., Kitamura C., Fukuizumi T., Nishihara T., Terashita M.

Mechanism of Action

Molecular mechanisms
1H NMR Analysis of Microbial-Derived Organic Acids in Primary Root Carious Lesions and Saliva.
NMR in Biomedicine 12: 345-356.

1H and (13)C NMR spectroscopic analysis of human saliva.
Silwood CJ, Lynch E, Claxson AW, Grootveld MC
1H NMR investigations of the molecular nature of low-molecular-mass calcium ions in biofluids.
Silwood CL, Grootveld M, Lynch E.
1H NMR spectra of root caries

HealOzone handpiece from CurOzone Germany used to deliver Ozone gas into root canals.

Ozone therapy efficiency for the treatment of periodontal disease

Păduraru A, Lăcătușu S, Vataman R.

The use of ozone and 0.2% chlorhexidine in the treatment of periodontitis patients: A clinical and microbiologic study


Effect of ozone on periodontopathogenic species

S Eick, M Tigan, and A Sculean

IADR SAN DIEGO MARCH 2011, PAPER 3070

Results showed a high efficacy of ozone against Fusobacterium nucleatum, Porphyromonas gingivalis and Aggregatibacter actinomycetemcomitans.

Most of the strains in a concentration of $10^5$ were completely eliminated after two-fold 18 s application of ozone

Effectiveness of ozone against periodontal pathogenic microorganisms

Huth et al, in press 2012

Compared to CHX 0.2%, aqueous ozone 20 $\mu$g/ml and gaseous ozone down to 4 g/m3 showed a significantly higher effectiveness.

Is Ozone useful for Peri-implantitis management or prevention?

• Dr Dan Mc Kenna
• Proven successful prevention of Peri-implant mucositis using Ozone
• Awarded First Prize IADR 2009
• MPhil Thesis 2010
Peri-implant mucositis is a significant clinical problem.


As ozone is the most powerful antimicrobial agent we could use in dentistry it seemed appropriate to assess if Ozone could prevent peri-implant mucositis (McKenna et al PEF 2008).

The aim of this study was to assess if metrology could quantify experimentally produced peri-implant mucositis with and without HealOzone treatment.

The Local Research Ethics Committee (LREC) granted ethical approval and informed consent was also given by all patients after reading the study information sheet.

Methods:

Twenty subjects were enrolled in a randomized, double – blind, controlled, single center study after a pre-trial phase to achieve clinically healthy gingivae.

All subjects at the end of the pre-trial phase were asked to refrain from tooth brushing that area by wearing a gum shield over the chosen implants whilst tooth brushing.

Each of these patients had two implants which were randomly allocated as either test or control.

Subgingival administration of ozone (HealOzone, KaVo) and saline (test implant site) or air and saline (control implant site) was delivered subgingivally for 60 seconds on day 0, 7 and 14.
Plaque, bleeding and modified gingival indices and impressions were recorded by a single operator at 0 and 21 days in this 21 day experimentally induced peri-implant mucositis study.

The patients and dentist (investigator) were unaware of the treatments applied to each implant site.

HealOzone handpiece adapted by McKenna to treat subgingivally with HealOzone silicone cup and cannula

Mode of HealOzone handpiece cap applications

Paper point to judge depth of gingival crevice

Silicone cup and cannulae applied to implant site

HealOzone handpiece with plastic cannulae

Stacking of silicone cups
Results: There were significant differences in plaque (p-value <0.01), gingival (p-value = 0.011) and bleeding (p-value <0.01) index scores between the treatments with ozone and saline showing the optimal tissue health scores. Considering the plaque index outcome, significant differences were observed between the treatments with a p-value < 0.01. The lowest mean plaque index score was recorded by O3 NaCl (1.13; 95% CI: 0.91 to 1.22) whilst O2 NaCl (1.80; 95% CI 1.64 to 1.96) recorded the highest score.

The plaque index at 21 days was less for the ozone treated sites than for the air treated sites (p<0.01) and the changes in plaque and gingival thickness as quantified by the laser scanned impressions correlated with this result (p<0.01).
The bleeding index at 21 days was less for the ozone treated sites than for the air treated sites (p<0.01) and the change in the gingival volume from the laser scanned impressions correlated with this result. Conclusion: Metrology could quantify experimentally produced peri-implant mucositis and was able to quantify the significant reduction in peri-implant mucositis associated with the HealOzone treatment.

- Wounds receive more Oxygen when Ozone is applied.
- Enhances the phagocitary activity defending cells
- Accelerates migration of epithelial cells
- Activates Fibroblasts
- Increases collagen synthesis
- Improves cell proliferation
- Increases chemotaxis of monocytes and fibroblasts
- Increases synthesis of extracellular matrix
- Professor Bocci / Professor Filippi
Can HealOzone whiten teeth?

Safety aspects concerning the therapeutic and cosmetic applications of hydrogen peroxide (H2O2)—containing gels, whiteners, oral rinses and dentifrices.
Lynch E, et al.

Is home tooth bleaching gel cytotoxic?
Tse GS, Lynch E, Blake DR, Williams DM.

Undesirable and adverse effects of tooth-whitening products: a review.
Goldberg M, Grootveld M, Lynch E.

Genotoxicity and carcinogenicity only occur at concentrations that are never reached during dental treatments.

Mechanism of Action

Molecular mechanisms of the bleaching actions associated with commercially available whitening oral health care products.
Lynch E, et al.

1H and (13)C NMR spectroscopic analysis of human saliva.
Silwood CJ, Lynch E, Claxson AW, Grootveld MC.

Oxidation

Especially from free radical generation with superoxide (O2-) radicals and hydroxyl radicals (OH-)

1H NMR investigations of the molecular nature of low-molecular-mass calcium ions in biofluids.
Silwood CJ, Grootveld M, Lynch E.
Molecular mechanisms


\(^{1}\)H NMR Analysis of Microbial-Derived Organic Acids in Primary Root Carious Lesions and Saliva.

*NMR in Biomedicine* 12: 345-356.

Activators

Batista GR, Barcellos DC, Torres CR, Goto EH, Pucci CR, Borges AB.

The influence of chemical activation on tooth bleaching using 10% carbamide peroxide.

- Adding 0.01% manganese gluconate to 10% carbamide peroxide bleaching gel increased the degree of tooth bleaching after a seven-day treatment and did not influence the resulting shade after 14 days.

Chlorine dioxide

Lynch E. *et al.* (1997)

Multicomponent spectroscopic investigations of salivary antioxidant consumption by an oral preparation containing the stable free radical species chlorine dioxide (ClO\(_2\)).


Peroxoborate

Lynch E. *et al.* (1999)

Multicomponent evaluations of the oxidising actions and status of a peroxoborate-containing tooth-whitening system in whole human saliva using high resolution proton NMR spectroscopy.

*Journal of Inorganic Biochemistry* 73: 65-84.

Surgery Bleaching

Ozone activates hydrogen peroxide

Can HealOzone whiten teeth?
Ozonated gel and Composite restorations

Effect of bleaching versus repolishing on colour and surface topography of stained resin composite

M. Aid Eldin,* R. Mahmoud*
*Department of Operative Dentistry, Faculty of Dental Medicine, Cairo University, Egypt.

“Superior whitening effect was demonstrated with the ozonated gel. Ozonated gel showed statistically significant lowest roughness compared to both carbamide peroxide and polishing paste.”

Ozonated gel and composite restorations

Table 4. Difference between the three whitening methods regarding surface roughness

<table>
<thead>
<tr>
<th>Whitening method</th>
<th>Mean</th>
<th>P</th>
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</thead>
<tbody>
<tr>
<td>Carbamide peroxide</td>
<td>Polishing paste</td>
<td>0.800</td>
</tr>
<tr>
<td>Ozonated gel</td>
<td>1.600</td>
<td>0.003*</td>
</tr>
<tr>
<td>Polishing paste</td>
<td>Carbamide peroxide</td>
<td>0.800</td>
</tr>
<tr>
<td>Ozonated gel</td>
<td>1.600</td>
<td>0.003*</td>
</tr>
<tr>
<td>Polishing paste</td>
<td>Ozonated gel</td>
<td>2.400</td>
</tr>
</tbody>
</table>

“Ozone is an efficient bleaching agent with the least adverse effect on surface roughness.”

Ozone and effluent biodegradability

The O3/H2O2 process increased effluent biodegradability by up to 68%. Increasing the O3 dose had a greater effect on biodegradability improvement and lignin and colour removal efficiencies than increasing the H2O2 dose.

The pulps can be bleached to brightness values of 80–83% ISO by a short ozone-based TCF bleaching sequence.

Introduction of ozone stream into the UV-photolysis system resulted in appreciable improvement in both decolorization and dechlorination.

Considerable improvements were obtained with respect to other bleaching sequences such as ozone. Hydrogen peroxide bleaching decreased the kappa index 51.3% less than ozone bleaching.
Oxidative degradation of N-nitrosodimethylamine by conventional ozonation and the advanced oxidation process ozone/hydrogen peroxide.

Lee C; Yoon J; Von Gunten U

Treatment of volatile organic chemicals on the EPA Contaminant Candidate List using ozonation and the O3/H2O2 advanced oxidation process.

Chen WR; Sharpless CM; Linden KG; Suffet IH

Grootveld M, Silwood C, Lynch E.
Biofactors 2006; 27: 5 – 18.
Oxidative Consumption of Biomolecules by Ozone; Clinical Relevance.

Surgery Bleaching
Ozone activates hydrogen peroxide

Samarawickrama DY, Lynch E, et al
Professional bleaching of teeth in dental practice techniques.

Creating the seal at the gingival margin
Increased Suction & Pressure with super seal technique
Regular trays
Keeps gel in
Keeps saliva out
Longer half life of gels made with porous stone

•Perfect Trays
Zero Sensitivity Perfect Tray
(Inventor, Dr. Wyman Chan, UK Patent No. 2 416 310, 2 445 298)

- Non-Reservoir (CRA 1997 Gordon Christensen)
- Non-Scallop, extend 2-3 mm over gingival margins, preventing saliva entering the tray to dilute the gel (Haywood 2002)

Small amount of gel

Perfect Seals, like post dams, on the inside labial preventing the gingival crevicular fluid (GCF) and saliva contaminating and consuming the bleaching agent and also sealing the gel within the tray

Loading the Perfect Tray by filling up the dimples on the labial side

The dimples serve two purposes:
1) The location marks and
2) the amount of bleaching gel to be loaded inside the tray

Only a small amount of gel is required

Bleaching gel is prevented from getting in contact with exposed dentine and oral soft tissues by the Perfect Seals

Bleach only enamel and gel is locked in by the Perfect seal (enamel is the only non-vital tissue in our body when fully matured)

Minimal amount of gel needed
- 75mg (6%) per upper application (502mg)
- Zero sensitivity on teeth and oral soft tissues.

Smile Studio Perfect Tray HB
- Carbamide Peroxide (CP) 10%-16% - Overnight wear
- CP 18% - 1-2 hours twice a day or overnight
- H₂O₂ (HP) - ½ hour twice a day
- 2 to 6 weeks
- Lower wear time if experience sensitivity
Before

No impressions
No trays
No sensitivity
No paint-on dam

New paint-on system with get2smile Thermal Diffuser
• Gentle raised temperature of bleaching gel at gel/enamel interface
• Enhancing diffusion of gel inside enamel
• wy10 10% H₂O₂

Before

10 applications

Before

10 apps

Before

10 applications
Professor Lawrence Walsh, Dean, Brisbane, Australia. Also proved the efficacy of the HealOzone to activate peroxide.

**Internal bleaching**

**HealOzone and the walking bleach technique**

- Access and Seal over GP
- 37% Phosphoric Acid Etch
- Paste of Sodium Perborate Powder and \( \text{H}_2\text{O}_2 \)
- HealOzone 30 seconds
- Seal with GIC 1 wk

**Biocompatible**
• healOzone X4
• Curozone
• www.ukdent.com
• E.lynch@warwick.ac.uk

HealOzone handpiece from Curozone Germany
HealOzone (CurOzone Germany)
2,350 ppm ozone, 615 cc/min flow rate
X4 = 9400 ppm Ozone

The needle to deliver ozone into root canals

HealOzone handpiece from CurOzone Germany used to deliver Ozone gas into root canals

Ozone (O₃) treatment of caries:
- The “ecological niche” of acidogenic and aciduric microorganisms is eliminated, for at least 14 weeks
- Remineralization overpowers demineralization
- Rapid remineralization occurs

Some examples of radiographic changes in Ozone treated caries follows

3 months later

Ozone and 3 months. Dipak Joshi

DEEP CARIES
OZONE AND FUJI 7 GLASS Ionomer, 3 Month Result

DEEP CARIES CASE
COURTESY J. HOLMES

Ref: Geoff Knight
"I have included a sequence of X-rays I did on one of these patients."

X-ray 1: Child patient aged 4 years. Presents with rampant bottle decay on all teeth. No pain or infection present. Suggested GA with pulpotomy to try to save 55 to allow 16 to erupt into favourable position. Parents refused general anesthesia.

X-ray 2: Child presents 6 months later. Again, no pain or infection. Parents do not want GA. Child uncooperative but allowed ART technique with Fuji IX.

X-ray 3: Child returned over one year later as an emergency with toothache. ART technique had failed on 55. Child still unable to have conventional dentistry performed in the chair. Parents still unwilling to accept GA. Ozone from the Healozone and Fuji VII was used.

X-ray 4: Child came for a “check-up” just over 1 year later. Miraculous! No pain or infection. The 16 has erupted perfectly into position.

My question here is: how is the tooth “healing”? Please can you explain the mechanism by which this hyper-mineralized tissue is formed?

Most Dentists charge the same fee for Ozone treatment and sealing (flowable composite) of an occlusal caries lesion as they do for a posterior composite. This saves the Dentist time.

Reversal of deciduous caries after HealOzone treatment


Reversal of Deciduous Caries using HealOzone

M Phil Thesis, UK 2004

OT.Abu-Salem

HealOzone uses with Caries

Professor Sebastian Ciancio, USA Biological Therapies in Dentistry 2005 “Studies with over 2000 Patients have shown remineralisation of Healozone treated permanent and deciduous occlusal surfaces as well as root caries”. “The HealOzone is a novel new and painless way to treat early caries”.

• Amna Al Shamsi
• PhD thesis 2007
• HealOzone significantly reduces caries incidence around orthodontic brackets (9% versus 28%)


Effect of HealOzone treatment on different cariogenic microorganisms in vitro.

Swed Dent J 2008;32(3):139-47 (ISSN: 0347-9994)
Fagrell TG; Dietz W; Lingstrom P; Steiniger F; Noren JG

The Use of Ozone in Dentistry and Medicine.
Part 1.
Baysan A and Lynch E.
Primary Dental Care, 12; 2: April 2005, 47 – 52.

The use of Ozone in Dentistry and Medicine.
Part 2.
Baysan and Lynch
Primary Dental Care 2006; 13: 37 – 41

The use of Ozone in Dentistry and Medicine.
Part 2.
Baysan and Lynch
Primary Dental Care 2006; 13: 37 – 41

Anti-microbial effects of a novel ozone generating device on micro-organisms associated with root carious lesions
A. Baysan, R. Whiley and E. Lynch

99% microbial killing achieved after ozone treatment

HealOzone treatment for deep caries or as an alternative to stepwise excavation
Studies in London and Isle of Wight

Reversal of root caries using HealOzone
- A 12 month longitudinal study
A. Baysan (London)

Baysan A and Lynch E.
91% Reversal of Caries at 5.5 months after HealOzone treatment.
99% Reduction in Microorganisms at 5.5 months.

The Root Caries deeper then 2mms did not reverse.

Clinical reversal of root caries using Healozone, double blind, randomised, controlled 18-month trial.
Julian Holmes
100% Reversal of Non Cavitated Root Caries at 18 months
Antibacterial effect of Healozone on cariogenic bacterial species.


Johansson E, Claesson R, van Dijken JW

The influence of Healozone on microleakage and fissure penetration of different sealing materials.


Dukić W, Dukić OL, Milardović S

Ozone improves lipopolysaccharide-induced responses of an odontoblast-like cell line.

J Endod. 2009 May;35(5):668-72

Noguchi F, Kitamura C, Nagayoshi M, Chen KK, Terashita M, Nishihara T

The inability of Streptococcus mutans and Lactobacillus acidophilus to form a biofilm in vitro on dentine pretreated with Healozone.


Knight GM, McIntyre JM, Craig GG, Mulyani, Zilm PS

Treating sensitive cervical areas with Healozone. A prospective controlled clinical trial.

Am J Dent. 2008 Apr;21(2):74-6

Dähnhardt JE, Gygax M, Martignoni B, Suter P, Lusei A

Skaug N, Strand G, Nielsen O

ORCA & Caries Research 2006

85% Reduction in Mutans Streptococci with HealOzone and 78.6% Reduction in Lactobacilli

Khairul Matin, Junji Tagami

99% Microbial killing with HealOzone

Dept of Restorative Sciences and Cariology

Tokyo Medical and Dental University

Professor Michael Noack and Suzanne Kneist

ORCA & Caries Research 2006

99% reduction in microorganisms following 20 seconds of HealOzone treatment

Studies in London and Isle of Wight

HealOzone treatment for deep caries or as an alternative to stepwise excavation
Are Ozone systems safe?

Ozone air levels from a dental ozone gas delivery system
Johansson E, Andersson-Wenckert I, Hagenbjork-Gustafsson A, van Dijken JWV
Acta Odontol Scand. 2007 Nov;65(6):324-330

Conclusion
HealOzone is safe

Assessment of the safety of two ozone delivery devices
Millar BJ, Hodson N.
J Dent. 2007 Mar;35(3):195-200

Conclusion
HealOzone is safe and the Ozone system which blows out Ozone is not safe

Ozone exerts inhibitory effects on the NF-kB system suggesting it has an anti-inflammatory capacity. IkBa proteolysis, cytokine expression and kB-dependent transcription were prevented.

Huth et al.
Effect of ozone on oral cells compared to established antimicrobials.

Filippi A
The effects of ozone on epithelial wound healing.

Research Awards to Ozone researchers
- Dr Dan Mc Kenna
  - Proven successful prevention of Peri-implantitis using HealOzone
  - Awarded First Prize IADR 2009 (International Association for Dental Research annual meeting)

- Dr Jameela Alawadi
  - Proven successful use of HealOzone in root canal therapy
  - Awarded First Prize IADR 2008

- Professor Martin Grootveld
  - Proven successful management of Dental Unit Water Lines using Ozone
  - Awarded First Prize IADR 2007

- Professor Dr Liviu Steier
  - Proven successful use of HealOzone and sealing to manage caries
  - Awarded First Prize IADR 2006

- Dr Wyman Chan
  - Awarded First Prize IADR for his HealOzone research 2005

- Dr Julian Holmes
  - Awarded First Prize IADR for his HealOzone research 2004

- Dr Aylin Baysan
  - Awarded two First Prizes at IADR

- Dr Layla Abu-Naba’a
  - Awarded the prestigious Basil Bibby cariology award at IADR partly for her HealOzone research 2001

- Helene Domingo
  - Awarded First Prize IADR for HealOzone research
Amna Al Shamsi
PhD thesis 2007
HealOzone significantly reduces caries incidence around orthodontic brackets (9% versus 28%)

Ozone therapy in the treatment of avascular bisphosphonate-related jaw osteonecrosis

Ozone increased the complete healing of lesions with the disappearance of symptoms and brings lesion progression down to zero. Ozone’s “benefits were remarkable”.

Objective Quantitative Use of Saliva to Reflect Health or Disease
E Lynch
IADR Symposium 2009

ADVANTAGES OF SALIVA AS BIOFLUID MEDIUM FOR DIAGNOSTIC PURPOSES

- Ease of Collection
- Low cost of Collection
- Non-invasive Collection for Patients (reduces Anxiety and Stress)
- Facilitates Collection of Multiple Samples for Time-Dependent Monitoring Purposes
- Easy to Handle and Deal with

Markers for pregnancy-related disorders, such as fetal aneuploidy, preterm birth, preeclampsia, intra-amniotic infection and fetal stress.

MANY OTHER DIAGNOSTIC ANALYTES (‘BIOMARKERS’) HAVE BEEN SHOWN TO BE PRESENT IN HUMAN SALIVA

For example:
- Steroid Hormones
- HIV Antibody
- Those for Hepatitis A, B and C
Unique diagnostic panels of salivary mRNAs in subjects with Sjögren’s disease.

Four salivary mRNAs (OAZ, SAT, IL8, and IL1b) collectively have a discriminatory power of 91% sensitivity and specificity for oral cancer detection.

Recommended Reading

The Axelsson Series on Preventive Dentistry

Ozone – the Revolution in Dentistry. Quintessence Dec 2004

New opinions are always suspected, and usually opposed, without any other reason but because they are not already common

John Locke 1690

Thank you for listening

E.LYNCH@WARWICK.AC.UK

See

www.realityesthetics.com

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E.LYNCH@WARWICK.AC.UK
Effect of Ozone on Dental Caries Progression

Seghi et al
AADR Dallas April 2008

Ozone significantly (P=0.003) reduced caries progression in experimental rats

Oxidation of Biomolecules by Ozone

E Lynch et al
AADR Dallas April 2008

Oxidation of Cysteine and Methionine proving Ozone (TherOzone) can combat oral malodour

Bleaching of compounds responsible for Tooth Discoloration by Ozone

H Domingo et al
AADR Dallas 2008

Ozonated water (TherOzone) bleaches

Han S. Uhm, Kwang H. Lee, and Baik L. Seong.

“Inactivation of H1N1 viruses exposed to acidic ozone water.”


Ozone use in RCT, benefits of Ozone for healing, periodontology and safety.

HealOzone is safe
Ozi-cure is not safe

Miller B and Hodson N,
Assessment of the safety of two ozone delivery devices.

Ozonated water improves lipopolysaccharide-induced responses of an odontoblast-like cell line.

J Endod. 2009 May;35(5):668-72

Noguchi F, Kitamura C, Nagayoshi M, Chen KK, Terashita M, Nishihara T

Ozone air levels from a dental ozone gas delivery system


Johansson E, Andersson-Wenckert I, Hagenbjork-Gustafsson A, van Dijken JWV.

HealOzone is safe.
Wounds receive more Oxygen when Ozonated Water is applied.

Enhances the phagocitary activity defending cells

Accelerates migration of epithelial cells

Activates Fibroblasts

Increases collagen synthesis

Improves cell proliferation

Increases chemotaxis of monocytes and fibroblasts

Increases synthesis of extracellular matrix

Professor Bocci / Professor Filippi

**Ozone therapy in medicine and dentistry.**

J Contemp Dent Pract 2008;9(4):75-84  (ISSN: 1526-3711)

Nogales CG; Ferrari PH; Kantorovich EO; Lage-Marques JL

Scientific and medical aspects of Ozone therapy. State of the art.

Professor Velio Bocci


Beneficial effects of Ozone discussed

Ozone accelerates wound healing

Chronic leg ulcers. Aust Farm Physician 1985; 14: 292 - 298


Aqueous Ozone exerts inhibitory effects on the NF-kB system suggesting it has an anti-inflammatory capacity. IкBa proteolysis, cytokine expression and kB-dependent transcription were prevented.

Evidence-based efficacy of ozone for root canal irrigation.

Lynch E.


Efficacy of calcium hydroxide, Er:YAG laser or gaseous ozone against Enterococcus faecalis in root canals.


Kustarci A, Sümer Z, Altunbas D, Kosum S.

Bactericidal effect of KTP laser irradiation against Enterococcus faecalis compared with gaseous ozone: an ex vivo study.

Jameela Mohammed Alawadi
PhD thesis 2008
Successful use of Ozone in root canal therapy
World First Prize IADR 2008

Experience in ozone use for root canal therapy
Berukova et al
Proved efficacy of Ozone for root canal therapy.

Nagayoshi M, Kitamura C, Fukuzumi T, Nishihara T, Terashita M.
Antimicrobial effect of ozonised water on bacteria invading dentinal tubules.

Berukova et al
Proved efficacy of Ozone for root canal therapy.

Filippi A
The effects of ozonised water on epithelial wound healing.

The influence of Ozonated Water on the epithelial wound healing process in the oral cavity
Professor A Filippi
Use of Ozonater Water clearly showed an acceleration of wound healing within the first 48 hours, resulting in earlier epithelial wound closure after 7 days.

Huth et al.
Effect of ozone on oral cells compared to established antimicrobials.

Antimicrobial potential of ozone in an ultrasonic cleaning system against Staphylococcus aureus.
       Estrela C, Estrela CR, Decurcio Dde A, Silva JA, Bammann LL

Ozone sterilises 10⁶ cfu Enterococcus Faecalis
Chang H
IADR 2003

Professor Beer and Liviu Steier
Witten University
Sterilisation of root canals using HealOzone 2006
Efficacy of Ozone on Survival and Permeability of Oral Microorganisms

M Nagayoshi, T Fukuizumi, C Kitamura, J Yano, M Terashita, T Nishihara


Therapeutic effects of topical application of ozone on acute cutaneous wound healing.

Kim HS, Noh SU, Han YW, Kim KM, Kang H, Kim HO, Park YM

Superficially, longer, intermittent ozone therapy in the treatment of the chronic, infected wounds.

Białoszewski D, Kowalewski M

Leave decay in my cavity? You must be kidding!
Knight GM, McIntyre JM, Craig GG, Mulyani.

Clin Oral Investig. 2010 Jan 7. [Epub ahead of print]
Influence of ozone on the composite-to-composite bond.
Magni E, Ferrari M, Papacchini F, Hickel R, Ilie N.

Enamel and dentin bond strength following gaseous ozone application.
Cadenaro M, Delise C, Antoniollo F, Navarra OC, Di Lenarda R, Breschi L.

Novel preventive treatment options.
Longbottom C, Ekstrand K, Zero D, Kambara M.

Bactericidal effect of KTP laser irradiation against Enterococcus faecalis compared with gaseous ozone: an ex vivo study.
Kuştarci A, Sümer Z, Altunbaş D, Koşum S.

Ozonated water improves lipopolysaccharide-induced responses of an odontoblast-like cell line.
Noguchi F, Kitamura C, Nagayoshi M, Chen KK, Terashita M, Nishihara T.
The influence of Healozone on microleakage and fissure penetration of different sealing materials.

Dukić W, Dukić OL, Milardović S.

Antibacterial effect of ozone on cariogenic bacterial species.

Johansson E, Claesson R, van Dijken JW.

Efficacy of calcium hydroxide, Er:YAG laser or gaseous ozone against Enterococcus faecalis in root canals.


Stomatologiia (Mosk). 2008;87(6):24-6. [Application of medical ozone in endodontic practice] [Article in Russian]

Bezrukova IV, Petrukhina NB, Dmitrieva NA, Snegirev MV.

Some published research with the TherOzone

Some published research with the TherOzone

New therapeutic strategies for the treatment of difficult wounds

G Chir. 2008 May;29(5):212-20

Onesti MG, Bitonti A, Fino P, Ciotti M, Scuderi N

Beneficial effects of pro-/antioxidant-based nutraceuticals in the skin rejuvenation techniques.


de Luca C, Deeva I, Mikhal'Chik E, Korkina L

Therapeutic effects of topical application of ozone on acute cutaneous wound healing.


Kim HS, Noh SU, Han YW, Kim KM, Kang H, Kim HO, Park YM.
The case for oxygen-ozonotherapy.

**Bocci V.**


Periradicular repair after two-visit endodontic treatment using two different intracanal medications compared to single-visit endodontic treatment.


Silveira AM, Lopes HP, Siqueira JF Jr, Macedo SB, Consolaro A.

The clinical efficacy of the local, deep insufflation of an oxygen-ozone mixture in the prevention and treatment of infections in the locomotor system.


Białoszewski D, Kowalewski M.

Superficially, longer, intermittent ozone therapy in the treatment of the chronic, infected wounds.


Białoszewski D, Kowalewski M.

Therapeutic efficacy of ozone in patients with diabetic foot.


Modulation of cutaneous wound healing by ozone: differences between young and aged mice.


Lim Y, Phung AD, Corbacho AM, Aung HH, Maioli E, Reznick AZ, Cross CE, Davis PA, Valacchi G.

Intravesical ozone therapy for progressive radiation-induced hematuria.


Clavo B, Gutiérrez D, Martín D, Suárez G, Hernández MA, Robaina F.

Can the combination of "proliferative therapy" with "minor ozonated autohemotherapy" restore the natural healing process?


Gracer RI, Bocci V.
Major ozonated autohemotherapy in chronic limb ischemia with ulcerations.
de Monte A, van der Zee H, Bocci V.

Effects of sodium hypochlorite and ozone on healing of intestinal anastomosis in simulated strangulation colorectal obstruction.
Lelyanov AD, Sergienko VI, Ivliev NV, Emel’yanov VV, Guseva ED.

Ozone treatment for radiotherapy skin reactions: is there an evidence base for practice?
Jordan L, Beaver K, Foy S.

[Effect of ozone on antibiotic sensitivity of microorganisms]
Stomatologiiia (Mosk). 2003;82(2):36-8
Daulbaeva AA, Baïzakova GT.

Valacchi G, Bocci V.

[Wound treatment using the flow of an ozonized solution under high pressure]
Khirurgiia (Mosk). 1998;(8):23-4
Bulynin VI, Ermakova AI, Glukhov AA, Mozhurov IP.

Effects of ozone on how well split-thickness skin grafts according to Thiersch take in war wounds. Results of prospective study.
Turcić J, Hancević J, Antoljak T, Zic R, Antoljak T, Zic R.

A physicochemical investigation on the effects of ozone on blood
Travagli, V. a, Zanardi, I. a, Silvietti, A. b, Bocci, V.

Scientific and Medical Aspects of Ozone Therapy. State of the Art
Bocci, V.A.
Bocci, V.

Is it true that ozone is always toxic? The end of a dogma


Uppu, R.M., Cueto, R., Squadrito, G.L., Pryor, W.A.

What does ozone react with at the air/lung interface? Model studies using human red blood cell membranes


Bocci, V., Luzzi, E., Corradeschi, F., Paulesu, L., Rossi, R., Cardaioli, E., Di Simplicio, P.

Studies on the biological effects of ozone: 4. Cytokine production and glutathione levels in human erythrocytes


Mudd, J.B., Dawson, P.J., Santrock, J.

Ozone does not react with human erythrocyte membrane lipids


Bocci, V., Valacchi, G., Corradeschi, F., Fanetti, G.

Studies on the biological effects of ozone: 8. Effects on the total antioxidant status and on interleukin-8 production


Travagli, V., Zanardi, I., Bocci, V.

A realistic evaluation of the action of ozone on whole human blood


Bocci, V.,

Ozone


Blood Coagulation Unaffected by Ozonated Autohemotherapy in Patients on Maintenance Hemodialysis


Randomised, double-blinded, placebo-controlled, clinical trial of ozone therapy as treatment of sudden sensorineural hearing loss

Bocci, V., Travagli, V., Zanardi, I.
Application of medical ozone in endodontic practice
Stomatologiia (Mosk) (Russia 2008;87(6):24-6  (ISSN: 0039-1735)
Bezrukova IV; Petrukhina NB; Dmitrieva NA; Snegirev MV

Ozone and its usage in general medicine and dentistry. A review article.
Prague Med Rep 2008;109(1):5-13  (ISSN: 1214-6994)
Seidler V; Linetskiy I; Hubalkova H; Stankova H; Smucler R; Mazanek J

Effectiveness of ozone against endodontopathogenic microorganisms in a root canal biofilm model.
Int Endod J 2009 Jan;42(1):3-13  (ISSN: 1365-2591)
Huth KC; Quirling M; Maier S; Kamereck K; Alkhayer M; Paschos E; Welsch U; Miethke T; Brand K; Hickel R

Reduction by gaseous ozone of Salmonella and microbial flora associated with fresh-cut cantaloupe.
Food Microbiol 2008 Jun;25(4):558-65  (ISSN: 1095-9998)
Selma MV; Ibanez AM; Cantwell M; Suslow T

Efficacy of ozonated and electrolyzed oxidative waters to decontaminate hides of cattle before slaughter.
J Food Prot 2005 Jul;68(7):1393-8  (ISSN: 0362-028X)
Bosilevac JM; Shackelford SD; Brichta DM; Koohmaraie M

Lelyanov AD, Sergienko VI, Ivliev NV, et al.
Effects of sodium hypochlorite and ozone on healing of intestinal anastomosis in simulated strangulation colorectal obstruction.

Kim HS, Noh SU, Han YW, et al.
Therapeutic effects of topical application of ozone on acute cutaneous wound healing.

de Monte A, van der Zee H, Bocci V
Major ozonated autohemotherapy in chronic limb ischemia with ulcerations.
J Altern Complement Med (United States), Apr 2005, 11(2) p363-7

Grigor’ian AS, Grigor’iants LA, Guchet’l MN
Experimental-morphological study of the anti-inflammatory action of ozone-perfluorane complex application
Stomatologiia (Mosk) (Russia (federation)), 2008, 87(2) p4-9
Ozone-initiated disinfection kinetics of Escherichia coli in water.

J Environ Sci Health A Tox Hazard Subst Environ Eng 44;1(48-56) S1093-4529
Zuma F; Lin J; Jonnalagadda SB

Effectiveness of ozonated water on Candida albicans, Enterococcus faecalis, and endotoxins in root canals.

Cardoso MG; de Oliveira LD; Koga-Ito CY; Jorge AO

Li LJ, Yang YG, Zhang ZL, et al.
Protective effects of medical ozone combined with traditional Chinese medicine against chemically-induced hepatic injury in dogs.
World J Gastroenterol (China), Dec 7 2007, 13(45) p5989-94

Thabet SS, Thabet HS, Atalla SS
Efficacy of medical ozone in attenuation of murine Schistosomiasis mansoni infection morbidity.
J Egypt Soc Parasitol (Egypt), Dec 2007, 37(3) p915-44

Fan L, Song J, McRae KB, et al.
Gaseous ozone treatment inactivates Listeria innocua in vitro.
J Appl Microbiol (England), Dec 2007, 103(6) p2657-63

Lin YC, Juan HC, Cheng YC
Ozone exposure in the culture medium inhibits enterovirus 71 virus replication and modulates cytokine production in rhabdomyosarcoma cells.
Antiviral Res (Netherlands), Dec 2007, 76(3) p241-51

Balcioglu IA, Tarlan E, Kivilcimdan C, et al.
Merits of ozonation and catalytic ozonation pre-treatment in the algal treatment of pulp and paper mill effluents.
J Environ Manage (England), Dec 2007, 85(4) p918-26

Bialka KL, Demirci A
Decontamination of Escherichia coli O157:H7 and Salmonella enterica on blueberries using ozone and pulsed UV-light.
J Food Sci (United States), Nov 2007, 72(9) pM391-6

Removal of selected pharmaceuticals and personal care products (PPCPs) and endocrine-disrupting chemicals (EDCs) during sand filtration and ozonation at a municipal sewage treatment plant.

Cicatrizing and antimicrobial properties of an ozonised oil from sunflower seeds. Inflammopharmacology (Netherlands), 2004, 12(3) p261-70

Silveira AM, Lopes HP, Siqueira JF, et al.

Periradicular repair after two-visit endodontic treatment using two different intracanal medications compared to single-visit endodontic treatment. Braz Dent J (Brazil), 2007, 18(4) p299-304

Rae ID

Ozonised oils as disinfectants. Ambix (England), Mar 2006, 53(1) p3-20

• Professor Bocci has proven a striking cleansing effect with improved oxygenation and enhanced healing of soreness to diabetic ulcers, burns, traumatic and surgical wounds, abscesses and skin reactions after radiotherapy.

Grootveld M, Silwood C, Lynch E.

Biofactors 2006; 27: 5 – 18.

Oxidative Consumption of Biomolecules by Ozone; Clinical Relevance.

• The application of Ozone in dentistry: A systematic review of literature.
  - Good evidence of Ozone biocompatibility with human oral epithelial cells, gingival fibroblasts and periodontal cells
  - Ozone removes micro-organisms from dental unit water lines, the oral cavity and dentures
  - Good evidence of the prophylactic application of Ozone in Restorative Dentistry

Ebensberger U et al

PCNA-expression of cementoblasts and fibroblasts on the root surface after extraoral rinsing with ozonized water for decontamination. Dent Traumatol 2002; 18: 262 – 266.

• Ozonated Water had no negative effect on periodontal cells remaining on the root surface after irrigation for 2 minutes
  - Irrigate all avulsed teeth with Ozonated Water for decontamination and to have a positive effect on the cementoblasts.

Use of Ozonated water for avulsed teeth
Aqueous Ozone exerts inhibitory effects on the NF-kB system suggesting it has an anti-inflammatory capacity. IkBa proteolysis, cytokine expression and kB-dependent transcription were prevented.

**Scientific and medical aspects of Ozone therapy. State of the art.**

- Professor Velio Bocci

**Beneficial effects of Ozone discussed**


**The use of Ozone in dentistry and maxillofacial surgery**

- Stubinger et al

**Use of Ozonated water for oral surgery**


**New therapeutic protocol in the treatment of avascular necrosis of the jaws**

- Agrillo et al.

**Ozone therapy in the treatment of avascular bisphosphonate – related jaw osteonecrosis**


- Ozone increased the complete healing of lesions with the disappearance of symptoms and brings lesion progression down to zero. Ozone’s “benefits were remarkable”.

**Preventive use of ozone, short waves, and laser therapy alone and in combination in early postoperative period after dental implantation**


- Korzhachkina NB, Radzievskii SA, Olesova VN.

**Intravesical ozone therapy for progressive radiation-induced hematuria.**


Ozone therapy in extractive surgery on patients treated with bisphosphonates.

Agrillo A, Sassano P, Rinna C, Priore P, Iannetti G

• Role of Ozone therapy in the treatment of osteonecrosis of the jaws in multiple myeloma patients

Petrucci et al

• Haematologica 2007; 92: 1289 - 1290

• Ozone accelerates wound healing

• Chronic leg ulcers. Aust Farm Physician 1985; 14: 292 - 298


• Wounds with delayed healing were positively influenced by Ozonized water

Sader et al


• Ozonated water clearly accelerates the healing of the human oral mucosa. Professor Filippi Dtsch Zahnarztl Z. 2001; 56: 104 – 108.


• The dual action of Ozone on the skin

Valacchi et al

• British Journal of Dermatology 2005; 153: 1096 – 1100

• Proven beneficial effect after exposure to Ozone or Ozonated oils to chronic wounds

Use of Ozone to treat Dental Unit Water Lines

• Water disinfection of dental treatment units using Ozone

Professor A Filippi et al


• Disinfection proven using Ozonated Water
Ozone is the most effective disinfectant for dental treatment units: results after 8 years of comparison

Professor Filippi
Ozone Sci Eng 1997; 19: 527

Use of Ozonated water for cleaning Dentures and Impressions

Arita M, Nagayoshi M, Fukuizumi T, Okinaga T, Masumi S, Morikawa M, Kakinoki Y, Nishihara T.
Microbicidal efficacy of ozonated water against Candida albicans adhering to acrylic denture plates.

Disinfection of removable dentures using Ozone
Murakami et al

Testing of a denture cleaning method using Ozone
Oizumi et al

Ozone uses with Caries

Professor Sebastian Ciancio, USA
Biological Therapies in Dentistry 2005
“Studies with over 2000 Patients have shown remineralisation of Healozone treated permanent and deciduous occlusal surfaces as well as root caries”. “The HealOzone is a novel new and painless way to treat early caries”.

Amna Al Shamsi
PhD thesis 2007

Ozone significantly reduces caries incidence around orthodontic brackets (9% versus 28%)

Dahrhardt J, Jaeggi T, Lussi A.

Huth K, Paschos E, Brand and Hickel R.
Effect of ozone on non cavitated fissure carious lesions in permanent molars. A controlled prospective study.
Effect of ozone treatment on different cariogenic microorganisms in vitro.

Swed Dent J 2008;32(3):139-47 (ISSN: 0347-9994)
Fagrell TG; Dietz W; Lingstrom P; Steiniger F; Noren JG

Baysan A and Lynch E.
Primary Dental Care, 12; 2: April 2005, 47 – 52.

Baysan and Lynch
Primary Dental Care 2006; 13: 37 – 41

Anti-microbial effects of a novel ozone generating device on micro-organisms associated with root carious lesions
A. Baysan, R. Whiley and E. Lynch

99% microbial killing achieved after ozone treatment

HealOzone treatment for deep caries or as an alternative to stepwise excavation
Studies in London and Isle of Wight

Reversal of root caries using Ozone - A 12 month longitudinal study
A. Baysan (London)

• Baysan A and Lynch E.
• 91% Reversal of Caries at 5.5 months after ozone treatment.
• 99% Reduction in Microorganisms at 5.5 months.

The Root Caries deeper then 2mms did not reverse.

Clinical reversal of root caries using ozone, double blind, randomised, controlled 18-month trial.
• Julian Holmes
• 100% Reversal of Non Cavitated Root Caries at 18 months
Antibacterial effect of ozone on cariogenic bacterial species.


Johansson E, Claesson R, van Dijken JW

The influence of Healozone on microleakage and fissure penetration of different sealing materials.


Dukić W, Dukić OL, Milardović S

Ozonated water improves lipopolysaccharide-induced responses of an odontoblast-like cell line.

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Noguchi F, Kitamura C, Nagayoshi M, Chen K, Terashita M, Nishihara T

The inability of Streptococcus mutans and Lactobacillus acidophilus to form a biofilm in vitro on dentine pretreated with ozone.


Knight GM, McIntyre JM, Craig GG, Mulyani, Zilm PS

Treating sensitive cervical areas with ozone. A prospective controlled clinical trial.

Am J Dent. 2008 Apr;21(2):74-6

Dähnhardt JE, Gygax M, Martignoni B, Suter P, Lussi A

Skaug N, Strand G, Nielsen O

ORCA & Caries Research 2006

85% Reduction in Mutans Streptococci
78.6% Reduction in Lactobacilli

Khairul Matin, Junji Tagami

99% Microbial killing with HealOzone

Dept of Restorative Sciences and Cariology
Tokyo Medical and Dental University

Professor Michael Noack and Suzanne Kneist

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HealOzone treatment for deep caries or as an alternative to stepwise excavation

Studies in London and Isle of Wight
Dr Dan Mc Kenna
Proven successful management of Peri-implantitis using Ozone 2008 and 2009
IADR first prize 2009

In vitro reduction of mutans streptococci by means of ozone gas application.
Quintessence Int 2008 Nov;39(10):827-31
Castillo A; Galindo-Moreno P; Avila G; Valderrama M; Liebana J; Baca P

Antimicrobial potential of ozone in an ultrasonic cleaning system against Staphylococcus aureus.
Braz Dent J 2006;17(2):134-8
Estrela C; Estrela CR; Decurcio Dde A; Silva JA; Bammann LL

GROOTVELD M, SILWOOD C AND LYNCH E.
HIGH RESOLUTION NMR INVESTIGATIONS OF THE OXIDATIVE CONSUMPTION OF BIOMOLECULES USING OZONE: RELEVANCE TO THE THERAPEUTIC APPLICATIONS IN CLINICAL DENTISTRY.
Biofactors 27; 5 – 18, 2006

H NMR investigations of the molecular nature of low-molecular-mass calcium ions in biofluids.
Silwood CL, Grootveld M, Lynch E.

1H NMR Analysis of Microbial-Derived Organic Acids in Carious Lesions.
NMR in Biomedicine 12: 345-356.

1H NMR Analysis of Microbial-Derived Organic Acids in Carious Lesions.

Silwood C, Lynch E and Grootveld M
1H NMR Analysis of Microbial-Derived Organic Acids
Journal of Dental Research, 81, 422 - 427, 2002

CH3CO.CO2- + O3 → CH3CO2- + CO2 + O2
Pyruvic acid Acetate

Ozone effects the oxidative decarboxylation of pyruvic acid, generating acetate and CO2 as products

No detrimental effect of the use of Ozone on bond strength
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<td>Effect of Ozone on Enamel and Dentin Bond Strength</td>
<td>PR Schmidlin, Jörg Zimmermann, and Andreas Bindl</td>
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<td>The impact of Ozone treatment on enamel physical properties</td>
<td>Celiberti et al</td>
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<td>Ozone uses with Superbugs</td>
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• MRSA and C Difficile
• Prions

Ozone uses to clean toothbrushes

A quantitative approach to the effectiveness of ozone against microbiota organisms colonizing toothbrushes.


Bezirtzoglou E, Cretolu SM, Moldoveanu M, Alexopoulos A, Lazar V, Nakou M

Bleaching; Ozone and hydrogen peroxide combinations

Effect of ozone, chlorine and hydrogen peroxide on the elimination of colour in treated textile wastewater by MBR.


Brik M; Chamam B; Schoberl P; Braun R; Fuchs W

Dechlorination of chlorophenols found in pulp bleach plant E-1 effluents by advanced oxidation processes.

Bioresour Technol 2005 May;96(8):897-906

Wang R; Chen CL; Gratzl JS

Rate of dibutylsulfide decomposition by ozonation and the O3/H2O2 advanced oxidation process.

J Hazard Mater 2009 May 30;164(2-3):1364-71

Popiel S; Nalepa T; Dzierzak D; Stankiewicz R; Witkiewicz Z

Dehalogenation, degradation and mineralization of diuron by perozone (peroxide/ozone) treatment.

J Environ Sci Health A Tox Hazard Subst Environ Eng 44;6(630-8 S1093-4529

Catalkaya EC; Kargi F
Ren GM; Sun DZ; Chung JS

Robbins JB; Fisher CW; Moltz AG; Martin SE

Yin G; Liao PH; Lo KV

Lee C; Yoon J; Von Gunten U

Chen WR; Sharpless CM; Linden KG; Suffet IH

Xu XW; Shi HX; Wang DH

Suty H; De Traversay C; Cost M

Arslan-Alaton I

Crowe KM; Bushway AA; Bushway RJ; Davis-Dentici K; Hazen RA
Seo S, King JM, Prinyawiwatkul W

Simultaneous depolymerization and decolorization of chitosan by ozone treatment.

J Food Sci (United States), Nov 2007, 72(9) pC522-6

Effects of ozone, ultraviolet and peracetic acid disinfection of a primary-treated municipal effluent on the immune system of rainbow trout (Oncorhynchus mykiss).


Hebert N; Gagne F; Cejka P; Bouchard B; Hausler R; Cyr DG; Blaise C; Fournier M

Ozone as Janus: this controversial gas can be either toxic or medically useful.

Mediators Inflamm 2004 Feb;13(1):3-11  (ISSN: 0962-9351)

Bocci V

---

Ozone gas is an effective and practical antibacterial agent.

Am J Infect Control 2008 Oct;36(8):559-63  (ISSN: 1527-3296)

Sharma M; Hudson JB

Increase in the ozone decay time in acidic ozone water and its effects on sterilization of biological warfare agents.

J Hazard Mater 2009 Sep 15;168(2-3):1595-601  (ISSN: 1873-3336)

Uhm HS; Hong YF; Lee HY; Park YH

Application of gaseous ozone for inactivation of Bacillus subtilis spores.

J Air Waste Manag Assoc 2006 Feb;56(2):179-85  (ISSN: 1096-2247)

Aydogan A; Gurol MD

---

Therapeutic effects of topical application of ozone on acute cutaneous wound healing.


Kim HS, Noh SU, Han YW, Kim KM, Kang H, Kim HO, Park YM.

[Experimental-morphological study of the anti-inflammatory action of ozone-perfluorane complex application]

Stomatologiia (Mosk). 2008;87(2):4-9

Grigor’ian AS, Grigor’iants LA, Guchetl’ MN.

The case for oxygen-ozonotherapy.

Bocci V.

Periradicular repair after two-visit endodontic treatment using two different intracanal medications compared to single-visit endodontic treatment.

Silveira AM, Lopes HP, Siqueira JF Jr, Macedo SB, Consolaro A.

The clinical efficacy of the local, deep insufflation of an oxygen-ozone mixture in the prevention and treatment of infections in the locomotor system.

Bialoszewski D, Kowalewski M.

Superficially, longer, intermittent ozone therapy in the treatment of the chronic, infected wounds.

Bialoszewski D, Kowalewski M.

Therapeutic efficacy of ozone in patients with diabetic foot.


Modulation of cutaneous wound healing by ozone: differences between young and aged mice.

Lim Y, Phung AD, Corbacho AM, Aung HH, Maioli E, Reznick AZ, Cross CE, Davis PA, Valacchi G.

Can the combination of localized "proliferative therapy" with "minor ozonated autohemotherapy" restore the natural healing process?

Gracer RI, Bocci V.

Major ozonated autohemotherapy in chronic limb ischemia with ulcerations.

de Monte A, van der Zee H, Bocci V.

Effects of sodium hypochlorite and ozone on healing of intestinal anastomosis in simulated strangulation colorectal obstruction.

Lelyanov AD, Sergienko VI, Ivliev NV, Emel'yanov VV, Guseva ED.
Ozone treatment for radiotherapy skin reactions: is there an evidence base for practice?

Jordan L, Beaver K, Foy S.

[Effect of ozone on antibiotic sensitivity of microorganisms]

Stomatologija (Mosk). 2003;82(2):36-8
Daulbaeva AA, Baïzakova GT.

[Preventive use of ozone, short waves, and laser therapy alone and in combination in early postoperative period after dental implantation]

Korzhachkina NB, Radzievskii SA, Olesova VN.


Valacchi G, Bocci V.

[Wound treatment using the flow of an ozonized solution under high pressure]

Khirurgiia (Mosk). 1998;(8):23-4
Bulynin VI, Ermakova AI, Glukhov AA, Mozhurov IP.

Effects of ozone on how well split-thickness skin grafts according to Thiersch take in war wounds. Results of prospective study.


Effect of ozone gas application on the mechanical properties of dental adhesives bonded to dentin.

Magni E, Ferrari M, Hickel R, Huth KC, Ilie N.

A physicochemical investigation on the effects of ozone on blood

Travagli, V., Zanardi, I., Silvetti, A., Bocci, V.

Bocci, V.A.

Scientific and Medical Aspects of Ozone Therapy. State of the Art

Bocci, V.

Is it true that ozone is always toxic? The end of a dogma

Uppu, R.M., Cueto, R., Squadrito, G.L., Pryor, W.A.
What does ozone react with at the air/lung interface? Model studies using human red blood cell membranes

Bocci, V., Luzzi, E., Corradeschi, F., Paulesu, L., Rossi, R., Cardaioli, E., Di Simplicio, P.
Studies on the biological effects of ozone: 4. Cytokine production and glutathione levels in human erythrocytes

Mudd, J.B., Dawson, P.J., Santrock, J.
Ozone does not react with human erythrocyte membrane lipids

Bocci, V., Valacchi, G., Corradeschi, F., Fanetti, G.
Studies on the biological effects of ozone: 8. Effects on the total antioxidant status and on interleukin-8 production

Bocci, V., Zanardi, I., Bocci, V.
A realistic evaluation of the action of ozone on whole human blood

Bocci, V.

Ozone
(2005) A New Medical Drug.
Springer, Dordrecht, The Netherlands

Blood Coagulation Unaffected by Ozonated Autohemotherapy in Patients on Maintenance Hemodialysis

Randomised, double-blinded, placebo-controlled, clinical trial of ozone therapy as treatment of sudden sensorineural hearing loss
Bocci, V., Travagli, V., Zanardi, I.
Dehalogenation, degradation and mineralization of diuron by peroxide (peroxide/ozone) treatment.
J Environ Sci Health A Tox Hazard Subst Environ Eng 44;6(630-8) S1093-4529
Catalkaya EC; Kargi F

Effect of oxygen, ozone and hydrogen peroxide bleaching stages on the contents and composition of extractives of Eucalyptus globulus kraft pulps.
Bioresour Technol 2006 Feb;97(3):420-8
Freire CS; Silvestre AJ; Pascoal Neto C; Evtuguin DV

Kinetics study on photochemical oxidation of polyacrylamide by ozone combined with hydrogen peroxide and ultraviolet radiation.
J Environ Sci (China) 2006;18(4):660-4
Ren GM; Sun DZ; Chung JS

Elimination of Listeria monocytogenes biofilms by ozone, chlorine, and hydrogen peroxide.
J Food Prot 2005 Mar;68(3):494-8
Robbins JB; Fisher CW; Moltz AG; Martin SE

J Environ Sci Health A Tox Hazard Subst Environ Eng 42;8(1177-81 S1093-4529
Yin G; Liao PH; Lo KV

Oxidative degradation of N-nitrosodimethylamine by conventional ozonation and the advanced oxidation process ozone/hydrogen peroxide.
Lee C; Yoon J; Von Gunten U

Treatment of volatile organic chemicals on the EPA Contaminant Candidate List using ozonation and the O3/H2O2 advanced oxidation process.
Chen WR; Sharpless CM; Linden KG; Suffet IH

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Popiel S; Nalepa T; Dzierzak D; Stankiewicz R; Witkiewicz Z
<table>
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<th>Title</th>
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<td>J Xu XW; Shi HX; Wang DH</td>
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<td>of colour in treated textile wastewater by MBR.</td>
<td>Brik M; Chamam B; Schoberl P; Braun R; Fuchs W</td>
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<tr>
<td>Suty H; De Traversay C; Cost M</td>
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<td>application.</td>
<td>Castillo A; Galindo-Moreno P; Avila G; Valderrama M; Liebana J; Baca P</td>
</tr>
<tr>
<td>Antimicrobial potential of ozone in an ultrasonic cleaning system</td>
<td>Braz Dent J 2006;17(2):134-8</td>
</tr>
<tr>
<td>against Staphylococcus aureus.</td>
<td>Estrela C; Estrela CR; Decurcio Dde A; Silva JA; Bammann LL</td>
</tr>
<tr>
<td>Application of medical ozone in endodontic practice</td>
<td>Stomatologila (Mosk) Russia 2008;87(6):24-6</td>
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<td>Bezrukovsa IV; Petrukhina NB; Dmitrieva NA; Snegirev MV</td>
<td></td>
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<td>article.</td>
<td>Seidler V; Linetskii I; Hubalkova H; Stankova H; Smucler R; Mazanek J</td>
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<tr>
<td>Antibacterial effect of an ozone device and its comparison with two</td>
<td>Int Endod J 2009 Jan;42(1):3-13</td>
</tr>
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<td>dentin-bonding systems.</td>
<td>Huth KC; Quirling M; Maier S; Kamereck K; Alkhayer M; Paschos E; Welsch U; Miethke T; Brand K; Hickel R</td>
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<td>Polydorou O; Pelz K; Hahn P</td>
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<tr>
<td>Huth KC; Quirling M; Maier S; Kamereck K; Alkhayer M; Paschos E;</td>
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<td>Welsch U; Miethke T; Brand K; Hickel R</td>
<td></td>
</tr>
</tbody>
</table>
Reduction by gaseous ozone of Salmonella and microbial flora associated with fresh-cut cantaloupe. Food Microbiol 2008 Jun;25(4):558-65 (ISSN: 1095-9998) Selma MV; Ibanez AM; Cantwell M; Suslow T

Ozone therapy in medicine and dentistry. J Contemp Dent Pract 2008;9(4):75-84 (ISSN: 1526-3711) Nogales CG; Ferrari PH; Kantorovich EO; Lage-Marques JL


A comparison of single oxidants versus advanced oxidation processes as chlorine-alternatives for wild blueberry processing (Vaccinium angustifolium). Int J Food Microbiol 2007 May 1;116(1):25-31 (ISSN: 0168-1605) Crowe KM; Bushway AA; Bushway RJ; Davis-Dentici K; Hazen RA

Efficacy of ozonated and electrolyzed oxidative waters to decontaminate hides of cattle before slaughter. J Food Prot 2005 Jul;68(7):1393-8 (ISSN: 0362-028X) Bosilevac JM; Shackelford SD; Brichta DM; Koohmaraie M


de Monte A, van der Zee H, Bocci V
Major ozonated autohemotherapy in chronic limb ischemia with ulcerations.
J Altern Complement Med (United States), Apr 2005, 11(2) p363-7

Grigor’ian AS, Grigor’iants LA, Gucheti’ MN
[Experimental-morphological study of the anti-inflammatory action of ozone-perfluorane complex application]
Stomatologiia (Mosk) (Russia (federation)), 2008, 87(2) p4-9

Clavo B, Gutierrez D, Martin D, et al.
Intravesical ozone therapy for progressive radiation-induced hematuria.
J Altern Complement Med (United States), Jun 2005, 11(3) p539-41

Onisor I, Bouillaguet S, Krejci I
Influence of different surface treatments on marginal adaptation in enamel and dentin.
J Adhes Dent (England), Jun 2007, 9(3) p297-303

Cicatrizing and antimicrobial properties of an ozonised oil from sunflower seeds.
Inflammopharmacology (Netherlands), 2004, 12(3) p261-70

Silveira AM, Lopes HP, Siqueira JF, et al.
Periradicular repair after two-visit endodontic treatment using two different intracanal medications compared to single-visit endodontic treatment.
Braz Dent J (Brazil), 2007, 18(4) p299-304

Rae ID
Ozonised oils as disinfectants.
Ambix (England), Mar 2006, 53(1) p3-20

Li LJ, Yang YG, Zhang ZL, et al.
Protective effects of medical ozone combined with traditional Chinese medicine against chemically-induced hepatic injury in dogs.
World J Gastroenterol (China), Dec 7 2007, 13(45) p5989-94

Thabet SS, Thabet HS, Atalla SS
Efficacy of medical ozone in attenuation of murine Schistosomiasis mansoni infection morbidity.
J Egypt Soc Parasitol (Egypt), Dec 2007, 37(3) p915-44

Lin YC, Juan HC, Cheng YC Ozone exposure in the culture medium inhibits enterovirus 71 virus replication and modulates cytokine production in rhabdomyosarcoma cells. Antiviral Res (Netherlands), Dec 2007, 76(3) p241-51


Lin YC, Juan HC, Cheng YC Ozone exposure in the culture medium inhibits enterovirus 71 virus replication and modulates cytokine production in rhabdomyosarcoma cells. Antiviral Res (Netherlands), Dec 2007, 76(3) p241-51


Seo S, King JM, Prinyawiwatkul W Simultaneous depolymerization and decolorization of chitosan by ozone treatment. J Food Sci (United States), Nov 2007, 72(9) pC522-6


Fagrell TG; Dietz W; Lingstrom P; Steiniger F; Noren JG

Ozone as Janus: this controversial gas can be either toxic or medically useful. Mediators Inflamm 2004 Feb;13(1):3-11 (ISSN: 0962-9351)
Bocci V

Ozone gas is an effective and practical antibacterial agent. Am J Infect Control 2008 Oct;36(8):559-63 (ISSN: 1527-3296)
Sharma M; Hudson JB
Effects of ozone, ultraviolet and peracetic acid disinfection of a primary-treated municipal effluent on the immune system of rainbow trout (Oncorhynchus mykiss). Comp Biochem Physiol C Toxicol Pharmacol 2008 Aug;148(2):122-7 (ISSN: 1532-0456)

Hebert N; Gagne F; Cejka P; Bouchard B; Hausler R; Cyr DG; Blaise C; Fournier M

Increase in the ozone decay time in acidic ozone water and its effects on sterilization of biological warfare agents. J Hazard Mater 2009 Sep 15;168(2-3):1595-601 (ISSN: 1873-3336)

Uhm HS; Hong YF; Lee HY; Park YH


Johansson E, Claesson R, van Dijken JW


Aydogan A; Gurol MD


Noguchi F, Kitamura C, Nagayoshi M, Chen KK, Tarashita M, Nishihara T


Kustarci A, Sümer Z, Altunbas D, Koşum S

The ability of Streptococcus mutans and Lactobacillus acidophilus to form a biofilm in vitro on dentine pretreated with ozone. Aust Dent J. 2008 Dec;53(4):349-53

Knight GM, McIntyre JM, Craig GG, Mulyani Zilm PS
Treating sensitive cervical areas with ozone. A prospective controlled clinical trial.

Am J Dent. 2008 Apr;21(2):74-6

Dähnhardt JE, Gygax M, Martignoni E, Suter P, Lussi A

Therapeutic effects of topical application of ozone on acute cutaneous wound healing.


Kim HS, Noh SU, Han YW, Kim KM, Kang H, Kim HO, Park YM

Superficially, longer, intermittent ozone therapy in the treatment of the chronic, infected wounds.


Białożewski D, Kowalewski M

[New therapeutic strategies for the treatment of difficult wounds]

G Chir. 2008 May;29(5):212-20

Onesti MG, Bitonti A, Fino P, Ciotti M, Scuderi N

Beneficial effects of pro-/antioxidant-based nutraceuticals in the skin rejuvenation techniques.


de Luca C, Deeva I, Mikhail'Chik E, Korkina L

A quantitative approach to the effectiveness of ozone against microbiota organisms colonizing toothbrushes.


Bezirtzoglou E, Cretoiu SM, Moldoveanu M, Alexopoulos A, Lazar V, Nakou M

Efficacy of calcium hydroxide, Er:YAG laser or gaseous ozone against Enterococcus faecalis in root canals.


• Featherstone JD.


•…a change in how we manage caries is long over due. The days of drill'n'fill are numbered

• Brostek A


•…accurate diagnosis more difficult.
Ozone uses to clean toothbrushes

A quantitative approach to the effectiveness of ozone against microbiota organisms colonizing toothbrushes.

Bezirtzoglou E, Cretoiu SM, Moldoveanu M, Alexopoulos A, Lazar V, Nakou M.


The measurement of root caries for research purposes

Edward Lynch


A microbiological study of primary root caries with different treatment needs

Journal of Dental Research 73: 623-629

This is the only validated severity index for root caries

Lynch E. and Beighton D. (1994)

A comparison of primary root caries lesions classified according to colour.

Caries Research 28: 233-239.

Lynch E. (1996)

Relationships between clinical criteria and microflora of primary root caries.


Lynch E. (1996)

Antimicrobial management of primary root carious lesions.

Gerodontology 13: 118-129

Lynch E et al

Effectiveness of two fluoride dentifrices to arrest root carious lesions.


LYNCH E, BAYSAN A.

Reversal of primary root caries using a dentifrice with a high fluoride content.

Caries Res 2001: 35;1:60-64


Ozone therapy in the treatment of avascular bisphosphonate-related jaw osteonecrosis.


Agrillo A, Ungari C, Filiaci F, Priore P, Iannetti G

Role of ozone therapy in the treatment of osteonecrosis of the jaws in multiple myeloma patients.

Haematologica. 2007 Sep;92(5):889-90

Petracci MT, Gallucci C, Agrillo A, Mustazza MC, Foà R

Antimicrobial management


Antimicrobial management


¹H NMR spectra of root caries

A Pharmaceutical Approach to the Management of Root Caries

Edward Lynch

Professor of Restorative Dentistry and Gerodontology
School of Clinical Dentistry
Queen's University Belfast
The measurement of root caries for research purposes
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Relationships between Mutans streptococci and perceived treatment needs of primary root caries lesions.
Gerodontology 10: 98-104.

Lynch E. and Beighton D. (1994)
A comparison of primary root caries lesions classified according to colour.
Caries Research 28: 233-239.

Lynch E. (1996)
Relationships between clinical criteria and microflora of primary root caries.

Lynch E. (1996)
A pharmaceutical approach to the management of root caries
E. Lynch and A. Baysan
Tissue Preservation and Caries Treatment
Quintessence Book 2001, Chapter 3, p. 81-104.

Management of root caries using a dentifrice with a high FLUORIDE content
Reversal of primary root caries using dentifrices containing 5,000 and 1,100 ppm fluoride.


A pharmaceutical approach to the management of root caries

E. Lynch and A. Baysan
Tissue Preservation and Caries Treatment Quintessenz Book 2001, Chapter 3, p. 81-104.

Conclusion

The use of dentifrices containing either 5,000 or 1,100 ppm fluoride was associated with the reversal of some of PRCLs.

The use of a dentifrice with a high fluoride content was significantly better to reverse leathery lesions than an 1,100 ppm fluoride dentifrice within 6 months.

Dentine sensitivity is one of the most painful and least predictably treated clinical conditions.

It has been established that dentinal hypersensitivity affects 1 in 6 people. Incidence tends to peak around the third decade of life and is equally divided between men and women.
Aim

The aim of this study was to assess a new protective root sealant for the treatment of cervical sensitivity.

Results

Sensitivity scores at baseline and at time points of 3, 6 and 19 months

Conclusions

There was a significant reduction in sensitivity scores compared to baseline after 19 months.

The protective sealant was found to be capable of covering the cervical surface to prevent further wear.

In addition, there was a significant reduction of some representative caries associated micro-organisms in the overlying plaque.

Understanding the Results (5/7)

LCD: 51 – 90

LED: 3 yellows

AUD: 2 beeps

OBSERVATION:

Probability of significant carious change beneath the enamel surface warranting specific preventive care.

ADVICE: Preventive Care Advised (PCA)

Strongly consider fluoride varnish or (on pit & fissure sites) pit & fissure sealants, with localized oral hygiene, diet advice and personalized review with monitoring at shorter intervals.

Is Ozone useful for Periodontal –Endodontic Lesions?

Cleanability of dental instruments--implications of residual protein and risks from Creutzfeldt-Jakob disease.


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Is Ozone useful for Periodontal –Endodontic Lesions?
High risk teeth

As a general guideline, pits & fissures are more susceptible to caries lesion development than approximal sites, which in turn are more susceptible than free smooth sites.

Readily cleansable, so plaque can be brushed off before it instigates the caries process.

Possibility of established decay extending through the enamel and into superficial dentin.

Increasing values indicate a need for increasing intensity of preventive care.

Mild susceptible to caries since it is easier to brush through the fissure.

Medium susceptible to caries since it is a little more difficult to brush through the fissure.

High susceptible to caries since it is inaccessible to toothbrush bristles.

Possible Treatment Options

- Usual caries prophylactic measures including localized oral hygiene advice with use of fluoride toothpaste and review with monitoring over time.
- Continuing surveillance, assessment and review appropriate to the caries risk of the patient.
- Subject to patient profile, minimally invasive operative dentistry may be necessary. Any restoration should be as small as possible.
- Intensive prophylactic measures including either fluoride varnish or pit & fissure sealants, with or without a sealant restoration technique.
- Usual caries prophylactic measures including localized oral hygiene, diet advice and personalized review with monitoring at shorter intervals.
- Localized caries is often associated with fissure cavitation, hence fissure sealant restoration is being made.

Caries Risk Factors

One or more of these fissure types can occur on the same fissure pattern, so it is vital that the clinician uses their knowledge about these different types and their different susceptibilities when examining a tooth for signs of caries lesions.

Narrower than the U-type at its base so is inaccessible to toothbrush bristles, hence is at considerable risk. Is also more challenging fissure pattern to clean.

Virtually impossible to clean with a toothbrush, hence is a considerable risk. However, the U-type axis has to present a significantly more challenging fissure pattern to clean.

Fissure types, with their respective prevalences and caries susceptibility.
Treatment options

- Dietary Advice
- Oral Hygiene Advice
- Re-mineralising agents
- Great Oral Health products
- Pit & Fissure Sealants
- Topical Fluorides and Varnishes
- Other agents

RemoteView

- Wireless capture of data
- Monitoring feature
- Alternative display option
- Web Update
- Links to existing practice software
- Included in system price

Conclusion

HealOzone is safe

HealOzone treatment of all deep caries. Complete remineralisation.

Leathery pre Ozone + GIC. Healed 3 months later.