

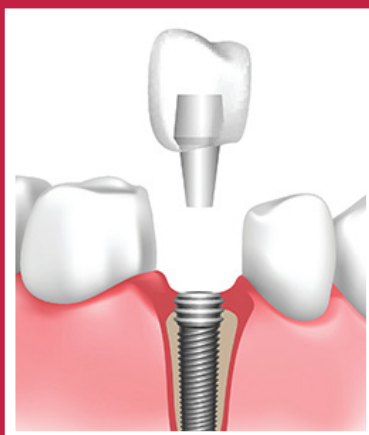
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# DENTISTRY AND DENTAL PRACTICE

## Scientific Tracks & Abstracts

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Dental Practice 2022

## Applications of Ozone Therapy in Dentistry

**Hoda Gaafar Hassan Hammad**

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Atmospheric ozone (O<sub>3</sub>) is considered “Mother Earth's natural way of self-cleaning”. Prepared ozone gas is unstable; it quickly gives up nascent oxygen (O) molecule to form oxygen gas (O<sub>2</sub>). The released nascent oxygen has many wonderful beneficial effects in medical and dental fields due to its extremely strong oxidant property. Accordingly; ozone has been used as circulatory enhancer for stimulation of oxygen metabolism, disruption of tumor metabolism and to kill almost all pathogens. In dentistry; synthetic O<sub>3</sub> is administered in the form of gas, aqueous solution or oils.

Ozone dental applications includes purification of drinking water in dental units, sterilization instruments and various amazing therapeutic modalities. Ozone dental applications includes purification of drinking water in dental units, sterilization instruments and various amazing therapeutic modalities. Corroborated evidence of various studies confirmed the prophylactic antimicrobial effect of O<sub>3</sub> treatment. It is used management of oral pathoses (stomatitis, herpes infections, aphthous ulceration, moniliasis, abscesses, fistulae, trismus, myoarthropathies, and periodontitis). Ozone exposure is used in tooth extraction, hemostasis, wound healing, oral implantation and others. In addition; O<sub>3</sub> is implemented in restorative dentistry including bleaching, dentine hypersensitivity, caries as well as disinfection of tooth cavity and root canal. This state of art technology allows a minimally invasive and conservative approach to dental treatment. Elucidation of molecular mechanisms of ozone offers further benefits to practical application in dentistry. Treating patients with ozone therapy reduces treatment time with

a great deal of difference and it eliminates the bacterial count more precisely. Ozone treatment seems completely painless and it increases patients' acceptability and compliance with minimal adverse effects.

Therefore; applications of ozone therapy in dentistry is considered a critical issue to be addressed.

### Biography

Hoda Gaafar Hassan Hammad is an Egyptian Assistant professor of Dental Biomaterials. She got her PhD from collaboration of [Cairo University with Rennes 1 University](#), Egypt in 2014. She achieved her Master degree in Restorative Dentistry, Cairo University in 2001 and her BDS was with very good and honor degree from Cairo University in 1994.

Her academic experience is in MUST, GMU, BMC and ACU Universities; since April 2010 till now. She has published more than 15 papers in reputed / indexed journals. She is assigned as editorial board member of the “[Journal of Biomaterials](#)”; May 2020- now. She is allocated as editorial manager at Sultan Qaboos University Medical Journal, July 2020 - now. She is appointed as peer reviewer for “[Macedonian Journal of Medical Sciences](#)”, April 2020- now.

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## Management of difficult root canal situations with the use of flat side design AFF-One file

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### Introduction:

Dental practitioner may face difficulties and obstacles in dealing with everyday root canal treatment like calcified, narrow, or severely curved canals, which may end up in iatrogenic complications like ledge or zipping formation, canal transportation, perforation, or even instrument separation. Many manufacturers have already presented their NiTi files. Yet, all of them still have their limitations in dealing with such difficult situations. In order to manage and deal with such obstacles, we need to know the exact reason behind the complications that may encounter, so we can minimize or even prevent them.

### Clinical practice:

Many difficult cases of root canal treatments will be presented with their management in a simplified way utilizing the unique flat side design concept of AF F-One file.

### Conclusion:

The AF F-One file is the exact solution for dealing with the most difficult root canals, due to its unique flat side design.

### Biography

Ahmed Alwaidh is a certified Silver Member of Style Italian [Endodontics](#) group. He has MSc with Distinction in Endodontics, King's College London. He is a member of the British Endodontic Society and works in a private dental practice in [Al Mariffa Medical Centre](#) in Dubai, UAE. His work is mostly committed to endodontics and the restoration of endodontically treated teeth.

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## Evaluation of Changes in Brain Activity and Cognitive Function of Diabetic Patients Wearing Removable Partial Dentures

**Amani R. Moussa***Oral and Dental Research Institute, National Research Centre***Statement of problem:**

Accumulating evidence suggests that tooth loss may be a major risk factor for brain and cognitive impairment.

**Aim:**

The present study aimed to evaluate the influence of restoring lost posterior occlusal contacts with removable partial denture (RPD) on the brain activity and cognitive function in controlled type 2 diabetic patients.

**Patients and methods:**

A total of 30 partially edentulous patients with lost posterior occlusal contacts were selected Outpatient clinic, National Research Centre (NRC). All patients were selected had no previous RPDs experience and diagnosed with controlled type 2 diabetes. For all patients, RPDs were constructed from thermoplastic acrylic resin. The brain activity and cognitive function were assessed using electroencephalogram (EEG) and Mini-Mental State Examination questionnaire (MMSE) respectively, before and after 1 month of RPD insertion. Data were statistically analyzed using t test, and significance level was defined at P value less than 0.05.

**Results:**

EEG assessment demonstrated an increase in the mean value after 1 month of

wearing RPDs. Similarly, Mini-Mental State Examination of cognitive scores displayed an increase in the total mean value after 1 month. The outcomes were statistically significant ( $P < 0.05$ ).

**Conclusion**

Restoration of lost posterior occlusal contact in controlled type 2 diabetic patients with satisfactory RPDs can contribute to enhancement of the brain function and cognitive status.

**Keywords:**

Electroencephalogram, Mini-Mental state examination, Removable partial dentures, Type 2 diabetes

**Recent publications**

1. [The Effect of Alteration of Vertical Dimension of Occlusion on brain activity in Complete Denture Wearers](#). Ayman A EL Morsy , Mohamed R Kholy , Hafiz I Bahnasawi , Amani R Moussa , Asmaa N Elborae. OAMJMS, 2021 29; 9:108-112.
2. [Biological and Mechanical Properties of Denture Base Material as a Vehicle for Novel Hydroxyapatite Nanoparticles Loaded with Drug](#). Asmaa Nabil Elborae, Hanan Hassan Abo-Elmaged, Ahmed Abd El-Rahman El-Ashmawy, Aya Rashad Abdou, Amani Ramadan Moussa , Laila Hassanian Emara , Hossam Mohammed El-Masry, Gehan El-Tabie El Bassyouni , Magda Ismail Ramzy. Adv Pharm Bull, 2021, 11(1): 86-95.
3. [An overview of oral health status, socioeconomic and behavioral risk factors, and the pattern of tooth loss in a sample of Egyptian rural population](#). Amani Moussa, Eman Ibrahim, Ahmed Esmat, Sherihan Eissa, Magda Ramzy. Bulletin of the National Research Centre (2020); 44:16.
4. Effect of denture base reinforcement using light cured E- glass fibers on the level of salivary immunoglobulin A. Shady M El Nagggar, Mohamed I Seif, Mohamed H Saker, Sherihan M. Eissa, Asmaa N. Elborae, Amani R. Moussa. Open Access Maced J Med Sci. 2018; 25; 6 (11): 2168–2172.
5. Antimicrobial properties of tissue conditioner containing silver doped bioactive glass nanoparticles: in vitro study. Amani R Moussa, Abeer M El-kady, Asmaa N Elborae, Dalia Y Zaki, Hanaa M Elgamily, Magda I Ramzy and Gehan T El-Bassyouni. Adv. Nat. Sci.: Nanosci. Nanotechnol. 9; 1-10, 2018.

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**Biography:**

Prof. Dr. Amani Ramadan Ali Moussa, professor of Removable Prosthodontics. Vice Dean of Oral and Dental Research Institute, National Research Centre (NRC). Head of Fixed and Removable Prosthodontics Department, NRC. MSc from faculty of Dentistry,

Cairo University. PhD from faculty of Dentistry, Ain Shams University. Principle investigators of many in house projects at NRC and one local project. Supervisor on many M.Sc. and Ph. D theses and author in many international and local publications.

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## Nano-drug Delivery from PMMA Denture Base Material

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The need for removable prostheses will continue due to the increase in human aged population. Poly(methyl methacrylate) (PMMA) is the denture based material of choice for more than 50 years and up to now owing to its applicable mechanical, physiochemical, and working properties. However, denture PMMA may be colonized by some oral microorganisms. These oral microorganisms may contribute to oral infections as denture stomatitis, systemic infections, and pneumonia. Denture cleansers alone are ineffective against denture plaque removal and also, may cause significant damage to dentures. Systemic antibiotic has been specified for management of oral infections; however, excessive use of systemic drugs led to the development of microbial resistant strains. On the other hand, the topical application of antibiotics may be ineffective due to its inability to maintain physical contact with oral mucosal tissue, limiting anatomical features of the oral cavity as well as constant washing effect caused by the salivary flow. Therefore, there is a need for a technology that permits controlled drug delivery with optimal concentration at the required site. The introduction of nanoparticle-based drug delivery technologies allows an effective and targeted drug delivery without undesirable side effects. Local drug delivery technology is more appropriate to patients as it does not require frequent application regimes. In addition, direct delivery of the drug to the site of infection reduces the risk of systemic side effects or drug-drug interactions. For a material to be used as a drug carrier, it must have the ability to carry a drug either physically or chemically. Drug carrier must preserve the drug until it reaches the targeted site, being progressively degraded, and deliver the drug in a controllable manner over time. Conclusion: Removable dental prosthesis fabricated from PMMA can be used as a vehicle for drug nanocarriers for management of oral infections. PMMA can incorporate additives up to 20% w/w without significantly altering the surface micro-hardness.

1-Elboraey AN, Abo-Elmaged HH, El-Ashmawy AA, Abdou AR, Moussa AR, Emara LH, El-Masry HM, El Bassyouni GE, Ramzy ML.

**Biological and Mechanical Properties of Denture Base Material as a Vehicle for Novel Hydroxyapatite Nanoparticles Loaded with Drug.** *Advanced Pharmaceutical Bulletin.* 2021 Jan;11(1):86.

2-Khalil MF, Sanad ME, Ahmed GA, Elboraey AN. **Effect of Two Types of Surface Treatment of Dental Implants Retaining Mandibular Complete Overdenture on Bone Density Changes.** *Al-Azhar Dental Journal for Girls.* 2020 Jan 1;7(1):23-9.

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4-Moussa, Amani R., Eman M. Ibraheem, and Asmaa N. Elboraey. **"Evaluation of changes in brain activity and cognitive function of diabetic patients wearing removable partial dentures."** *Journal of The Arab Society for Medical Research* 15, no. 2 (2020): 42.

5-Amani R.Moussa, Abeer M El-kady, Asmaa N Elboraey, Dalia Y Zaki, Hanaa M Elgamily, Magda I Ramzy and Gehan T El-Bassyouni, **Antimicrobial properties of tissue conditioner containing silver doped bioactive glass nanoparticles: in vitro study.** *Adv. Nat. Sci.: Nanosci. Nanotechnol.* 9, 035003 :1-10, August 2018.

### Biography:

Associate professor of removable prosthodontics, Fixed and Removable Prosthodontics Department, Oral and Dental Research Institute, National Research Center Cairo, Egypt. Principle investigator of research project "Anti-Microbial Drug Loaded Nanoparticles As a New Drug Delivery System for Dental Applications. Project ID: 11010201(2016-2019).

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## Evaluation of chewing efficiency and electromyography activity of muscles of mastication of patients wearing complete denture lined by flexible acryl (randomized clinical trial)

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### Background:

One of the goals that the prosthodontist has to achieve is to construct retentive and stable denture that subsequently enhances both function and esthetics. Subjective and objective contemplate provide controversial results of denture liners' influence on the masticatory ability. While results of some considerations indicated that chewing efficiency remarkably improves the chewing ability. Flexible acrylic resin liners offer better denture adaptation, patient satisfaction as well as denture retention due to its light weight and engaging more desirable undercuts.

### Aim

of this study was to assess the flexible lining acrylic resin material's influence on the chewing efficiency and activity of masticatory muscles in complete denture wearers.

### Materials and methods:

Twenty six completely edentulous patients were selected and were divided into two groups, Group I: patients wearing conventional heat cured acrylic complete denture. Group II: patients wearing conventional heat cured acrylic complete denture relined by soft acrylic versacryl. Chewing efficiency and Electromyography records taken for both groups at time of insertion, after first, second and third month post delivery.

### Results:

his study clarified that swallowing time for patients wearing complete dentures lined with soft acrylic versacryl was less than that for conventional complete dentures. EMG activity for both masseter and temporalis muscles were increased after relining of the complete denture with soft liner (versacryl). However, EMG activity of masseter muscle was higher than temporalis

muscle in both groups.

Ibraheem EM, ElGabry HS. Impact of Wearing Two Different Types of Partial Dentures on Oral Health-related Quality of Life in Geriatric Diabetic Patients A Crossover Study. Open Access Maced J Med Sci [Internet]. 2020 Feb. 5 [cited 2022 Jan. 31];8(D):48-52.

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### Biography:

Eman Mostafa Ahmed Ibraheem is a professor of removable prosthodontics in National Research Centre, Egypt. I have 17 international publications in indexed journals such as Scopus, Pubmed, Medknow and Springer and 6 national publications. I had supervised for 4 Master and 1 Phd theses in removable prosthodontics. I was the principal investigator for a project entitled "Dental Care to Improve Quality of Life for Diabetic Geriatric Patients" funded by National Research Centre from 2016- 2017 till 2018- 2019 and also participated in 5 internal projects in addition to clinic supervision from 2016 till now.

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## An Audit evaluating local compliance with NICE NG12 suspected cancer: recognition and referral pathway at Bridgewater NHS Foundation Trust Community Dental Services

**Dr Iffah Zaman,**

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Dentists have a responsibility to thoroughly assess the head and neck area for patients which enables them to help identify patients with signs or symptoms that could be caused by cancer.

### Aims:

Evaluate local compliance with Nice Guidelines (NG12) for suspected cancer: recognition and referral pathway across the Community Dental Services at Bridgewater NHS Trust at Oldham, Rochdale and Bury Boroughs (ORB).

- Identify potential areas for improvement.

- Analyse a baseline staff questionnaire regarding current practices.

### Methods:

This retrospective audit examined a sample of 30 urgent referrals made across the ORB boroughs from January 2019 to May 2020 for compliance with national NG12 guidelines.

### Results

- None of the patients met 100% of the criteria for suspected cancer referrals.

- 13.3% of patients that were referred had confirmed cancer that we are aware of.

- 100% of referrals were sent due to signs/symptoms that conform to the NICE NG12 guidelines.

- There was 100% compliance with documenting patient symptoms.

- 10% of patients had no mention of their cancer risk factors in their records.

- 13% of patients had no documented consent for their urgent referral.

- 37% of patients had no clinical documentation of further information provided to them.

- 13.3% of patients who had suspected cancer referrals sent were followed up by us within 2 weeks.

### Discussion

We should address inconsistencies identified with clinical record keeping, addressing risk factors, gaining valid consent and the follow-up process both locally and from specialist services. The staff survey identified staff lacked confidence in identifying suspicious lesions and varied awareness of NG12 requirements.

### Recent Publication:

Iffah Zaman, Deepak Komath, Manolis Heliotis 2016, '[Endoscope Guided Total Prosthetic TMJ Replacement](#)' [Abstract], British Journal of Oral and Maxillofacial Surgery, vol. 54, no. 10, pp. e159.

Iffah Zaman, Atheer Ujam, Mike Perry 2016 '[Minimally traumatic submental intubation- a novel dilational technique](#)' [Abstract], British Journal of Oral and Maxillofacial Surgery, vol. 54, no. 10, pp. e116

Iffah Zaman, Farnaz Motamedi-Azari, Mustansir Alibhai, Bhavin Visavadia 2016 '[Thyroglossal Duct Cyst Surgery in a Regional Maxillofacial Unit](#)' [Abstract], British Journal of Oral and Maxillofacial Surgery, vol. 54, no. 10, pp. e69-70.

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Simrun Chowdhary, Iffah Zaman, Atheer Ujam, Michael Perry 2016 '[The Inclusion of Mandibular Condyles in Orthopantomogram radiographs for Trauma cases: a retrospective audit at a Regional Maxillofacial Unit](#)' [Abstract], British Journal of Oral and Maxillofacial Surgery, vol. 54, no. 10, pp. e68.

### Biography:

Iffah Zaman is a General Dental Practitioner with experience in Oral and Maxillofacial Surgery as well as [iffah.zaman@nhs.uk](mailto:iffah.zaman@nhs.uk)

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