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**Section** Applied Dentistry and Oral  
Sciences



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#### **Section Editor-in-Chief**

Prof. Dr. Gianrico Spagnuolo  
Department of  
Neurosciences, Reproductive  
and Odontostomatological  
Sciences, University of Naples  
"Federico II", Naples, Italy

#### **Message from the Section Editor-in-Chief**

The Applied Dentistry and Oral Sciences Section aims to disseminate the most impactful and innovative knowledge on all the applied sciences relevant to dentistry and oral biology.

This section will consider multidisciplinary research that combines medicine, tissue engineering, stem cell biology, and material sciences, towards the development of novel and promising therapeutic strategies and devices for dentistry and oral medicine applications.

This section will welcome original articles well designed and robustly carried out, and systematic reviews aimed at providing strong and reliable clarifications to clinical and preclinical issues. Moreover, well-conducted reviews and preliminary results of outstanding interest will be occasionally considered by the editorial team.

## Featured Papers

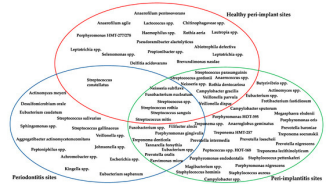
DOI:10.3390/app12073250

### Oral Microbiota in Patients with Peri-Implant Disease: A Narrative Review



Authors: *Andrea Butera, Maurizio Pascadopoli, Matteo Pellegrini, Simone Gallo, Paolo Zampetti and Andrea Scribante*

Abstract: (Peri-implant infections are the most common complications related to the placement of dental implants. There are many microbial similarities between peri-implantitis and periodontitis but due to current laboratory techniques there are just as many differences. This review was performed to assess changes in the oral microbiota at sites with peri-implant disease, according to the state of the art. The peri-implant microbiota presents a lower microbial quality than the periodontal microbiota, becoming increasingly complex as it progresses from peri-implant mucositis to peri-implantitis. The microbial difference detected between the peri-implant and periodontal microbiota is primarily related to whole bacterial populations, rather than specific bacterial taxa. The use of probiotics could support the reduction of peri-implant pockets, in association with mechanical debridement, due to their mechanism of action of competitive inhibition for adhesion sites. The peri-implant microbiota represents a qualitatively inferior but quantitatively superior bacterial ecosystem for some bacterial genera compared to the periodontal microbiota, showing that a progression from healthy state to peri-implantitis causes changes in microbiota composition in the absence of specific disease-causing bacteria. Transcriptomics could provide useful information for the prevention, diagnosis, and therapy of peri-implant pathology through knowledge of bacterial virulence factors.



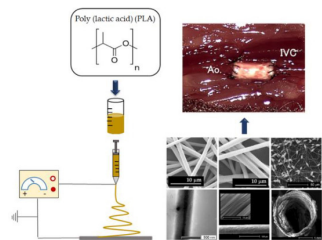
DOI:10.3390/app12063192

### Poly(lactic acid)-Based Electrospun Fibrous Structures for Biomedical Applications



Authors: *Homa Maleki, Bahareh Azimi, Saeed Ismaeilimoghadam and Serena Danti*

Abstract: Poly(lactic acid)(PLA) is an aliphatic polyester that can be derived from natural and renewable resources. Owing to favorable features, such as biocompatibility, biodegradability, good thermal and mechanical performance, and processability, PLA has been considered as one of the most promising biopolymers for biomedical applications. Particularly, electrospun PLA nanofibers with distinguishing characteristics, such as similarity to the extracellular matrix, large specific surface area and high porosity with small pore size and tunable mechanical properties for diverse applications, have recently given rise to advanced spillovers in the medical area. A variety of PLA-based nanofibrous structures have been explored for biomedical purposes, such as wound dressing, drug delivery systems, and tissue engineering scaffolds. This review highlights the recent advances in electrospinning of PLA-based structures for biomedical applications. It also gives a comprehensive discussion about the promising approaches suggested for optimizing the electrospun PLA nanofibrous structures towards the design of specific medical devices with appropriate physical, mechanical and biological functions.

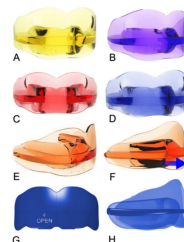


## Elastodontic Therapy of Hyperdivergent Class II Patients Using AMCOP® Devices: A Retrospective Study



*Authors: Alessio Danilo Inchingolo, Sabino Ceci, Assunta Patano, Angelo Michele Inchingolo, Valentina Montenegro, Chiara Di Pede, Giuseppina Malcangi, Grazia Marinelli, Giovanni Coloccia, Mariagrazia Garibaldi, Zamira Kruti, Giulia Palmieri, Nicole De Leonardis, Biagio Rapone, Antonio Mancini, Alexandra Semjonova, Ludovica Nucci, Ioana Roxana Bordea, Antonio Scarano, Felice Lorusso, Elisabetta Ferrara, Marco Farronato, Gianluca Martino Tartaglia, Daniela Di Venere, Filippo Cardarelli, Francesco Inchingolo and Gianna Dipalma*

**Abstract:** Background: The management of a hyperdivergent growth pattern is one of the most challenging in orthodontics and different treatments are advocated. The present study analyses the effectiveness of elastodontic therapy with AMCOP® devices in treating children with hyperdivergent class II malocclusion and the effect on the upper airway patency. Methods: The study group included 21 patients (10 males and 11 females, mean age  $8.22 \pm 1.17$  years) with a hyperdivergent growth and a class II malocclusion treated with AMCOP® devices. Cephalometric analysis was performed before treatment (T0) and after treatment (T1). Results: After treatment, the cephalometric analysis revealed a correction of the class II malocclusion and a modification of the growth pattern with a divergence reduction. The improvement of the upper airway space was also observed. Conclusion: The elastodontic therapy effectively corrected hyperdivergent class II malocclusion in growing patients over a short period.

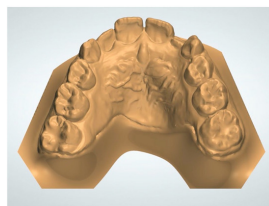


## Properties of CAD/CAM 3D Printing Dental Materials and Their Clinical Applications in Orthodontics: Where Are We Now?



*Authors: Andrea Scribante, Simone Gallo, Maurizio Pascadopoli, Pietro Canzi, Stefania Marconi, Mona A. Montasser, Davide Bressani, Paola Gandini and Maria Francesca Sfondrini*

**Abstract:** In the last years, both medicine and dentistry have come across a revolution represented by the introduction of more and more digital technologies for both diagnostic and therapeutic purposes. Additive manufacturing is a relatively new technology consisting of a computer-aided design and computer-aided manufacturing (CAD/CAM) workflow, which allows the substitution of many materials with digital data. This process requires three fundamental steps represented by the digitalization of an item through a scanner, the editing of the data acquired using a software, and the manufacturing technology to transform the digital data into a final product, respectively. This narrative review aims to discuss the recent introduction in dentistry of the abovementioned digital workflow. The main advantages and disadvantages of the process will be discussed, along with a brief description of the possible applications on orthodontics.

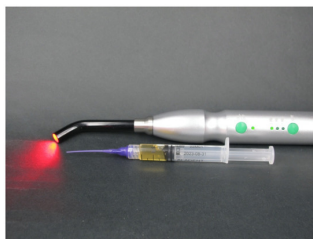


## Photodynamic Therapy Using 5-Aminolevulinic Acid (Ala) for the Treatment of Chronic Periodontitis: A Prospective Case Series



Authors: Dorina Lauritano, Giulia Moreo, Annalisa Palmieri, Fedora Della Vella, Massimo Petruzzi, Daniele Botticelli and Francesco Carinci

**Abstract:** Aim: The objective of this study was to compare the efficacy of supportive periodontal therapy (i.e., scaling and root planning, SRP) alone versus ALADENT medical device used in association with SRP in the treatment of chronic periodontitis in adult patients. Materials and Methods: A total of 20 patients with a diagnosis of chronic periodontitis (40 localized chronic periodontitis sites) aged between 35 and 55 were selected. None of these patients previously received any surgical or non-surgical periodontal therapy, and they presented radiographic evidence of moderate bone loss. Two non-adjacent sites in different quadrants were identified and observed in each patient, analyzing treatment effectiveness (split-mouth design). Clinical pocket depth, clinical attachment loss, and bleeding on probing were evaluated at time 0 and after 6 months, while microbial analysis (MA) was conducted at baseline and after 15 days. Significant differences were calculated using SPSS program and paired simple statistic t-test. Results: Total bacteria loadings had a statistically significant reduction before and after treatment with SRP (left site) (total average decrease of 27%). The sites treated with SRP plus ALADENT (right) showed a significantly reduced total bacterial loading compared to the untreated sites (right) (total average decrease of 75%). Mean values of CAL/PD and percentages data of BOP, recorded after SRP + ALADENT therapy, showed a higher reduction (CAL = 2.42, PD = 2.87 mm, 90% of sites with no bleeding) than those obtained after SRP treatment (CAL = 4.08 mm, PD = 4.73 mm, 70% of sites with no bleeding). Conclusion: The treatment of moderate and severe chronic periodontitis should include, beside SRP, the use of ALADENT medical device, which has been proved to be a useful adjuvant therapy.



## Topical Collection:

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### Dental Composites and Adhesives in Dentistry

Guest Editors: Prof. Dr. Gianrico Spagnuolo and Prof. Dr. Eunice Carrilho



### State-of-the-Art Dentistry and Oral Health

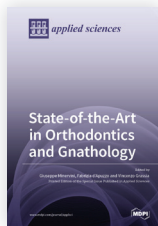
Guest Editors: Prof. Dr. Joseph Nissan, Prof. Shlomo Matalon, Prof. Dr. Gavriel Chaushu, Prof. Dr. Carlos E. Nemcovsky and Dr. Eyal Rosen



## Special Issue Books

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State-of-the-Art in  
Orthodontics and  
Gnathology



Celebrating Applied  
Sciences Reaches  
20,000 Articles  
Milestone: Invited  
Papers in „Applied  
Dentistry and Oral  
Sciences“ Section

