

**THEORETICAL-PRACTICAL COURSE:**

**ALL-ON-4® Concept Using PEEK Polymer as Prosthetic Infrastructure**

(Dr. Carlos Moura Guedes, Prof. Miguel de Araújo Nobre and MDT António Silva)

**8.5 hours**

**1 DAY**

ON SITE

**Training Dates:**

(16/09/2022)

Framework:

The All-on-4® Concept is an innovative surgical procedure for the rehabilitation of edentulous jaws focusing entirely on the patient. By taking advantage of the dense bone available in the anterior maxilla and between the mandibular foramina, this widely applicable surgical technique allows the treatment of a significantly greater number of patients, while avoiding the need for complex, time consuming and often debilitating bone grafting procedures.

There is increased interest in the long-term clinical outcomes and quality of life of patients treated with PEEK (Poly-ether-ether-ketone), a high-performance polymer for the framework material for full-arch implant-supported dental prosthetics, based on the excellent results provided by recent scientific reports.

The presentations by MALO CLINIC will focus on the laboratory process, clinical outcomes and ongoing scientific investigations using PEEK polymer in full-arch implant supported prostheses (including zygomatic implants). During this day, the MALO CLINIC clinical team pioneer of the All-on-4® Concept will demonstrate how to achieve immediate function, excellent esthetics and predictable long-term success through a state-of-the-art protocol including, surgery, prosthodontics, and maintenance.

**Participants |**

**Requirements:** Oral Surgeons, Prosthodontists, or Laboratorial Dental Technicians that want to stay up to date with the latest protocols related to the All-on-4® Concept.

**General objectives:**

At the end, trainees should be able to:

1. Differentiate the several treatment options for full-arch rehabilitation in the maxilla/mandible
2. Recognize the different clinical and surgical steps of the procedure
3. Differentiate the success rate for the All-on-4 Concept in the Maxilla and Mandible taking in consideration the risk factors for implant failure.

4. Identify the main prosthetic options for the All-on-4 rehabilitation in the maxilla /mandible from the Prosthodontic/Laboratorial point of view.
5. Recognize the essential steps of maintenance and bond primer application.

**Specific objectives:**

At the end, trainees should be able to:

- 1.1. Recognize the difference between full-arch rehabilitation using more than 4 standard in axial position, using the different All-on-4 configurations;
- 1.2. Identify the advantages and disadvantages of each rehabilitation option;
- 2.1. Evaluate the pre-treatment phase (planning) considering the anatomical limitations;
- 2.2. Identify the essential steps during surgery (Incision, flap elevation, bone reduction, implant-site preparation, implant insertion, abutment connection, suturing).
- 3.1. Recognize the Success rate of the All-on-4 concept in the Maxilla and Mandible;
- 3.2. Identify the risk factors for implant failure in the All-on-4 Concept.
- 4.1. Identify the essential steps of prosthetic options for the provisional prosthesis (impression tacking, cylinder/implant caption, prosthetic try-in, prosthetic connection, occlusion check).
- 4.2. Identify the essential prosthodontic steps for the definitive prosthesis using PEEK polymer as infrastructure.
- 4.3. Identify the essential steps for designing the PEEK polymer infrastructure for the definitive prosthesis.
- 4.4. Identify the essential laboratorial steps for the definitive prosthesis using PEEK polymer as infrastructure.
- 5.1. Recognize the essential steps of maintenance (Diagnosis, Risk assessment, Prognosis, Prophylaxis)
- 5.2. Recognize the essential steps of bond primer application (Material, structure, protective cover).

Modules   Program Contents	Workload (h)	
	Theory	Practice
<ul style="list-style-type: none"> <li>• MODULE I – THE ALL-ON-4 CONCEPT: PRE-TREATMENT, SURGICAL AND POST-TREATMENT CONSIDERATIONS, CLINICAL RESEARCH</li> </ul>	3.75 H	
<ul style="list-style-type: none"> <li>• MODULE II – PROSTHETIC REHABILITATION</li> <li>• A) IMMEDIATE AND FINAL PROSTHETIC REHABILITATION WITH PEEK</li> <li>• B) STRUCTURE DESIGN</li> </ul>	1.75 H	
<ul style="list-style-type: none"> <li>• MODULE III – THE ALL-ON-4 CONCEPT: LABORATORY CONSIDERATIONS</li> </ul>	1 H	
<ul style="list-style-type: none"> <li>• MODULE IV – HANDS-ON</li> <li>• A) THE ALL-ON-4 CONCEPT – IMPLANT MAINTENANCE: DIAGNOSIS, RISK ASSESSMENT, PROGNOSIS AND PROPHYLAXIS WITH HANDS-ON</li> <li>• B) BOND PRIMER APPLICATION – MATERIAL, STRUCTURE, PROTECTIVE COVER</li> </ul>	1 H	1 H

Modules   Program Contents	Workload (h)	
	Theory	Practice
<i>Total</i>	7.5 H	1 H
	8.5 H	

**Training Methodology:** The course includes a face-to-face component with a total duration of 8.5 hours, organized into theoretical and practical sessions.

In the face-to-face component, the training methodology will be centered on the articulation of the expository, interrogative, demonstrative and active method, in order to enhance the appropriation of the course contents, based on the analysis of real cases. The training will give clinicians a comprehensive perspective of the All-on-4 Concept using PEEK polymer.

**Attendance and Punctuality Rules:**

Attendance in the face-to-face component of training must be 100%.

In the face-to-face component of the training, each training session has an associated tolerance of 15 minutes after the start defined for its beginning.

**Evaluation methodology:**

The assessment of trainees' learning is carried out throughout the course, and the final classification results from the trainee's performance in module 4 – 20 points

**Training Mode:**

Other continuous training actions (not included in the National Qualifications Catalogue

**Form of Organization:**

On Site- Presential

**Spaces and Logistics Requirements:**

On-site Training:

- Theoretical Component - Room with good lighting, ventilation, temperature and isolated from disturbing noises to the proper functioning of the training sessions, equipped with all the necessary didactic-pedagogical resources (computer, LCD, sound equipment, video system, whiteboard/flipchart and pens, Wi-Fi network), as well as all the technical equipment associated with the themes of the various modules that make up the course.

- Practical Component – Hands-On room and medical office space properly equipped with all the equipment and utensils necessary for clinical practice.

**Didactic and Pedagogical Resources:**

Theoretical room- Computer, LCD, sound equipment, video system, whiteboard/flipchart and pens, Wi-Fi network;

Hands-On room- - Osseosets with contra-angle: PEEK infrastructure; adhesion promoter, composite; brush tips; light curing unit; Protection

sleeves; prosthetic screws; anterior and posterior dental crowns; Silicone; polymerizing unit

**Learning support:** Video Lectures, Reference bibliography, scientific articles:

- De Araújo Nobre M, Moura Guedes C, Almeida R, Silva A. Poly-ether-ether ketone and implant dentistry: the future of mimicking natural dentition is now! *Polymer Int.* 2021 Aug;70(8):999-1001.
- de Araújo Nobre M, Moura Guedes C, Almeida R, Silva A, Sereno N. Hybrid Polyetheretherketone (PEEK)-Acrylic Resin Prostheses and the All-on-4 Concept: A Full-Arch Implant-Supported Fixed Solution with 3 Years of Follow-Up. *J Clin Med.* 2020 Jul 10;9(7):2187. doi: 10.3390/jcm9072187.
- Maló P, de Araújo Nobre M, Moura Guedes C, Almeida R, Silva A, Sereno I, Legatheaux J. Short-term report of an ongoing prospective cohort study evaluating the outcome of full-arch implant-supported fixed hybrid polyetheretherketone-acrylic resin prostheses and the All-on-Four concept. *Clin Implant Dent Relat Res.* 2018 Oct;20(5):692-702. doi: 10.1111/cid.12662. Epub 2018 Aug 15.
- Maló P, Lopes I, De Araújo Nobre M. The All-on-4 Concept. In: Babbush C, Hahn JA, Krauser JT, eds. *Dental Implants: The Art and Science.* Maryland Heights, USA: Saunders Elsevier, 2011: 435-447.
- Maló P, de Araújo Nobre M, Lopes A. An overview of the All-on-4™ implant philosophy. *Faculty Dental Journal*, January 2012; 3: 20-27. DOI 10.1308/204268512X13207759526256.
- Ferro AS, de Araújo Nobre MA, Simões R. Ten-year follow-up of full-arch rehabilitations supported by implants in immediate function with nasal and full-length palatine bicortical anchorage on the anterior maxilla. *J Oral Sci.* 2022;64(2):129-134. doi:10.2334/josnusd.21-0378
- de Araújo Nobre M, Lopes A, Antunes E. The 10 Year Outcomes of Implants Inserted with Dehiscence or Fenestrations in the Rehabilitation of Completely Edentulous Jaws with the All-on-4 Concept. *J Clin Med.* 2022;11(7). doi:10.3390/jcm11071939
- Maló P, de Araújo Nobre M, Lopes A, Ferro A, Nunes M. The All-on-4 concept for full-arch rehabilitation of the edentulous maxillae: A longitudinal study with 5-13 years of follow-up. *Clin Implant Dent Relat Res.* 2019;21(4):538-549. doi:10.1111/cid.12771
- de Araújo Nobre M, Salvado F, Nogueira P, Rocha E, Ilg P, Maló P. A Peri-Implant Disease Risk Score for Patients with Dental Implants: Validation and the Influence of the Interval between Maintenance Appointments. *J Clin Med.* 2019;8(2):252. doi:10.3390/jcm8020252
- Maló P, de Araújo Nobre M, Lopes A, Ferro A, Botto J. The All-on-4 treatment concept for the rehabilitation of the completely edentulous mandible: A longitudinal study with 10 to 18 years of follow-up. *Clin Implant Dent Relat Res.* 2019;21(4):565-577. doi:10.1111/cid.12769
- Maló P, Lopes A, de Araújo Nobre M, Ferro A. Immediate function dental implants inserted with less than 30 N·cm of torque in full-arch maxillary rehabilitations using the All-on-4 concept: retrospective study. *Int J Oral Maxillofac Surg.* 2018;47(8). doi:10.1016/j.ijom.2018.04.008

- Maló PS, de Araújo Nobre MA, Ferro AS, Parreira GG. Five-year outcome of a retrospective cohort study comparing smokers vs. Nonsmokers with full-arch mandibular implant-supported rehabilitation using the All-on-4 concept. J Oral Sci. Published online 2018. doi:10.2334/josnusd.16-0890
- Hopp M, de Araújo Nobre M, Maló P. Comparison of marginal bone loss and implant success between axial and tilted implants in maxillary All-on-4 treatment concept rehabilitations after 5 years of follow-up. Clin Implant Dent Relat Res. 2017;19(5). doi:10.1111/cid.12526
- de Araújo Nobre M, Mano Azul A, Rocha E, Maló P, Salvado F. Attributable fractions, modifiable risk factors and risk stratification using a risk score for peri-implant pathology. J Prosthodont Res. 2017;61(1):43-53. doi:10.1016/j.jpjpor.2016.03.004
- de Araújo Nobre M, Maló P. Prevalence of periodontitis, dental caries, and peri-implant pathology and their relation with systemic status and smoking habits: Results of an open-cohort study with 22009 patients in a private rehabilitation center. J Dent. 2017;67. doi:10.1016/j.jdent.2017.07.013
- Maló P, Nobre MA, Lopes A, Ferro A, Gravito I. Complete edentulous rehabilitation using an immediate function protocol and an implant design featuring a straight body, anodically oxidized surface, and narrow tip with engaging threads extending to the apex of the implant: A 5-year retrospective clinica. Int J Oral Maxillofac Implant. 2016;31(1). doi:10.11607/jomi.4123
- Nunes M, Almeida RF, Felino AC, Malo P, Nobre MA. The influence of crown-to-implant ratio on short implant marginal bone loss. Int J Oral Maxillofac Implant. 2016;31(5). doi:10.11607/jomi.4336
- Maló P, de Araújo Nobre M, Lopes A, Rodrigues R. Preliminary report on the outcome of tilted implants with longer lengths (20-25mm) in low-density bone: One-year follow-up of a prospective cohort study. Clin Implant Dent Relat Res. 2015;17(S1):e134-142. doi:10.1111/cid.12144
- de Araújo Nobre M, Mano Azul A, Rocha E, Maló P. Risk factors of peri-implant pathology. Eur J Oral Sci. 2015;123(3):131-139. doi:10.1111/eos.12185
- Maló P, de Araújo Nobre MA, Lopes AV, Rodrigues R. Immediate loading short implants inserted on low bone quantity for the rehabilitation of the edentulous maxilla using an All-on-4 design. J Oral Rehabil. 2015;42(8). doi:10.1111/joor.12291
- Maló P, de Araújo Nobre M, Lopes A, Ferro A, Gravito I. All-on-4® Treatment Concept for the Rehabilitation of the Completely Edentulous Mandible: A 7-Year Clinical and 5-Year Radiographic Retrospective Case Series with Risk Assessment for Implant Failure and Marginal Bone Level. Clin Implant Dent Relat Res. 2015;17. doi:10.1111/cid.12282
- Maló P, De Araujo Nobre M, Lopes A, Rodrigues R. Double Full-Arch Versus Single Full-Arch, Four Implant-Supported Rehabilitations: A Retrospective, 5-Year Cohort Study.; 2015. doi:10.1002/9781119115397.ch15

- Maló P, de Sousa ST, De Araújo Nobre M, et al. Individual Lithium Disilicate Crowns in a Full-Arch, Implant-Supported Rehabilitation: A Clinical Report. *J Prosthodont*. 2014;23(6). doi:10.1111/jopr.12137
- Nobre de AM, Maló PS, Oliveira SH. The influence of implant location and position characteristics on peri-implant pathology. *Eur J Prosthodont Restor Dent*. 2014;22(3).
- de Araújo Nobre MA, Maló PS, Oliveira SH. Associations of clinical characteristics and interval between maintenance visits with peri-implant pathology. *J Oral Sci*. 2014;56(2).
- De Araújo Nobre M, Maló P, Antune E. Influence of systemic conditions on the incidence of periimplant pathology: A case-control study. *Implant Dent*. 2014;23(3). doi:10.1097/ID.0000000000000071
- De Araújo Nobre MA, Maló P. The Influence of Rehabilitation Characteristics in the Incidence of Peri-Implant Pathology: A Case-Control Study. *J Prosthodont*. 2014;23(1). doi:10.1111/jopr.12114
- Maló P, Nobre MA, Lopes A. Immediate loading of "All-on-4" maxillary prostheses using trans-sinus tilted implants without sinus bone grafting: A retrospective study reporting the 3-year outcome. *Eur J Oral Implantol*. 2013;6(3):273-283.
- Maló P, De Araújo Nobre M, Lopes A, Francischone C, Rigolizzo M. "All-on-4" Immediate-Function Concept for Completely Edentulous Maxillae: A Clinical Report on the Medium (3 Years) and Long-Term (5 Years) Outcomes. *Clin Implant Dent Relat Res*. 2012;14(SUPPL. 1):e139-150. doi:10.1111/j.1708-8208.2011.00395.x
- Maló P, de Araújo Nobre M, Borges J, Almeida R. Retrievable Metal Ceramic Implant-Supported Fixed Prostheses with Milled Titanium Frameworks and All-Ceramic Crowns: Retrospective Clinical Study with up to 10 Years of Follow-Up. *J Prosthodont*. 2012;21(4). doi:10.1111/j.1532-849X.2011.00824.x
- Malo P, Nobre M de A, Lopes A. Immediate rehabilitation of completely edentulous arches with a four-implant prosthesis concept in difficult conditions: an open cohort study with a mean follow-up of 2 years. *Int J Oral Maxillofac Implants*. 2012;27(5):1177-1190.
- Malo P, De Araújo Nobre M, Lopes A, Moss SM, Molina GJ. A longitudinal study of the survival of All-on-4 implants in the mandible with up to 10 years of follow-up. *J Am Dent Assoc*. 2011;142(3). doi:10.14219/jada.archive.2011.0170
- Maló P, Nobre MA, Lopes A. The rehabilitation of completely edentulous maxillae with different degrees of resorption with four or more immediately loaded implants: A 5-year retrospective study and a new classification. *Eur J Oral Implantol*. 2011;4(3):227-243.
- Maló P, Nobre MA. A new approach for maxilla reconstruction. *Eur J Oral Implantol*. 2009;2(2).
- de Araújo Nobre M, Cintra N, Maló P. Peri-implant maintenance of immediate function implants: a pilot study comparing hyaluronic acid and chlorhexidine. *Int J Dent Hyg*. 2007;5(2). doi:10.1111/j.1601-5037.2007.00239.x

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- Maló P, Rangert B, Nobre M. All-on-4 immediate-function concept with Brånemark System® implants for completely edentulous maxillae: A 1-year retrospective clinical study. Clin Implant Dent Relat Res. 2005;7(SUPPL. 1):S88-94.
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