

The history of the Orthodontic discipline at UERJ

Rhita Cristina Cunha Almeida,¹ Flavia Raposo Gebara Artese,¹ Jonas Capelli Jr,¹ Felipe de Assis Ribeiro Carvalho,¹ Marco Antonio de Oliveira Almeida,¹ Jose Augusto Mendes Miguel,¹ Catia Cardoso Abdo Quintão¹

¹Department of Orthodontics, School of Dentistry, State University of Rio de Janeiro (UERJ), Rio de Janeiro, RJ, Brazil

• **Conflicts of interest:** none declared.

ABSTRACT

In 1968 the school of Dentistry of the Rio de Janeiro State University was inaugurated. This year the school is turning 50 years old. The aim of this paper is to describe the history of the Orthodontic discipline, present its professors, describe the different activities, the goals achieved and how the discipline evolved after all those years.

Keywords: Orthodontics; History; Specialization.

Introduction

Although the School of Dentistry of the Rio de Janeiro State University (UERJ) opened in 1968 and is turning 50 years old in 2018, the orthodontic discipline only started in 1970, when the first undergraduate class reached the sixth semester. At this time, the laboratory 401 on the fourth floor of the school was inaugurated with the orthodontic discipline.

Since the beginning of the School of Dentistry, the undergraduate course had two semesters of Orthodontics. The Ortho I, laboratorial, and Ortho II, clinical, which was held together with the Pediatric Dentistry clinic. Having a clinic of preventive and interceptive orthodontics in the undergraduate program was always a significant differential of UERJ, and until today, in Brazil, most undergraduate programs in Dentistry have only the orthodontic lab training.

The orthodontic school members were organized by Professor Antonio Carlos Peixoto da Silva and included him, Professor Washington Luis Monteior Scherpel and Professor Alderico Artese.

As time went by, the school members changed, as Professor Alderico left, the discipline was joined by Professors Estelio Zen, Maria Teresa de Andrade Goldner, Alfredo Soares Veiga and Alvaro Francisco Carrielo Fernandes.

In 1979, professor Marco Antonio Almeida, that was previously teaching in Pediatric Dentistry, was transferred to the Orthodontic discipline and organized the Orthodontic Graduate course.

The first Graduate class was in 1980 with three students. It was a 2-year part-time course. After a few years, the discipline arranged a cooperation with SESC, together with Dr. Paulo Murilo Fontoura, which allowed the construction and the installation of the necessary equipment for an exclusive orthodontic clinic on the second floor of the Dental School. With these adequate facilities, in 1990, the orthodontic

graduate course became a full-time program with six students per class. The course never stopped and has graduated to date 188 orthodontists from several parts of Brazil and a few countries abroad.

The school members continued to change with time. In 1982 professor Jonas Capelli Junior joined the group and in 1986 Professors Catia Cardoso Abdo Quintão and Robert Willer Farinazzo Vitral replaced Professors Estelio and Alfredo, that left for personal reasons. Two years later, Professor Robert also left, to work at the Federal University of Juiz de Fora (UFJF) and was replaced by Professor Alvaro de Moraes Mendes.

From 1988 to 2000, the group stayed the same, with seven professors: Antonio Carlos, Alvaro Fernandes, Teresa Goldner, Marco Antonio, Jonas Capelli, Catia Quintão and Alvaro Mendes.

In 1992 professor Marco Antonio Almeida went to the United States for an international experience. He stayed 18 months at the University of North Carolina and during this time, he published about 15 papers in high impact factors journals.¹⁻¹⁵ When he returned, in 1994, he became the first Full Professor in Orthodontics of the University. Thanks to the time he stayed abroad, the discipline established an interchange of students with the University of North Carolina that proceeds until today.

In 1998 the discipline launched the academic master's degree. It is a two-year program with six students per class. Today this course is in the 11th class and has graduated 60 masters in Orthodontics.

In 2000, a new change in the school members. Professor Jose Augusto Mendes Miguel joined the group and two years later, professor Flavia Raposo Gebara Artese also came in (Figure 1). During this time, professor Antonio Carlos, kindly called by the group as "chief", retired.



Figure 1. Professors Jonas Capelli, Flavia Artese, Marco Antonio Almeida, Catia Quintão, Antonio Carlos Peixoto, Alvaro Mendes, Maria Teresa Goldner, Alvaro Fernandes and Jose Augusto Miguel

In 2004 the first PhD class began. Today, 24 students have presented their PhD thesis at UERJ and currently we have six PhD students. It is interesting to say that from the three students of the first PhD class, two were school members, Jonas Capelli and Alvaro Fernandes. With that, all school members had a PhD degree. Dr Jonas Capelli, during his PhD, went to the Forsyth Institute, in Boston, USA, establishing another important international bond and publishing his PhD thesis in high impact journals.¹⁶⁻¹⁷

In 2013, Professor Marco Antonio Almeida retired, although he continues lecturing in the Orthodontic Graduate course until today. In his place, entered Professor Felipe de Assis Ribeiro Carvalho. In 2016 Professor Rhita Cristina Cunha Almeida joined the group (Figure 2). This year (2018), Professors Maria Teresa Goldner, Alvaro Mendes and Alvaro Fernandes are planning to retire, which means we will have other changes in school members.



Figure 2. Professors Felipe Carvalho, Rhita Almeida, Jonas Capelli, Antonio Carlos Peixoto, Marco Antonio Almeida, Flavia Artese and Jose Augusto during an alumni meeting in 2017

In 2018 professor Jonas Capelli was nominated Full Professor in Orthodontics.

It is interesting to observe that four of the actual group of professors are former students of UERJ, showing how strong the relationship with the institution is. Besides that, all our professors have a PhD and all of them teach in all education levels, undergraduate, graduate, masters and PhD.

Our school members are all members of renowned prestige in the orthodontic scenario. Four of them, Drs Jonas Capelli, Flavia Artese, José Augusto and Felipe Carvalho are members of the Brazilian Board of Orthodontics. Dr Flavia Artese was the director of the Brazilian Orthodontic Association until last month (May 2018) and is also a member of the Angle Society. All our professors are members of the Brazilian Orthodontic Association and has been part of its board of directors at some point.

As international experience, besides the ones listed above, Dr Catia Quintão has been to Wales University College of Medicine Dental School, WUDS, and started an important research project with functional appliances,¹⁸ also establishing an international cooperation. Dr Catia has been working in the last four years as a member of the International Cooperation department of UERJ, settling several partnerships with foreign universities such as Peru and Sweden.

Dr Flavia Artese, during her PhD, went to the University of Washington and besides publishing high impact papers,¹⁹⁻²⁰ she won in 2004 the Hatton prize at the Brazilian dental research society (SBPqO), being a great achievement for our group.

Dr José Augusto Miguel and Dr Felipe Carvalho went to the University of North Carolina; Dr Alvaro Mendes went to Japan; Dr Rhita Almeida went to the University of North Carolina and to the Forsyth Institute; showing that all members have had an International experience, established partnerships and published papers in high impact journals.²¹⁻³¹

Undergraduate

The undergraduate curriculum today continues to have an Orthodontic laboratory in the sixth semester with 30 students (Figure 3) and a preventive and interceptive Orthodontic clinic in the seventh semester also with 30 students. In this clinic, we treat 390 children per year. After the mixed dentition, those children are sent to the Graduate orthodontic clinic for comprehensive treatment.



Figure 3. Orthodontic lab with undergraduate students

Professor Maria Teresa has been responsible for extension projects of the university for several years. The discipline always has undergraduate students working as professor assistants in both the lab and the orthodontic clinic. In addition, several research projects for scientific initiation have been developed by our school members with undergraduate students.

Although the discipline only starts in the sixth semester, the professors try to be involved with the undergraduate students in every possible way. Almost every graduation has one orthodontic professor as an honored teacher.

Graduate Course

The orthodontic specialization course continues to be a two-year full-time course with six students per year. Now we are in the 38th class.

The course is extremely clinical, having around 1000 patients in active orthodontic treatment. In the first semester the students stay mostly with lab work. Then, there are 7 periods of clinic every week, each of them with a different professor, having different approaches and techniques. Besides that, there are 10 seminars presented by the students every week. Those seminars may be of

clinical cases or research papers of different journals.

Besides the school members, we have guest professors that enrich our course. Most of them are former students that really enjoy the exchange of knowledge with the new students. During these years we have had the help of Drs Ione Brunharo, Maria Carlini, Marco Antonio Schroeder, Tatiana Lima, Daniel Fernandes, and today, helping us, there are Drs Cristiane Canavarro, Flavio Carvalho, Vera Cosendey, Klaus Barreto, Diego Santos and Humberto Iglesias. Besides those, our PhD students are always helping in the specialization course.

We also have a very well-established cooperation with other school disciplines. One of the most active cooperation is with the oral surgery. Our graduate students have several orthognathic surgery patients that are operated by the surgery residents in the Pedro Ernesto University Hospital. One of those cases, that was supervised by professor Jonas Capelli in our discipline and by professor Paulo José Medeiros in the surgery department, was published in the American Journal of Orthodontics and Dentofacial Orthopedics, one of the most important journals in the area, and won the prize case of the year.³²

The Prosthetic Dentistry is also our partner. Several mutilated cases of patients that lost several teeth or cases with tooth anomalies due to different syndromes are treated jointly. These cooperations makes planning and treating very difficult cases possible and ennoble our students' knowledge.

More than 4000 patients have been treated in this course. It's a very well recognized course and students all around the country apply for it every year.

Today we have graduated 188 orthodontists from different parts of the country: Alagoas (2); Amazonas (1); Bahia (11); Ceará (2); Distrito Federal (5); Espírito Santo (20); Goiás (2); Maranhão (1); Minas Gerais (15); Pará (8); Pernambuco (1); Rio de Janeiro (83); Rio Grande do Norte (4); Rio Grande do Sul (6); Santa Catarina (4); São Paulo (9); Sergipe (5) (Figure 4). We also have former students in Canada (1); Holland (3); Korea (1); Peru (1); Thailand (1) and Portugal (2).



Figure 7. Orthodontic laboratory after the last refurbishment



Figure 10. The seminars classroom in 2005



Figure 8. The first orthodontic graduate clinic



Figure 11. The seminars classroom in 2018



Figure 9. The orthodontic clinic in 2018

Besides that, several reputable professors from Brazil and all around the world have visited our department. Through the alumni association we promote lectures for our students and for the orthodontic public in general.

In 1998 Dr William Proffit, one of the most important orthodontists in the world, came to Brazil and lectured for 1000 people. It was the biggest event we ever promoted and was very important for our association, as we gained status and financial support.

Besides Dr Proffit, we have received Dr Ticiano Bacetti (Italy), Dr Sinclair (USA), Dr Camila Tulloch (USA), Dr Birte Melsen (Denmark), Dr Lucia Cevidanes (USA), Dr Juri Kuroi (Sweden), Dr Moon (USA), Dr Malmgreen (Sweden), Dr Vanarsdall (USA) and several others.

In addition, every 2-years we promote an alumni meeting. Those happen in a different city every time. A group of former students from a specific city get together and or-

ganize the meeting. During those meetings we have classes and of course, happy hours. Those meetings already have been in Florianopolis, Natal, Gramado, Friburgo, Buzios, Rio de Janeiro, Belem, Pedra Azul, Guarapari and several other cities. Last year (2017), it was in Rio de Janeiro, at UERJ, because we inaugurated our brand-new clinic.



Figure 12. Alumni meeting at UERJ in 2017

Academic Master Degree

The academic Master Degree, part of the Graduate program of the University's Dental School, is a well rated course with concept 5 by Capes. Now we are in the 11th class.

It is a two-year course with six students in each class. During those years, the students need to develop a research project besides acting as a teacher in the undergraduate course. They are stimulated to participate in different researches or teaching events, presenting research projects

or case reports.

We have graduated 60 masters in Orthodontics from different regions of Brazil and we are proud to say that most of them published their papers in high quality journals.

PhD

The most important part of the PhD is the research project. The course takes up to four years, and the student need to develop a relevant research and publish at least three articles in this area. Most students develop their projects in cooperation with other institution, mostly from United States. We have had cooperation with University of North Carolina, University of Michigan, Forsyth Institute, University of California, Engineer Military Institution (IME), Fluminense Federal University (UFF), Federal University of Bahia (UFBA), Federal University of Para (UFPA), Federal University of Juiz de Fora (UFJF), besides others.

Orthodontic Discipline after 50 Years

Today our discipline is passing through changes. The dental school changed the curriculum and those changes are now in the sixth and seventh semesters. We have now the preclinic orthodontic, with theoretical class and laboratory work in the sixth semester, as it was before. But in the seventh semester we are now going to be part of the children clinic group, together with the Pediatric Dentistry. We are also part of the Adult clinic group, helping with small pre-prosthetic movements.

The graduation course, that used to start in August, now starts in February, but continues to be a two-year course with six students each year.

All the school members are very excited with all those changes and looking forward to continuing improving our course in every possible way.

References

- Bailey LJ, Esmailnejad A, Almeida MAO. Stability of palatal rugae as landmarks for analysis of dental casts in extraction and nonextraction cases. *Angle Orthod.* 1996;66:73-8.
- Miguel Jam, Almeida MAO, Chevitarese O. Clinical comparison between a glass ionomer cement and composite for direct bonding of orthodontic brackets. *Am J Orthod Dentofacial Orthop.* 1995;107:484-7.
- Barbosa V LT, Almeida MAO, Chevitarese O, Keith O. Direct Bonding to porcelain. *Am J Orthod Dentofacial Orthop.* 1995;107:159-64.
- Paula S, Almeida MAO, Lee PCF. Prediction of mesiodistal diameter of unerupted lower cuspid and bicuspid using 45 cephalometric radiography. *Am J Orthod Dentofacial Orthop.* 1995;107:309-14.
- Almeida MAO, Phillips C, Kula K, Tulloch C. Stability of the palatal rugae as landmarks for analysis of dental casts. *Angle Orthodontist.* 1995;65(1):43-8.
- Barreto LCNP, Chevitarese O, Almeida MAO. Direct bonding brackets: Unfilled versus unfilled/filled resins. *J Clin Pediatr Dent.* 1994;19(1):31-4.
- Araujo TM, Wilhelm RS, Almeida MAO. Skeletal and dental arch asymmetries in individuals with normal dental occlusions. *Int J Adult Orthodon Orthognath Surg.* 1994;9(2):111-8.
- Araujo TM, Wilhelm RS, Almeida MAO. Skeletal and dental arch asymmetries in class II division 1 subdivision malocclusions. *J Clin Pediatr Dent.* 1994;18(3):181-5.
- Valentim ZL, Capelli Jr J, Almeida MAO, Bailey LJ. Incisor retraction and profile changes in adult patients. *Int J Adult Orthodon Orthognath Surg.* 1994;9(1):31-6.
- Brunharo IHVP, Pacca CAD, Almeida MAO. Esterilização em Ortodontia: Avaliação de um método utilizando radiação ultra-violeta. *Rev Bras Odontol.* 1994;LI(6):26-31.
- Almeida MAO, Araujo TM, Chevitarese O. Effect of different time intervals between sealant application and bracket bond on adhesive strength. *Am J Orthod Dentofacial Orthop.* 1994;106:389-94.
- Santos VLC, Almeida MAO, Albuquerque HS, Keith O. Direct bonded space maintainers. *J Clin Pediatr Dent.* 1993;17(4):221-5.
- Cerci V, Martins JES, Almeida MAO. Cephalometric standards for white Brazilians. *Int J Adult Orthodon Orthognath Surg.* 1993;8(4):287-92.
- Vieira ACL, Pinto RAC, Chevitarese O, Almeida MAO. Polishing after deb-racketing: Its influence upon enamel surface. *J Clin Pediatr Dent.* 1993;18(1):7-11.
- Heringer M, Almeida MAO, Miguel JAM. Direct bond brackets: cotton roll versus rubber dam isolation. *Angle Orthod.* 1993;63(3):231-4.
- Capelli Jr J, Fidel Jr R, Figueredo CM, Teles RP. Change in the gingival

- fluid volume during maxillary canine retraction. *Dental Press J Orthod.* 2010;15:52-7.
17. Capelli Jr J, Kantarci A, Haffajee A, Teles RP, Fidel Junior R, Figueredo CM. Matrix metalloproteinases and chemokines in the gingival crevicular fluid during orthodontic tooth movement. *Eur J Orthod (Online).* 2011;3:1-7.
 18. Quintão CCA, Brunharo IH, Almeida MA. Alterações Dento-esqueléticas observadas durante o uso do aparelho funcional Twin-Block, em pacientes portadores de maloclusão de classe II, tratados na fase de pré-surto de crescimento puberal. *Ortodontia Gaúcha.* 2002;VI(1):1-12.
 19. Artese F, Kim TW, Artun J. Prevalence of third molar impaction in orthodontic patients treated nonextraction and with extraction of four premolars. *Am J Orthod Dentofacial Orthop.* 2003;123(2):138-45.
 20. Artese F, Rafferty KL, Herring SW. Three-dimensional loading and growth of the zygomatic arch. *J Exp Biol.* 2000;203:2093-104.
 21. Proffit WR, Miguel JAM. The Duration and Sequencing of Surgical-Orthodontic Treatment. *Int J Adult Orthodon Orthognath Surg.* 1995;10(1):35-42.
 22. Miguel JAM, Turvey TA, Phillips C, Proffit WR. Long-term stability of 2 jaw surgery for treatment of mandibular deficiency and vertical maxillary excess. *Int J Adult Orthodon Orthognath Surg.* 1995;10(4):235-45.
 23. Motta ATS, Carvalho FAR, Oliveira AEF, Cevidanes LH, Almeida MA. Superposição automatizada de modelos tomográficos tridimensionais em cirurgia ortognática. *Dental Press J Orthod.* 2010;15:39-41.
 24. Motta ATS, Carvalho FAR, Cevidanes LH, Almeida MA. Avaliação da cirurgia de avanço mandibular por meio da superposição de modelos tomográficos tridimensionais. *Dental Press J Orthod.* 2010;15:45.e1-45.e12.
 25. Carvalho FAR, Cevidanes LH, Motta ATS, Almeida MA, Phillips C. Editor's Comment and Q&A: Three-dimensional assessment of mandibular advancement 1 year after surgery. *Am J Orthod Dentofacial Orthop.* 2010;137:S53-S55.
 26. Almeida RC, Cevidanes LHS, Carvalho FAR, Motta AT, Almeida MAO, Styner M, Turvey T, Proffit WR, Phillips C. Soft tissue response to mandibular advancement using 3D CBCT scanning. *Int J Oral Maxillofac Surg.* 2011;40:353-9.
 27. Motta AT, Cevidanes LHS, Carvalho FAR, Almeida MAO, Phillips C. Three-Dimensional Regional Displacements After Mandibular Advancement Surgery: One Year of Follow-Up. *J Oral Maxillofac Surg (Print).* 2011;69:1447-57.
 28. De Paula LK, Ackerman JL, Carvalho FAR, Eidson L, Cevidanes LHS. Digital live-tracking 3-dimensional minisensors for recording head orientation during image acquisition. *Am J Orthod Dentofacial Orthop.* 2012;141:116-23.
 29. Franco A, Cevidanes LHS, Phillips C, Rossouw PE, Turvey T, Carvalho FAR, Paula LK, Quintão CCA, Almeida MAO. Long-term three-dimensional stability of mandibular advancement surgery. *J Oral Maxillofac Surg (Print).* 2013;71:1588-97.
 30. Almeida RC, Capelli J, Teles RP. Levels of gingival crevicular fluid matrix metalloproteinases in periodontally compromised teeth under orthodontic forces. *Angle Orthod.* 2015;85:150309090608006-1014.
 31. Almeida RC, Santos DJS, Teles RP, Capelli Jr J. Gingival crevicular fluid volume evaluation in patients with controlled periodontal disease submitted to orthodontic treatment. *J World Fed Orthod.* 2012;1:e9-e12.
 32. Motta AT, Louro RS, Medeiros PJ, Capelli Jr J. Orthodontic and surgical treatment of a patient with an ankylosed temporomandibular joint. *Am J Orthod Dentofacial Orthop.* 2007;131:785-96.

Mini Curriculum and Author's Contribution

1. Rhita Cristina Cunha Almeida – DDS; PhD. Contribution: preparation and draft of the manuscript, critical review and final approval. ORCID: 0000-0002-2102-1789
 2. Flavia Raposo Gebara Artese – DDS; PhD. Contribution: preparation and draft of the manuscript, critical review and final approval. ORCID: 0000-0003-2690-2152
 3. Jonas Capelli Jr – DDS; PhD. Contribution: preparation and draft of the manuscript, critical review and final approval. ORCID: 0000-0002-6289-5378
 4. Felipe de Assis Ribeiro Carvalho – DDS; PhD. Contribution: preparation and draft of the manuscript, critical review and final approval. ORCID: 0000-0002-5173-7438
 5. Marco Antonio de Oliveira Almeida – DDS; PhD. Contribution: preparation and draft of the manuscript, critical review and final approval. ORCID: 0000-0001-6945-4439
 6. Jose Augusto Mendes Miguel – DDS; PhD. Contribution: preparation and draft of the manuscript, critical review and final approval. ORCID: 0000-0001-5315-663X
 7. Catia Cardoso Abdo Quintão – DDS; PhD. Contribution: preparation and draft of the manuscript, critical review and final approval. ORCID: 0000-0003-4627-8190
-

Submitted: 10/22/2018 / Accepted for publication: 11/06/2018

Corresponding Author

Rhita Cristina Cunha Almeida

E-mail: rhita.almeida@gmail.com

