

University of Minnesota

School of Dentistry

Division of Endodontics

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Endodontic Handbook

Updated: 26 January 2023

Mission:

The University of Minnesota School of Dentistry advances health through scientific discovery, innovative education, and the highest-quality care for all communities.

Vision:

The University of Minnesota School of Dentistry leads the profession into the future of comprehensive healthcare.

Core Values

- Diversity
- Excellence
- Integrity
- Leadership
- Pursuit of Knowledge
- Respect
- Service to All Communities

Objectives:

- The School of Dentistry (SOD) recruits, matriculates and retains quality, diverse students to all educational programs.
- The SOD presents quality educational programs incorporating new and appropriate knowledge, technology and skills. These programs ensure student learning resulting in graduates competent in their respective fields. The goal of the predoctoral dental program is to prepare graduates who possess the knowledge, skills and values to begin the practice of general dentistry.
- The SOD devotes time and resources to the discovery and dissemination of new knowledge.
- The SOD serves as a source of continuing education to the dental profession and a resource to the local and global communities.
- The SOD reviews its strategic direction, consistent with those of the University of Minnesota, on a systematic and ongoing basis including regular assessment of its strategic progress.
- The UMN SOD provides quality, patient centered, oral health care within its clinics and its community.
- The SOD supports faculty, staff and students with a congenial, well functioning and pleasant working environment.
- The SOD is fiscally responsible.

Mission of the Division of Endodontics Graduate Endodontics

Educate graduate students in the specialty of endodontics.

Vision of the Division of Endodontics Graduate Endodontics

Graduate endodontic students will become proficient clinicians and leaders in endodontics. They will promote optimal health through education, patient care, research, education, and service.

Goals and Objectives of the Division of Endodontics Graduate

1. Develop clinically proficient endodontists with an evidence-based approach to the practice of endodontics.
2. Prepare graduate students to successfully manage endodontic practices.
3. Develop graduate students for careers in academics and/or research, if they so choose.
4. Promote a career-long interest in continued professional development and life-long learning.
5. Conduct research projects and contribute to the professional literature.
6. Prepare graduate students to critically review pertinent scientific literature.
7. Prepare and support graduate students to achieve board certification.

The graduate endodontic program is a 26-month course of study that leads to a Master of Science degree and a certificate in Endodontics. A “certificate only” pathway is not available. The program begins around the first of July and finishes at the end of August 26 months later, for example, 1 July 2023 through 31 August 2025.

The program features extensive clinical training encompassing a wide variety of non-surgical and surgical endodontic techniques. The program includes evidence-based didactic and clinical seminars within the Division of Endodontics and courses offered by the basic science components of the university, other departments of the School of Dentistry and visiting professionals. Classical Literature Seminar topics can be found on pages 16-18. In addition to the required graduate level courses, the program requires a master’s thesis generated from an original research project.

The clinical guidelines for the graduate endodontic program are a minimum of 250 non-surgical and 20 surgical endodontic cases. As noted above, graduate students must also complete an original research project and then prepare and successfully defend his/her thesis. Graduate endodontic students must complete the American Board of Endodontics (ABE) written examination in May/June of the second year of their program. They must successfully challenge the Division’s oral examinations and submit a portfolio of five cases in the ABE Case History Portfolio format.

Graduate students at the University of Minnesota must maintain a “B” average in all courses. Grades are earned through core and master’s courses, seminars, oral and written examinations and faculty review of all endodontic cases. Oral examinations based on the Literature Review course are given at the end of each semester within the Division of Endodontics.

Research in Endodontics:

Research is a major component of the graduate program in endodontics. All students are required to complete an original research project and write and defend a thesis as part of the requirements for the M.S. degree. Since most students enter the graduate program with limited research experience, the School of Dentistry offers formal training in the design, conduction, analysis and presentation of a research project. Students take courses, write proposals and make oral presentations in addition to the thesis required by the Graduate School.

Research Objectives:

At the completion of the program, the student should be competent to:

1. Conduct a literature search using the facilities of a large biomedical library including standard indexes of biomedical literature.
2. Write a critical review of literature on a selected research topic.
3. Develop a research protocol that addresses a significant problem in endodontics and arising out of the critical review of literature.
4. Obtain appropriate statistical advice in the design and analysis of a research project.
5. Conduct a straightforward laboratory or clinical study.
6. Write a thesis according to standard guidelines of the Graduate School.
7. Prepare a manuscript for suitable publication in a peer-reviewed journal.
8. Organize and present research data in an oral presentation.

** Please see a list of Master's research projects and graduate student publications on pages 19-24 of this handbook.

Oral Research Presentations:

1. Research project overview: Graduate students will present an overview of their research project Spring Semester of the first year during Research Reviews and an update on their project every other month during a Division seminar. The presentation will include the literature review, statement of the problem to be investigated, and a description of methods and statistical analysis that will be utilized.
2. Masters Defense: In July or August of the second year, students will defend their master's research project.

Teaching:

Graduate students are required to teach in the Preclinical Endodontics Course offered at the beginning of the dental student's third summer and second year graduate students teach in the undergraduate endodontic clinic. In addition, students are required to present a lecture during the Preclinical Endodontic Course. The amount of time devoted to teaching is approximately 5% of the total program time.

Presentations at Professional Meetings:

Endodontic graduate students are required to present either a table clinic on an endodontic topic or a research poster or oral presentation at the annual meeting of the American Association of Endodontists and at the Minnesota Dental Association's Star of the North meeting.

Implant Dentistry:

During the first summer, residents complete a didactic seminar course entitled Implantology for the Endodontic Resident. Residents have the opportunity to place implants during the course of their program. If they choose not to place an implant, observation of a surgical case is recommended.

Private Practice Privileges:

As a general guideline, endodontic graduate students are not permitted to conduct private practice outside of university during the 26-month duration of the program. Specific financial hardship circumstances will be considered on a case-by-case basis.

*****Due to the COVID-19 pandemic, as of July 1, 2020 and until further notice, practice outside of the School of Dentistry is strictly prohibited and no accommodations will be considered.*****

Vacations, Legal Holidays, Sick Leave, and Personal Time:

The University of Minnesota School of Dentistry is closed approximately 10 days per year for university holidays as published in the university calendar. Students are allowed 10 days of vacation, sick leave, and personal time annually in addition to the university holidays. During the 26 months of the program, students are allowed a total of 20 days for vacation, sick leave, and personal time.

Part-time Faculty:

The Division of Endodontics receives tremendous support from the local endodontic community. The contributions of the part-time faculty to Division because of the diversity of their backgrounds, training and experiences are a real strength of the graduate program. Please see the link to Faculty and Graduate Student Profiles for a list of part-time faculty members.

Master of Science Degree Program

1. **Graduate School Requirements:** The Graduate School Catalog contains detailed information concerning registration, degree requirements, program and thesis registration, and other procedures and deadlines. The Director of Graduate Studies and the student's advisor can assist the student in complying with Graduate School procedures, but it is the student's responsibility to meet all Graduate School requirements and deadlines as outlined in the Catalog.
2. **Selecting an Advisor:** Students will be under the general supervision of the Director of Graduate Studies for Dentistry and the direct supervision of the Director of Graduate Endodontics for their coursework. Students should familiarize themselves as rapidly as possible with faculty members in the program through tutorials, seminars and informal contacts, so that they can choose a thesis advisor by the end of their first fall semester in residence. Students may subsequently change thesis advisors with the consent and advice of the Director of Graduate Studies of Dentistry and the Director of Graduate Endodontics. Selection of a thesis advisor is a critical issue, since the research advisor will mentor the student on his/her research project. Tutorials are available with individual faculty members for those students who wish to become familiar with faculty research to aid in selection of a thesis advisor.
3. **Waiver of Core Courses:** Demonstration of previous completion of equivalent course(s) at the University of Minnesota or elsewhere will result in waiving of Core course(s) as appropriate and within the guidelines of the graduate school.
4. **Evaluation of Student Progress:**
 - i) **Minimum GPA requirements:** To remain in good academic standing in the Endodontics program, students must maintain a **cumulative GPA of at least 3.0**. This standard is higher than the minimum specified by the Graduate School for Master's degree candidates. A student who does not obtain a GPA of 3.0 in any one semester will be placed on academic probation for the following semester and will be provided with a remediation plan. Failure to satisfactorily complete the remediation plan by the end of the semester will result in dismissal from the program. Students with a cumulative GPA of less than 3.0 for two consecutive semesters will be dismissed from the program. Only grades of A or B are acceptable in any Core course. Receipt of a lower grade in a Core course requires repeating of the course.
 - ii) **Data requirements:** Students must also satisfy Graduate School requirements for the M.S. degree, as outlined in the Graduate School Catalog

ii) **Masters Program:**

Students must complete a minimum of 30 credits in their major, including the series of courses in **endodontics**. Additional courses for credit in the major will be taken from other departments with assignment from the Director of Graduate Endodontics. Students will/must also complete a minimum of 15 semester credits in one or more related fields outside the major.

The Graduate School requires that the thesis title be submitted as part of the program registration and should be submitted no later than the end of the second semester. On completion of the research project, under the supervision of the thesis advisor, the student must write and successfully defend a thesis. The Graduate School also specifies registration for a minimum of 10 credits of Thesis Registration (DENT 8777).

Additional information regarding the Graduate School can be found at the following site:

www.grad.umn.edu

Policies and Procedures for Selection of Residents for the Graduate Endodontics Program

The Division of Endodontics generally accepts no more than four residents each year into the graduate program. Applications for the program must be submitted through the ADEA PASS application portal in time for receipt by the Division of Endodontics no later than **01 July** of the year prior to the program start date. For example, applications are due no later than 01 July 2023 for the class that will begin 01 July 2024.

The application portal can be found at: www.programpages.passweb.org/search

The following details the selection policies and procedures for acceptance into the Graduate Endodontics Program:

Eligibility

- A. Graduates from institutions in the U.S. and Canada accredited by the Commission on Dental Accreditation.
- B. Graduates of foreign dental schools who possess equivalent educational background and standing.

Academic Record – Required Items

- A. Dental school grade point average
- B. Class rank if available from your dental school
- C. National Board scores for Part 1 are required for all applicants. Part 2 is **highly recommended**, or completion of the INDBE.
- C. Advanced Dental Admissions Test (optional but **recommended**)
- D. Graduate Record Exam (optional)
- E. Undergraduate degree (grade point average and applicable courses)
- F. Additional degrees such as M.S. or Ph.D. in microbiology, biochemistry, pharmacology, etc. (if applicable)
- G. Awards and honors such as Dean's Honor List, National Scholarship Award, etc.
- H. TOEFL scores - all candidates whose primary language is not English are required to take this examination within two years of the deadline for applications the year that you apply. A minimum score of 105 is required.

NOTE:

PASS, MS, Ph.D., AEGD or GPR students in a US institution still **MUST** have a current TOEFL score if English is not your primary language and demonstrate a minimum score of 105.

Research and Scholarly Development – Supplemental Items

- A. Collaboration on a research project

- B. Authored IADR/AADR abstract and presented a paper at a scientific forum
- C. Authored or co-authored a paper in a scientific journal
- D. Previous work experience as a technician or assistant in a scientific laboratory

Clinical Experience

- A. Advanced Education Program in General Dentistry (university, Veterans Administration, military)
- B. General practice residency (university, Veterans Administration, military)
- C. Practice experience (private practice, military, Public Health)

Teaching Experience

- A. Teaching experience such as part-time clinical faculty at a dental school

Letters of Recommendation – Required Items

Three letters of recommendation are required as part of the application package.

NOTE: Of the above criteria, academic record and scholarly development are more heavily weighted elements. The faculty feels that these criteria are the most objective representation of a candidate's ability to handle the heavy didactic demands of the program and complete the research project including the thesis defense process.

Clinical experience is not a prerequisite, but it is highly desirable.

Invitation to Interview

After review of the application packages by the Division's faculty members, approximately 14 - 16 people will be selected for invitation to interview.

An interview is required for selection into our program. Therefore, receiving an invitation to interview is a critical step in our process.

The applicants selected for an interview will receive an email invitation from the Program Director.

The applicants who are not selected for an interview will receive an email notification from the Program Director that they were not selected.

The Interview Process

Depending on the year and obligations of the Division, interviews are usually conducted on two separate days. An applicant will be invited for one specific day for the interview. If the applicant has a conflict and a spot is available on the alternate day, the Program Director may offer the applicant the option of interview on the alternate day.

Factors such as poise, sincerity, ability to relate to and work with others, responsiveness to questions, as well as the applicant's knowledge about endodontics will be considered during the interview.

Selection of Residents

After the interviews are completed, the Program Director collects input from all of the interviewers. The Division's faculty members convene and make the final decisions for acceptance. The four applicants who are selected for residency positions will be notified by the Program Director by telephone. Additionally, two alternates are chosen by the group of interviewers.

Applicants who are not selected for a position will be notified by the Program Director.

The selectees are mailed a letter of intent that they will accept the position. Once the signed letter of intent and a deposit of \$2,000 is returned to the Division of Endodontics, the position is considered filled.

NOTE: The required deposit is credited to the resident's first fall tuition.

The alternates are notified immediately when no positions are available.

Application Process Point of Contact

Mr. Sam Cacciatore
Executive Administrative Specialist, Division of Endodontics
Phone: 612-624-9900
Email: cacci015@umn.edu

It is the applicant's responsibility to confirm that the Division of Endodontics has received all application materials prior to the deadline of 01 July 2023.

Incomplete applications will not be considered for interview.

Financial Aid and Housing

Graduate student stipends are available to a qualified graduate student, which also makes them eligible for resident tuition rates. Financial aid is available to qualifying resident students. Financial aid is not available for international students who have not studied in the United States for at least two years previously.

International students inquiring about available housing, etc. should contact:

International Student & Scholar Services
University of Minnesota
190 Hubert Humphrey Center
Minneapolis, Minnesota 55455, USA
Telephone: (612) 626-7110. iss@umn.edu

Tuition and Fees for Grad School 2020 - 21

The estimated tuition and fees for 2020 - 21 after adjustments for each of three semesters (fall, spring and summer) are approximately:

1st year: \$20,698

2nd year: \$22,186

These figures are subject to change.

Currently, there is a resident stipend of \$5,026 per year. This is also subject to change and is determined each year.

There is no life insurance or disability coverage. Single health insurance is available at the student's expense. Dependent coverage is also available.

Tuition and Fees

http://www.onestop.umn.edu/onestop/Tuition_Billing/Tuition_Rates.html

Tuition rates Graduate School

http://www.onestop.umn.edu/onestop/Tuition_Billing/Tuition_Rates/Graduate_School_Tuition_Rates.html

**University of Minnesota
School of Dentistry
Advanced Program in Endodontics**

REQUIRED COURSES

First Summer Semester	Course Number	Credit
Endodontic Orientation	ENDO 5300	2
Head and Neck Anatomy	ANAT 7999	3
Advanced Clinical Endodontics	ENDO 5304	2

First Fall Semester	Course Number	Credit
Conscious Sedation	DENT 7102	2
Research Methods	OBIO 5001	2
Biostatistics I (online)	PUBH 6414	3
Adv. Study Theory/Prin Oral Med	DENT 7051	1
Literature Review	ENDO 8310	2
Clinical Seminar	ENDO 5329	1
Advanced Endodontic Lecture (Topics)	ENDO 8320	1
Advanced Clinical Endodontics	ENDO 5305	1

First Spring Semester	Course Number	Credit
Prin. Mgmt. HS Organization (online)	PUBH 6751	2
Teaching and Education	GRAD 8200	1
Literature Review	ENDO 8311	2
Clinical Seminar	ENDO 5330	1
Advanced Endo Lecture (Topics)	ENDO 8321	1
Advanced Clinical Endodontics	ENDO 5306	1
Advanced Endodontic Emergency	ENDO 5313	1

Second Summer Semester	Course Number	Credit
Thesis Credit: Masters	DENT 8777	3
Advanced Clinical Endodontics	ENDO 5307	2
Advanced Endodontic Emergency	ENDO 5314	1

Second Fall Semester	Course Number	Credit
Thesis Credit: Masters	DENT 8777	6
Literature Review	ENDO 8312	2
Clinical Seminar	ENDO 5331	1
Advanced Endo Lecture (Topics)	ENDO 8322	1
Advanced Clinical Endodontics	ENDO 5308	1
Research in Endodontics	ENDO 8004	2
Grad Oral & MF Pathology	DENT 7062	1

Second Spring Semester	Course Number	Credit
Thesis Credit: Masters	DENT 8777	4
Advanced Clinical Endodontics	ENDO 5309	1
Clinical Seminar	ENDO 5332	1
Literature Review	ENDO 8313	2
Research in Endodontics	ENDO 8005	2
Adv Endo Lecture (Topics)	ENDO 8323	1
Grad Oral & MF Pathology	DENT 7062	1

Third Summer Semester	Course Number	Credit
Thesis Credit: Masters	DENT 8777	6
Advanced Clinical Endodontics	ENDO 5310	1

COURSES OFFERED EVERY OTHER YEAR COURSE NUMBER

<u>CREDIT</u>			
	Contemporary Diagnosis & Management of Orofacial Pain (next Spr 2019)	DENT 7021	3
	Oral & Max Radiology (next Spr 2020)	DENT 7052	2
	Practice Management (next Spr 2020)	DENT 7101	1



Classic Endodontic Literature Planner

Spring 2021

- 1.* Histology, Physiology & Embryology of the Pulpal Dentinal Complex
- 2.* Microbiology 1
- 3.* Microbiology 2
- 4.* Outcomes of Endodontic Therapy
- 5.* Bone Metabolism
- 6.* Trauma 1
- 7.* Trauma 2
8. Inflammation, Immunology 1
9. Inflammation, Immunology 2
10. Inflammation, Immunology 3
- 11.* Apical Pathoses
12. Oral Exam (All Residents)

Summer 2021

- 1.* Pharmacology
- 2.* Guided Endodontic Repair
- 3.*
 - a. Perforation
 - b. Resorption
- 4.* Armamentarium and Materials 1: Instruments and Core Materials
- 5.* Armamentarium and Materials 2: Sealers, Temporary Materials, Solvents, Isolation & Bioceramics
- 6.* Armamentarium and Materials 3: Irrigating Solutions, Medicaments & Chelating Agents
7. Oral Exam – (2nd Year Residents)

Fall 2021

- 1.* Morphology and Access Preparation
- 2.*
 - a. Diagnostic Procedures
 - b. Classification of Pulpal and Apical Pathosis & Treatment Planning
- 3.* Radiology
- 4.*
 - a. Management of Endodontic Emergencies
 - b. Local Anesthesia
- 5.*
 - a. Preparation 1: Hand Instrumentation Techniques
 - b. Ultrasonics
- 6.*
 - a. Preparation 2: Rotary Instrumentation Techniques
 - b. Electronic Apex Locators

- 7.* Obturation
- 8.* Surgery 1
- 9.* Surgery 2
- 10.* Retreatment
- 11. a. Cracks & Fractures
b. Apexogenesis, Apexification & Apical Barriers
- 12. a. Bleaching
b. Endo Pedo
- 13. Oral Exam (All Residents)

Spring 2022

- 1.* Histology, Physiology & Embryology of the Pulpal Dentinal Complex
- 2. a. Endodontic Periodontic Interrelationships
b. Dentinal Hypersensitivity
- 3.* Microbiology 1
- 4.* Microbiology 2
- 5.* Outcomes of Endodontic Therapy
- 6.* Bone Metabolism
- 7.* Trauma 1
- 8.* Trauma 2
- 9. Pain 1
- 10. Pain 2
- 11.* Apical Pathoses
- 12. Oral Exam (All Residents)

Summer 2022

- 1.* Pharmacology
- 2.* Guided Endodontic Repair
- 3.* a. Perforations
b. Resorption
- 4.* Armamentarium and Materials 1: Instruments and Core Materials
- 5.* Armamentarium and Materials 2: Sealers, Temporary Materials, Solvents, Isolation & Bioceramics
- 6.* Armamentarium and Materials 3: Irrigating Solutions, Medicaments & Chelating Agents
- 7. Oral Exam – (2nd Year Residents)

Fall 2022

- 1.* Morphology and Access Preparation
- 2.*
 - a. Diagnostic Procedures
 - b. Classification of Pulpal and Apical Pathosis & Treatment Planning
- 3.* Radiology
- 4.*
 - a. Management of Endodontic Emergencies
 - b. Local Anesthesia
- 5.*
 - a. Preparation 1: Hand Instrumentation Techniques
 - b. Ultrasonics
- 6.*
 - a. Preparation 2: Rotary Instrumentation Techniques
 - b. Electronic Apex Locators
- 7.* Obturation
- 8.* Surgery 1
- 9.* Surgery 2
10.
 - a. Pulpal Irritants
 - b. Vital Pulp Therapy
11. Restoration of Endodontically Treated Teeth
- 12.* Retreatment
13. Oral Exam (All Residents)

* Topics repeat annually

Resident MS Projects 2006 - 2022

Master's Thesis



2020

J Heyse

The Effect of Rotary Instrumentation on Dentin Thickness in the Danger Zone of the Maxillary 1st Molar: a CBCT Analysis.

C Lai

Factors Associated with Pain at 1 Week Following Non-Surgical Root Canal Treatment. A National Dental Practice-Based Research Network DPBRN Study.

D Weitz

Preoperative Factors Associated with Anesthesia Failure for Patients Undergoing Non-Surgical Root Canal Therapy. A National Dental Practice-Based Research Network DPBRN Study.

2019

JT Crepps

Chemical Evaluation of the Apical Extrusion of Sodium Hypochlorite Using the GentleWave System

Colby Dimond

The Effect of Blood Contamination on the Retrograde Sealing Ability of Biodentine→: A Micro-CT Analysis

Daryl Grigsby

Post-Operative Pain Following Treatment Using the Gentlewave System: a Randomized Controlled Trial

2018

Russell Bienias

CBCT Analysis of Vertucci Type III Mandibular Incisors

Katie Divine

An Anatomic Analysis of the Palatal Root of Maxillary Molars Using Micro Computed Tomography

Katie Kickertz

An In Vitro Study pH Changes with Endosequence → BC Root Repair Material Fast Set Putty in Simulated Resorptive Defects

Brandon Penaz

Effect of Endodontic Irrigation Protocols on Dentin Wettability and Tubule Penetration of Calcium Silicate Sealer

2017

Alex Brown

Effect of Placing a Glass Ionomer Restoration before Setting of Grey MTA Furcation Repair Using Micro-computed Tomography

Kristine Knoll

Dimensional Changes and Strain Analysis of Pro-Root White Mineral Trioxide Aggregate, EndoSequence Root Repair Material-Fast Set Putty, and Biodentine During Setting

Michael Regan-Anderson

Stationary Introral Tomosynthesis Imaging for Vertical Root Fracture Detection

Tyler Schuurmans

Assessing the Accuracy and Reliability of Root Crack and Fracture Detection in Teeth Using Sweep Imaging with Fourier Transform (SWIFT) Magnetic Resonance Imaging (MRI)

2016

Rhett Finley

Will Topical Application of Alendronate Disodium to Dental Roots Reduce Osteoclast Adherence and Resorption in Vitro?

Phil McKenzie

Microbial Speciation and Time Dependent Killing by Calcium Hydroxide of the Microbiological Community Found in an Immature Necrotic Tooth with Apical Periodontitis

Chris Saylor

pH Change Following Smear Layer Removal and Final Rinse with 95% Ethyl Alcohol Using Calcium Hydroxide Medicament or BC Sealer”

Amber Zedler

Dimensional Changes of ProRoot White Mineral Trioxide Aggregate, EndoSequence Root Repair Material, and Biodentine During Setting Using Digital Image Correlation

2015

Sanaz Lavasani

CBCT - Anatomic Analysis of Maxillary Molars: Impact on Endodontic Surgery

Riley Lewis

The Effect of Local Anesthesia and Analgesics in Immediate and 48 hour Post-Operative Pain management of Endodontic Origin

Cynthia Tyler

CBCT - Anatomic Analysis of Maxillary Premolars: Impact on Endodontic Surgery

Steven Wiswall

Local Anesthesia and Analgesics in Post-Operative Endodontic Pain

2014

Brian Barsness

Time Dependent Effects of Contemporary Irrigants on A Polymicrobial Biofilm

Scott Brezinsky

In Vitro Comparison of PFM Crown Retention Following Endodontic Access and Subsequent Restoration: Composite, Amalgam, Amalgam with Composite Veneer, and Fiber Post with Composite

Daphne Chiona

Cone Beam Computed Tomography-Anatomic Analysis of Mandibular Posterior Teeth: Impact on Endodontic Microsurgery

Tyler Peterson

Comparisons of the Shaping Abilities of Three Niti File Systems Using Rotational Versus Reciprocal Movements

2013

David Goerig
Glide Path Preparation of Nine Instrument Systems and Their Effect on Final Canal Area in Simulated Canals

Laura Milroy
An Apical Anatomical Investigation of the Mandibular Incisor Teeth Using Cone Beam Computed Tomography

Carolina Rodriguez
Spectrophotometric Determination of Irrigant Extrusion Using Passive Ultrasonic Irrigation, EndoActivator or Conventional Irrigation

2012

Nick Anders
Time Dependent Effects of Iodine Potassium Iodide (IKI) on a Polymicrobial Biofilm

Tom Nguy
The Effects of Taper Size on the Fracture Resistance of Root Sections

Jason Read
The Effect of Ibuprofen on Masking Endodontic Diagnosis

2011

Sara Barsness
Anatomic Investigation of the Roots of Second Mandibular Molars using Micro CT

Samantha Harris Roach
Anatomic Investigation of the Roots of Mandibular First Molars using Micro-computed Tomography

Mark Phillips
A Quantitative Titration Model For Evaluating Calcium Hydroxide Removal Techniques

Andrew Wiswall
Palatal Anesthesia: Comparisons of Four Anesthetic Techniques for Decreasing Injection Discomfort

2010

Bierma, Mark
Heat Testing Methodology Comparison

Meade, Brian
An *In Vitro* Assessment of the Setting Expansion of Gray and White Mineral Trioxide Aggregate

Wiswall, Jeff
Quantitative Digital Assessment of Periapical Healing

2009

Bogle, John
An *in vivo* Evaluation of a New Endodontic Intracanal Medicament: Pluronic Chlorhexidine.

Eggleston, Gary
Intranasal Ketorolac versus Placebo for the Control of Endodontic Pain.

Petrino, Joseph
Identification of Canal Systems and Comparison of Canal Systems in Contralateral Teeth by Cone Beam Computed Tomography

Shambarger, Sandra
The Prevalence of Furcation Canals in Molars – Before and After Simulated Periodontal Therapy

2008

Boda, Kendra
The Effect of Time on the Sealing Properties of Pre-mixed Roth's 801 Sealer: An *in vitro* Study

Maillet, Michelle
Cone Beam Computed Tomographic Evaluation of Maxillary Sinusitis of Odontogenic Origin

Richards, Jonathan
Amalgam Restorations as a Source of Possible Error During Electrical Pulp Testing

Van Nieuwenhuyzen, Duane

An *in vitro* Evaluation of the Sealing Ability of a Newer Glass Ionomer Based Root Canal System

2007

Attar, Sayeed

Evaluation of Pre-operative Liquid Ibuprofen Versus Table Ibuprofen for the Management of Post-treatment Endodontic Pain

McCarthy, Patrick

Frequency of Localization of the Painful Tooth by Patients Presenting for an Endodontic Emergency

Ryan, Jeffrey

Evaluation of Pentazocine for the Management of Postoperative Endodontic Pain: A Randomized Controlled Trial

Turner, Casey

Evaluation of Intranasal Administration of Ketorolac for the Management of Postoperative Endodontic Pain

2006

Anderson, Gerald

Efficiency and Effectiveness of Fiber Post Removal Using Three Techniques

Kinsey, Levi

Effect of the Intracanal Irrigant MTAD on Bond Strength of Resin Cements within the Canal

Matwychuk, Michael

Shaping Abilities of Two Different Engine Driven Rotary Nickel Titanium Systems and Stainless Steel Balanced Force Techniques in Mandibular Molars

Tulkki, Michael

The Antimicrobial Activity of Sodium Hypochlorite, MTAD, and Activated Bromine on a Bacterial Biofilm of *E. Faecalis*

Abstracts Published in Refereed Journals

Phillips MT. A quantitative titration model for evaluating calcium hydroxide removal techniques. *J Endod* 2012;38:e54. Abstr.

Harris S, Bowles WR, Fok A, McClanahan SB. Anatomical investigation of the roots of mandibular first molars using micro-computed tomography. *J Endod* 2012;38:e52. Abstr.

Wiswall AT, Bowles W, Wolff L, McClanahan SB. Palatal anesthesia: comparison of four techniques for decreasing injection discomfort. *J Endod* 2012;38:e48. Abstr.

Barsness SA. Anatomic investigation of the roots of second mandibular molars using micro-CT. *J Endod* 2012;38:e33. Abstr.

Rundquist B, Versulis A. Effect of canal taper on root stress. *J Endod* 2006;32:268. Abstr.

Doyle SL, Hodges JS, Pesun I, Law AS, Bowles WR. Retrospective cross-sectional comparison of initial NSRCT and single-tooth implant restorations. *J Endod* 2006;32:263. Abstr.

Maines J, Roman K, Khurana N, Knaup D, Ahmad M. Cytotoxic effects of activated bromine on cultured human fetal osteoblasts. *J Dent R* 2006. Abst #1796, 2006.

Articles Published in Refereed Journals

Brezinsky S, Bowles WR, McClanahan SB, Fok A, Ordinola-Zapata R. In vitro comparison of PFM crown retention following endodontic access and subsequent restoration: composite, amalgam, amalgam with composite veneer, and fiber post with composite. *J Endod* 2020;46:1766-1770.

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**Graduate Student
Table Clinic Competitions
2006 - 2019**



2019 – AAE 2019, Montreal, Canada

10th Place – Jeff Heyse and Dusty Weitz
Title: Predictably Managing the “Deep Split”

2018 – AAE 2018, Denver, CO

7th Place – Russell Bienias and Brandon Penaz
Title: Adjunctive Use of Dental Analogues and Orthodontic Forces in Autotransplantation

2017 – AAE 2017, New Orleans, LA

6th Place – Michael Regan Anderson and Katie Divine
Title: A Novel Treatment for Palatogingival Groove: Extraction and Replantation with Emdogain® Treatment

2015 – AAE2015, Seattle, WA

8th Place – Riley Lewis and Chris Saylor
Title: Treatment Decisions: When Prevention Is Not an Option

2014 – AAE2014, Washington, DC

9th Place – Scott Brezinsky and Sanaz Lavasani
Title: Effects of Various Gutta-Percha Solvents on Non-Latex Dental Dam Materials

2012 – AAE Annual Session, Boston, MA

4th Place - Jason Read
Title: Myofascial Pain: Case Report Involving Neuropathic Pain Clinically Demonstrating as Tinnitus

2012 – AAE Annual Session, Boston, MA (continued)

7th Place - Tom Nguy and Carolina Rodriguez

Title: Bonding of Composite to Porcelain of Crowned Teeth for Extrusion and Splinting of Traumatized Teeth: A Case Series

2011 – Star of the North Dental Meeting, St. Paul, MN

1st Place - Sara Barsness and Tom Nguy

Title: Repair of External Resorption Defects Using MTA Placed with Ultrasonic Activation: A Case Series

2011 – AAE Annual Session, San Antonio, TX

2nd Place - Sami Harris and Mark Phillips

Title: Tooth discoloration following revascularization: a case series in prevention and treatment of the "blue tooth" effect

8th Place - Andrew Wiswall and Nick Anders

Title: A Novel Approach to Irrigation of the Root Canal System During Root Endo Surgery

2010 – Star of the North Dental Meeting, St. Paul, MN

1st Place - Jeff Wiswall and Brian Meade

Title: Separated Instrument Retrieval Using Indirect Ultrasonic Energy – The Peters' Technique

2010 – AAE Annual Session, San Diego, CA

1st Place - Jeff Wiswall and Brian Meade

Title: Separated Instrument Retrieval Using Indirect Ultrasonic Energy – The Peters' Technique

2009 – Star of the North Dental Meeting, St. Paul, MN

1st Place - Joe Petrino and Sandra Shambarger

Title: Challenges of Regenerative Endodontics

2nd Place - Gary Eggleston and John Bogle

Title: Ridge Preservation Following Tooth Extraction in the Endodontic Office

2009 – AAE Annual Session, Orlando, FL

3rd Place - Gary Eggleston and John Bogle

Title: Ridge Preservation Following Tooth Extraction in the Endodontic Office

2008 – AAE Annual Session, Vancouver, BC

1st Place - Kendra Boda and Michelle Maillet

Title: Maxillary Sinus Fungal Ball – Endodontic Implications

3rd Place - Jon Richards and Duane Van Nieuwenhuyzen

Title: Osteonecrosis of the Jaw and Bisphosphonates: Endodontic Considerations

2007 – AAE Annual Session, Philadelphia, PA

6th Place - Pat McCarthy and Casey Turner

Title: Diagnosis of a Large, Progressive Maxillary Lesion: A Case Report

8th Place - Sayeed Attar and Jeff Ryan

Title: Unusual Presentation of Trigeminal Neuralgia

2006 – Star of the North Dental Meeting, St. Paul, MN

1st Place - Levi Kinsey

Title: Resilon – What is the Latest Research?