

Course title Temporomandibular pain and osteoarthritis

Department: Department of Removable Prosthodontics

Address: School of Dental Medicine, Gundulićeva 5, Zagreb

Total ECTS points 5

Course leader prof. Tomislav Badel, PhD

Course associates Ladislav Krapac PhD, prof. Vanja Bašić Kes, PhD

Teaching plan

	No. classes
Lecture	4
Seminar	11
Practical	10
Total	25

1 class = 45 minutes

Course description

Status and relevance of diagnostics and differential diagnostics of temporomandibular and other orofacial pain with nonodontogenic etiology in dental-medical and medical theory and practice.

The course is based on the fact that osteoarthritis of temporomandibular joint is one of the degenerative diseases also affecting other joints in the body. The histological specificity of articular cartilage (combination of hyaline and fibrous cartilage) as well as functional loading of the temporomandibular joint is the basis for creating a model of the initial lesion in the chondrocytes metabolism and then changes on the subchondral bone. The biochemical level of the osteoarthritic lesion is regularly related to the exposure of articular cartilage to excessive mechanical stress. Learning about these facts will give the candidates a foundation in studying the clinical picture of osteoarthritis of the temporomandibular joint. Biochemical processes are a part of the explanation of morphological changes in various stages of osteoarthritis development, which is related to the development of painful sensations and detecting of various biomarkers for a potential causal treatment of this illness. Therefore, the aim of the course is to connect clinical features with radiological signs of osteoarthritis and with cone beam computerized tomography (MSCT) as the new standard. A comparative review of dominantly inflammatory illnesses of connective tissues and joints (rheumatoid arthritis, etc.) will be given and of the more rare pathological process of synovial joint damage, including the temporomandibular joint. With respect to the revised clinical diagnostics, the specific features of the current concept of TMJ diagnostics will be explained. The knowledge acquired within this course will familiarize the candidates with the neurological and physiatric-rheumatologic view of the differentiation and selection of diagnostic methods and treatment of musculoskeletal and neuropathic pain in the stomatognathic system.

Learning outcomes

1. Select diagnostic methods in patients with temporomandibular disorder
2. Valorize musculoskeletal disorders of the human body

3. Assess and create own principles for choosing a method of temporomandibular pain treatment
4. Critically evaluate diagnostic data obtained by radiological imaging methods

Course content

Lecture

	Lecture topics	Number of classes/hours
1.	Clinical diagnostics and pathophysiological characteristics of temporomandibular pain	1
2.	Radiological diagnostics of temporomandibular joints	1
3.	Neuropathic and other differential-diagnostic painful conditions	1
4.	Rheumatological-physiatric perspective of temporomandibular disorders	1

1 sat = 45 minuta

Seminars

	Seminar topics	Number of classes/hours
1.	Biomedical approach to treatment of temporomandibular pain	2
2.	Muscle pain and bruxism	1
3.	Occlusal splints	2
4.	Styloid process syndrome, trigeminal neuropathy	2
5.	Physical therapy and its options	1
6.	Principles of pharmacotherapy	1
7.	Osteoarthritis of the temporomandibular joint	2

1 sat = 45 minuta

Practicals

	Practicals topics	Number of classes/hours
1.	Dealing with temporomandibular disorders in clinical practice	1
2.	Diagnostics of temporomandibular joints by magnetic resonance imaging	2
3.	Carrying out physical therapy	1
4.	Performing a clinical examination of a dental patient	1
5.	Check-ups during a long-term patient follow-up	1
6.	Learning about cause and effect from previous clinical practice	1
7.	Neurology clinic and causes of orofacial pain	1
8.	Physiatric-rheumatological examination of a patient	2

1 class = 45 minutes

Literature

1. Badel T, Savić Pavičin I, Zadavec D, Krapac L, Kern J. Osteoarthritic temporomandibular joint changes confirmed by magnetic resonance imaging. *Reumatizam*. 2012;59:15-21.
2. Greene CS, Laskin DM. (eds.): *Treatment of TMDs: Bridging the Gap Between Advances in Research and Clinical Patient Management*. Chicago: Quintessence, 2013.
3. Badel T, Kocijan Lovko, S, Zadavec, D. Anxiety and Temporomandibular disorders: a Relationship in Chronic Pain Development. In: Shiloh AR (ed): *Anxiety disorders – Risk Factors, Genetic Determinants and Cognitive-Behavioral Disorders*. New York: Nova Science Publishers, 2014. p.93-123.
4. Miles DA. *Atlas of Cone Beam Imaging for Dental Application*. Chicago: Quintessence, 2013.
5. Badel T, Zadavec D, Bašić Kes V, Smoljan M, Kocijan Lovko S, Zavoreo I, Krapac L, Anić Milošević S. Orofacial pain – diagnostic and therapeutic challenges. *Acta Clin Croat*. 2019;58(Suppl.1):82-89.

CV (*curriculum vitae*) and bibliography of course leader

Tomislav Badel was born on September 24, 1971 in Zagreb where he finished the secondary school for dental technicians. He graduated in Dental Medicine at the School of Dental Medicine, University of Zagreb in 1995 where, the same year, he became a junior researcher at the Department of Removable Prosthodontics, School of Dental Medicine, University of Zagreb. He started postgraduate studies at the School of Dental Medicine in the same year. In 2000, he received a Master's degree with the thesis on "Frequency of soft tissue changes on temporomandibular joints in younger male population". He obtained his PhD degree in 2004 at the School of Dental Medicine, University of Zagreb, with the thesis on "The analysis of temporomandibular joint disc displacement using the magnetic resonance imaging". The same year he became a Specialist of Prosthetic Dentistry. He has held a scientific-teaching position since 2008 as an Assistant Professor. In 2019. he became a Full Professor. He participates in teaching at the integrated undergraduate and graduate study program at the courses of Preclinical & Laboratory Removable Prosthodontics, Clinical Removable Prosthodontics, Occlusion, and Temporomandibular disorders: diagnostics & treatment. He created and leads two postgraduate courses: *Temporomandibular pain and osteoarthritis*, held within doctoral study program and *Treatment methods of temporomandibular disorders* held with the specialist study program. He is a reviewer in several foreign and Croatian scientific journals. He is also a member of the Croatian Society of Prosthetic Dentistry and Croatian Society of Local Anesthesia & Analgesia.

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