

**Department of Oral Rehabilitation**  
**Division of Occlusion and Removable Prosthodontics**

**Outline**

The specialty of occlusion and removable prosthodontics is concerned with the study of the effects of stomatognathic function on the recovery and maintenance of general physical function. We perform translational research based on morphological, immunohistological, physiological and epidemiological approaches in the field of geriatric dentistry and sports dentistry. Our research area also covers diagnostic prosthodontics, esthetic dentistry, biomaterials, bioengineering, and prosthodontic treatment for xerostomia. Our ongoing research projects are shown below.

**Faculty members**

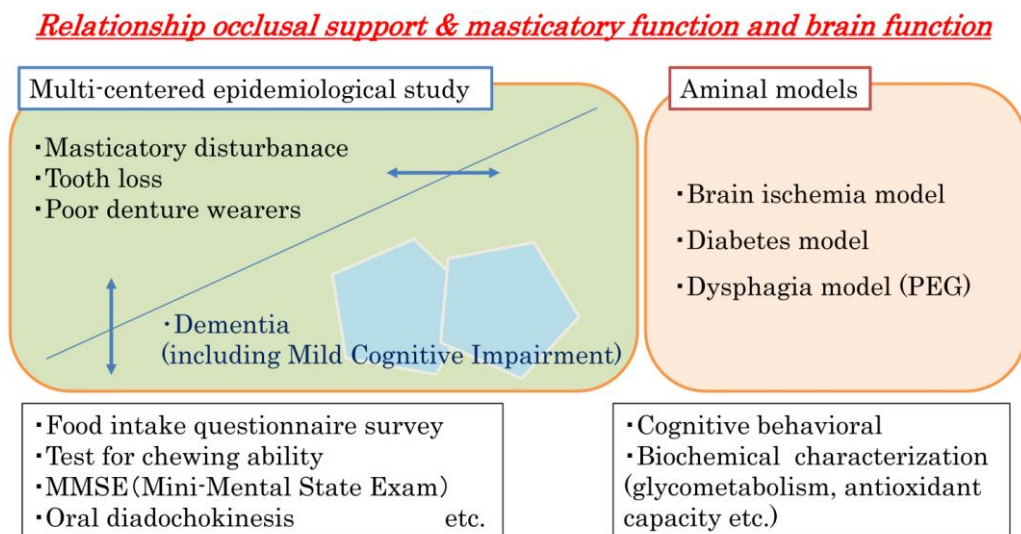
Professor;	Hisashi Koshino D.D.S., Ph.D.
Associate professor ;	Yoshifumi Toyoshita D.D.S., Ph.D.
Assistant professor/full-time lecturer ;	Katsuya Kawanishi D.D.S., Ph.D.
Assistant professor/research associate ;	Mizuho Sasaki D.D.S., Ph.D.
	Yuuki Kan D.D.S., Ph.D.
	Yosuke Takeda D.D.S., Ph.D.
Clinical instructor;	Satoshi Kimura D.D.S.
	Kaaya Sato D.D.S.



**Hisashi Koshino**

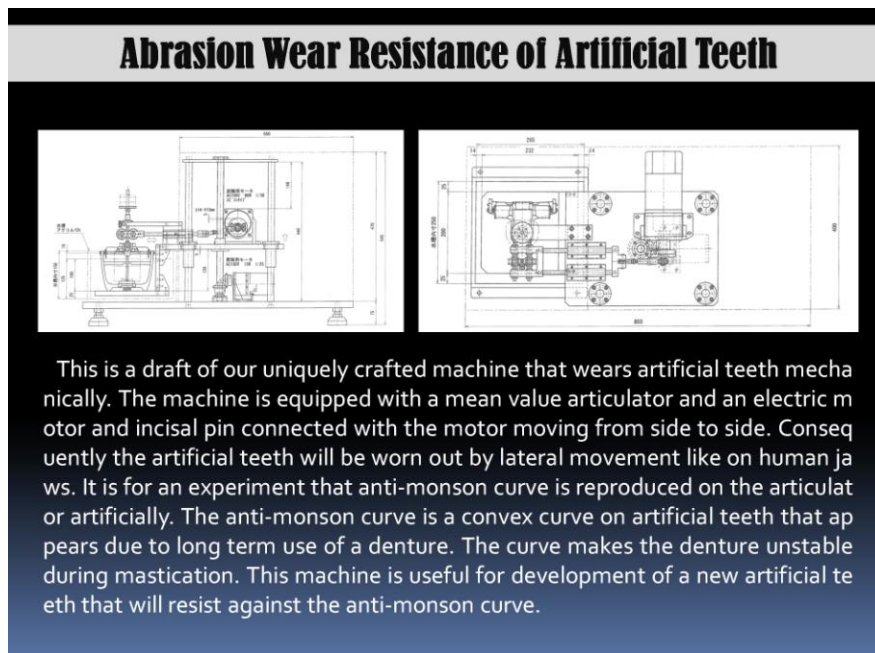
**Main research in progress**

- 1) Relationship masticatory function and whole body
  - i) Multi-centered epidemiological study on the outcome of the prosthodontic treatment
  - ii) Mastication accelerates rehabilitation of brain function after cerebral infarction
  - iii) Control or prevention of diabetes by mastication



Prosthodontic treatment contributes to the oral health care and rehabilitation for disorder such as Dementia, Diabetes and Cerebrovascular Disorder in elderly. ?

## 2) Abrasion wear resistance of artificial teeth



## 3) Effect of dental pulp stem cell therapy for cerebral ischemia

### Current publications

- \* Kawanishi et al. Usefulness of the newly developed artificial denture plaque for practical denture care training. *Clinical and Experimental Dental Research* <https://doi.org/10.1002/cre2.270>, 2020
- \* Koshino et al. Observation of the dental support in case of large-scale disaster. *Journal of Japanese Society of the General Dentistry*. 11:8-15, 2019
- \* Kawanishi et al. The relationship between formative and overall evaluation in the self-assessments of students through prosthodontics practical training of partial dentures. *Dent J Health Sci Univ Hokkaido* 36:17-26, 2017
- \* Kan et al. The effect of mastication by food form on the secretion of GLP-1 in mice. *Journal of Japanese Society for Masticatory Science and Health Promotion* 27:72-79, 2017
- \* Toyoshita et al. Relationship between masticatory function and mild cognitive impairment in elderly people wearing removable dentures. *Dental, Oral and Craniofacial Research* 7:1-3, 2017
- \* Kono et al. NaOCl-mediated biofunctionalization enhances bone-titanium integration. *Dent Mater J* 34:537-44, 2015.
- \* Sasaki et al. Effectiveness of mastication for recovery from higher brain dysfunction in rat models of cerebral infarction. *J Masticat & Health Soc* 24:50-58, 2014.
- \* Watanabe et al. Upregulation of cholesterol synthesis via BDNF by mastication. *Ann Jpn Prosthodont Soc* 6:167-174, 2014.
- \* Suzuki et al. Alteration of masticatory function by diet change induces stress responses in wistar rats. *In Vivo* 27:611-616, 2013.
- \* Aita et al. Application of UV light-induced biofunctionalization to titanium implant surface. *Bull Kanagawa Dent Coll* 39:37-39, 2011.
- \* Kawanishi et al. Effect of mastication on functional recoveries after permanent middle cerebral artery occlusion in rats. *J Stroke Cerebrovasc Dis* 19:398-403, 2010.
- \* Aita et al. The effect of ultraviolet functionalization of titanium on integration with bone. *Biomaterials* 30:1015-25, 2009.
- \* Toyoshita et al. Effect of wearing a palatal plate on swallowing function. *Prosthodont Res Pract* 17:12-18, 2008.