ANNUAL PUBLICATIONS

1st Department of Dental Technology

1993.1.-2000.3.

I. Staffs and Students (April, 1999)

Professor	F Nishimura
Associate Professor	H Takahashi
Research Associate	H Nakamura
	K Motomura
Research Assistant	N Iwasaki
Secretary	H Nakano
Graduate student	T Ohtani
	F Nakano
	T Inoue
	S Farhad
Special student	K Babasono

II. Educational Outline of Graduate Course

The main program of dental materials science and technology of the graduate course is composed of the lecture and laboratory experiments for understanding physical and chemical properties of new materials and technology for dental use. Recent researches of our department will be also introduced in the program. The program outline is as follows; standard tests for dental materials, basically chemical and physical analysis for dental materials, dental precise casting (especially, quick-heating method and titanium casting), mechanical properties of dentin, and fatigue properties of dental materials.

III. Research Subjects

1) Investigation of effective factors on mechanical properties of dentin
2) Evaluation on fatigue strengths of dentin and various dental restorative materials
3) Reduction of time for casting procedure and development of gypsum-bonded investment for high-fusion casting
4) Evaluation of present status of dental ceramics and establishment for evaluation on dental ceramics
5) Observation of deformation at small area using non-contact measurement

IV. Publications (January, 1993-March, 2000)

A. Original Articles

1) Watari F. and Nakamura H. : Solid solution hardening by interstitial alloying atoms in titanium under heat treatment for dentistry. J J Dent Mater, 12(1), 84-92, 1993 (in Japanese)
2) Takahashi H. : Mechanical properties of functionally gradient materials of titanium-apatite and titanium-zirconia for dental use. J J Dent Mater, 12(5), 595-612, 1993 (in Japanese)
3) Takahashi H., Nakamura H., Iwasaki N., Habu N., Ishiwata M. and Nishimura F. : Properties of comercial gypsum-bonded dental investments for quick heating. J J Dent Mater, 12, 714-723,1993(in Japanese)
4) Takahashi H. and Finger W.J. : The effects of the setting stage of double mix addition curing silicone impressions.J Prosthet Dent, 72(1), 78-84, 1994
5) Takahashi H., Miyazaki T. and Kawawa T. : Accuracy of titanium cast crowns obtained from calcia base mold. Clinical Materials, 16(3), 155-160,1994
6) Takahashi H., Nakamura H., Iwasaki N., Morita N., Habu N. and Nishimura F. : Variables effecting casting accuracy of quick heating investmens. J Stomatol Soc Jpn, 61(2), 242-249, 1994 (in Japanese)
7) Morita N., Takahashi H., Nakamura H., Motomura K., Iwasaki N. and Nishimura F. : Effect of additonal cathode on the electrolytic-polishing of titanium specimens with non-aqueous electrolyte. J Stomatol Soc Jpn, 62(3), 410- 415,1995 (in Japanese)
8) Hayashi Y., Kurita K., Yasue T., Tsutihira K., Yahagi M., Ishiwata M., Nagao M., Iwasaki N., Morita N., Takahashi H. and Nishimura F. : Studies on surface roughness of stone model. Part 1 Effect of vibration at gypsum pouring to alginate impression. Nihon Shikagikikoh Gakkai Zasshi, 16(1), 30-34,1995 (in Japanese)
9) Habu N., Takahashi H., Yan M., Motomura K., Nakamura H. and Nishimura F. : Properties of phosphate-bonded investment

for quick heating. J J Dent Mater, 14(6)：681-690,1995 (in Japanese)
10) Yamamoto M. and Takahashi H. : Tensile fatigue strength of light cure composite resins for posterior teeth. Dent Mater J, 14(2), 175-184,1995
11) Takahashi H., Nakamura H., Motomura K., Habu N., Yan M. and Nishimura F.：Castings obtained from gypsum-bonded investments for quick heating method. J J Dent Mater, 15(3), 202-209,1996 (in Japanese)
12) Tonami K. and Takahashi H.：Effects of frozen storage and boiling on tensile strength of bovine dentin. Dent Mater J, 15(2), 205 - 211,1996
13) Nakamura H., Takahashi H. and Nishimura F. : Fatigue strength of dental silver alloy castings - effects of specimen design and applied stress -. J J Dent Mater, 15（5）, 428-436,1996 (in Japanese)
14) Nakamura H. : Effects of heat treatment on fatigue strength of cast gold-silver-palladium alloy. J J Dent Mater, 16(2), 141-154, 1997 (in Japanese)
15) Tonami K. : Effect of aging on tensile strength of bovine dentin. J J Dent Mater, 16(3), 187-196, 1997 (in Japanese)
16) Tonami K. and Takahashi H.：Effects of aging on tensile fatigue strength of bovine dentin. Dent Mater J, 16(2), 156-169, 1997
17) Yan M., Takahashi H., Nishimura F., Habu N., Nakamura H. and Motomura K. : Comparison of properties of phoshate-bonded investments for quick heating. J J Dent Mater, 16(5), 405-414,1997 (in Japanese)
18) Takahashi H., Tonami K., Motomura K., Nakamura H., Nakano H., Meiana S. and Nishimura F.：Dental students' understanding of titanium. J Med Dent Sci, 44,99-104,1997
19) Yan M. and Takahashi H.：Study on gypsum-bonded Al_2O_3-MgO investment for high-fusion casting. Dent Mater J, 17(3), 174-185, 1998
20) Yan M. and Takahashi H.：Effects of magnesia and potassium sulfate on gypsum-bonded alumina dental investment for high-fusing casting. Dent Mater J, 17(4), 301-313, 1998
21) Meiana S. and Takahashi H.：Fatigue strength of dental gallium alloys after twelve months immersion in artificial saliva. Dent Mater J, 17(4), 239-252, 1998
22) Mine T. Motomura K. and Takahashi H.：Bonding strength between universal alloy and dental porcelain. J Jpn Prosthodont Soc, 42(3), 510-519,1998 (in Japanese)
23) Tonami K., Ohtani T., Iwasaki N., Motomura K., Nakamura H. Takahashi H. and Nishimura F.: Mechnical properties of titanium casting obtained using short-time cast procedure. J Stomatol Soc Jpn, 65(3), 344-348, 1998 (in Japanese)
24) Shiozawa I., Sato T., Kuriyama M., Ohtake T., Hamano H., Ogura N., Hasegawa S., Tonami K., Takahashi H., and Nishimura F.: A study on bonding characteristics of low fusing porcelain to different dental alloys -Bond strength measured by three-point bending test. J Jpn Prosthodont Soc, 42(5), 876-874, 1998 (in Japanese)
25) Miyashin M., Ebashi M., Takagi Y., Ohno H., Iwasaki N., Takahashi H. and Nishimura F.: Experimental study in the fracture of endodontically treated immature permanent teeth -The effects of resin composites and dentin bondins agents being used for restorations of the access cavities-. Jpn J Ped Dent, 36(5), 777-789, 1998 (in Japanese)
26) Habu N. : Study of reduction of dental casting time using quick heating gypsum-bonded investment mixed with accelerator solution. J J Dent Mater, 17(1), 76-88, 1998 (in Japanese)
27) Nakano F. : Effect of intracanal medicaments on mechanical properties of bovine dentin. J J Dent Mater, 18(2), 128-136, 1999 (in Japanese)
28) Nakano F., Takahashi H. and Nishimura F. : Reinforced mechanism of intracanal medicaments on bovine dentin. Dent Mater J, 18(3), 304-313, 1999
29) Takahashi H., Nakano F., Tonami K., Nakazato T., Kurosaki N., Kitasaki H., Babasono K. and Nishimura F. : Effect of test methods on flexural properties of dental restorative materials. J J Dent Mater, 18(5), 395-400, 1999 (in Japanese)
30) Nakazato T., Takahashi H., Yamamoto M., Nishimura F., and Kurosaki N. Effect of polishing on the fatigue strength of CAD/CAM ceramics. Dent Mater J, 18(4), 395-402, 1999
31) Mogami S., Nakazato T., Tomani K., Simizu T., Kurosaki N., Takahashi H. and Nishimura F. : Shear bond strengths of CAD/CAM composite resin block with resin cement. Japan J Conserv Dent, 42(5), 1028-1033, 1999 (in Japanese)
32) Takahashi H., Nakamura H., Habu N., Ohtani T., Iwasaki N., Yahagi M., and Nishimura F. : Properties of gypsum-bonded investment for quick heating of 20-minute type. J J Dent Mater, 19(1), 77-83, 2000 (in Japanese)
33) Ohtani T. : Short time procedure of dental casting with high-frequency induction heating with soft iron wire. J J Dent Mater, 19(1), 115-123, 2000 (in Japanese)

B. Books

1）Nishimura F. and Takahashi H.: Restorative materials. Current dental materials science, Hasegawa J., Hirasawa T. and

Takahashi S. eds., Ishiyaku, 71-79, 1997 (in Japanese)
2）Nishimura F., Nakamura H., Tonami K., Meiana S., Takahashi H. Chou H., Yamamoto M., Shimizu C., and Kurosaki N.: The dental treatment of the 21st century. Dental Olympia '95 (Special issue of Dental Outlook) Ishiyaku, 273, 1997 (in Japanese)
3）Takahashi H. Habu N., Yan M., Iwasaki N., Motomura K. and Nishimura F.: Propreties of casting obtaind using investments for quick-heating. Dental Olympia '95 (Special issue of Dental Outlook) Ishiyaku, 318, 1997 (in Japanese)
4）Nishimura F.: Gallium alloy, Precious alloy. The safety of the side effect of the dentistry materials, Sato A. eds., Gakken, 64-67 86-90, 1997(in Japanese)
5）Takahashi H. and Nakamura H.: Technical note for quick heating investment. QDT Year Book '98, Quitessence, 122-125, 1998 (in Japanese)
6）Takahashi H.: Dentin propreties and restoration after endodontically treatment. New endodontically treatment, Dental Diamond, 114-119, 1999 (in Japanese)

C. Review Articles

1）Takahashi H., Nakamura H. and Nishimura F.: Properties of dental resin for denture. Shika Iryoh , 799 , 110,1993 (in Japanese)
2）Kojima Y., Yoshino S. and Takahashi H.: Shade-taking for tooth-couloured restoration. Dental Outlook, 81, 440-441, 1993 (in Japanese)
3）Nishimura F., Takahashi H., Nakamura H. and Iwasaki N. : Properties of gypsum-bonded investment for quick heating. GC Circle, 70, 16-21, 1993 (in Japanese)
4）Yamagami Y., Kobayashi M. and Takahashi H.: Prognoses of fixed prothodontics. Dental Outlook, 81, 964-965, 1993 (in Japanese)
5）Takahashi H. and Nishimura F.: Properties and obtained castings of gypsum-bonded investments for quick-heating method. J Stomatol Soc Jpn, 61(1), 162,1994 (in Japanese)
6）Nishimura F. : Scientific discussion about adhesion and luting,-from the basic standpoint-. J Jpn Dent Assoc, 47(12), 13-20, 1995 (in Japanese)
7）Nishimura F. : A test of commercially available posts. Dental Engineering, 112, 23-32, 1995 (in Japanese)
8）Nishimura F., Takahashi H. and Morita N. : A test of commercially available posts. Dental Engineering, 112, 23-32, 1995 (in Japanese)
9）Nishimura F. : Chemical analysis of corrosion mechanisum. Dental Aspect, 9(2), 5-13,1995(in Japanese)
10) Takahashi H. and Nishimura F. : Scientific discussion about adhesion and luting,－from the basic standpoint－. J Jpn Dent Assoc, 47(12), 1295-1302,1995 (in Japanese)
11) Nishimura F.: Meanings of "dental devices" in the Japanese Society for Dental Materials and Devices, J Jpn Dent Assoc, 48(4), 51, 1995 (in Japanese)
12) Takahashi H., Habu N., Yan M. and Nishimura F.：Properties of phosphate-bonded investment for quick heating. Dental Engineering, 119, 39-40,1996, (in Japanese)
13) Takahashi H., Morita N. and Nishimura F.：Electrolytic-polishing of titanium specimens with non-aqueous electrolyteJ Stomatol Soc Jpn, 63(１) 247, 1996 (in Japanese)
14) Takahashi H., Habu N. and Nishimura F. : Propreties of gypsum-bonded investments for the quick-heating methods and characteristics of casting obtained from these investments. QDT, 21(7), 17 , 25,1996 (in Japanese)
15) Nishimura F.: An impression of simposium of the 94th conference of the Japan Prosthodontic Society －Functional loss of prosthothosis－, J Jpn Dent Assoc, 48(11), 53, 1996 (in Japanese)
16) Nishimura F. : Multi-purpose precious gold alloy. J Jpn Dent Assoc, 1996 (in Japanese)
17) Nishimura F. : An endurance of dental materials evaluated by fatigue strength. Dental Engineering, 121, 5-8, 1997 (in Japanese)
18) Nishimura F.: Scientific discussion about gold. J Jpn Dent Assoc, 50(6), 21-31, 1997 (in Japanese)
19) Nishimura F. : A recent tendency of dental societies surround titanium, J Jpn Dent Assoc, 49(10),66, 1997 (in Japanese)
20) Takahashi H., Motomura K., Tonami K., Nakamura H. Iwasaki N. and Nishimura F : Gold-colour alloy for porcelain fusing. Dental Engineering, 124, 19-24, 1998 (in Japanese)
21) Takahashi H. and Nishimura F. : Storage and degenation of dental materials. Dental Engineering, 125, 21-24, 1998 (in Japanese)
22) Takahashi H., Habu N., Nakamura H., Nishimura F. and Ishiwata M : Approach for shorter casting procedure time using quick-heating investment mixed with accelarator solution. The Journal of Dental Technology, 26(10), 1223-1232, 1998 (in Japanese)
23) Nishimura F. : Durability of tooth root and post, The Nippon Dental Review,667,88-94,1998
24) Hayakawa I. and Nishimura F.: Denture adhesives and home-reliners. Quintessence, 18(9),151-159,1999
25) Nishimura F. : Some root dentin properties related to a post-core restoration. Jpn Soc Adhes Dent, 17(2),134-138, 1999

26) Takahashi H., Motomura K. and Nishimura F. : Expiration periods of dental materials -9. Denture liners-. Dental Engineering, 128, 22-25, 1999 (in Japanese)
27) Takahashi H., Nakano F. and Nishimura F. : Denture adhesive. Dental Engineering, 129, 13-16,1999 (in Japanese)
28) Shinya A., Miyazaki T., Nishina T., Oda Y., Satioh S., Tagami J., Nishiyama N. and Takahashi H. : Teeth cleaner of injection type. Dental Engineering, 131, 21-26, 1999 (in Japanese)
29) Motomura K.: Monthly Report How does a study of Dental Materials and Technology progress? -from "meeting of the 33th Japanese Society for Dental Materials and Devices", The Journal of Dental Technology, 27(8),1008-1011, 1999 (in Japanese)
30) Takahashi H., Nakamura H., Habu N., Iwasaki N., Nishimura F. and Motomura K.: Propreties of 20-minute type gypsum-bonded investments for quick heating. The Journal of Dental Technology, 28(3), 353-363, 2000 (in Japanese)
31) Nishimura F.: A temperament of dentist requested in the 21st century -communication skill-, J Jpn Dent Assoc, 52(10), 52-53, 2000 (in Japanese)