The Elderly mouth
- dry mouth -

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Since 1914

Kyushu Dental College
Special Needs and Geriatric Dentistry

Our university is located at Kitakyushu city of Fukuoka prefecture in Japan, and is only one public dental school in Japan.
Today’s Contents
Dry mouth of the Elderly

• ”Senior Tsunami” and Dentist in Japan

• Dry mouth and Oral condition

• Diagnosis of Dry mouth of the Elderly

• Treatment and Care of Dry mouth
The Aging rate of Japan is the highest in the world.
General disease of medically-compromised elderly in Japan

- Hypertension: 22%
- Cerebro-vascular disease: 12%
- Heart disease: 10%
- Diabetes: 18%
- Unknown: 18%
- Et.al.: 18%

Aging Demographics: The "Senior Tsunami"

- Almost 1 out of every 4 Japanese is 65 or older.
- There are about 30 million elderly persons.
- Most elderly persons have chronic health condition.
- Almost 16% of the elderly persons are disabled (About 5 million disabled elderly).
About 16% of the Elderly are Disabled Elderly in Japan
About 2500 New Dentist / year

29 Dental Schools
- National 11
- Public 1
- Private 17

About 90,000 dentist in Japan
Elderly Persons and Dentist in Japan

- Population (2010): 127 millions
- Aging Rate (2012): 24% (over 65 yrs.)
- Elderly (Over 65 yrs.): 30 millions
  (Number of Elderly persons)
- Disabled Elderly: about 5 millions
  (Independent Elderly persons) 16% of Elderly.
- Dentists (in Japan): about 90 thousands

\[
\text{Disabled Elderly} \div \text{Dentists} = 55 \text{ pt.} \div \text{Dentist}
\]
JSDH (Japanese Society for Disabled and Oral Health) has systems of certified dentist and dental hygienist. There are about 900 certified dentists and 300 certified dental hygienists in Japan.
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• Diagnosis of Dry mouth of the Elderly

• Treatment and Care of Dry mouth
Dry mouth are common in older populations
Dry mouth in Japan

<table>
<thead>
<tr>
<th>Age (n)</th>
<th>Dry (%)</th>
<th>Sometimes/ Mild (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total (1418)</td>
<td>16.6</td>
<td>26.3</td>
</tr>
<tr>
<td>65–99 (499)</td>
<td>27.6</td>
<td>28.5</td>
</tr>
<tr>
<td>40–65 (533)</td>
<td>13.3</td>
<td>23.1</td>
</tr>
<tr>
<td>20–40 (329)</td>
<td>7.9</td>
<td>24.7</td>
</tr>
<tr>
<td>10–20 (72)</td>
<td>4.2</td>
<td>37.5</td>
</tr>
</tbody>
</table>
高齢者と口腔乾燥感
Sense of Oral Dryness in The Elderly

年齢 | Non | Mild | Always Feel |
--- | --- | --- | --- |
95-100(12) | 8.3 | | |
90-94(42) | | 19.0 | |
85-89(84) | | 23.8 | |
80-84(106) | | | 35.8 |
75-79(121) | | | 33.1 |
70-74(59) | | | 35.6 |
65-69(40) | | | 37.5 |

Non | Mild | Always Dry
Salivary function remains remarkably intact in healthy older people, yet many systemic diseases (such as Sjogren’s syndrome), medication and head and neck radiotherapy (such as for cancer) cause dry mouth particularly in elderly patients.
Dry mouth

The sensation of dry mouth is primarily caused by a marked decrease in salivary gland function.
“Family Medicine” (TV-Show)
Theme is “Saliva and health”

Takeshi Kitano

Yasuaki Kakinoki

Takeshi Kitano is famous movie director

2 March 2010
Side Effect of Medicines

80% of the Elderly and 93% of the Disabled Elderly take medicines daily in our studies.
Dry mouth and Oral disease

- Xerostomia, or dry mouth, is an influential factor in caries formation, periodontal disease, fungal infections, masticatory dysfunctions, and impaired dentures, as well as other oral conditions.

Buccal mucosa with Candidiasis  Tongue surface with small saliva foams
Oral findings with hyposalivation
Filiform papillae of the tongue

Wet  Mild Dry  Dry

Color of Filiform papillae is changed by dry mouth or fever
Detachment mucus film
Detachment Mucos Film

乾燥蛋白質
(Protein of saliva origin)

口腔粘膜上皮
Epithelium of mucosa

細菌成分
Bacteria

角化上皮
Cornification epithelium

松本歯科大学障害者歯科 小笠原正先生提供 by Prof.Ogasawara
Tooth Brushing After Eating

A mother had kept this instruction for 40 years
Nobody brush up his tooth for 40 years.

Because he was cerebral palsy, he was brought up with a nursing bottle only.
Oral Care is need even if patient don’t eat
Today’s Contents
Dry mouth of the Elderly

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• Dry mouth and Oral condition

• Diagnosis of Dry mouth of the Elderly

• Treatment and Care of Dry mouth
Examinations of dry mouth for Disabled Elderly

- Gum and Saxon tests are for determining the flow rate of stimulated saliva and not for oral mucosal wetness and disabled.
- Salivary output method is not useful for handicapped or other disabled people.

- Therefore, it is important to evaluate degree of oral wetness objectively for disabled or bedridden elderly.
Sensation of Oral Dryness

Does your mouth usually feel dry?

<table>
<thead>
<tr>
<th>Group</th>
<th>Answer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wet</td>
<td>non</td>
</tr>
<tr>
<td>Mild</td>
<td>slightly or sometimes</td>
</tr>
<tr>
<td>Dry</td>
<td>feel dry</td>
</tr>
</tbody>
</table>
## Sensation of Dry Mouth

<table>
<thead>
<tr>
<th>Age</th>
<th>Grade</th>
<th>Number(%)</th>
<th>Number(%)</th>
<th>Number(%)</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Wet</td>
<td>Mild dry</td>
<td>Dry</td>
<td>Total</td>
<td></td>
</tr>
<tr>
<td>20–39</td>
<td>29(61.7)</td>
<td>14(30.0)</td>
<td>4( 8.5)</td>
<td>47</td>
<td></td>
</tr>
<tr>
<td>40–64</td>
<td>62(40.5)</td>
<td>43(28.1)</td>
<td>48(31.4)</td>
<td>153</td>
<td></td>
</tr>
<tr>
<td>65–99</td>
<td>196(46.7)</td>
<td>101(24.0)</td>
<td>123(29.3)</td>
<td>420</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>287(46.3)</td>
<td>158(25.5)</td>
<td>175(28.2)</td>
<td>620</td>
<td></td>
</tr>
</tbody>
</table>
### Clinical Diagnosis Classification

<table>
<thead>
<tr>
<th>Grade</th>
<th>Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Non-dry (does not show condition 1~3)</td>
</tr>
<tr>
<td>1</td>
<td>Saliva shows viscosity</td>
</tr>
<tr>
<td>2</td>
<td>Saliva shows tiny bubbles on tongue</td>
</tr>
<tr>
<td>3</td>
<td>Dry tongue without viscosity, little or no saliva shown</td>
</tr>
</tbody>
</table>

In addition, a clinical diagnosis of dry mouth was carried out using a clinical classification scale of tongue mucosa wet condition (grade range, 0–3).
Clinical grade of dry mouth

<table>
<thead>
<tr>
<th>Age</th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>Number(%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>40(85.1)</td>
<td>4(8.5)</td>
<td>1(2.1)</td>
<td>2(4.3)</td>
<td>47</td>
</tr>
<tr>
<td>20–39</td>
<td>62(40.5)</td>
<td>46(30.3)</td>
<td>33(21.6)</td>
<td>12(7.8)</td>
<td>153</td>
</tr>
<tr>
<td>65–99</td>
<td>239(56.9)</td>
<td>82(19.5)</td>
<td>35(8.3)</td>
<td>64(15.2)</td>
<td>420</td>
</tr>
<tr>
<td>Total</td>
<td>341(44.3)</td>
<td>132(17.1)</td>
<td>69(9.0)</td>
<td>78(10.1)</td>
<td>620</td>
</tr>
</tbody>
</table>
We developed a new wetness tester made from a scale membrane filter strip, for use as a diagnostic tool to measure oral mucosal moisture.

membrane filter  1st product  Kiso-Wet
Evaluate method of the wetness

After holding the tester on the tongue dorsum vertically for ten seconds, we measured the height the moistured area using newly designed wetness tester (KISO-WeT, KISO-science Co. Ltd., Yokohama, Japan).

<table>
<thead>
<tr>
<th>Value</th>
<th>Conditions</th>
</tr>
</thead>
<tbody>
<tr>
<td>5–</td>
<td>High (Wet)</td>
</tr>
<tr>
<td>3–4.9</td>
<td>Normal (Wet)</td>
</tr>
<tr>
<td>1–2.9</td>
<td>Low (Mild Dry)</td>
</tr>
<tr>
<td>0–0.9</td>
<td>Dry</td>
</tr>
</tbody>
</table>

(mm)
New Wetness Tester we developed
### Dry mouth sensation and Wetness Tester

(Elderly only)

<table>
<thead>
<tr>
<th>Group</th>
<th>(No)</th>
<th>Mean ± SEM (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wet</td>
<td>(196)</td>
<td>3.59 ± 0.23</td>
</tr>
<tr>
<td>Mild Dry</td>
<td>(104)</td>
<td>2.58 ± 0.25</td>
</tr>
<tr>
<td>Dry</td>
<td>(138)</td>
<td>1.61 ± 0.15</td>
</tr>
<tr>
<td>Total</td>
<td>(438)</td>
<td>2.76 ± 0.14</td>
</tr>
</tbody>
</table>

**positive relationship (p<0.01)**
The Relationship between the Sense of dry mouth and Tester results

<table>
<thead>
<tr>
<th>Condition</th>
<th>Mean±SEM (mm)</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wet</td>
<td>3.6 ± 0.2</td>
<td>&lt;0.01</td>
</tr>
<tr>
<td>Mild Dry</td>
<td>2.5 ± 0.3</td>
<td></td>
</tr>
<tr>
<td>Dry</td>
<td>1.5 ± 0.1</td>
<td></td>
</tr>
</tbody>
</table>

*P<0.01 (Spearman’s rank correlation test)
Clinical Diagnosis and Wetness Tester
(Elderly only)

<table>
<thead>
<tr>
<th>Grade</th>
<th>(No )</th>
<th>Mean ± SEM (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0:</td>
<td>(217)</td>
<td>3.84 ± 0.20</td>
</tr>
<tr>
<td>1:</td>
<td>(  75)</td>
<td>1.94 ± 0.22</td>
</tr>
<tr>
<td>2:</td>
<td>(  34)</td>
<td>1.72 ± 0.37</td>
</tr>
<tr>
<td>3:</td>
<td>(  62)</td>
<td>0.77 ± 0.20</td>
</tr>
<tr>
<td>Total</td>
<td>(438)</td>
<td>2.76 ± 0.14</td>
</tr>
</tbody>
</table>

**positive relationship ( p<0.01)**
Fig.4. The Relationship between Clinical diagnosis and Wetness of oral mucosa

Mean±SEM (mm)

*P<0.01 (Spearman’s rank correlation test)
Relationship Between Wetness of Tongue Dorsum and Swallowing Disorder
Wetness and Swallowing Disorder

- Normal (133)
  - Wetness of Dorsum (mm): 2.54 ± 2.2 mm
- Mild Disorder (15)
  - Wetness of Dorsum (mm): 1.64 ± 1.5 mm
- Swallowing Disorder (23)
  - Wetness of Dorsum (mm): 1.29 ± 1.9 mm

P < 0.001 (Spearman's rank correlation test)
The group (0〜1mm) have more swallowing disorders significantly in comparison with the group (over 3mm) (**p<0.001).
Relationship Between Dry mouth and Body Mass Index
Dorsum moisture and BMI

(Mean ± SEM)

- 20.0±0.39 (n=80)
- 20.8±0.41 (n=92)
- 21.3±0.42 (n=51)
- 21.0±0.27 (n=163)

*P=0.049
*P=0.043

* Mann–Whitney’s U-test
Sensation of Dryness and BMI

<table>
<thead>
<tr>
<th>BMI</th>
<th>Non</th>
<th>Moderate</th>
<th>Dry</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>19</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>19.5</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>20</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>20.5</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>21</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>21.5</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>22</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

(Mean ± SEM)

20.7 ± 0.30  21.1 ± 0.33  20.8 ± 0.30

n=189     n=98     n=128

NS (p > 0.05)
Clinical classification and BMI**

![Graph showing BMI distribution across different grades with statistical significance]

<table>
<thead>
<tr>
<th>Grade</th>
<th>BMI Mean ± SEM</th>
<th><em>P-value</em></th>
</tr>
</thead>
<tbody>
<tr>
<td>Grade 0</td>
<td>21.1 ± 0.24</td>
<td>0.019</td>
</tr>
<tr>
<td>Grade 1</td>
<td>21.1 ± 0.39</td>
<td>0.035</td>
</tr>
<tr>
<td>Grade 2</td>
<td>20.1 ± 0.60</td>
<td></td>
</tr>
<tr>
<td>Grade 3</td>
<td>19.8 ± 0.48</td>
<td></td>
</tr>
</tbody>
</table>

n=234        n=83            n=32           n=63

* Mann–Whitney’s U-test   **p=0.029(Spearman’s Correlation Test)
Oral Moisture Checker

\[48,000 = \text{about 600 dollars}\]
<table>
<thead>
<tr>
<th>Clinical Diagnosis Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grade 0</td>
</tr>
<tr>
<td>1</td>
</tr>
<tr>
<td>2</td>
</tr>
<tr>
<td>3</td>
</tr>
</tbody>
</table>

n=681

(Mean ± SD)
Neva -Meter

- The Neva Meter® (IMI-011 Ishikawa Ironworks Co., Ltd, Kitakyushu, Japan) is based on the principle that resistance becomes infinity at the cutting position, which has been proven by using electrically conductive liquids such as saliva.

- Spinnbarkeit was determined by excluding the height and lowest readings and then calculating the average of the remaining three readings.
Neva -Meter
Today’s Contents
Dry mouth of the Elderly

• "Senior Tsunami” and Dentist in Japan

• Dry mouth and Oral condition

• Diagnosis of Dry mouth of the Elderly

• Treatment and Care of Dry mouth
Treatment and Care for Disabled Elderly
Professional Care include dental treatment is very important for Disabled Elderly, especially for the elderly with dry mouth.

- Dental treatment without water as possible
- Rehabilitation
- Oral health Care with moisture agent
- Oral rehabilitations (include feeding therapy)
- Treatment with Kanpo medicine
Water Using at dental treatment

Dentists should not use much water at treatment for disabled elderly with dry mouth as possible.
Oral Care or Treatment for Dry mouth

Moisture agent 広水(kinu-sui) →

Moisture agent should be used than water because water easily flows to the pharyngeal region.
Oral health Care based on the value of the testers

Dry mouth Patient (Clinical diag. was 3nd, Value was 0) became to be able to speak after oral care with Kinu-sui containing hyaluronan

Oral health Care based on the value of the testers
Saliva grand massage
Massage with SONICARE

We massaged the lingual transverse portion and buccal mucosa area for 10 seconds each.
# Wetness of Tongue dorsum

## Table: Mean values of wetness

<table>
<thead>
<tr>
<th>Time</th>
<th>High (Wet) Group (20)</th>
<th>Low (Dry) Group (16)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0W</td>
<td>7.1 ± 5.2</td>
<td>5.1 ± 4.7</td>
</tr>
<tr>
<td>4W</td>
<td>5.1 ± 4.7</td>
<td>3.5 ± 3.3</td>
</tr>
<tr>
<td>6W</td>
<td>3.5 ± 3.3</td>
<td>1.2 ± 0.9</td>
</tr>
</tbody>
</table>

### Notes:
- *p < 0.02
- Normal range (3–5mm)

### Diagram:
- Mean values of wetness become into normal range with SONICARE use.
Treatment of Dry Mouth with Kanpo-medicine

• Byakkoka-ninjinto  56
  – Effective  83.9%
  – Almost effective  8.9%

• Goreisan(TJ–17)  34
  – Effective  73.5%
  – Almost effective  14.7%

• Others( Juzentaihoto, etc.)  25
  – Effective  80.0%
  – Almost effective  12.0%

  total  115
Change of Tongue Dorsum

Wetness Tester (0mm) → (1.0mm)

Juzentaihoto 7.5g(3x) 12days after
Dry mouth of elderly persons

- Dental Clinicians must be aware of dry mouth problems in elderly patients, and they should be prepared to provide a diagnosis and administer treatment to protect a patient’s oral health and quality of life (QOL).
Management for Dry mouth

- Find the causes of dry mouth
- Objective evaluation of dry mouth
- Oral care with moisture agent
- Rehabilitation (include saliva grand massage)
- Treatment
# Clinical Diagnosis of Dry Mouth

<table>
<thead>
<tr>
<th>Degree/Diagnosis</th>
<th>Sense of dryness</th>
<th>Clinical Criteria</th>
<th>Tester 10sec</th>
<th>Watte 30sec</th>
<th>Cheker</th>
</tr>
</thead>
<tbody>
<tr>
<td>Normal</td>
<td>Non</td>
<td>0</td>
<td>3.0〜</td>
<td>0.15〜</td>
<td>25〜</td>
</tr>
<tr>
<td>slight</td>
<td>Slightly</td>
<td>1</td>
<td>2.0〜2.9</td>
<td>0.1〜0.15</td>
<td>23〜25</td>
</tr>
<tr>
<td>mild</td>
<td>Sometimes</td>
<td>2</td>
<td>1.0〜1.9</td>
<td>0.05〜0.1</td>
<td>20〜23</td>
</tr>
<tr>
<td>Severe*</td>
<td>Everytime</td>
<td>3</td>
<td>0〜0.9 mm</td>
<td>-0.05〜-20</td>
<td></td>
</tr>
</tbody>
</table>

*Need Treatment or Oral Care
Better Oral health care and management are useful for the disabled Elderly
Thank you for your attentions

Dry mouth of the Elderly

View point from Oral care and Management

Yasuaki KAKINOKI  D.D.S.,  PhD.
Professor, Kyushu Dental College
Thank you for your attentions

Wetness of mouth is Amenity of Heart

口の潤いは心の潤い

Yasuaki KAKINOKI D.D.S., PhD.
KYUSHU DENTAL COLLEGE
Education
1980 D.D.Sc., Kyushu Dental College, School of Dentistry

Work experience
1980–1981 Dental Resident, Department of Dentistry and Oral surgery, University Hospital of Occupational and Environmental Health
1981–2005 Director, Division of Dentistry, National Minami Fukuoka Chest Hospital
2003 Ph.D. (Kyushu Dental College)
2005–2010 Professor, Division of Oral Care and Rehabilitation, Department of Control of Physical functions, Kyushu Dental College
2010– Director and Professor, School of Oral Health Science and Professor, Department of Oral Care and Rehabilitation,
Fig. 3. Relationship between the Sense of dry mouth and Tester results

Mean ± SEM (mm)

*P < 0.01 (Spearman’s rank correlation test)
Wetness and Swallowing Disorder

Normal Range

Normal (133)
Mild Disorder (15)
Swallowing Disorder (23)

P<0.001 (Spearman's rank correlation test)

Wetness of Dorsum (mm)

2.54 ± 2.2 mm
1.64 ± 1.5 mm
1.29 ± 1.9 mm

P<0.001 (Spearman's rank correlation test)
The group (0~1mm) have more swallowing disorders significantly in comparison with the group (over 3mm) (**p<0.001).
## Clinical Diagnosis of Dry Mouth

<table>
<thead>
<tr>
<th>Degree/Diagnosis</th>
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<th>Clinical Criteria</th>
<th>Tester 10sec</th>
</tr>
</thead>
<tbody>
<tr>
<td>Normal</td>
<td>Non</td>
<td>0</td>
<td>3.0~</td>
</tr>
<tr>
<td>slight</td>
<td>Slightly</td>
<td>1</td>
<td>2.0~2.9</td>
</tr>
<tr>
<td>mild</td>
<td>Sometimes</td>
<td>2</td>
<td>1.0~1.9</td>
</tr>
<tr>
<td><strong>Severe</strong>*</td>
<td><strong>Everytime</strong></td>
<td><strong>3</strong></td>
<td><strong>0~0.9 mm</strong></td>
</tr>
</tbody>
</table>

*Need Treatment or Oral Care
Oral Care or Treatment for Dry mouth

Moisture agent should be used than water because water easily flows to the pharyngeal region.
Oral health Care based on the value of the testers

Elderly Patient with severe dry mouth became to be able to speak after oral care KINU-SUI®(絹水) containing hyaluronan.
### Treatment of Dry Mouth with Kanpo-medicine

<table>
<thead>
<tr>
<th>Medicine</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Byakkoka-ninjinto</td>
<td>56</td>
</tr>
<tr>
<td>Goreisan(TJ-17)</td>
<td>34</td>
</tr>
<tr>
<td>Others (Juzentaihoto, etc.)</td>
<td>25</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Effective</th>
<th>Almost effective</th>
</tr>
</thead>
<tbody>
<tr>
<td>Byakkoka-ninjinto</td>
<td>83.9%</td>
<td>8.9%</td>
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<td>Goreisan(TJ-17)</td>
<td>73.5%</td>
<td>14.7%</td>
</tr>
<tr>
<td>Others (Juzentaihoto, etc.)</td>
<td>80.0%</td>
<td>12.0%</td>
</tr>
</tbody>
</table>

**total** 115
Change of Tongue Dorsum

Wetness Tester (0mm) → (1.0mm)

Juzentaihoto 7.5g(3x) 12days after
Better Oral health care and management are useful for the disabled Elderly
Watte method and Saliva output method

Watte method (3min)

Saliva output method (5min)
所属学会

• 日本障害者歯科学会・副理事長、指導医
• 日本老年歯科医学会・常任理事、指導医
• 日本口腔ケア学会*・理事、指導医
  *The Japanese Society of Oral Care
• 日本摂食嚥下リハビリテーション学会**・認定士
  **The Japanese Society of Dysphagia Rehabilitation
• 九州歯科学会・代議員
• 国際障害者歯科学会（IADH）
• 国際歯科研究学会（IADR）
• 他
口から分かる全身の健康
〜世界一受けたい授業から〜

口腔保健学科・学科長
歯学科・摂食機能リハビリテーション学分野（兼任）
教授 柿木保明
本日の模擬講義内容

まず、口腔保健学科の概要

1. 口のはたらき～歯の意味～

2. 舌で分かる全身状態

3. 唾液の潤い は心の潤い
九州歯科大学
歯学部口腔保健学科

- 平成22年4月開設
- 定員：25名
- 修業年限：4年
- 学士（口腔保健学）の学位が授与され、歯科衛生士国家試験受験資格を取得できる
- 第一種衛生管理者資格取得予定
- 本館6階に設置
- AO入試 3名
- 大学院修士課程設置予定
口腔保健学科
WADS（We Are Dental Students）キャンプ
～1期生25名と～ 2010
歯科衛生士という歯科医療人

• 口腔を通して全身の健康に寄与する
• 口腔ケアや食べる機能のリハビリを行う
• 高齢者や障害者、寝たきり患者にも対応

• このような患者さんは、自分の健康状態や症状をうまく表現できない

• 積極的に全身状態を把握することも大切
世界一受けたい授業（日本テレビ）

2012年5月12日放映
口のはたらき
「食べたら磨く」が原則 ？
たけしの健康エンターテイメント
みんなの家庭の医学(TV-program)
口から始まる病を徹底予防！ 2010.3.2
Takeshi Kitano
主要な出版書籍  Yasuaki Kakinoki
Our university is located at Kitakyushu city of Fukuoka prefecture in Japan, and is only one public dental school in Japan.
Our university
Thank you for your attentions

Oral Care and management of dry mouth in the elderly

Yasuaki KAKINOKI D.D.S., PhD
KYUSHU DENTAL COLLEGE
Wearing **Full Dentures** of the Disabled Elderly

Which is **risky** for swallowing disorder?

- Denture use only when eating
- Remove Denture only when eating
Tongue supports Dentures when not bedridden
Tongue cannot support Dentures when bedridden.

※We often find **Micro Edema** of Oral mucosa
( include palatal and gingival region )
Full Denture is useful for the stability of Jaw.

Tongue have to support Jaw for swallowing of saliva.

Wear Good
Not Wear Low!
Even if Denture wear, swallowing function doesn't become normal.
Occlusion hight became normal  
(became higher!)

Old dentures used for 8 years over.  
New denture was made.  
He could bite but couldn’t swallow!
Denture with higher occlusion is no good for swallowing

- Don’t raise the Denture height suddenly!

for the Elderly who donot eat or donot use denture for long time.
Micro Edema and Stability of Dentures

Pressure rise tooth

Denture Move and We can find Shining Spot
Wear Dentures *When* Eldely Do not Eat

- Dentures are useful for the stability of Jaw and swallowing of saliva.
- Denture wearing is useful for tongue function and good for saliva flow