

In the name of

*In the name of*  
GOD

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**Geriatrics**





- **There is currently no specific standard as a numerical measure of aging among nations, but there is currently a global agreement to use age 60 and older.**
- **In most countries of the world, the definition of old age is the same as the calendar age of 65 years or more. However, in some parts of the world, including Africa, it is 55 years old.**





- In the world, *2000 to 2050*, the population aged 60 years will increase from *600 million to 2 billion* people.
- Most of this increase belongs to *less developed* countries.
- In most of these countries, the proportion of people over the age of 60 is faster than other age groups, and this issue can be addressed in two ways:
  - first, the length of human development has increased,
  - and second, the rate of fertility growth has decreased.

- **2020=more than 79 million.**
- **1880= 7645,000 people lived in Iran.**
- **1956= 3.9% =751000**
- **2006 =5.1%=3656000**
- **1975=5.4%**
- **2025=10.5%**
- **2050=21.5%**





جمعیت کشور به سرعت رو به پیری می رود، به طوری که طی ۱۰ سال آینده به ازای هر ۱۰ خانوار، هفت سالمند بالای ۶۰ سال در کشور خواهیم داشت.





ایران در سال ۱۴۳۰ پیرترین کشور منطقه خواهد بود!



# LIFE EXPECTANCY

- In fact, it is a statistical measure of the average number of years that a person will live if he or she meets the mortality conditions specified in the life chart (standard database). Based on their year of birth, current age and other demographic factors, including his age, we expect the organism to be alive.
- The true definition of life expectancy is statistically the average number of years left for an individual or group of people who expect to survive from a maximum age of longevity to another age.
  - 1900=31years
  - 1950=48years
  - 2010=67years
  - 2021=70 male,75 female

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# AGED DEPENDENCY RATIO

- Aged Dependency Ratio is calculated by the World Bank (Aged Dependency Ratio). This ratio is obtained by dividing the number of people over 64 years old by the number of people between 15 and 64 years old. In other words, the proportion of the group that is not considered as the labor force (the dependent part) or in other words, the potentially active population and the group that the labor force is clearly with, the greater the amount of pressure (the productive part) are on. People in society become more prosperous and less prosperous.



# DISABILITY-ADJUSTED LIFE YEAR=DALY SCORE

- This is an estimate of the disease burden, indicating the number of years of life lost due to ill health, disability, or premature death.
- This amount is calculated by sum of the years lost due to premature death (Years of life lost = YLL) and the years lost due to disability (years lost to disability = YLD).
- $(\text{years lost to disability} = \text{YLD}) + (\text{Years of life lost} = \text{YLL}) = (\text{DALY} = \text{YLL} + \text{YLD}) =$
- (Disability-Adjusted Life Year ;DALY SCORE) = 1542000 score
- 13000 score = oral health

# ACTIVITIES OF DAILY LIVING

- The capacity for day-to-day and health care is different in older men and women, and women are more interested in this. In any case, older people are evaluated based on their ability (capacity to perform normal daily activities (dressing, eating, bathing)), which is assessed by special tests. In this way, people are divided into dependent and non-dependent groups in terms of activity. ADLS (Activities of daily living). Index Kats





# TOOTH LOSS

- Tooth loss is an important marker indicating the oral health status of a community, and reveals the history of oral and dental conditions during one's lifespan
- The **mean frequency percentage** of carious and filled teeth is 22%-35% in **developed countries**
- The **global age-standardized prevalence** (proportion) of edentate individuals decreased from 4.4% (95% uncertainty interval [UI]:4.1%-4.8%) in 1990 to 2.4% (95% UI: 2.2%-7.2%) in 2010.
- The **global age-standardized incidence rate** decreased from 374 cases/100 000 people per year (95% UI: 374-706) to 205 cases (95% UI: 187-226)





# IN IRAN

- the age-standardized prevalence of severe tooth loss is significantly higher than the global average
- The age standardized prevalence (proportion) of severe tooth loss in 2010 was .29-.42 worldwide
- whereas the standardized incidence rate (per 100 000 person-years) of severe tooth loss in 2010 was calculated to be 260.9-351 in Iran.



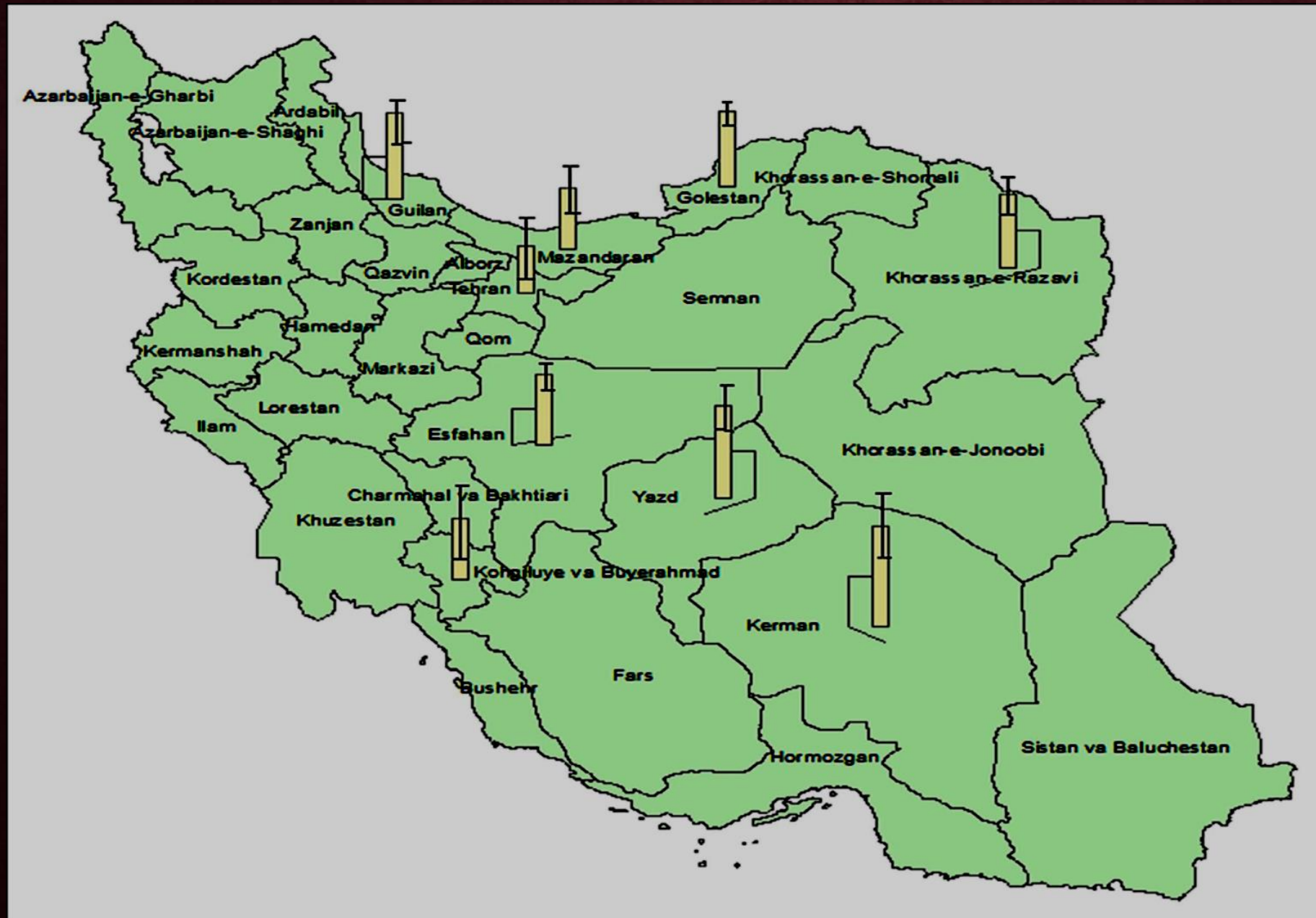
# DENTAL STATUS OF THE IRANIAN ELDERLY

- (48.7%) were completely edentulous (95% CI: .49-.49)
- (51.7%) were dentate (95% CI: .52-.52)
- mean number of remaining teeth was 5.73 (95% CI: 5.73-5.73)
- Approximately 50% of the elderly in Iran are completely edentulous.





## Frequency of edentulism in Iranian provinces and their confidence intervals



# **Changes in the dentition due to aging**

## **❖ External tooth changes**

- ✓ Discoloration ( yellowish brown color )**
- ✓ Less of enamel due to attrition, abrasion and erosion**









# **Changes in the dentition due to aging**

**Decrease in the size of pulp**



# **Coronal and root surface caries**

# **Periodontium**

- ✓ **Gingival recession**
- ✓ **Loss of periodontal attachment**
- ✓ **Age related immunologic changes**
- ✓ **Loss of alveolar bone**





# **Periodontium**

- ✓ **Several systemic conditions and medications**
- ✓ **Socio behavioral factors**

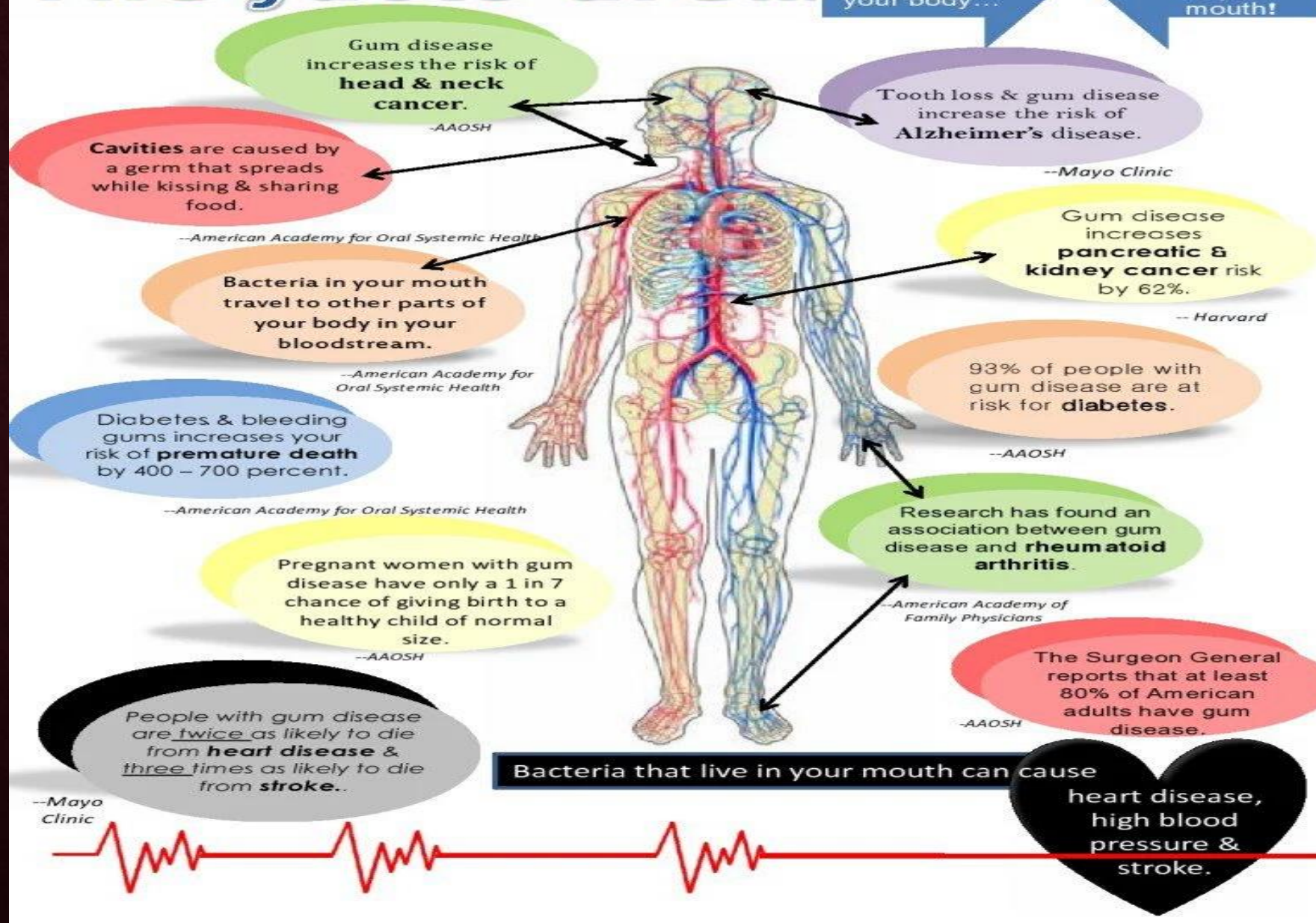




# The facts are...

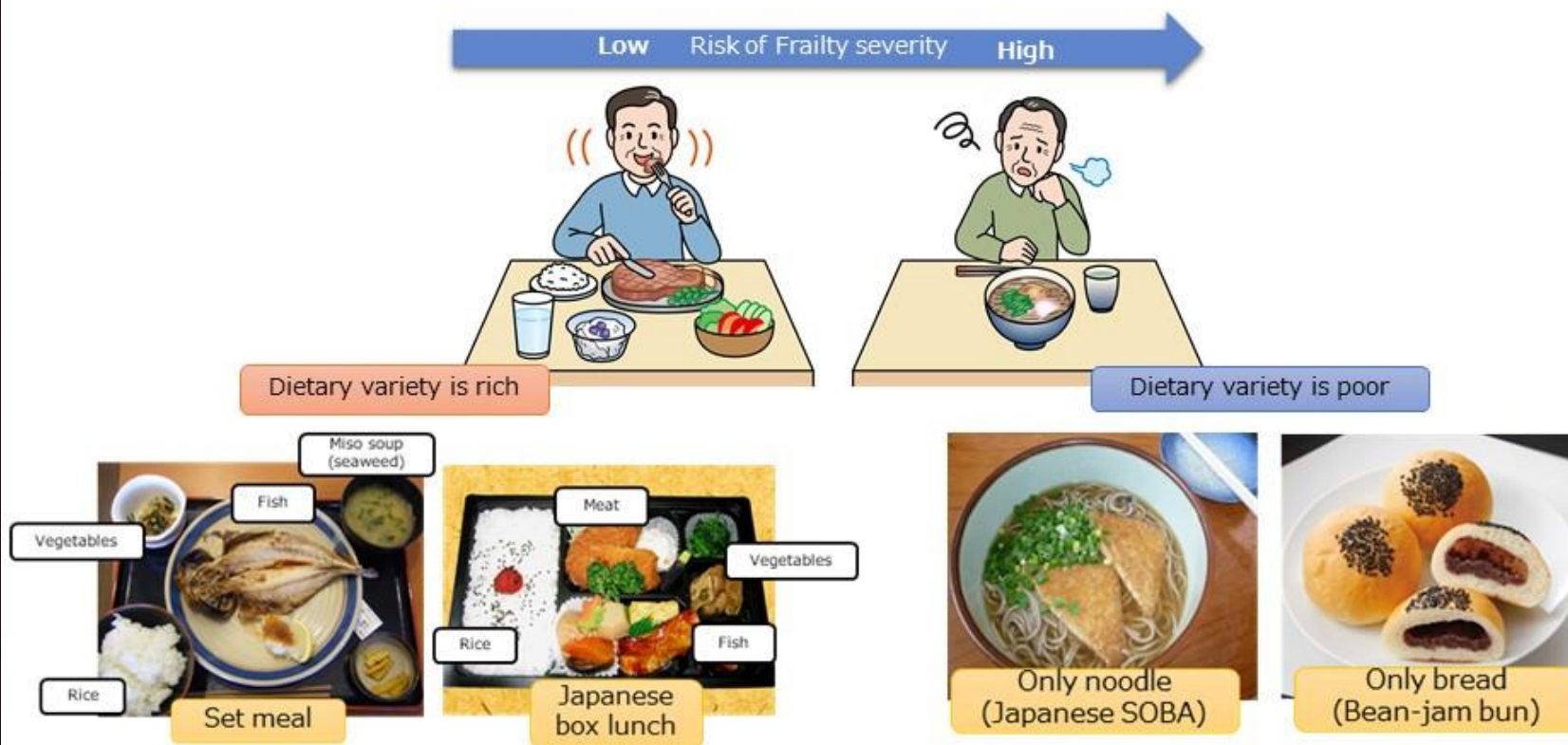
Your mouth  
"talks" to  
your body...

...and your  
body "talks"  
to your  
mouth!





# Relationship between frailty and dietary variety among older adults

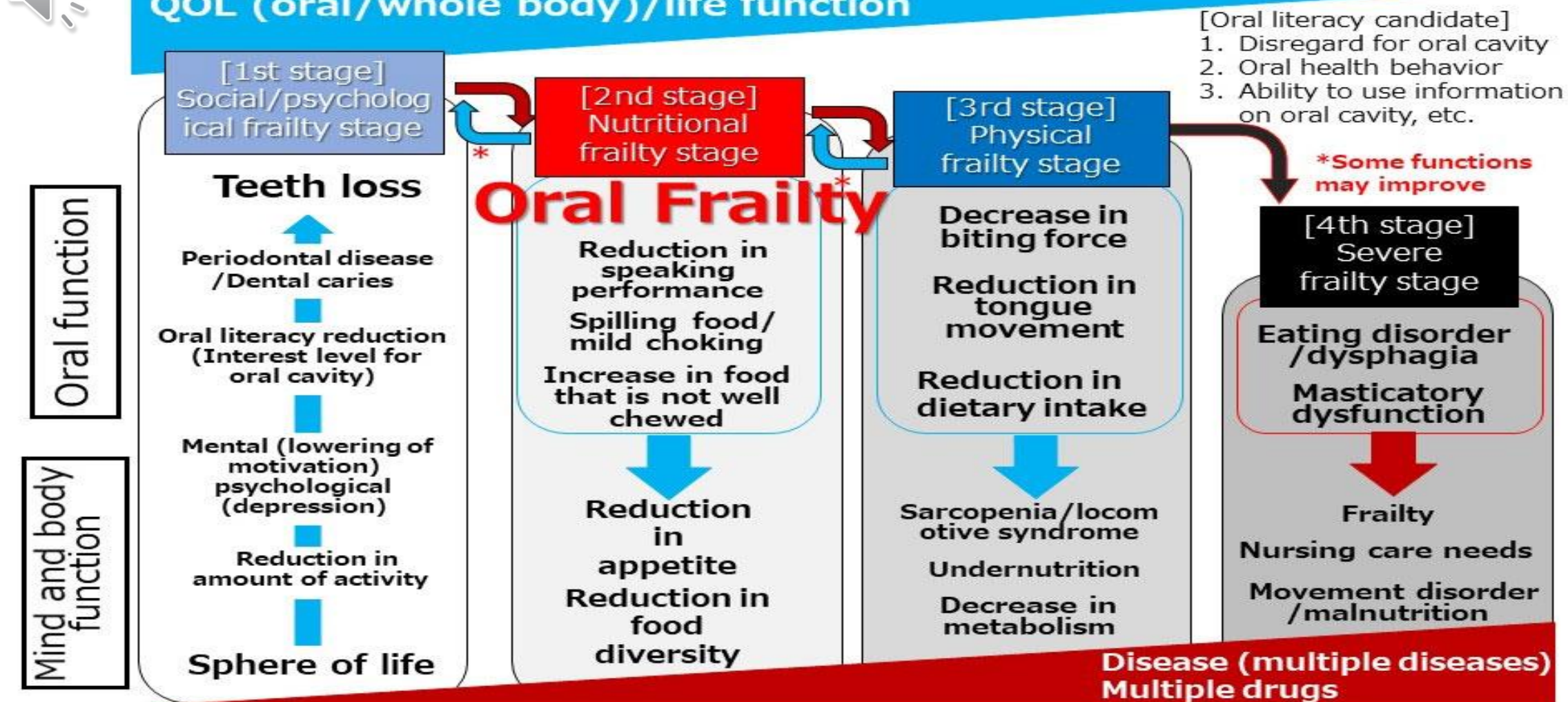


The DVS may be effective as an index of frailty onset. Therefore, additional studies that include quantitative evaluation of food or nutrient intakes are needed. The DVS is intended to improve food intakes of the 10 food groups and is easy to understand by older adults and their families. Thus, public awareness activities aimed at spreading the use of the DVS may be easy to implement. Longitudinal and interventional studies are required to quantitatively evaluate food intakes and to clarify the causal relationship in the future.

# Oral Frailty

## Frailty flow from the perspective of nutrition

QOL (oral/whole body)/life function



Takao Suzuki, Katsuya Iijima, et al.: 2013 Health for the Elderly and Health Promotion, Cited from the Report on "Research on establishment of concept of aging syndrome focusing on diet (nutrition) and oral function and development of comprehensive measures for oral care from prevention of nursing care (frailty prevention) to dependence on nursing care.



# QUALITY OF LIFE

- the World Health Organization (WHO) states “Health is a state of complete physical, mental, and social well-being and not merely the absence of disease and infirmity.”



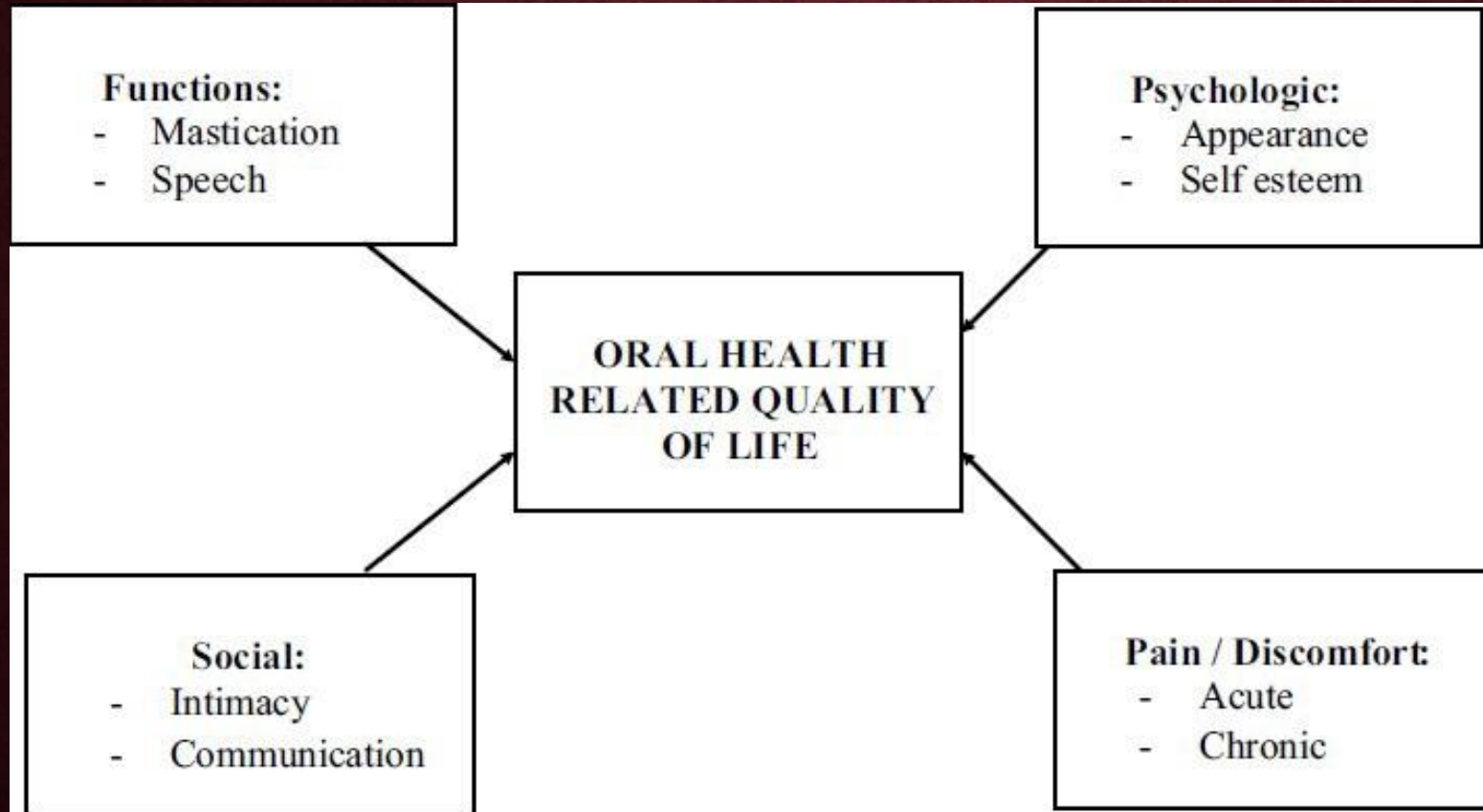




# ORAL HEALTH RELATED QUALITY OF LIFE

- The OHRQOL is a multidimensional concept that is capturing people's perception about factors that are important in their day today life.
- OHRQOL as “a multidimensional construct that reflects (among other things) people's comfort when eating, sleeping, and engaging in social interaction; their self-esteem; and their satisfaction with respect to their oral health.





OHIP					
<i>Because of problems with your teeth, denture or mouth have you</i>	Never (%)	Hardly ever (%)	Occasionally (%)	Fairly often (%)	All of the time (%)
1. Had trouble pronouncing words	0	1	2	3	4
2. Felt sense of taste has worsened	0	1	2	3	4
3. Had painful aching in the mouth	0	1	2	3	4
4. Found in uncomfortable to eat foods	0	1	2	3	4
5. Have been self-conscious	0	1	2	3	4
6. Felt tense	0	1	2	3	4
7. Had an unsatisfactory diet	0	1	2	3	4
8. Had to interrupt meals	0	1	2	3	4
9. Found it difficult to relax	0	1	2	3	4
10. Have been a bit embarrassed	0	1	2	3	4
11. Have been irritable with other people	0	1	2	3	4
12. Had difficulty doing usual jobs	0	1	2	3	4
13. Felt life in general was less satisfied	0	1	2	3	4
14. Have been totally unable to function	0	1	2	3	4

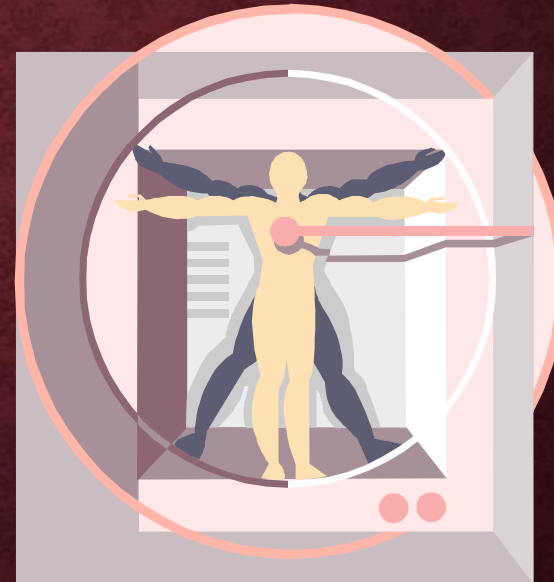


# ORAL HEALTH RELATED QUALITY OF LIFE



# SYSTEMIC DISEASES

- Sjögren's Syndrome
- Sarcoidosis
- Cystic Fibrosis
- Diabetes
- Alzheimer's Disease
- AIDS
- Graft vs Host Disease
- Dehydration





# AGING

- Salivary Quantity in Health
- Salivary Quality in Health



# MENOPAUSE

- Average age of onset of menopause in USA is 50 years
- Oral symptoms common, particularly decrease salivary flow menopause
- **Oral complaints most likely the result of the types and numbers of xerostomia medications taken**
  - **Anti-hypertensives, anti-depressants, and anti-histamines are common in this group**



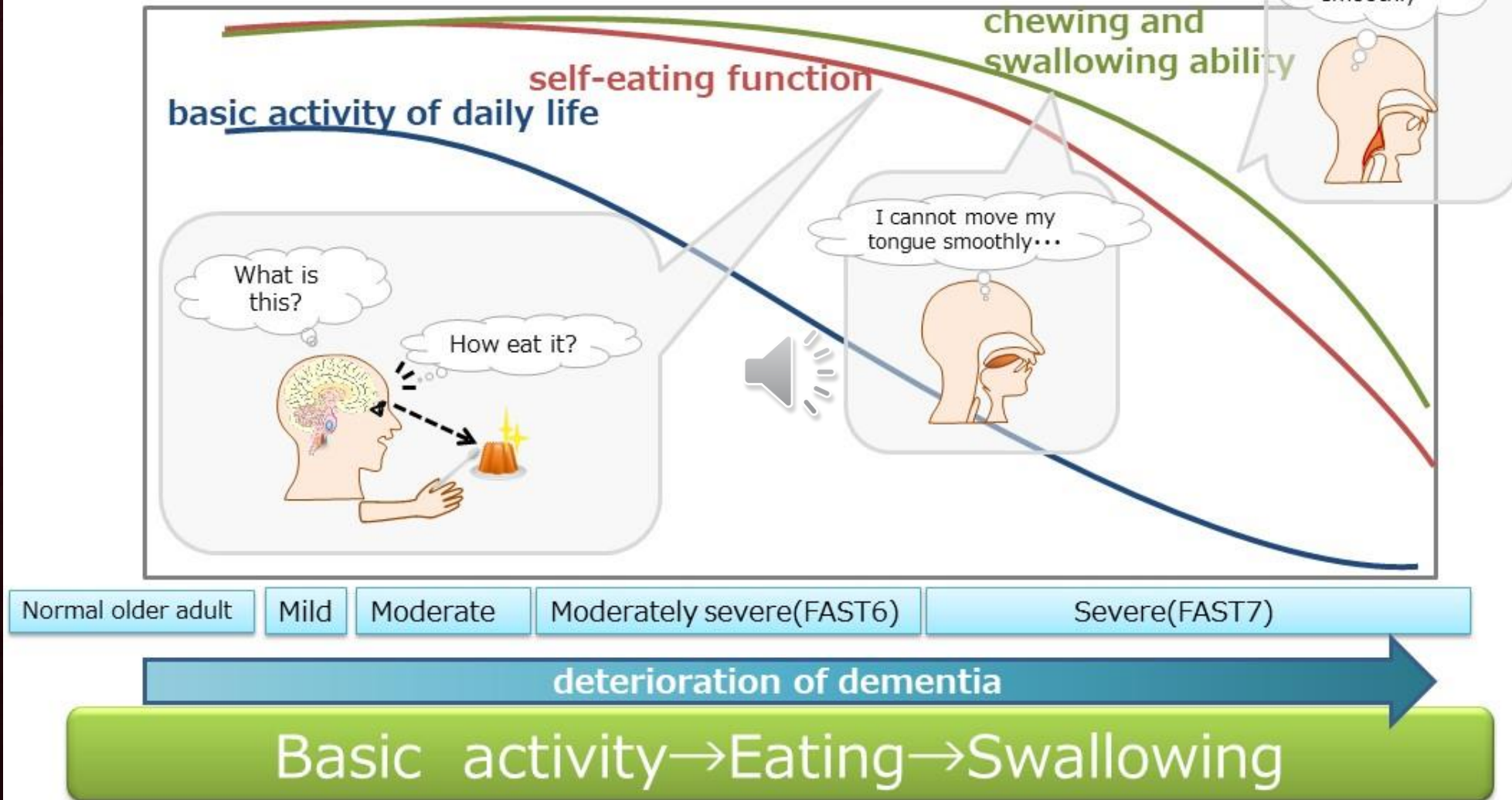
# **BURNING MOUTH SYNDROME**

# DEMENTIA



# The eating dysfunction is caused by deterioration of dementia

The self-eating function maintain or down slowly until stage FAST6e, and down rapidly



Ayako Edahiro, Hirohiko Hirano, Keiko Motokawa, Yutaka Watanabe, Shuichi Awata. Nutrition of elderly person with Alzheimer's disease, related with eating dysfunction; examination on the basis of functional assessment staging (FAST). Pensa congress 16th. Program and abstract P258, 2015.







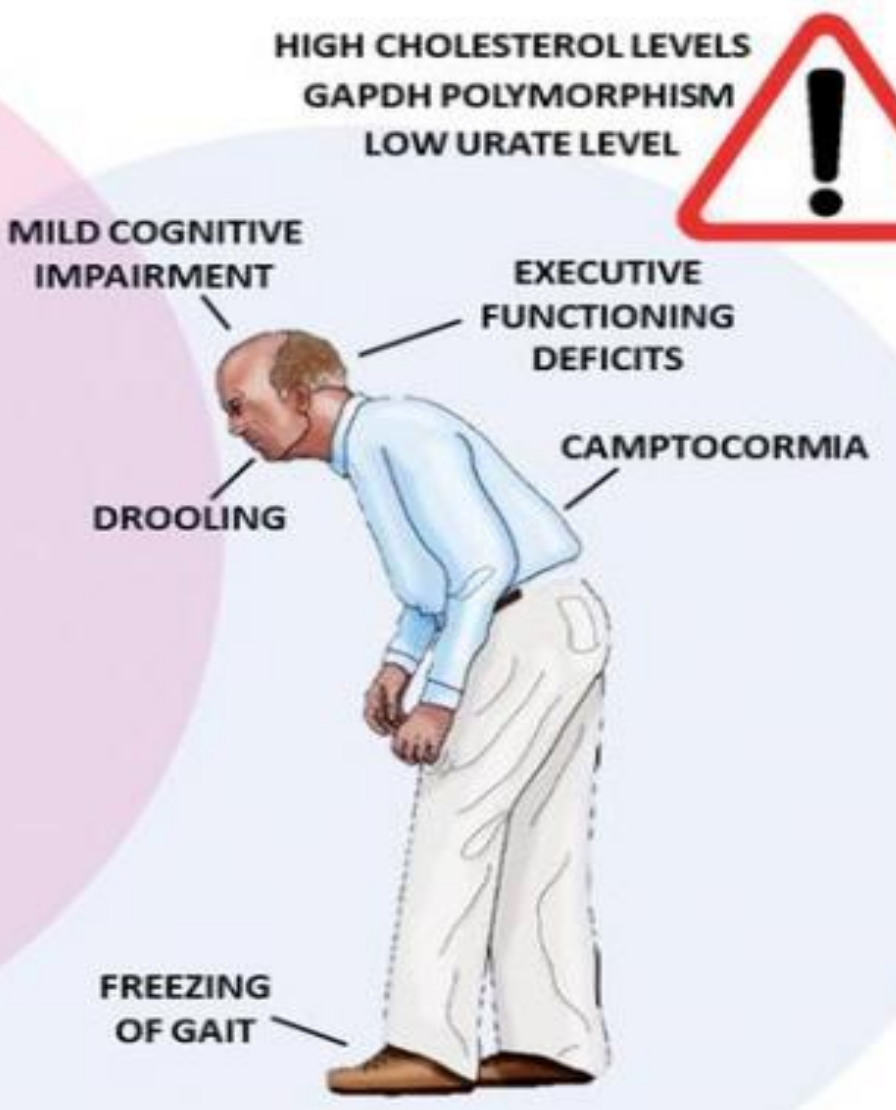
Periodontal disease and dental neglect in an institutionalized elderly patient with dementia

# PARKINSON'S DISEASE





LRKK2 G2019S VARIANT  
HIGH URATE LEVEL  
LOW PHYSICAL ACTIVITY  
LOW GLA ACTIVITY



HIGH CHOLESTEROL LEVELS  
GAPDH POLYMORPHISM  
LOW URATE LEVEL



Severe root surface caries in a patient with Parkinson's disease and drug-induced salivary hypofunction





# **Mastication and swallowing**

## **Oral motor disturbances**



# HORMONAL CHANGE

- Hypothyroidism is among the most frequent chronic diseases in the elderly, and levothyroxine (L-T4) is worldwide within the 10 drugs more prescribed in the general population. Hypothyroidism is defined by increased serum thyroid-stimulating hormone (TSH) values and reduced circulating free thyroid hormones.



Marginal gingivitis in a patient with hypothyroidism



# DIABETES

- Uncontrolled blood glucose levels may contribute to xerostomia
- Medications may induce xerostomia
- May get enlargement and inflammation of parotid glands (common in endocrine diseases)
- Difficulty to ward off infection: candidiasis, gingivitis, periodontitis, and caries



Gingivitis and periodontitis. Vertical bone loss in a patient with poorly controlled diabetes



# INFECTIOUS DISEASES

- Candidiasis
- Herpes simplex
- Shingles



Atrophic candidosis in a patient with poorly controlled diabetes.







Fissured and desicated tongue secondary to radiotherapyinduced salivary hypofunction.



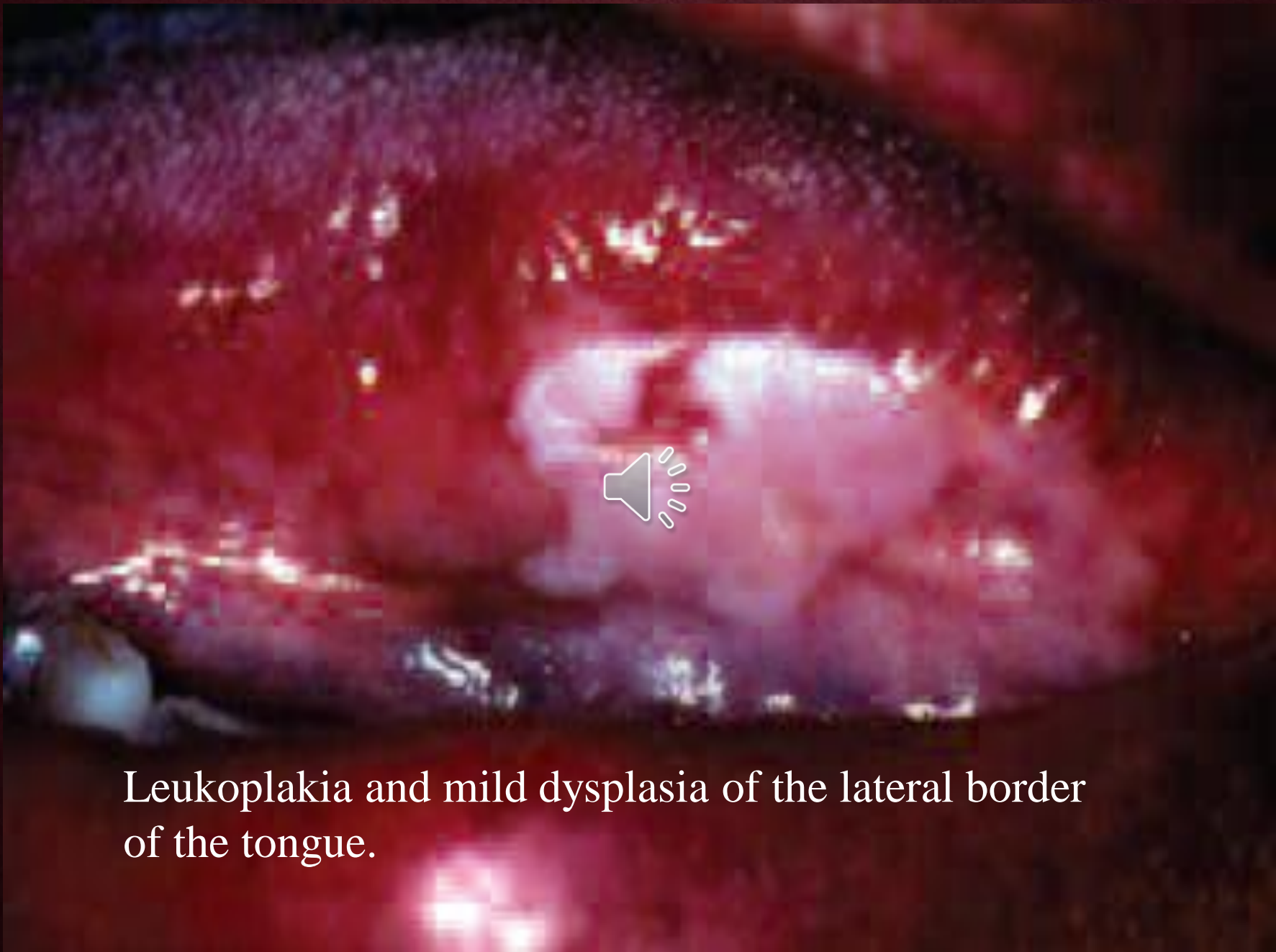




Reticular lichen planus of the attached gingival tissues

This clinical photograph shows the upper anterior teeth (incisors and canines) with the surrounding gingival tissue. The gingiva exhibits characteristic reticular lichen planus lesions, which appear as white, well-defined, interlacing lines and plaques. These lesions are located on the attached gingiva, particularly around the cervical areas of the teeth. The teeth themselves appear healthy and clean.





Leukoplakia and mild dysplasia of the lateral border of the tongue.



Palatal leukoplakia and erythroplakia with severe dysplasia

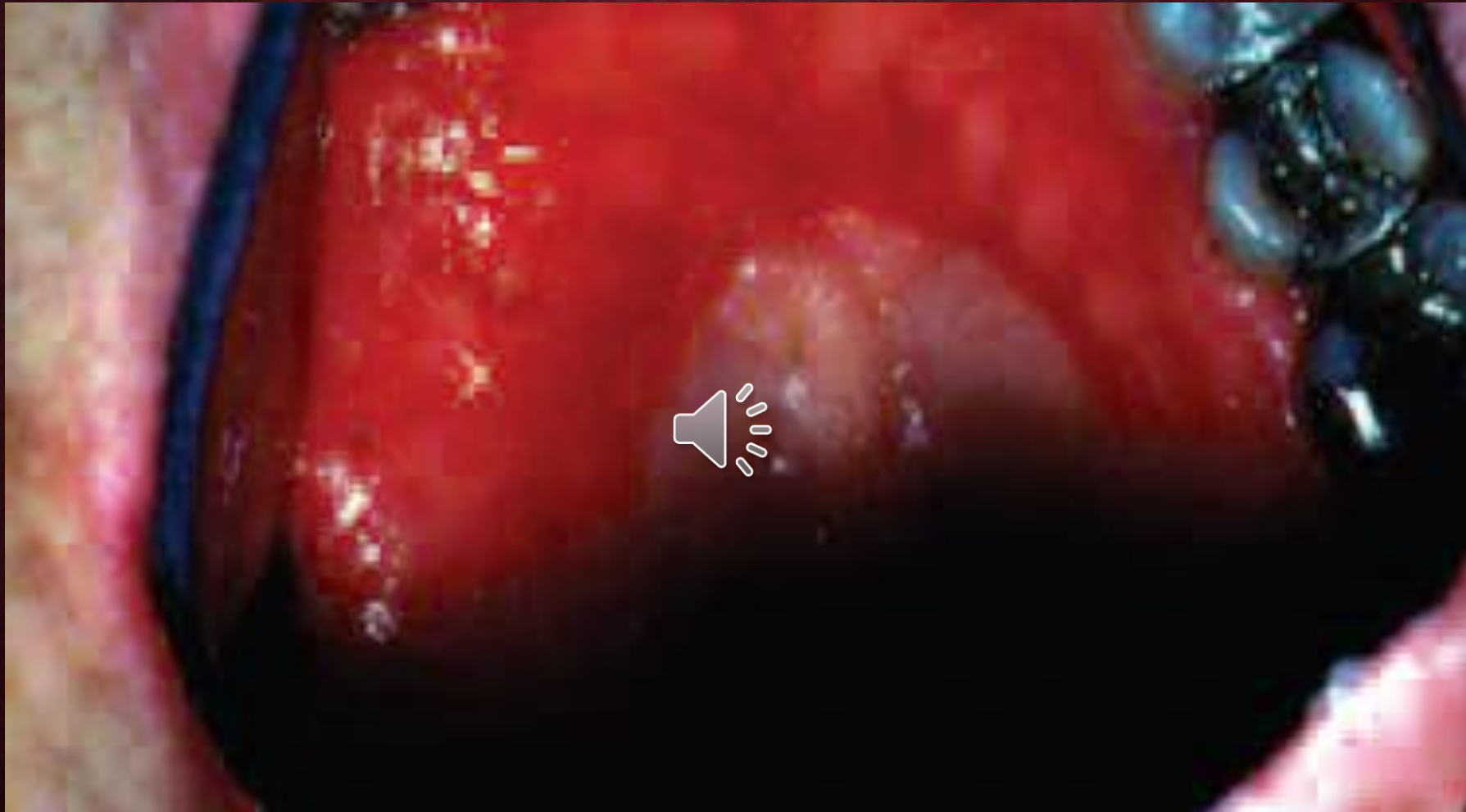




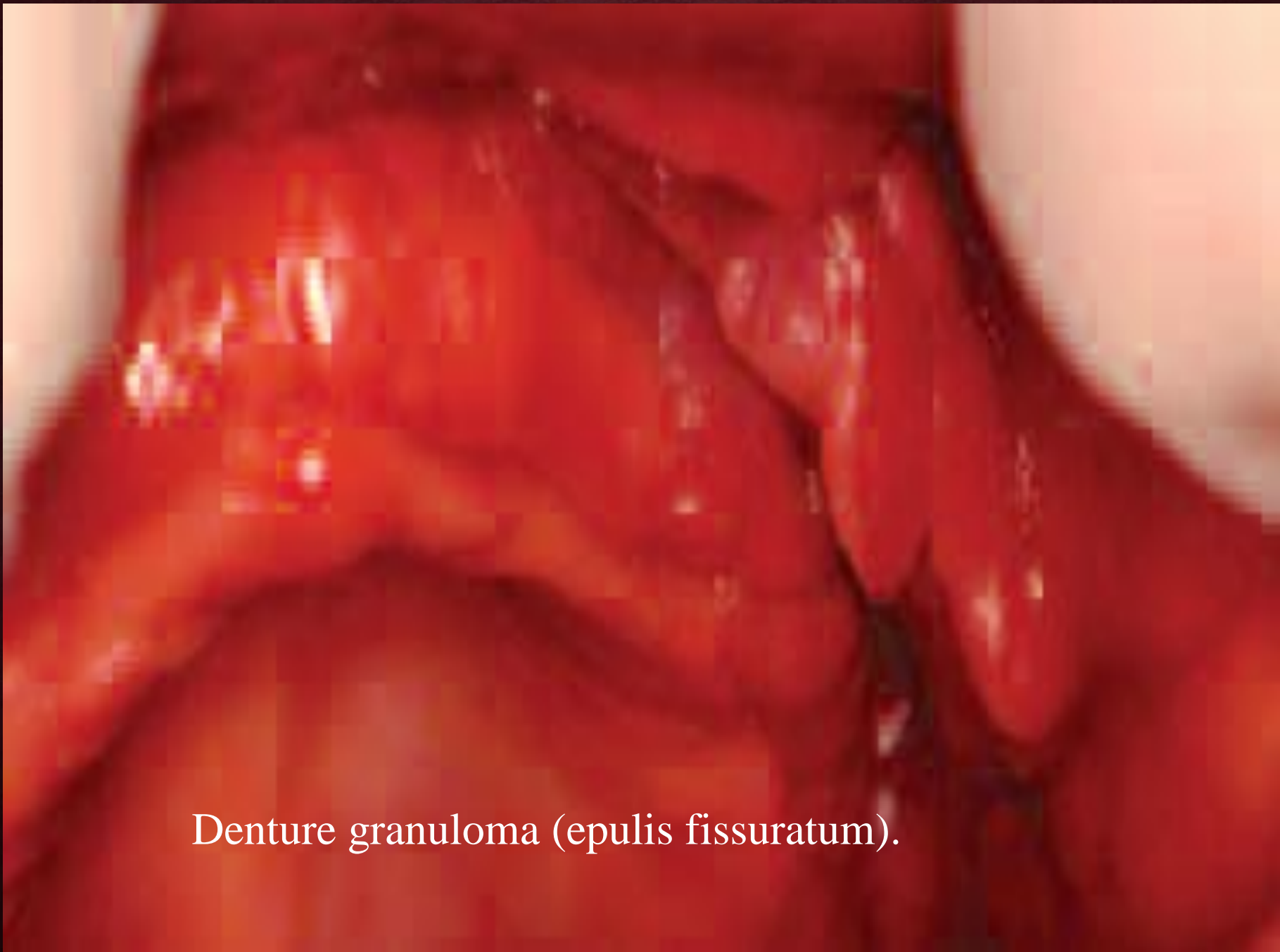
# LESIONS ASSOCIATED TO DENTURES

- Candidiasis pseudomembranous
- Inflammatory papillary hyperplasia
- Angular cheilitis
- Candida leukoplakia
- Median Rhomboid glossitis
- Erythematous candidiasis





Chronic atrophic candidosis (denture stomatitis) in a patient wearing a partial metal-based removable prosthesis.



Denture granuloma (epulis fissuratum).



A close-up photograph of a patient's mouth, focusing on the corners of the lips. The skin at the corners shows signs of angular cheilitis, characterized by redness, swelling, and a small, dark, crusted lesion. The lips are slightly parted, and the surrounding skin appears dry and irritated. The text overlay provides context for the condition, linking it to a poorly fitting removable prosthesis and salivary hypofunction.

Angular cheilitis in a patient with a poorly fitting removable prosthesis and salivary hypofunction.



Chronic hyperplastic candidosis

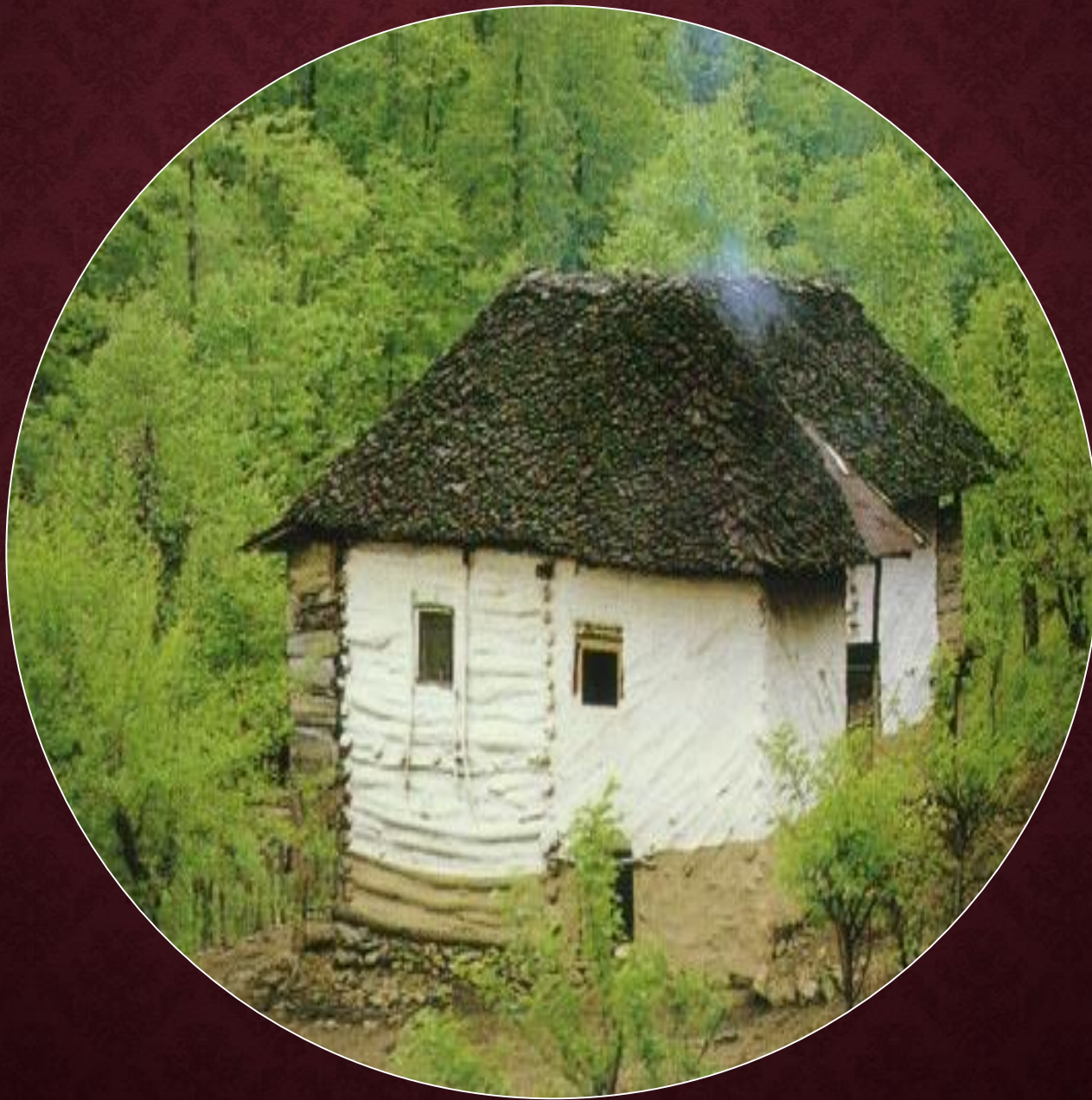




# **Taste and smell**

- ✓ **Diminished sensitivity to olfactory cues**





# MANAGEMENT

- Dental
- Periodontal
- Oral mucosal changes
- Infections
- Saliva
- Taste and smell
- Mastication
- Toothless



