

→ FOR A COMPLETE PROPHYLAXIS  
CLINICAL APPLICATION

→ PERIODONTITIS

→ BIOFILM-DENTAL PLAQUE

→ PERI-IMPLANTITIS



## → PERIODONTITIS

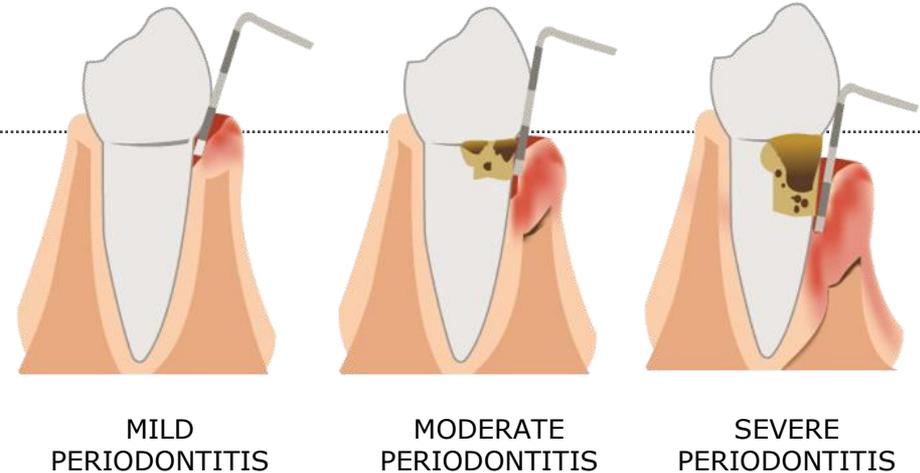
### → DEFINITION

Periodontitis is a set of inflammatory diseases affecting the periodontium – that is, the tissues that surround and support the teeth

- with gingival bleeding, creation of gingival pockets, mobility of the tooth
- progressive loss of the alveolar bone around the teeth and if left untreated, can lead to the loosening and subsequent loss of teeth

The severity of the pathology is equivalent to the quantity of periodontic ligament fiber loss. The American Academy of Periodontology has established the following classification:

- mild: **1-2 mm** of ligament loss
- moderate: **3-4 mm** of ligament loss
- severe: **> 4 mm** of ligament loss



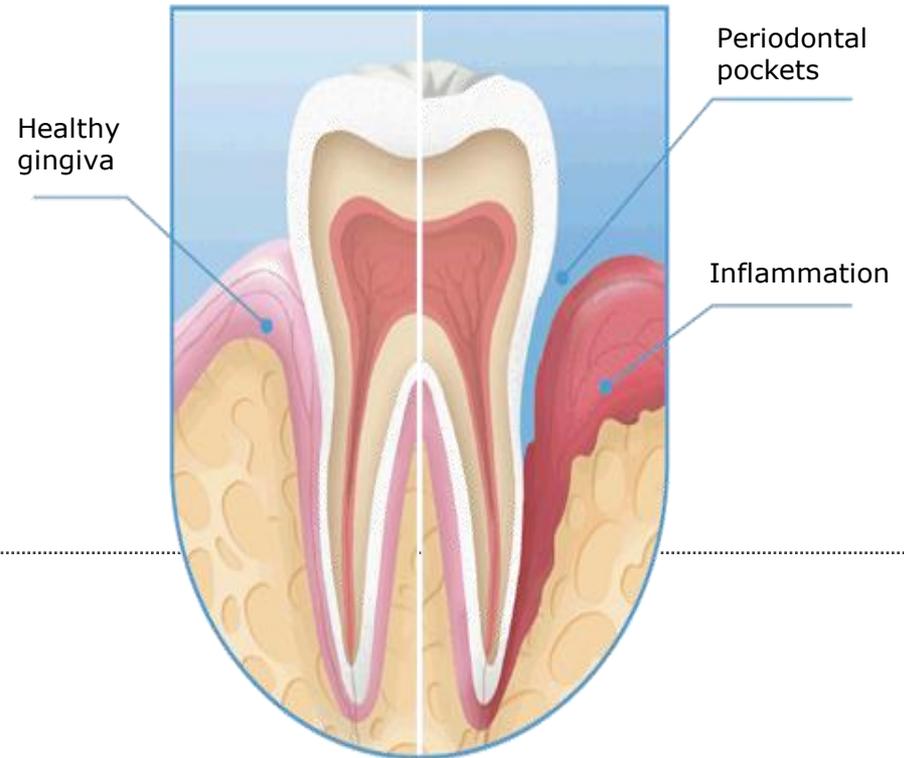
## → PERIODONTITIS

### → DEFINITION

The classification includes seven major categories of periodontal diseases, of which the last six are termed destructive periodontal disease because they are essentially irreversible. The seven categories are as follows:

→ reversible periodontitis

→ **gingivitis**  
inflammation of the gum tissue: swollen and bright red or purple gums, warmth, bleeding gums caused by plaque accumulation.



# → PERIODONTITIS

## → DEFINITION

### → irreversible periodontitis

#### → **chronic periodontitis**

is a common disease of the oral cavity consisting of chronic inflammation of the periodontal tissues that is caused by accumulation of profuse amounts of dental plaque. Has few symptoms and in many individuals the disease has progressed significantly before they seek treatment. Symptoms may include the followings: redness or bleeding gums, deep pockets formation, alveolar bone reduction. Especially observed in adult patient.

#### → **aggressive periodontitis**

is much less common than chronic periodontitis and generally affects younger patients than does the chronic form.

#### → **necrotizing-ulcerative periodontitis**

is a painful inflammation. In the early stages some patients may complain of a feeling of tightness around the teeth. Three signs/symptoms must be present to diagnose this condition: severe gingival pain, profuse gingival bleeding that requires little or no provocation, interdental papillae are ulcerated with necrotic . Other signs and symptoms may be present: intraoral halitosis, bad taste, malaise and fever. Pain is fairly well localized to the affected area.



# → PERIODONTITIS

## → DEFINITION

### → irreversible periodontitis

#### → **abscesses of the periodontium**

when the localized, purulent infection involves a greater dimension of the gum tissue, extending apically and adjacent to a periodontal pocket. Such a lesion may contribute to destruction of the periodontal ligament and alveolar bone.

#### → **combined endo-perio lesions**

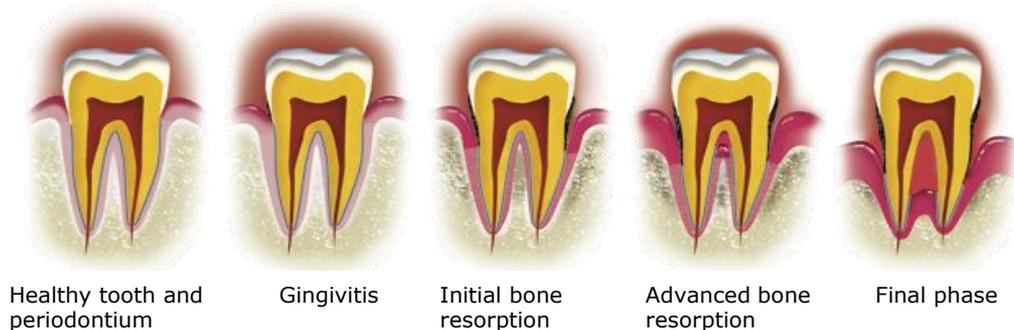
take the form of abscesses and can originate from either or both of two distinct locations and may be informally subclassified as follows: endo-perio: infection from the pulp tissue within a tooth may spread into the bone immediately surrounding the tip, or apex, or the tooth root, forming a periapical abscess. This infection may then proliferate coronally to communicate with the margin of the alveolar bone and the oral cavity by spreading through the periodontal ligament. perio-endo: infection from a periodontal pocket may proliferate via accessory canals into the root canal of the affected tooth, leading to pulpal inflammation.



## → PERIODONTITIS

### → SYMPTOMS

- redness or bleeding of gums while brushing teeth, using dental floss or biting into hard food
- gum swelling that recurs
- gingival recession, resulting in apparent lengthening of teeth
- deep pockets between the teeth and the gums (pockets are sites where the attachment has been gradually destroyed)
- loose teeth, in the larger stages



## → PERIODONTITIS

### → PREVENTION

- daily oral hygiene leading to a correctly cleaned mouth are the basis of prevention
- some individuals, if they belong to a group of genetically susceptible to this pathology, need a more accurate hygiene than others
- brushing properly on a regular basis (at least twice daily), flossing daily and using interdental



## → PERIODONTITIS

### → TREATMENT

#### → standard periodontitis treatment - gingivitis

- the very first treatment objective is to eliminate the **bacterial plaque**
- the bacterial plaque is organized as **biofilm**, which disaggregation is necessary before trying other types of treatments like antibiotics and surgery
- to enhance the **correct oral cleaning**. This includes professional cleaning, mechanical scaling of tartar, use of gingival cures and the motivation to maintain oral hygiene as well as the understanding of exercising the different prevention options.



## → PERIODONTITIS

### → TREATMENT

#### → chronic periodontitis treatment

- **chronic periodontitis:** treatment generally involves scaling and root planing (SRP) to mechanically debride the depths of the periodontal pocket, open flap debridement as well as surgery guided tissue (periodontal and regenerative surgery using PIEZOSURGERY® device)
- **aggressive periodontitis:** treatment generally involves mechanical therapy (non-surgical or surgical debridement) in conjunction with antibiotics.



## → PERIODONTITIS

### → TREATMENT

#### → necrotizing ulcerative periodontitis

- requires treatments that include irrigation and debridement of necrotic areas, oral hygiene instruction and the uses of mouth rinses (highly concentrated chlorhexidine solution 0,2%) and pain medication. Usually tooth brushing is difficult for the patient as the necrotic areas are painful.
- a pharmacological treatment with antibiotics like metronidazole, penicillin or tetracycline might be taken into consideration.



## → BIOFILM – DENTAL PLAQUE

### → DEFINITION

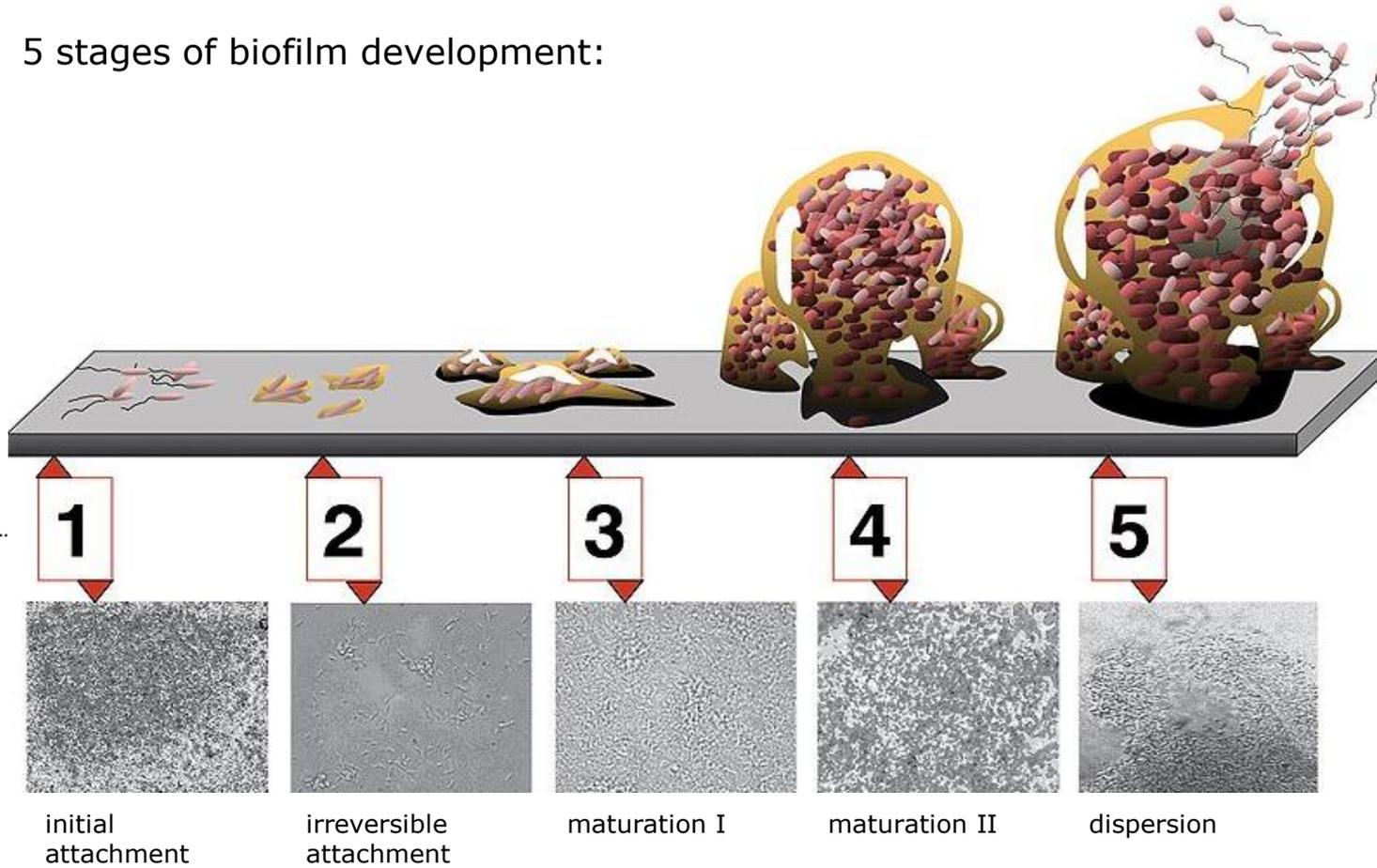
- Dental plaque is the material that adheres to the teeth and consists of bacterial cells (mainly *Streptococcus mutans* and *Streptococcus sanguinis*), salivary polymers and bacterial extracellular products. Plaque is usually a pale yellow, and develops naturally on the teeth.
- Like any biofilm, dental plaque is formed by colonizing bacteria trying to attach themselves to the tooth's smooth surface. It has been speculated that plaque forms part of the defense systems of the host by helping to prevent colonization of microorganism that may be pathogenic.
- This accumulation of microorganisms subject the teeth and gingival tissues to high concentrations of bacterial metabolites which results in dental disease
- The oral cavity contains the only known anatomical aspect of the human body that does not have a regulated system of shedding surfaces: the teeth. This allows microorganisms to adhere to the surface of teeth for long periods of time. These multiple species of bacteria become dental biofilm.



# BIOFILM – DENTAL PLAQUE

## DEFINITION

5 stages of biofilm development:



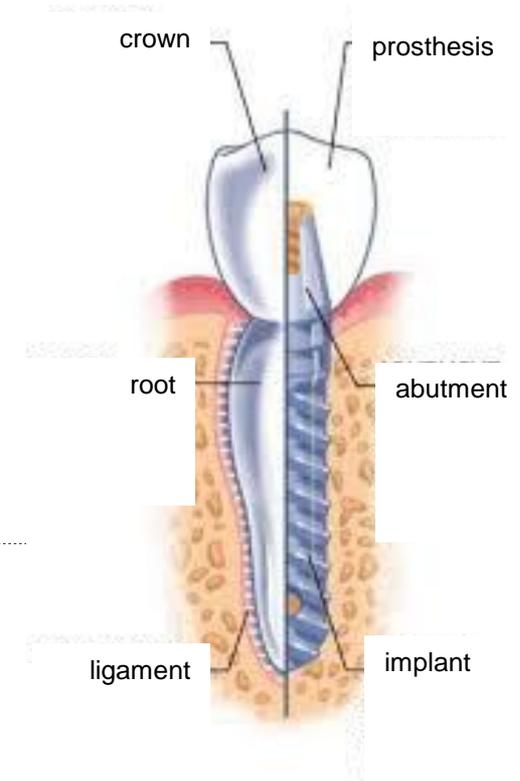
## → PERI-IMPLANTITIS

### → DEFINITION

- perimplantitis is the destructive inflammatory process affecting the soft and hard tissues surrounding dental implants.
- the peri-implantitis lesions are often asymptomatic and they are usually detected during the routine recall appointments. Careful probing around the teeth and the implants should be done routinely along with the radiologic evaluation during these check-up appointments.

Perimplantitis disease is distinguished in:

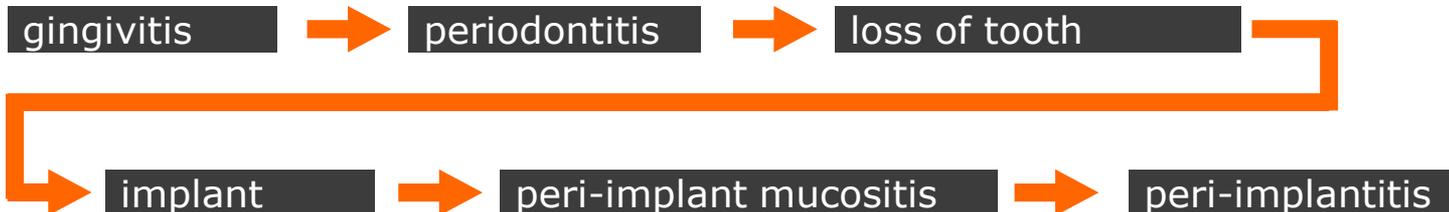
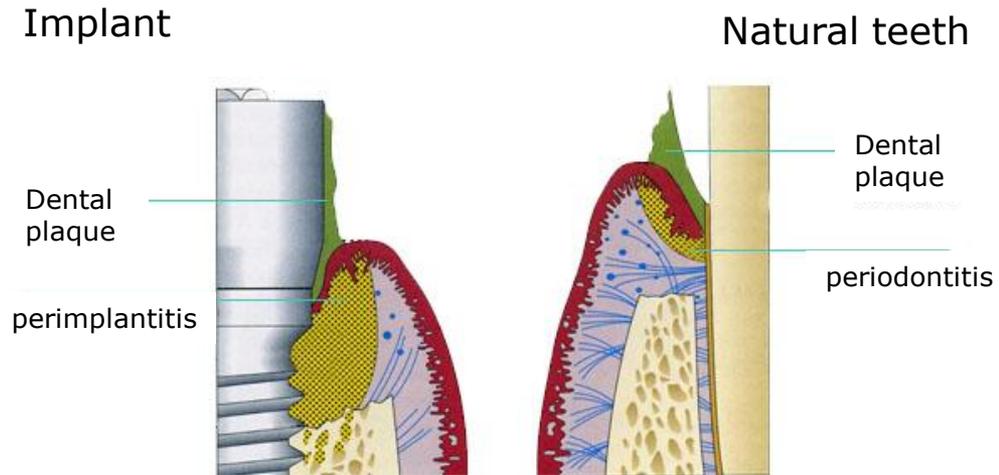
- **peri-implant mucositis:** is a reversible, plaque-induced inflammatory lesion confined to the peri-implant soft tissue unit
- **orthograde periimplantitis:** extension in depth of the inflammatory process caused by mucositis
- **retrograde peri-implantitis:** is defined as a clinically symptomatic periapical lesion which is diagnosed as a radiolucency that develops shortly after an implant insertion, in which the coronal portion of the implant achieves a normal bone-implant interface.



# PERI-IMPLANTITIS

## DEFINITION

- a major level of destruction has been observed in the peri-implant lesion in comparison to the periodontal lesions.
- from a microbiological point of view the micro-organisms identified in the peri-implantitis are similar to the ones in the advanced periodontal pockets



## → PERI-IMPLANTITIS

### → SYMPTOMS

- gum bleeding
- edema
- exudation and suppuration
- mild to severe pain while chewing and palpation
- purulent secretion from the implants'surrounding tissues
- formation of peri-implant pocket
- hypertrophia and soft tissue swelling
- perimplant probing
- implant mobility
- radiological evidence for vertical destruction of the crestal bone (osseointegration loss)



## → PERI-IMPLANTITIS

### → PREVENTION

- oral hygiene program specific for implant patients is the base of the prevention
- regular check-up by periodontal probing together with lateral gum pression performed by a probe at the implant level to verify the health of periodontal and peri-implant tissues and possible changing
- don't underestimate possible complaints also of light or moderate intensity
- check the possible infection to prevent the pathology progression



## → PERI-IMPLANTITIS

### → TREATMENT

- elimination and decontamination of the present bacteria on the implant surface by means of the use of a scalers/curette made of plastic, gentle on the implant (avoid metallic curettes causing damages to the implant surface)
- soft-laser
- irrigation with chlorhexidine solution
- local applications of antibiotics, citric acid, methylene blue, phosphoric acid
- professional prophylaxis with non abrasive powder (glycine powder)



## → PERI-IMPLANTITIS

### → GLYCINE POWDER

- safe removal of supra and subgingival plaque and stains
- gentle use on enamel and dentine
- use on teeth braces
- effective bacterial reduction in the pockets
- reduction in pocket depth
- better patient acceptance during the treatment
- usable more than 2 times yearly (bicarbonate  $\leq$  2 times)
- faster treatments comparable with manual procedures

NEW!  
→ PERIO  
FUNCTION



# → PERI-IMPLANTITIS

## → GLYCINE POWDER

→ Use of glycine instead of bicarbonate:

### → INDICATIONS

removal of plaque

→ SODIUM  
BICARBONATE



→ GLYCINE  
POWDER



NEW!

→ PERIO  
FUNCTION



## → PERI-IMPLANTITIS

### → MECTRON GLYCINE POWDER

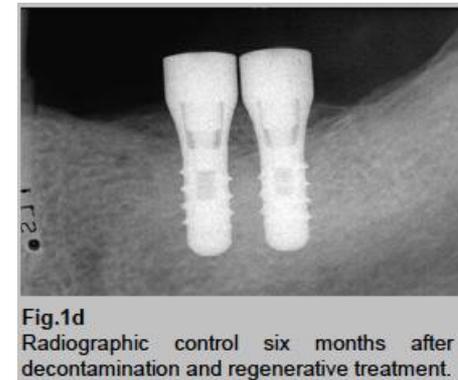
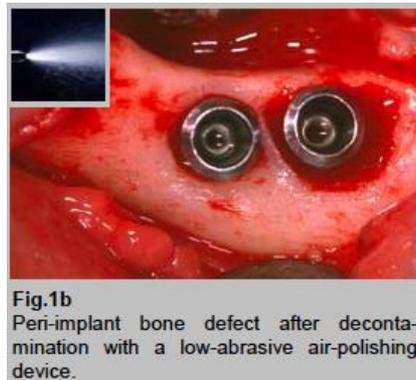
- powder particles shape is rhombus-cylindrical
- on 100 g of powder, at least 90 g have a certified size less than **63 µm** (D90=63 µm)
- it's a natural amino acid (not a salt as well as the bicarbonate)
  - subgingival cleaning **without any mechanical access** at a medium distance of 5 mm from the pocket (see 3M ESPE scientific publication regarding glycine powder).



## PERI-IMPLANTITIS

### EXAMPLE OF A PERIMPLANTITIS TREATMENT

Decontamination of the implant surface with a low abrasive powder



*"Deposits on the implant were removed without modifying or damaging the surface. The use of a low-abrasive air-polishing powder for implant decontamination together with reconstructive procedures seem to be helpful for the treatment of peri-implantitis alveolar bone defects."*  
(t.Joda – Europerio 6 Stockholm / Sweden 2009)