Emdogain®

What is Emdogain® ?

Epidemiology of periodontal diseases

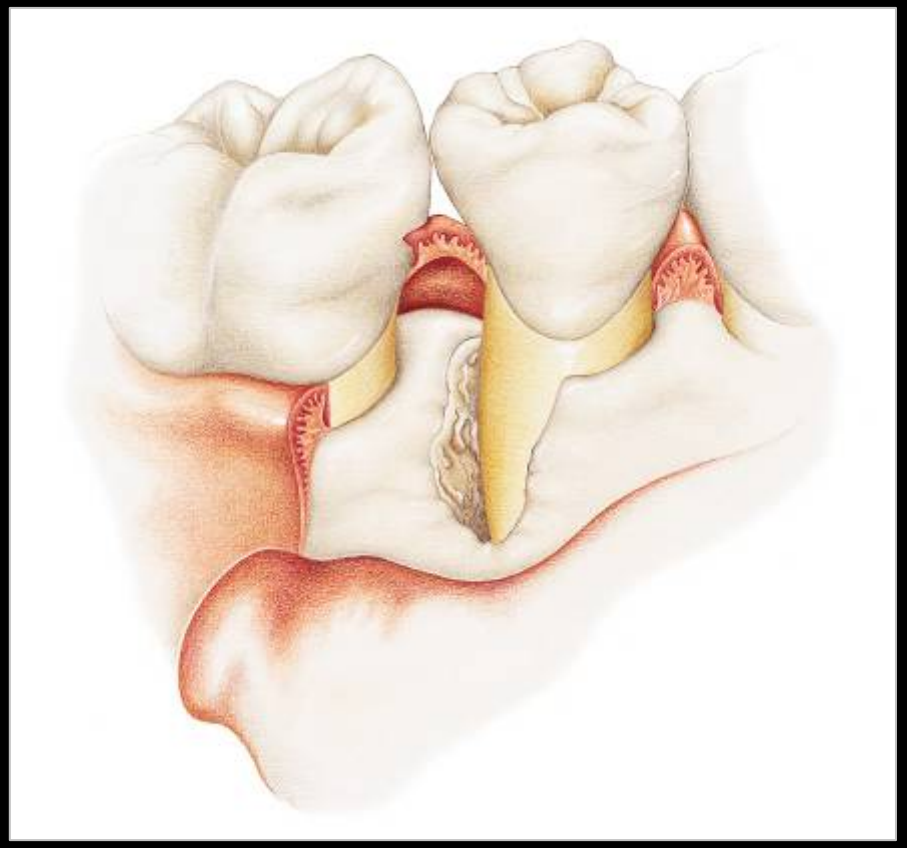
“Approximately 5% to 20% of any population suffers from severe generalized periodontitis even though moderate periodontal disease affects a majority of adults.”

Journal of Periodontology September 1996

Why Emdogain®

- 90 % of the protein structure of the Enamel Matrix is composed of Amelogenin proteins
- Amelogenin proteins facilitate Biomineralization of dental tissues.
- Amelogenin proteins are the major component of Emdogain®
- Emdogain® is an Enamel Matrix derivative product (EMD)
- Regenerates a patient-own periodontal attachment
- Single product which activates a complex regeneration process

Amelogenin (Emdogain®)



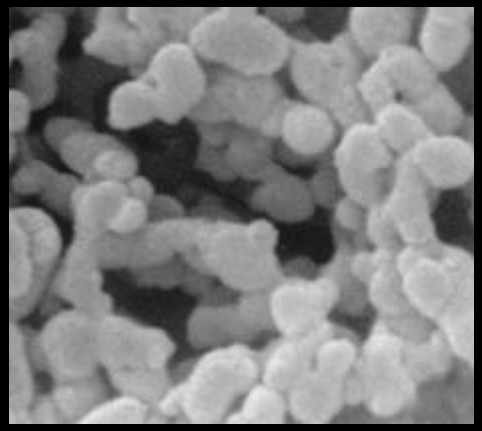
Emdogain® is a biomimetic biology-based product, which promotes the re-growth of hard and soft tissues lost due to periodontal disease

What is Emdogain®?

- Resorbable, implantable material
- Enamel Matrix Proteins (Amelogenin)
- Gel for easy handling

Emdogain®

- Pure amelogenin is hydrophobic
- Adding of special carrier: PGA, (*Propylene Glycol Alginate*)



- Carrier has low pH value (acidic)
- Human tissues are pH neutral (neutral)

⟶ this difference leads to adhesion of active substance to tooth surface

Technical product features carrier

- Sterile PGA, *Propylene Glycol Alginate*
- Concentration 6,5 % in distilled water
- PGA is well known
- Cooling chain, 24 months storage
- Interruption of upto 72 hours possible, < 30°C
- Without cooling: separation of mixture and change of viscosity

Emdogain®

Gel ready for use

“Easy “ to apply

Not time consuming

Delivered in syringes of: 0.7ml

0.3ml

Single pack* → without PrefGel™

Multi pack of 3 units → with PrefGel™

PrefGel™ pack 10 units

* Not in the US

What is PrefGel™?

- pH neutral, 24% EDTA root conditioner
- Removal of “smear layer” before applying Emdogain®
- Sold separately or co-packaged with Emdogain®

PrefGel™ (EDTA 24%*, pH 6.7)

- Effectively removes smear-layer
- Exposes the collagenous matrix of dentin surfaces
- Does not induce any detectable necrosis in the surrounding periodontal tissues

Intended for topical application onto exposed root surfaces during periodontal surgery

*concentrations below 24% do not remove smear

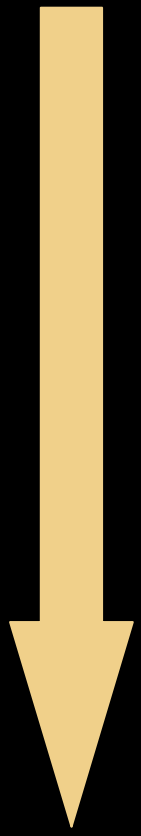
PrefGel™

PrefGel™ is pH neutral and is packaged in single-use sterilized pipettes

- Adverse reactions
  Reversible and short duration procedure-related dentin hypersensitivity may occasionally occur

- Storage
  PrefGel™ is stable at room temperature for 12 months, when refrigerated (2°-8°C) for 36 months

Modell of mechanism of Emdogain® :



Attraction

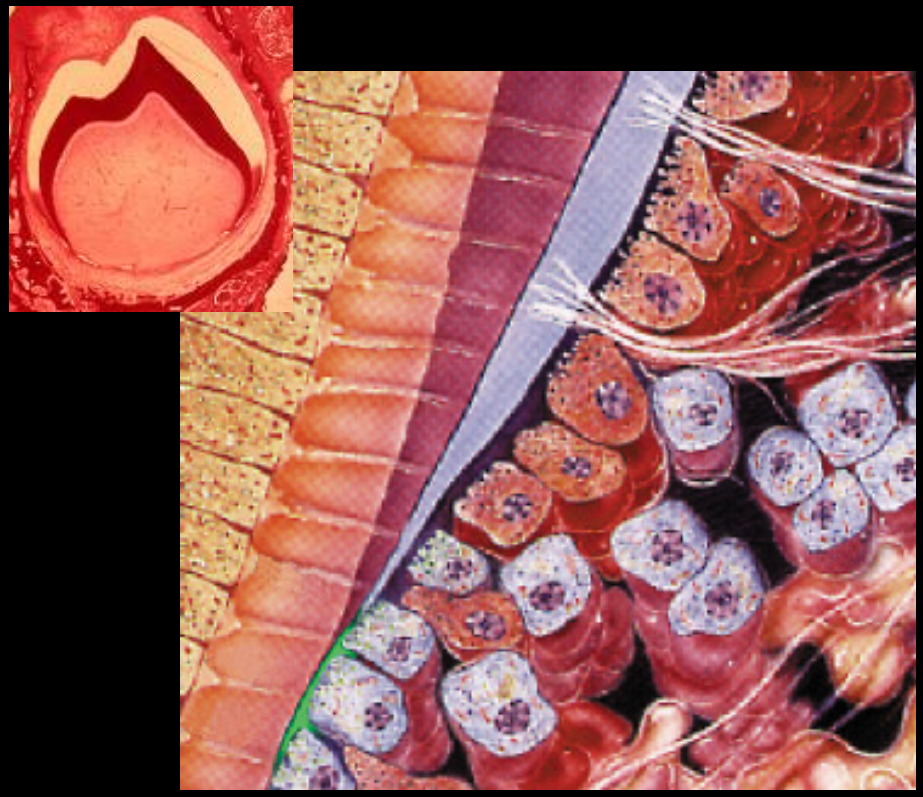
Attachment

Proliferation

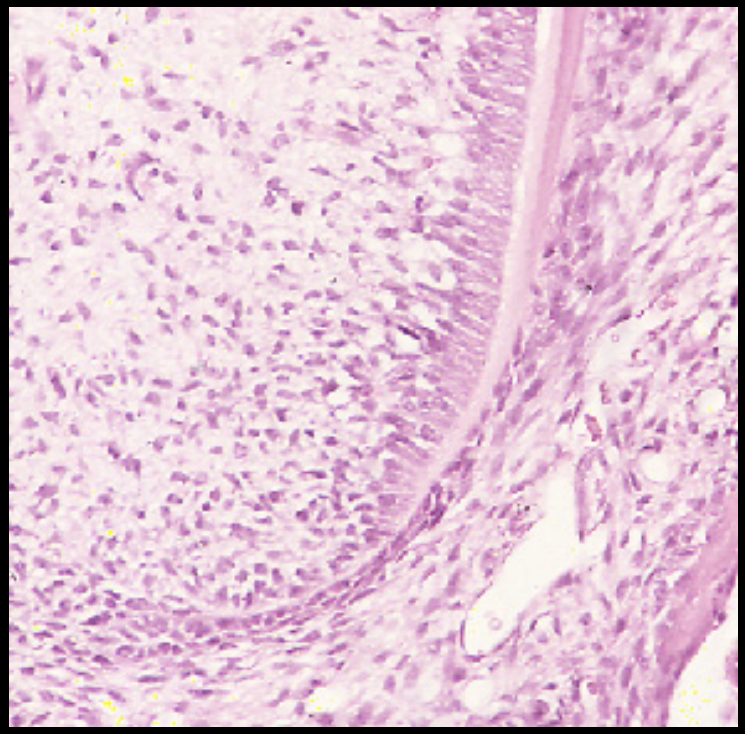
Differentiation

Alveolar bone growth

Modell of basic concept of Emdogain®

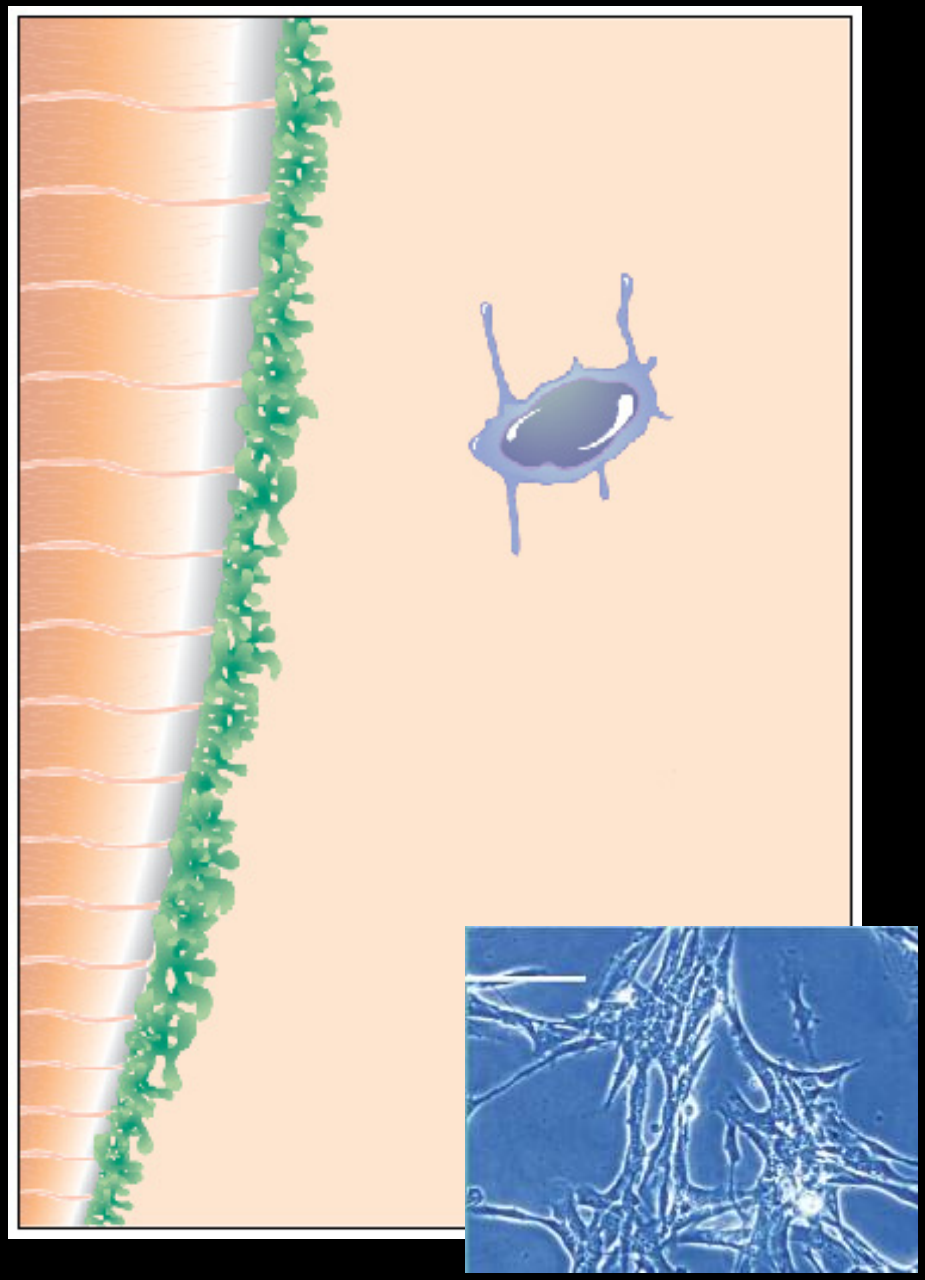


Deposit of enamel matrix proteins onto a developing root surface is an essential step preceding formation of cementum



Formation of a periodontal ligament and alveolar bone is dependent on formation of cementum

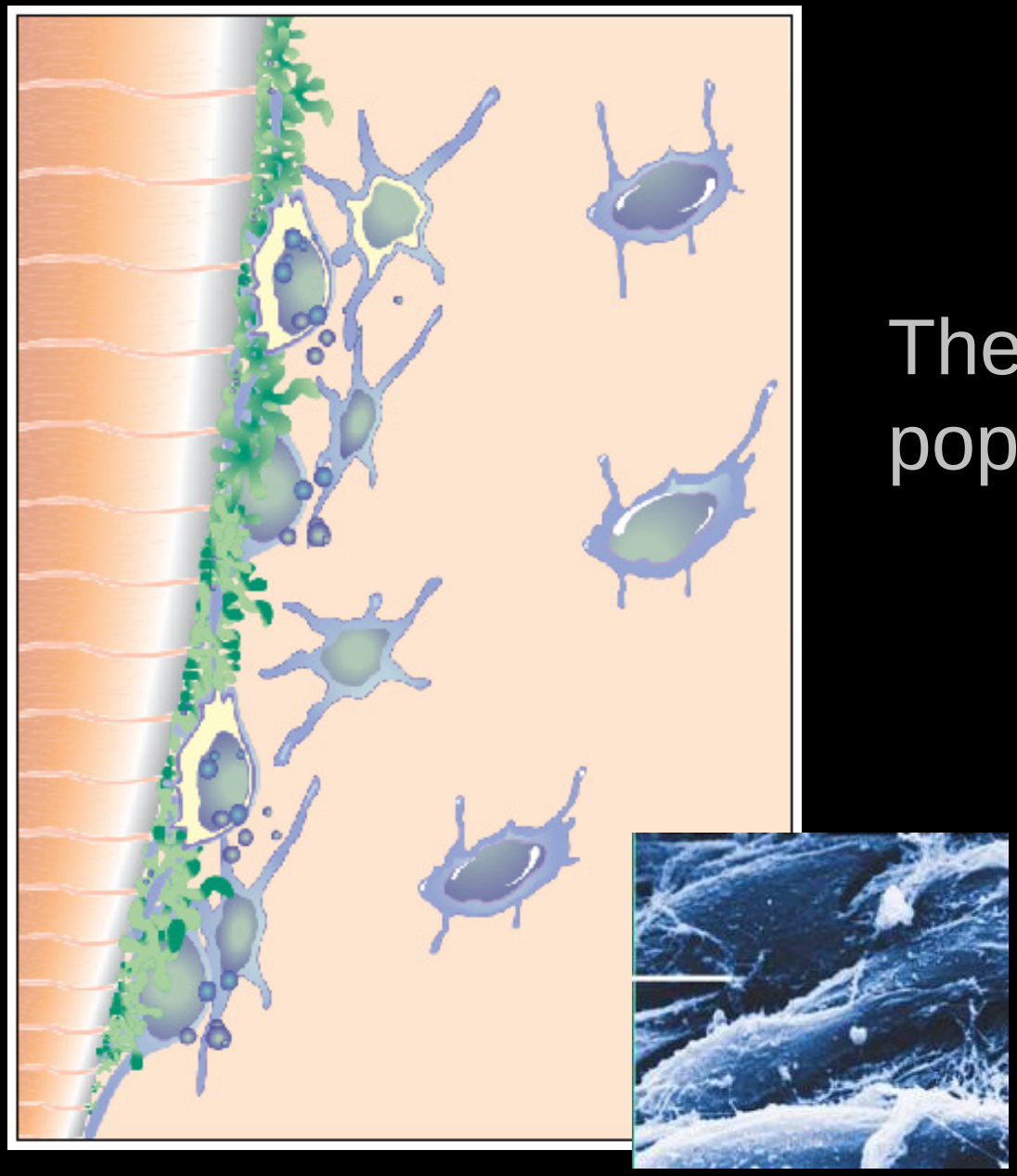
Modell of mechanism: Attraction



Mesenchymal cells migrate into the lesion towards a root surface covered with Emdogain®

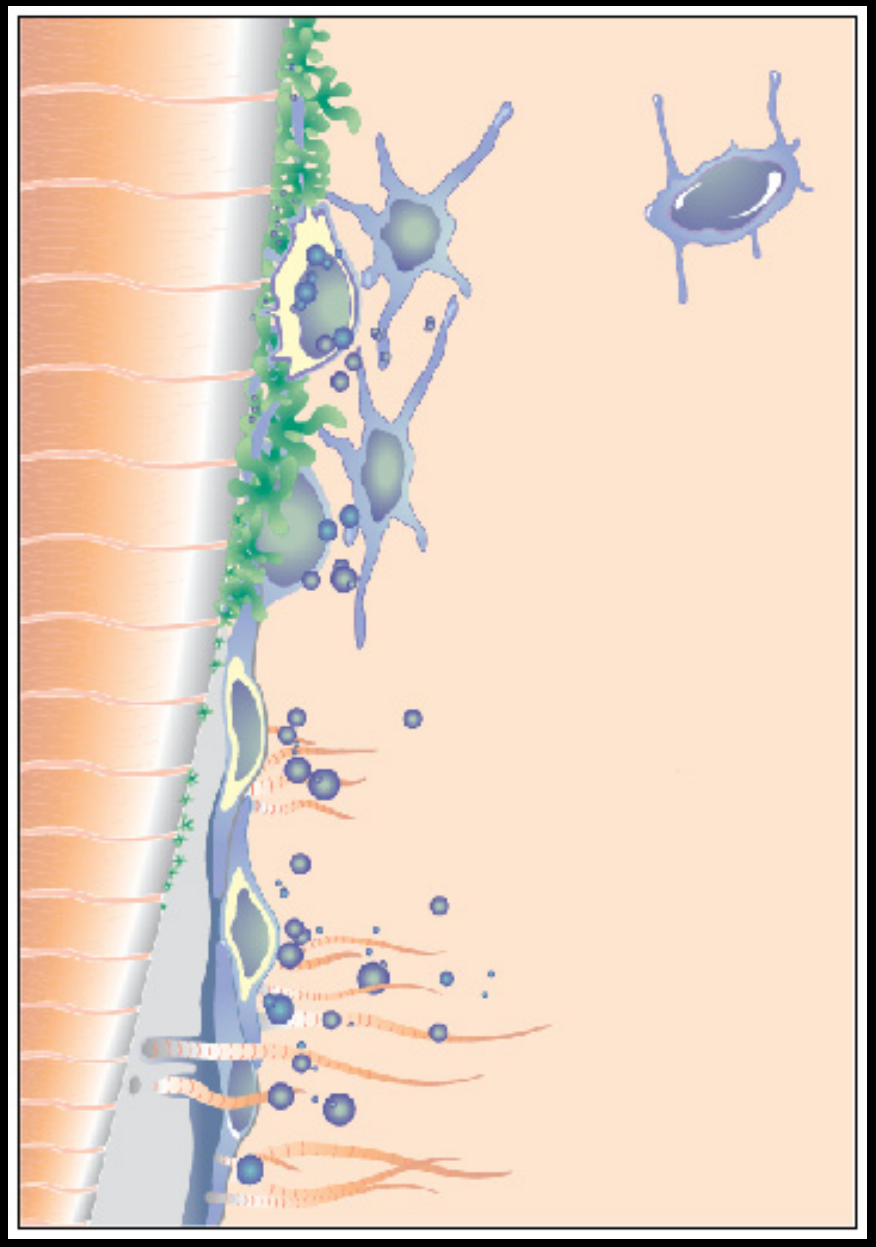
Amelogenin is crucial for the process to start and new cement to be created.

Modell of mechanism: Attachment



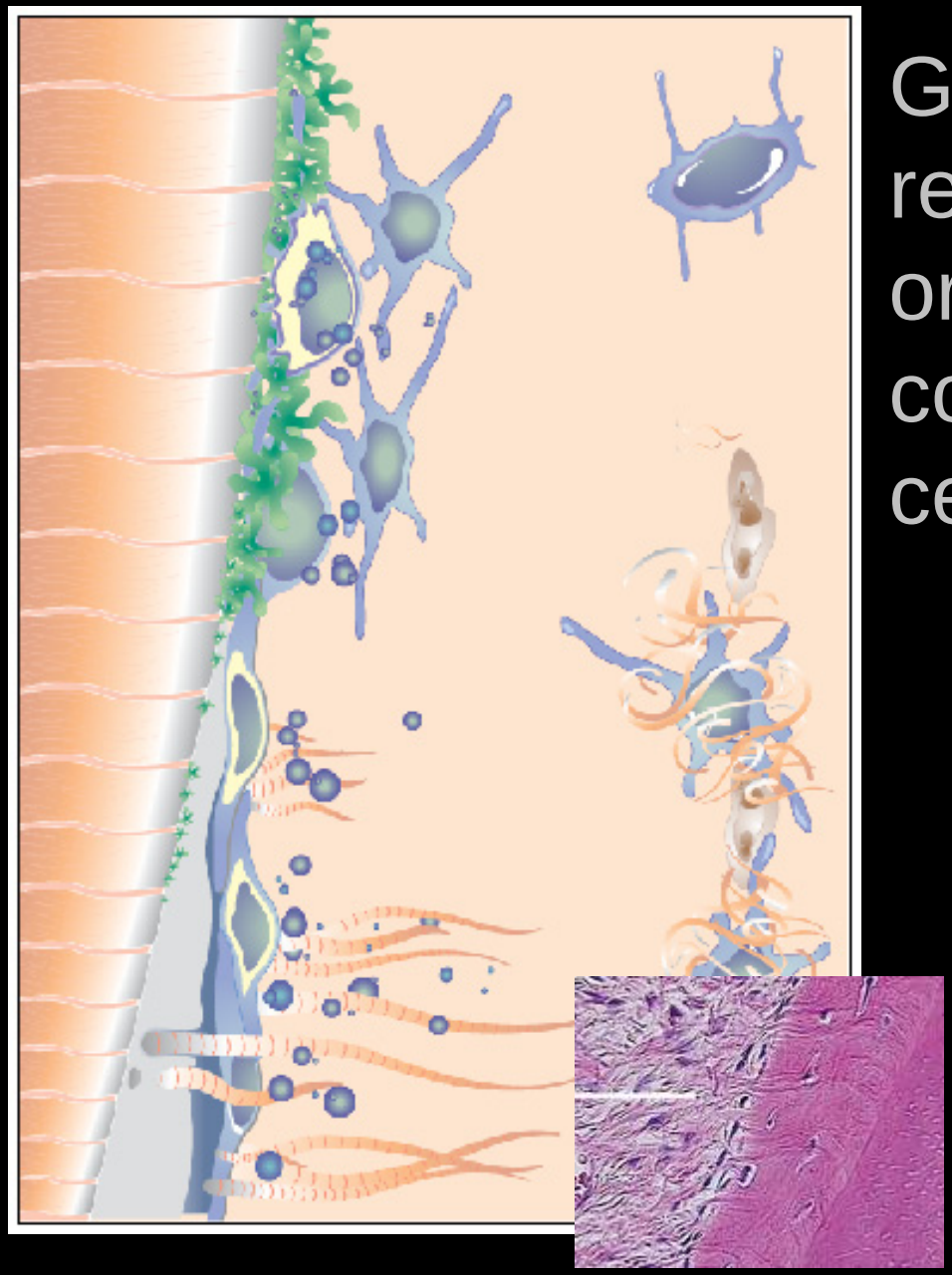
The cells attach and populate the surface

Modell of mechanism: Proliferation



Cell metabolism is increased and intra-cellular signal substances are activated

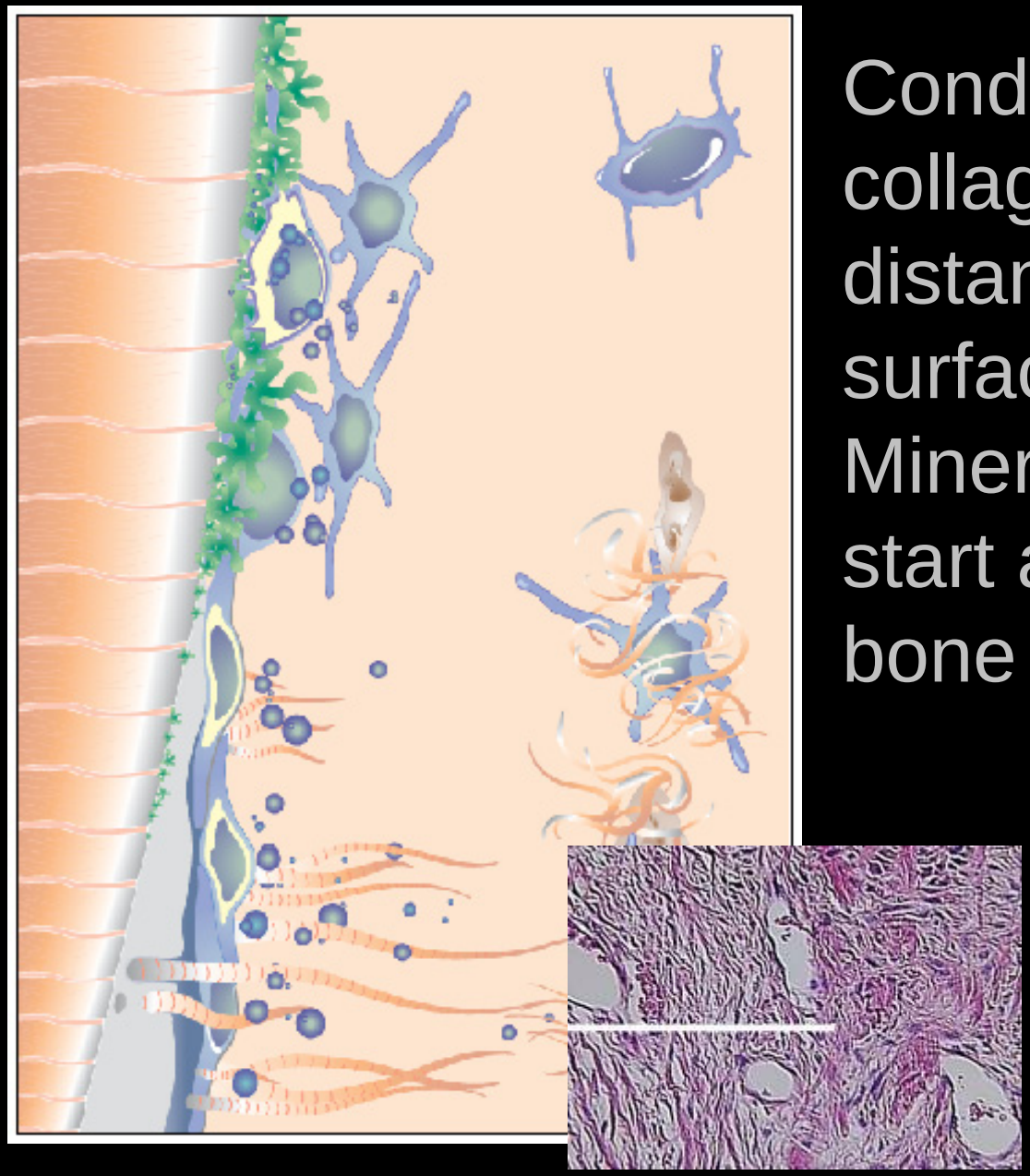
Modell of mechanism: Differentiation



Growth factors are released and the cells organize to produce collagen and acellular cementum

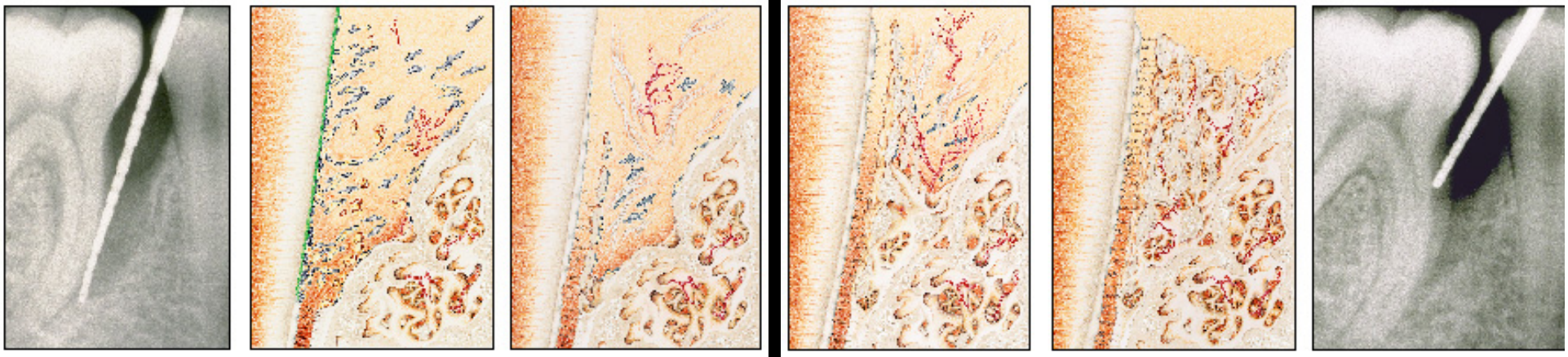
Cementum is the key tissue in periodontal regeneration. The recreation of alveolar bone starts from the root cementum

Modell of mechanism: Alveolar bone



Condensation of collagen at a certain distance from the root surface.
Mineralization will start and alveolar bone forms

The concept used in a periodontal defect



Days Weeks Months One Year

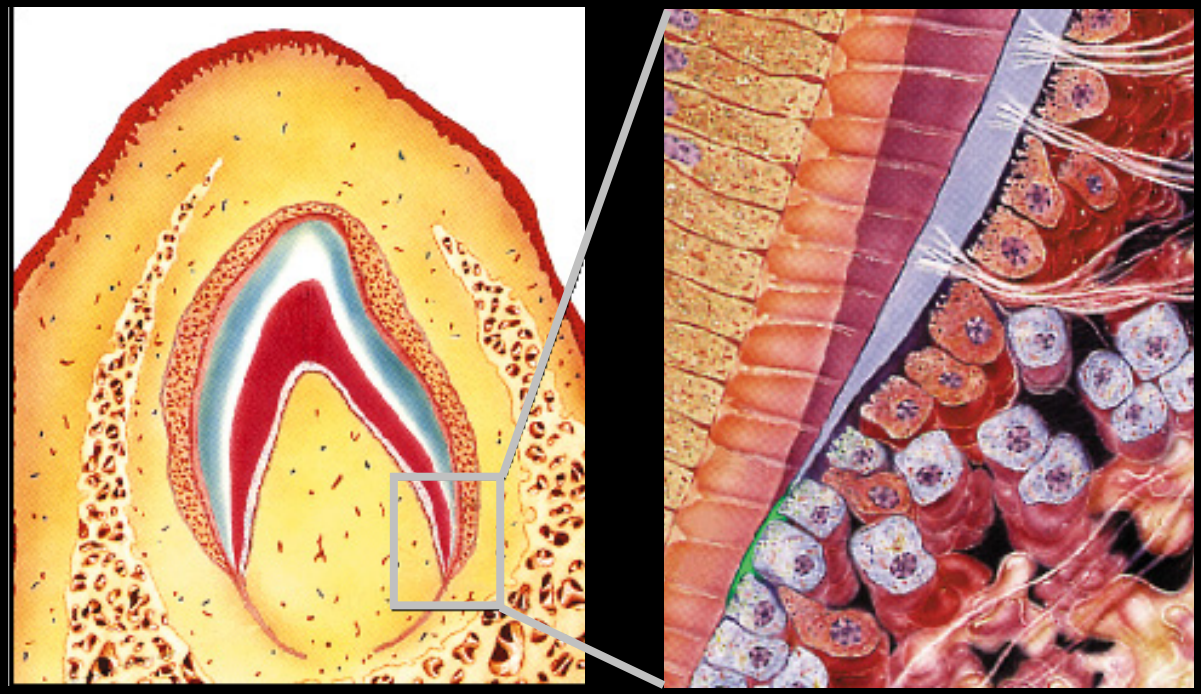
The enamel matrix protein forms a matrix on the root surface. Mesenchymal cells migrate into the lesion, attach to the surface and start to proliferate.

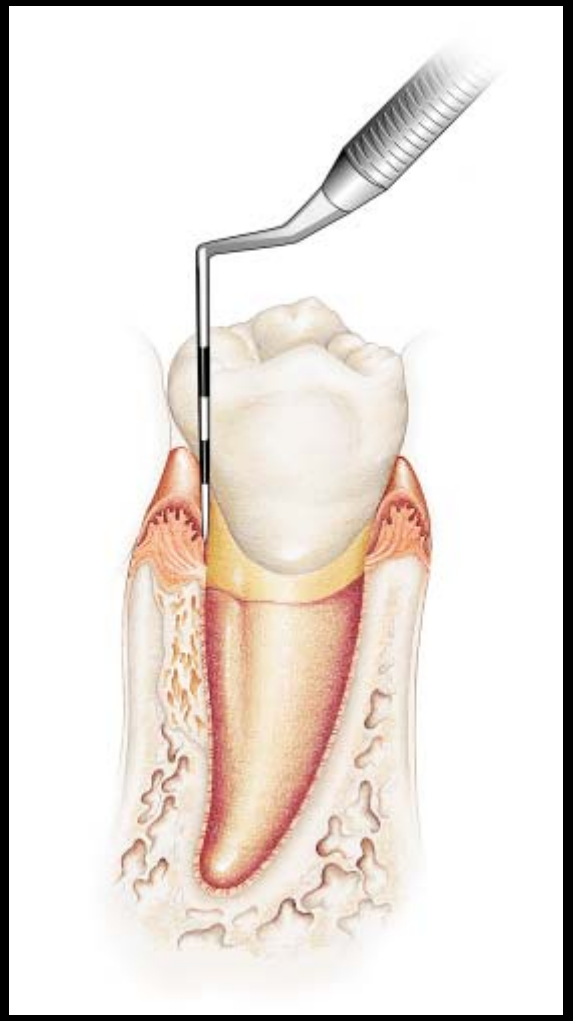
Bone formation starts at the Emdogain® treated root surface and subsequently new alveolar bone will fill the defect.

A new attachment with cementum and ligament is formed along the treated root surface.

A new functional attachment is achieved with time.

Emdogain® - recreates...





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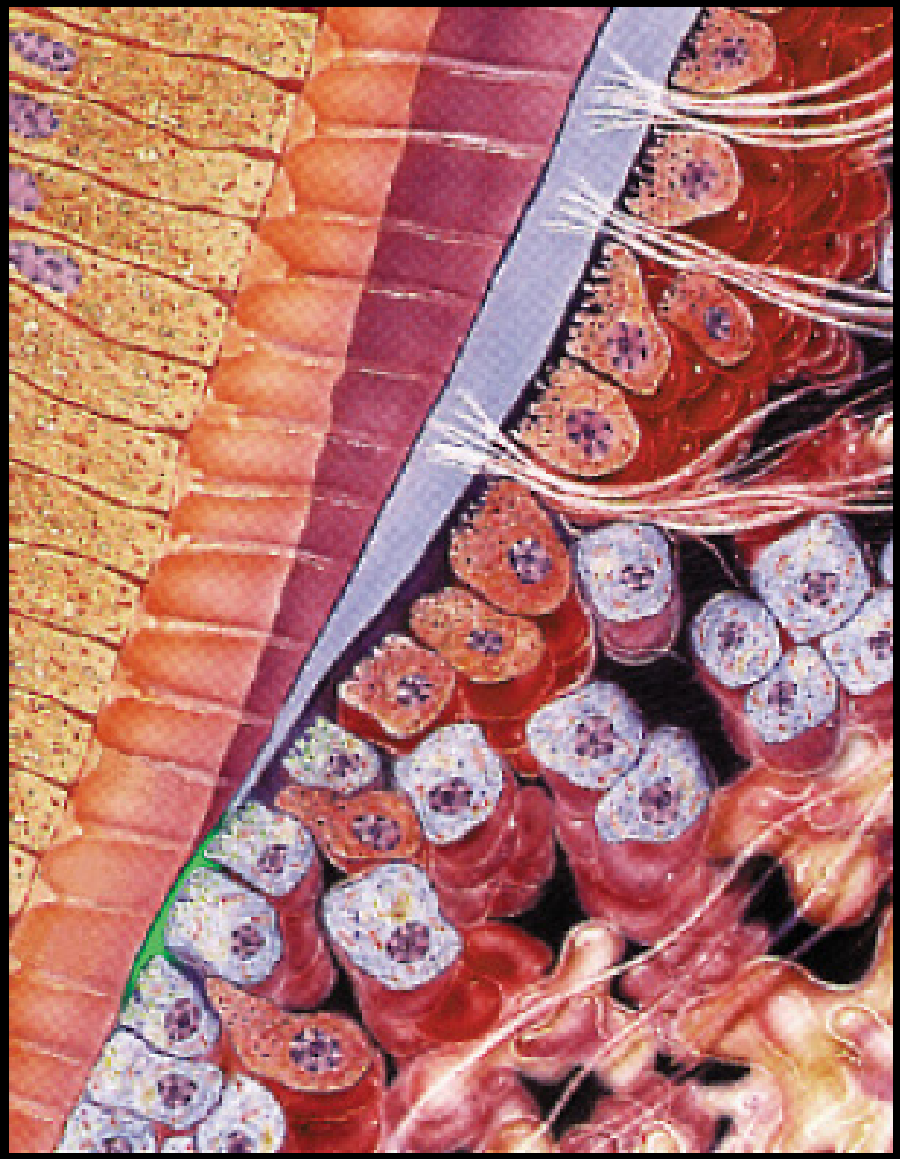
Emdogain®



Biological Regeneration

Predictability

Patient Satisfaction