House Keeping rules



Switch mobile phones to silent



Photographs & Videos are welcome



BE ON TIME



Stay engaged

The Art of Immediate Loading

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What is the objective of this workshop

- We are not here to teach you basic dentistry
- Implant Therapy is a technical skill (along with knowledge)
- By the end of this workshop:
  - *Diagnosis of an immediate loading case*
  - *Treatment planning of an immediate loading case*
  - *Case Presentation of an immediate loading case*
  - *Generic Sequence of Implant Drilling*
  - *Torque variations and techniques*
  - *Immediate Placement of an Implant*
  - *Immediate Loading of an Implant*
  - *How to torque an implant in the case of immediate loading*
  - *How to take an impression in the case of immediate loading*
  - *How to cement or screw a prosthesis in the case of Immediate Loading*
  - *If Immediate loading fails, what options do we have ?*
  - *The revolutionary practice of Tissue Regeneration !*

A Brief Overview

- The World of Dental Implantology
- What is a Dental Implant?
- Materials
- Biocompatibility
- Osseointegration
- Primary Stability
- Secondary Stability
- Stages of an Implant Procedure
- Immediate Placement vs Immediate Loading

Keys to an Implant Success

- Patient compatibility
- Surgeon
- General Practioner
- Lab Technician
- Industry
- Prosthodontist
- Dental Assistant
- Cross Infection Control

Options for the Patient

PD

Crown or Bridge

Laminate

Dental Implant

Group Discussion : What are the advantages and disadvantages of each option

Consequences of Tooth Loss



Tooth movement (Elongation, drifting, horizontal displacement)



Bone Resorption –



Without tactile sensation, bone will feel useless and start to commit suicide



Disturbed Junction –



Disruption of the : Joint Tuberculum Articulare – Disc Discus Articularis – Caput Mandibulae (Joint Condyle) symbiosis



Leading to:

Take home message…..

- Bone resorption
- Loss of confidence
- Drifting of teeth
- TMJ
- Oro facial pain
- Phonetic discrepancy
- Poor esthetics
- Change in opposing dentition
- Malfunction

Basics of Oral Implantology



Learning objectives



To learn the historic development of Dental Implants

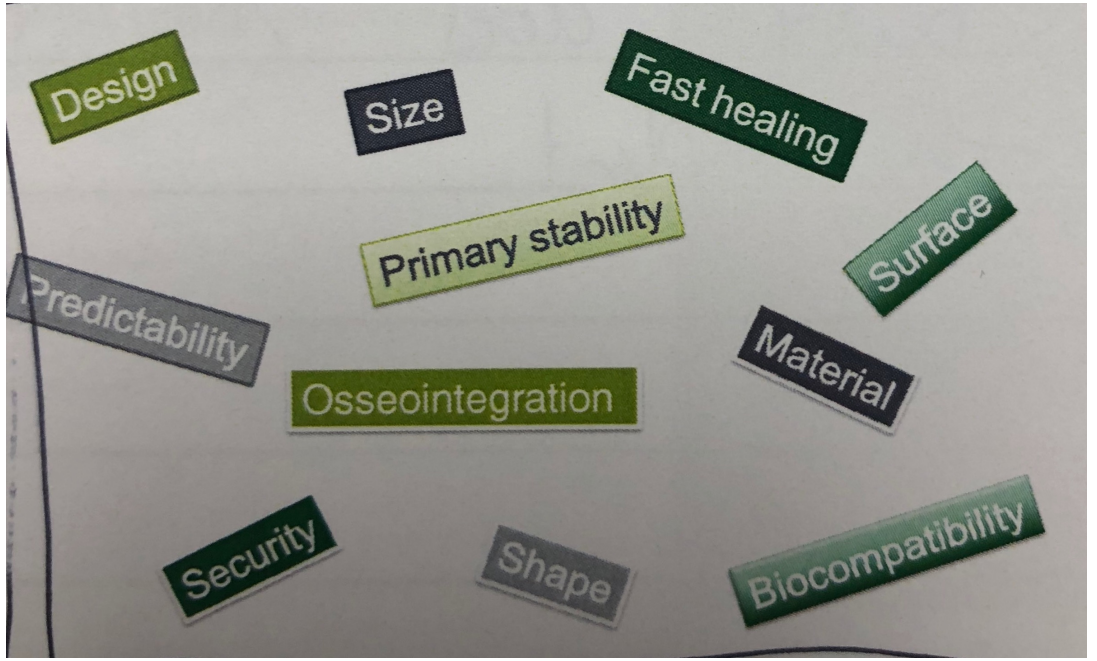


To have a clear understanding on what is a Dental Implant

The Branemark Straumann Story

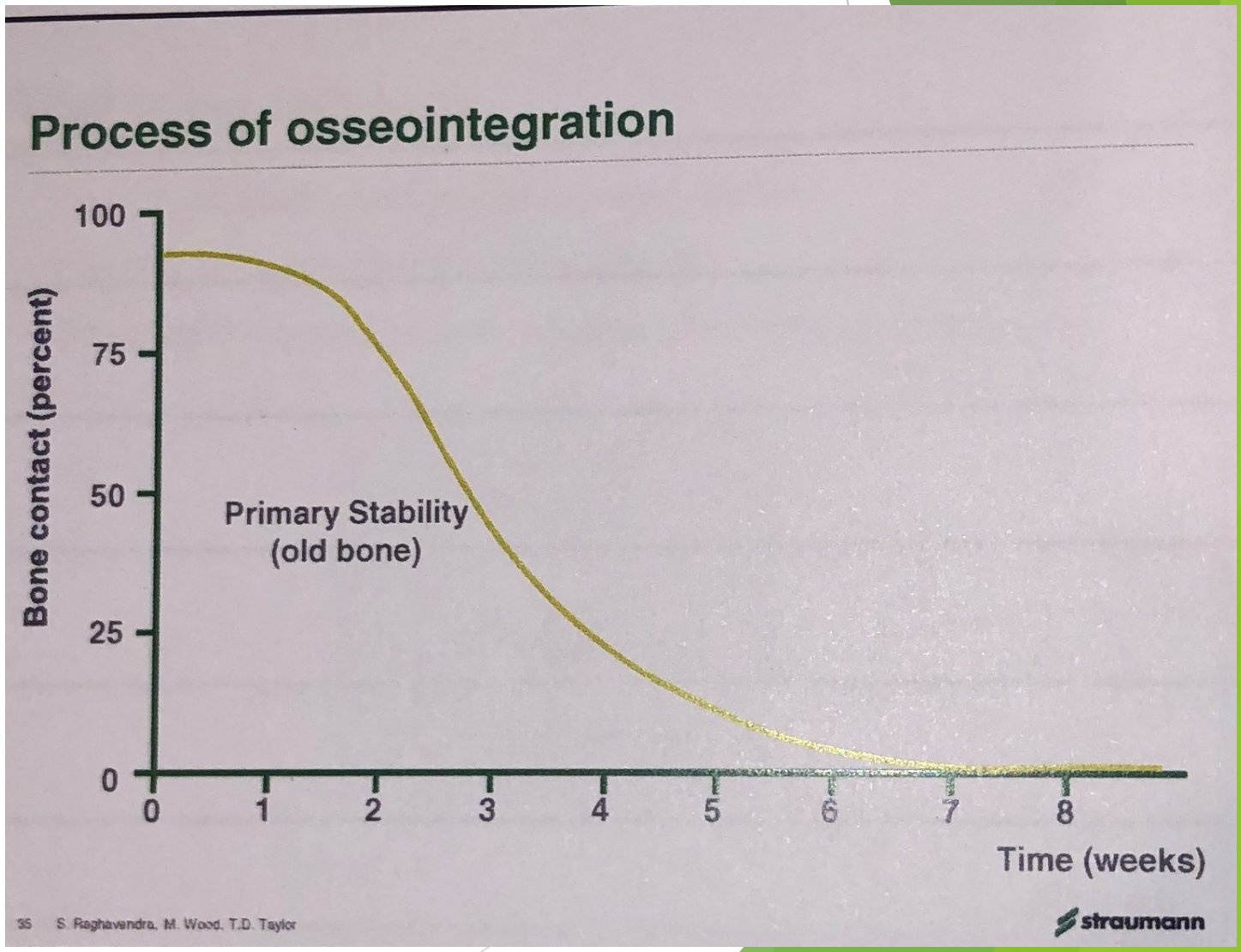
- 1969
- Skiing Accident
- Broken Hip
- Mr Straumann places an implant in his own hip and realizes he can also replace other body parts with titanium alloy
- Branemark (Straumanns best friend) collaborates with Mr Straumann and Mr Shroeder (Germany) and revolutionize the idea of replacing teeth
- Branemark: The Father of Implant Mechanics
- Straumann: The father of Implant Industry
- Schroeder: The father of Implant research

The Key features of a dental implant



Process of osseointegration

- Osseointegration is a direct structural and functional connection between ordered, living bone and the surface of a load bearing structure (the implant itself)
- Discussion



Process of osseointegration

Stage	Timeframe	Process
1st stage	during the 1st month	Bridging by woven bone formation
2nd stage	after 1 month	Reinforcement by apposition of parallel-fibred and lamellar bone (adaptation of bone mass to load)
3rd stage	after 3 months	Trabecular and cortical bone remodeling (adaptation of bone-structure to load)

Implant placement modalities

Immediate placement

Late placement

With flap elevation

Flapless surgery

Within 48 hours after tooth extraction



After (partial) healed soft and hart tissues



Exposing bone at implant site



Drilling through soft tissue



Determinants of an Immediate load/placement case

- Patient history
- What are we looking for ?

  Pre existing conditions
- Bone type
- Mental State of Mind
- Time Span
- Travel dates
- Shaadi Season – High Profile patient

PRIMARY STABILITY
The basic facet of the success of your Immediate Placement

How can we achieve optimum primary stability :

RAISE THE FLAP

- ALWAYS RAISE A FLAP –
- What is the imoortance of direct visual technique.
- The gingiva WILL heal, but necrotic bone will lead ti implant failure



2. BONE QUALITY + QUANTITY

Class I: dense cortical bone; Class II: porous cortical bone; Class III: coarse trabecular bone; Class IV: fine trabecular bone.

1. Slightly controversial
2. In my experience, an optimal length of bone in at least 10mm.
3. Absolutely no Immediate loading in spongy bone or if you find more than 150um of granulation tissue

3. SURGICAL TECHNIQUES

In the end, we are always looking for ways to improve our ideal law. Primary stability

1. 1–2 mm subcrestal implant placement

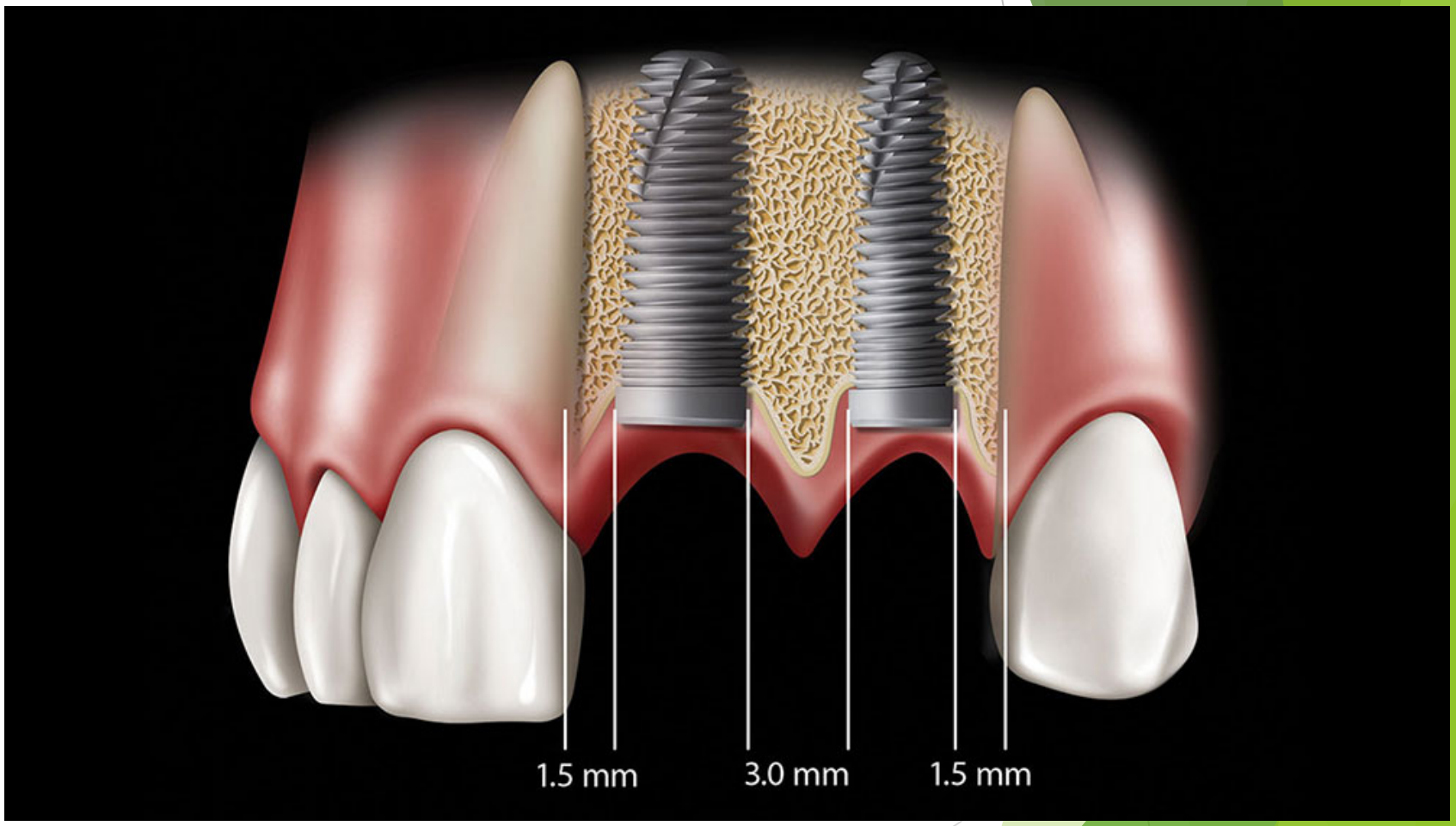
2. Bicorticalization into the nasal or sinus floor whenever possible

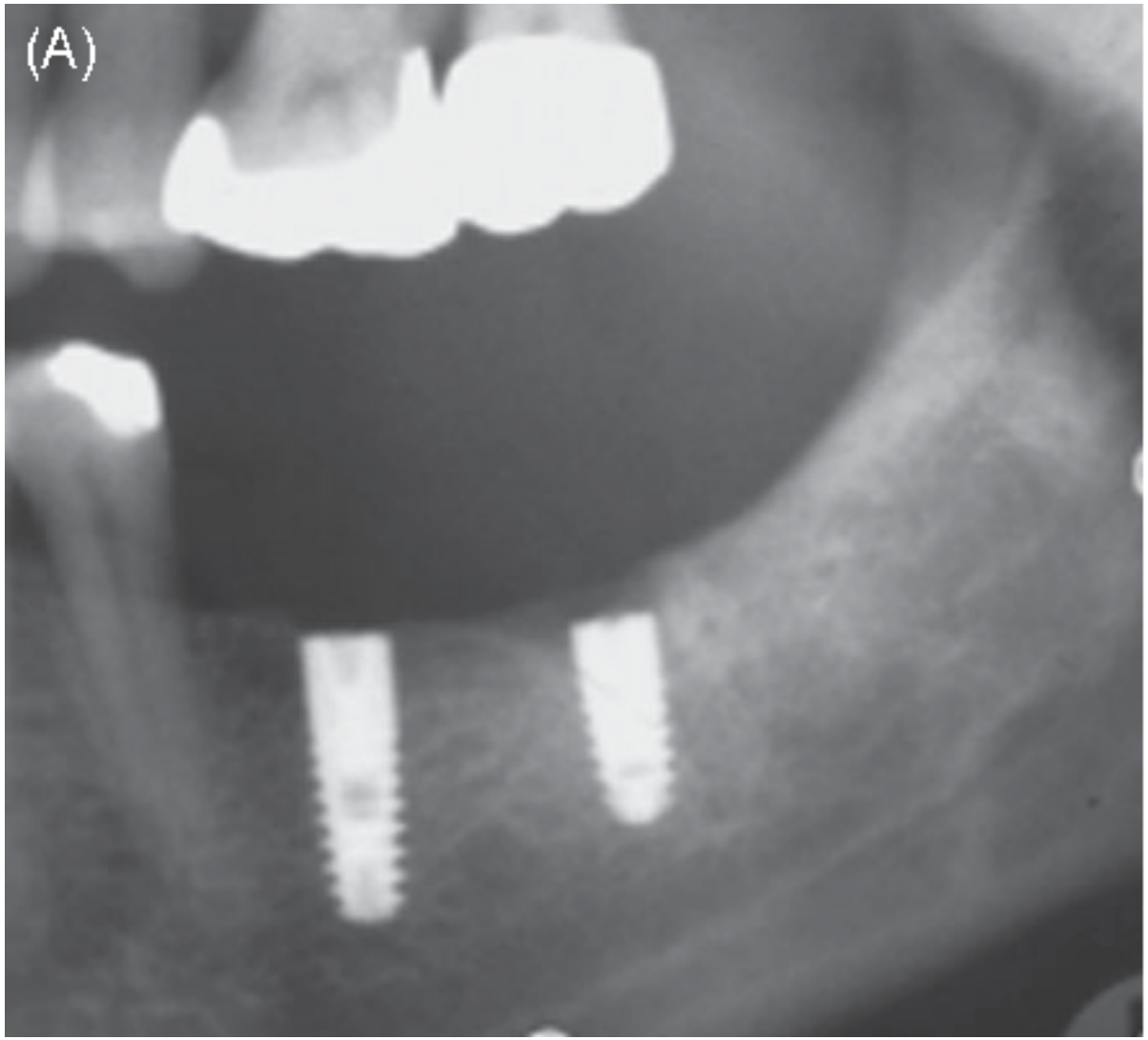
3. Implant site under preparation

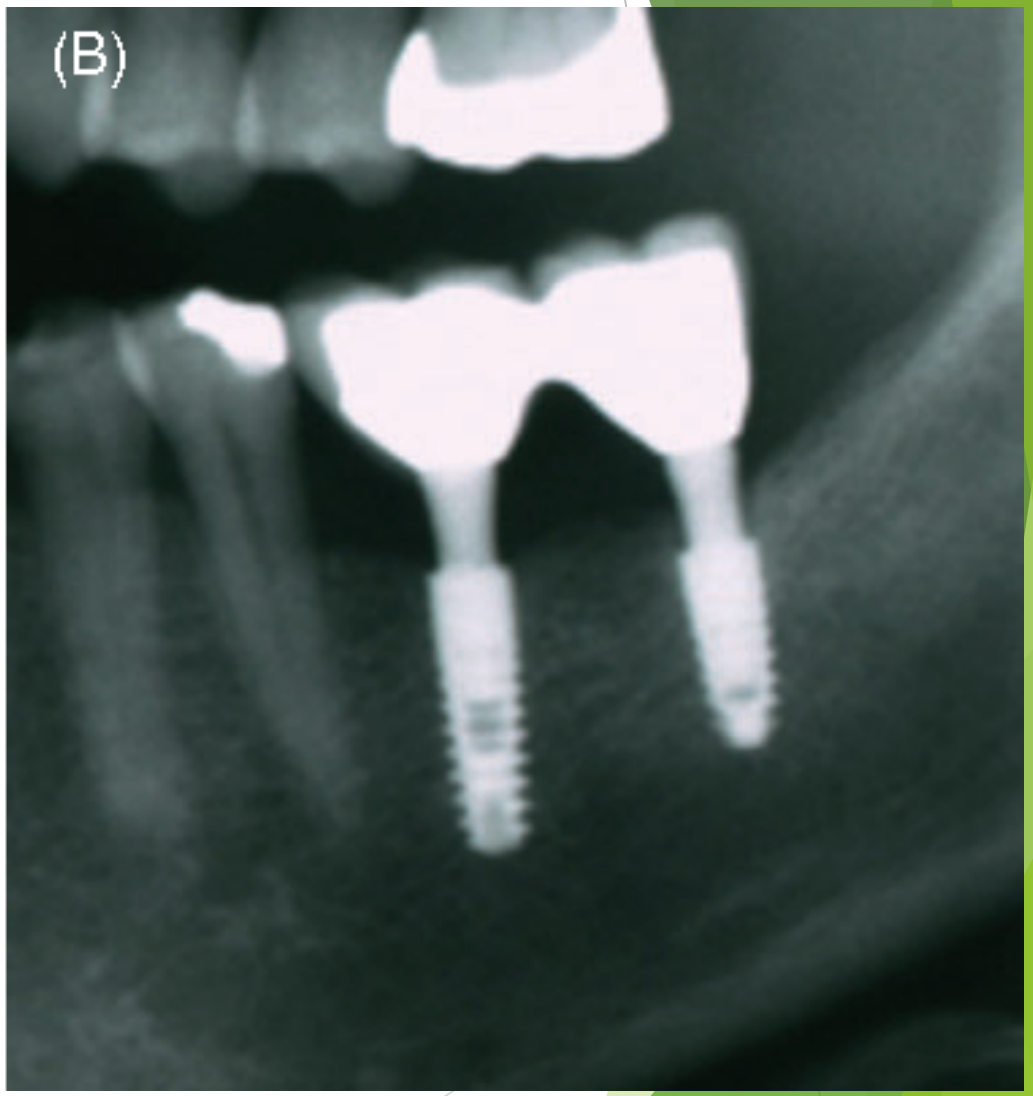
4. Bone condensing technique The implant site under preparation and the bone condensing technique are the most commonly used techniques, performed nearly always when in presence of Class III or Class IV bone: the first consists in the use of a final drill diameter which is smaller than the diameter of the implant with the second technique cancellous bone is pushed aside with bone condensers (osteotomes), thus increasing the density of the implant surrounding bone

Technique 1

- 1–2 mm subcrestal implant placement
- WHY?




(A)


(B)

Why do we want to use the Sinus Floor?

- There is healthy bone under the Schnedrian Membrane
- USE IT
- Sinus lift : either through crestal or lateral approach proves to be an effective way for augmenting bone for the placement of dental implants
- The Posterior Maxilla is by far the poorest bone to place a dental implant. Use all means necessary to achieve adequate primary stability



Under preparation of the Implant Site

The use of a final drill diameter which is smaller than the diameter of the implant

Lets discuss. What can be the positives and negatives of this technique ?

https://www.youtube.com/watch?v=c5Q6MRsfm3Q

IMPLANT DESIGN + POSITIONING

1. Tapered (root-form) implants

- to overcome the poor bone quality and quantity limitations.
- exercise a degree of compression of the surrounding bone during the insertion phase, and the decrease of their apical diameter - Allows us to place wider neck implants in smaller diametric areas

2. Rough implant surfaces make the area of implant-bone contact even more extended

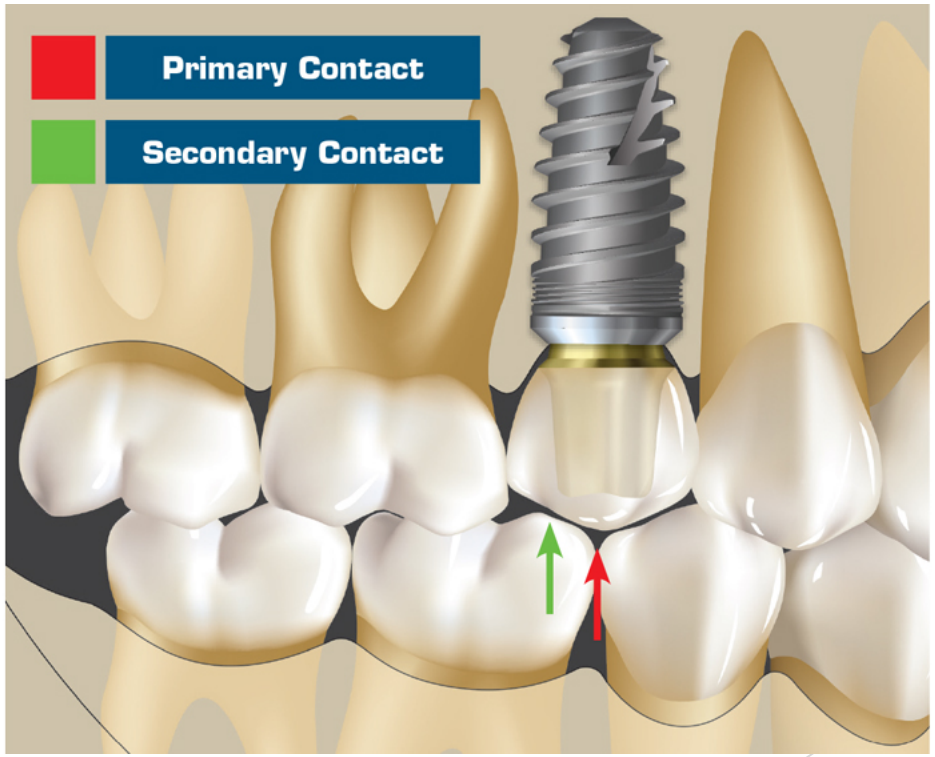
3.Uniform distribution along the alveolar arch

- Distal implants should be inserted in place of the 2nd premolar or 1st molar, even with a tilted position in order to minimize the need of cantilevers

4. Tilting
- Slightly Controversial again
- Better to be used in the posterior regions

Implant Positioning

- When in doubt Keep the final prosthesis slightly out of occlusion



PATIENT SELECTION

Who is a candidate for Immediate Loading?

- Good general health,
- Edentulous area or teeth with impossible prognosis,
- Adequate bone quality and quantity,
- Absence of acute infection
- Primary stability of implants.
- The exclusion criteria:
- Systemic disease, immunodeficiencies, head and neck radiotherapy, alcohol or drug abuse, pregnancy, pathologies of the oral mucosa, or lack of cooperation of the patient.

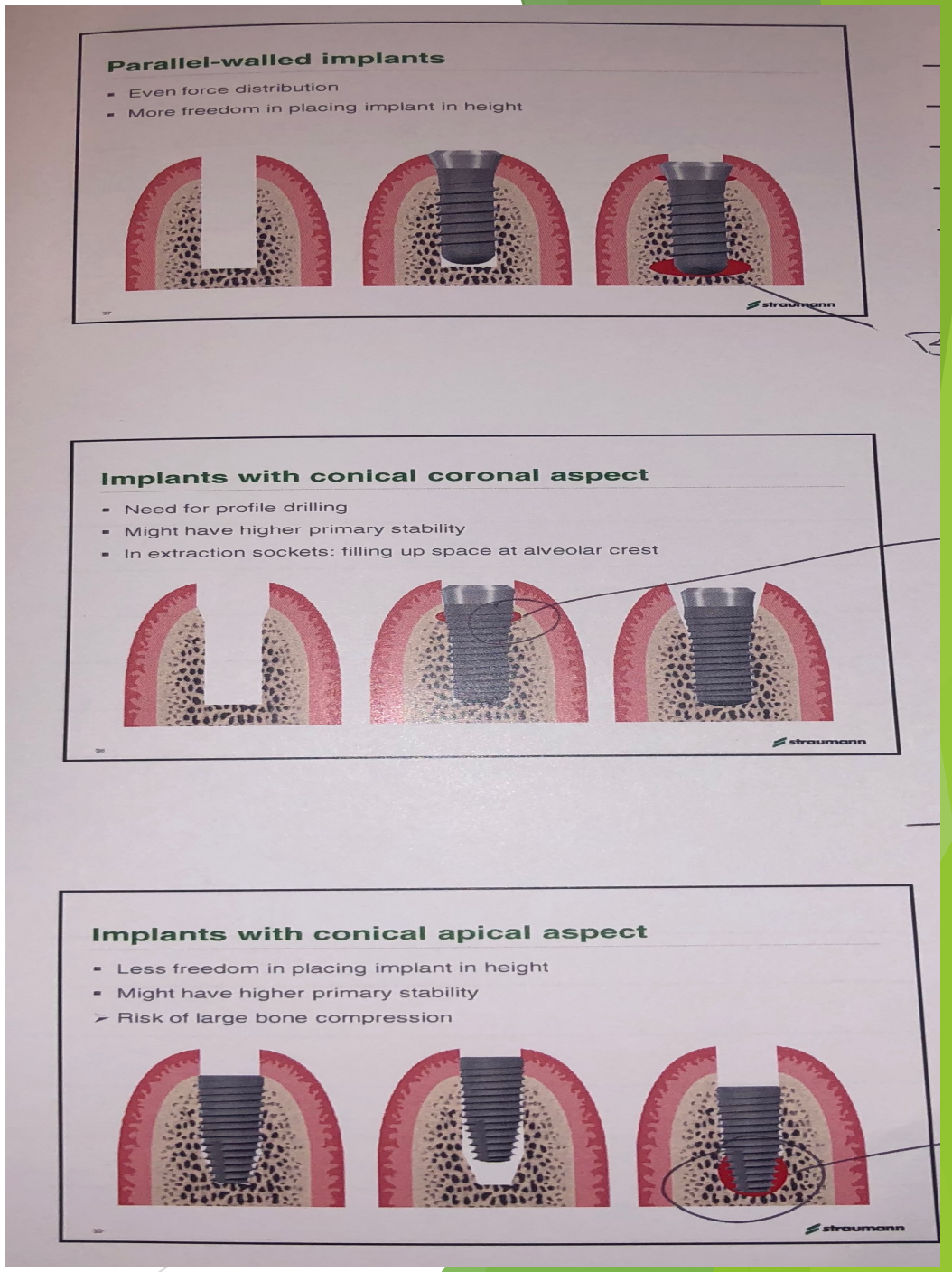
TORQUE: The Final Frontier

- What is torque ?

Torque values in an immediate placement or load case

- 30 to 40 Ncm have been usually chosen as thresholds for immediate loading
- That torque minimum level is important both to assure the osseointegration process and to give enough engaging strength to the implant-abutment connections, via the fixation screw.
- HOWEVER some studies assess that also ILI placed in a weak bone with a final torque ≥ 20 Ncm have an equally successful prognosis as the CLI
- Take home message: Torque your implant to the full 35ncm, but keep the abutment at a slightly less torque value
- Why?

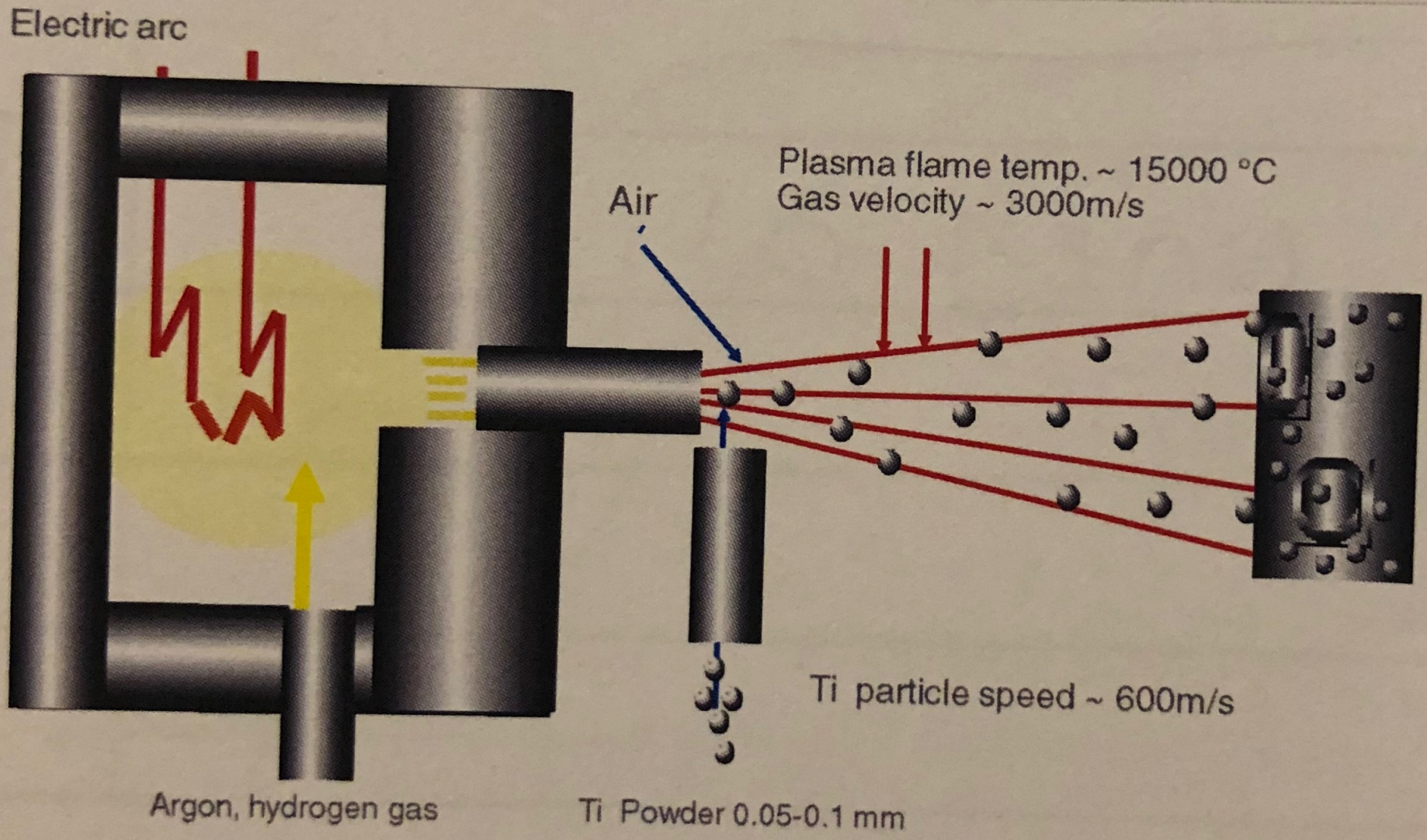
Ideal Properties of choosing an Implant



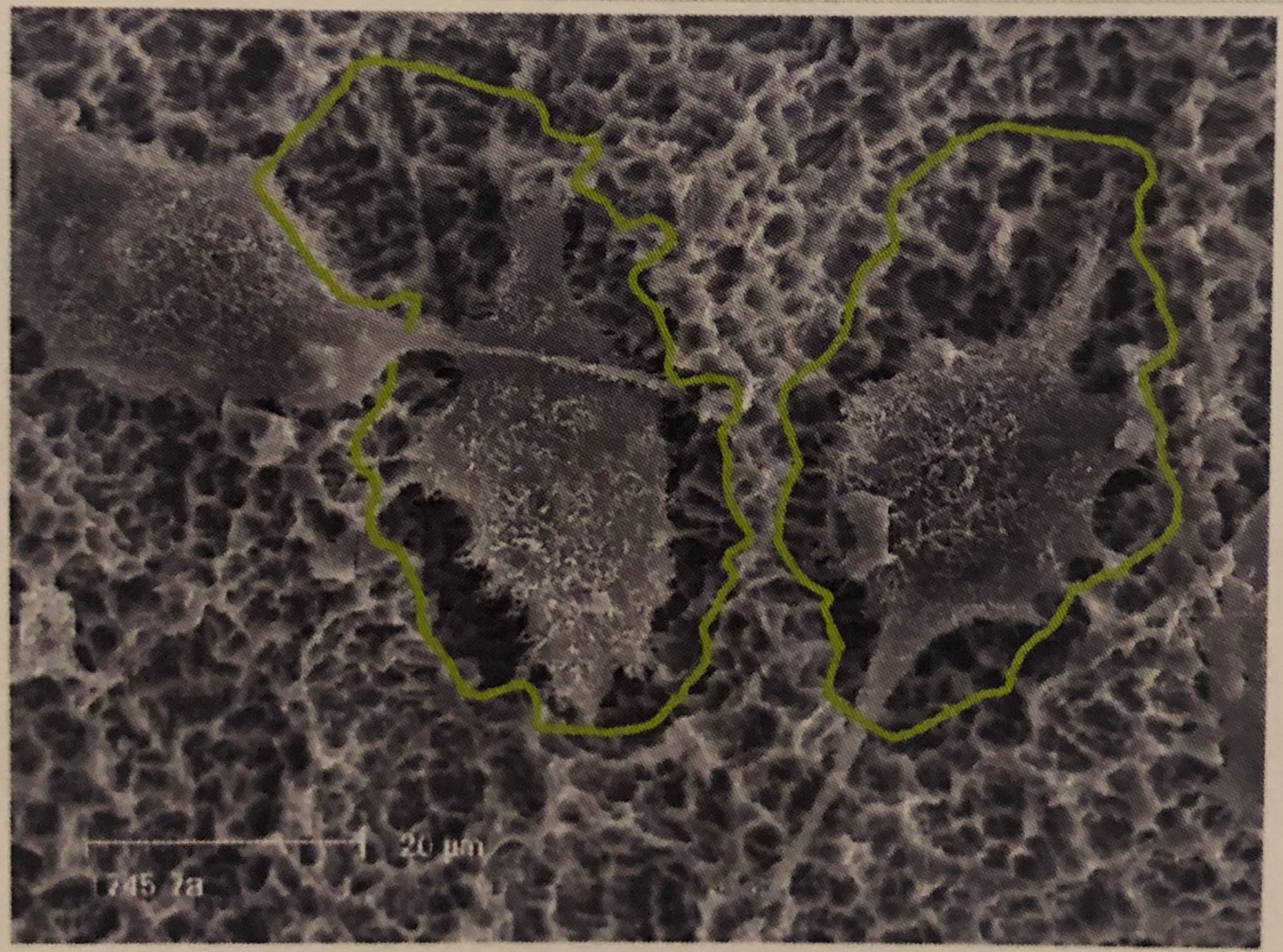
Innovation and evolution

- How can we perform immediate loading without achieving secondary stability?
- The TPS Surface
- The SLA vs Active biochemical surface
- Everyone familiar with SLA?

Production of TPS surface: Ti-plasma spray



SLA® Surface

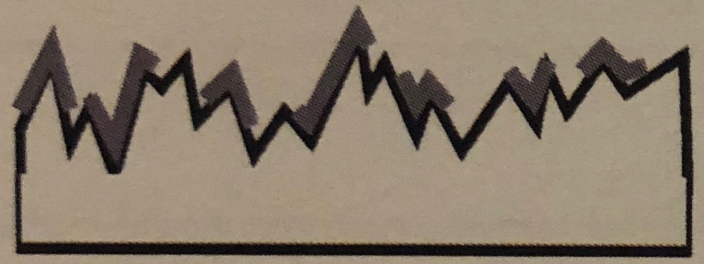


Macro-structure: 20 - 40 µm

The Birth of Chemically Active Implants

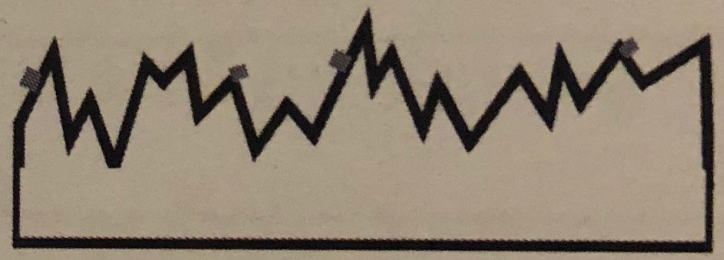
Difference: SLA® & SLActive®

SLA®



- Surface partially covered with carbons from atmosphere
- Body has to remove carbons for osseointegration

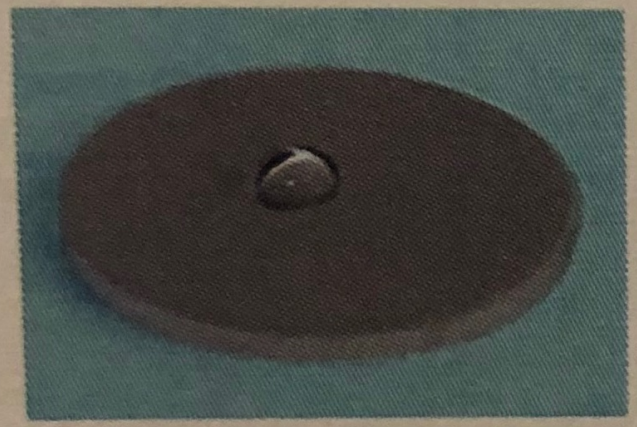
SLActive®

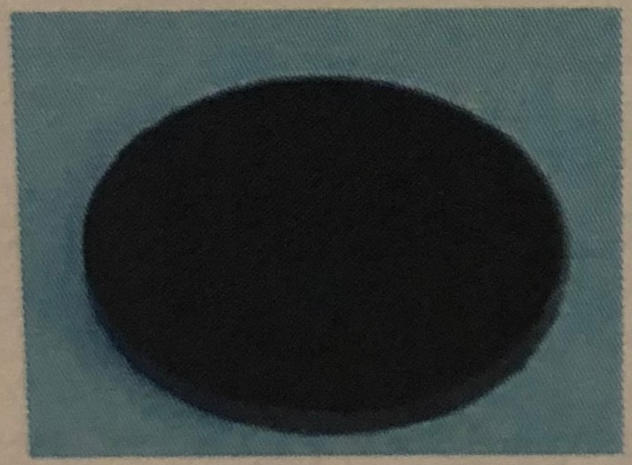


- Surface „not“ covered with carbons from atmosphere
- Body can immediately access active surface for osseointegration

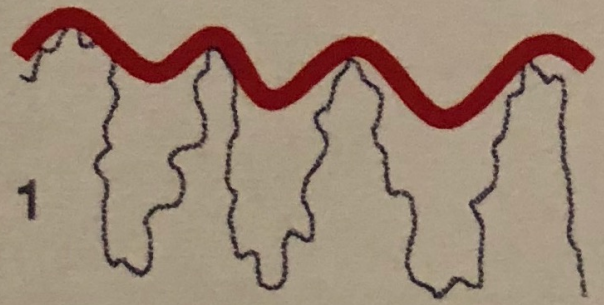
SLActive® surface properties

SLActive® provides a hydrophilic surface

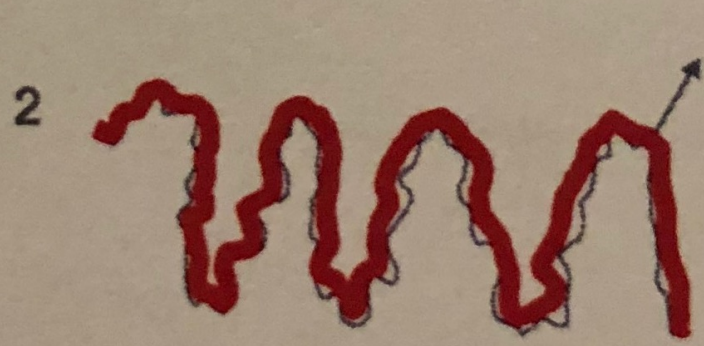




SLA® (hydrophobic)



SLActive® (hydrophilic)



Optimal use of the surface topography

=> Blood can move into deep cavities of surface

SLActive® surface properties: highly osteoconductive properties



Week 2

SLA



0% BIC

Week 12



5% BIC

SLActive

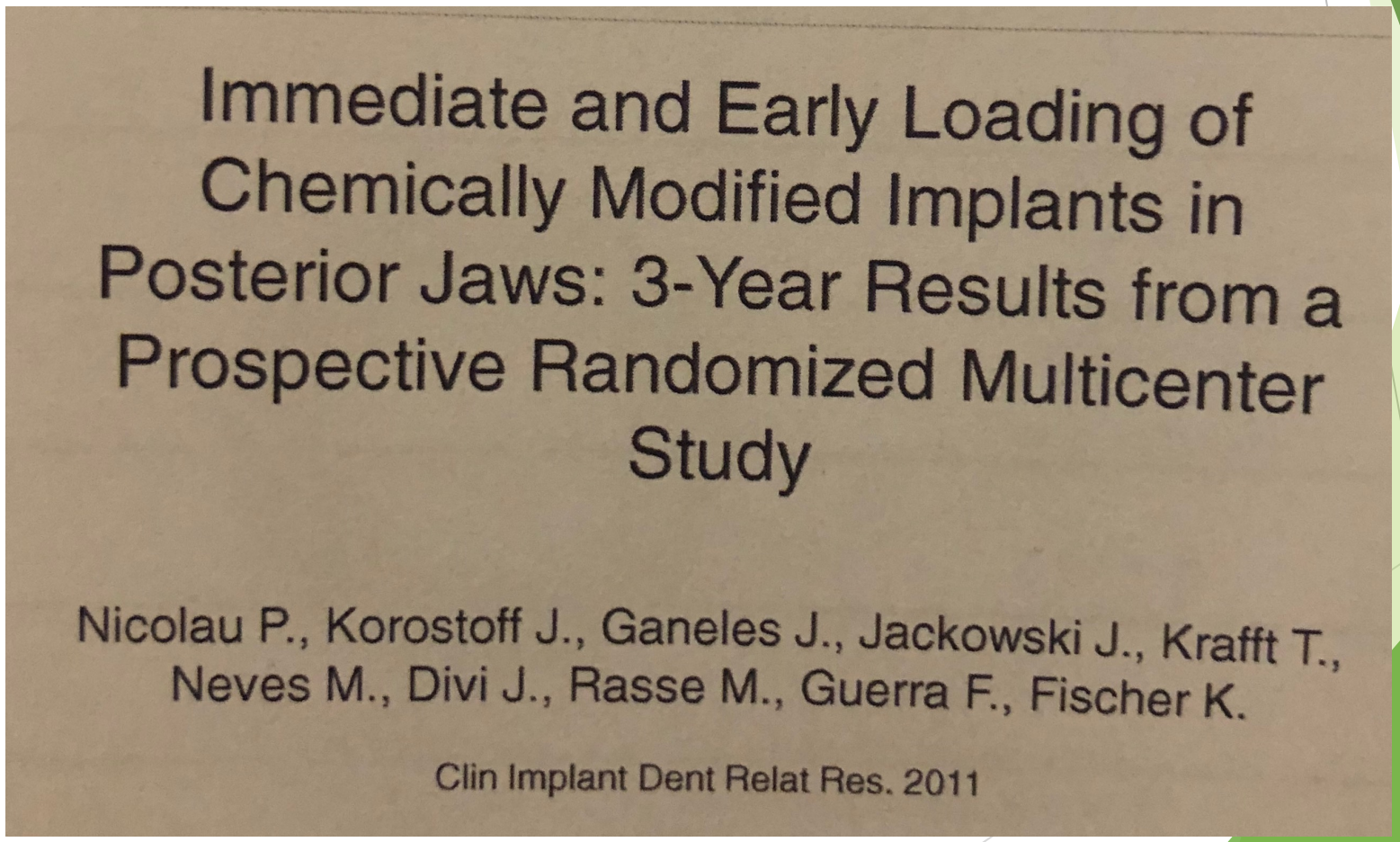


▪27% BIC (p<0.001): Bone regeneration started around



▪80% BIC (p<0.001): Defect completely filled after 12

Success rates of an immediate or early loading



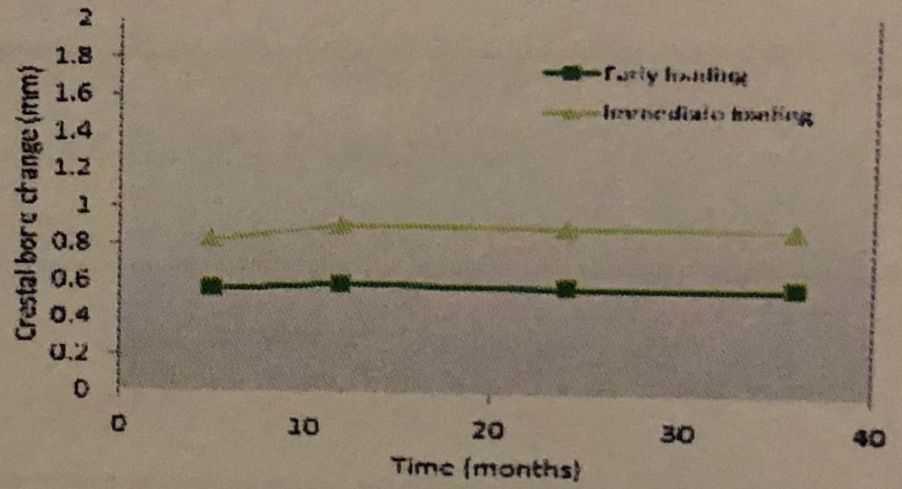
Immediate and Early Loading of Chemically Modified Implants in Posterior Jaws: 3-Year Results from a Prospective Randomized Multicenter Study

Nicolau P., Korostoff J., Ganeles J., Jackowski J., Krafft T., Neves M., Divi J., Rasse M., Guerra F., Fischer K.

Clin Implant Dent Relat Res. 2011

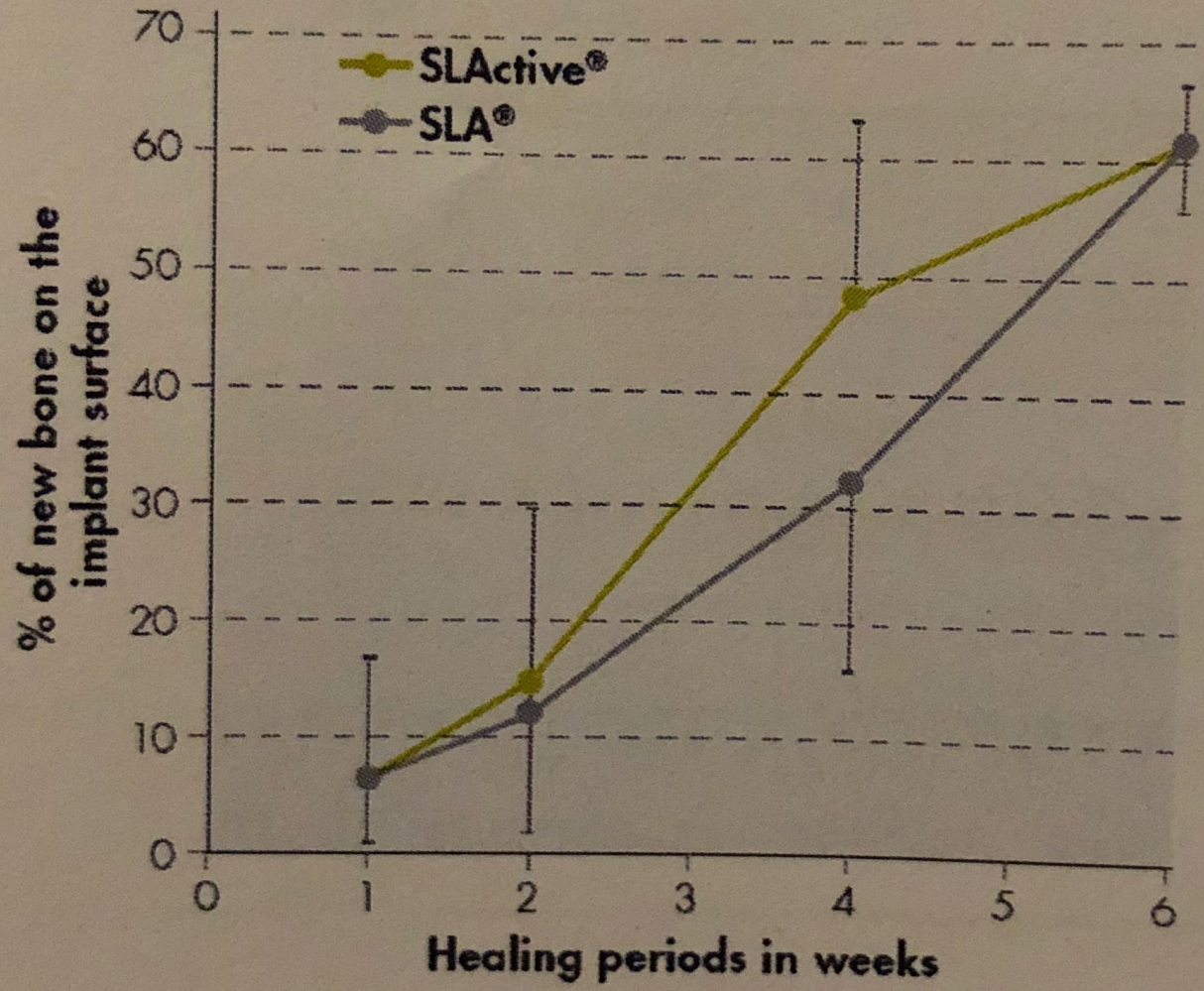
3 years follow-up on immediate and early loading showed good implant survival rate

- 231 patients, 340 implants
- Implant placed in the posterior maxilla or mandible
- Immediate or early loading (between 28 and 34 days after surgery)
- 96.8% mean success rate after 3 years



High success rate even with aggressive protocol and in poor quality bone

Result


SLActive®
SLA®
% of new bone on the implant surface
70
60
50
40
30
20
10
0
0
1
2
3
4
5
6
Healing periods in weeks

Conclusion of studies

„SLActive is a chemically-active and hydrophilic surface that promotes faster osseointegration and higher implant stability in the critical treatment period of 2 to 4 weeks after implant placement.“

Clinical issue in early treatment period

Today:

- Most implant failures occur in the first 8 weeks*
  - Costs of early implant failure fall back on doctor

Trend:

- Early failure rates expected to increase
  - Less rigid patient selection criteria
  - Broader base of doctors who place implants
  - More aggressive approach to time-reduced treatment plans

- Immediate Loading
  - high predictability in immediate loading
- Faster Osseointegration*
  - to enhance confidence in all treatments
- Enhanced Bone Formation[8]
  - significantly higher formation of new bone aggregate



Remember what is expensive !!

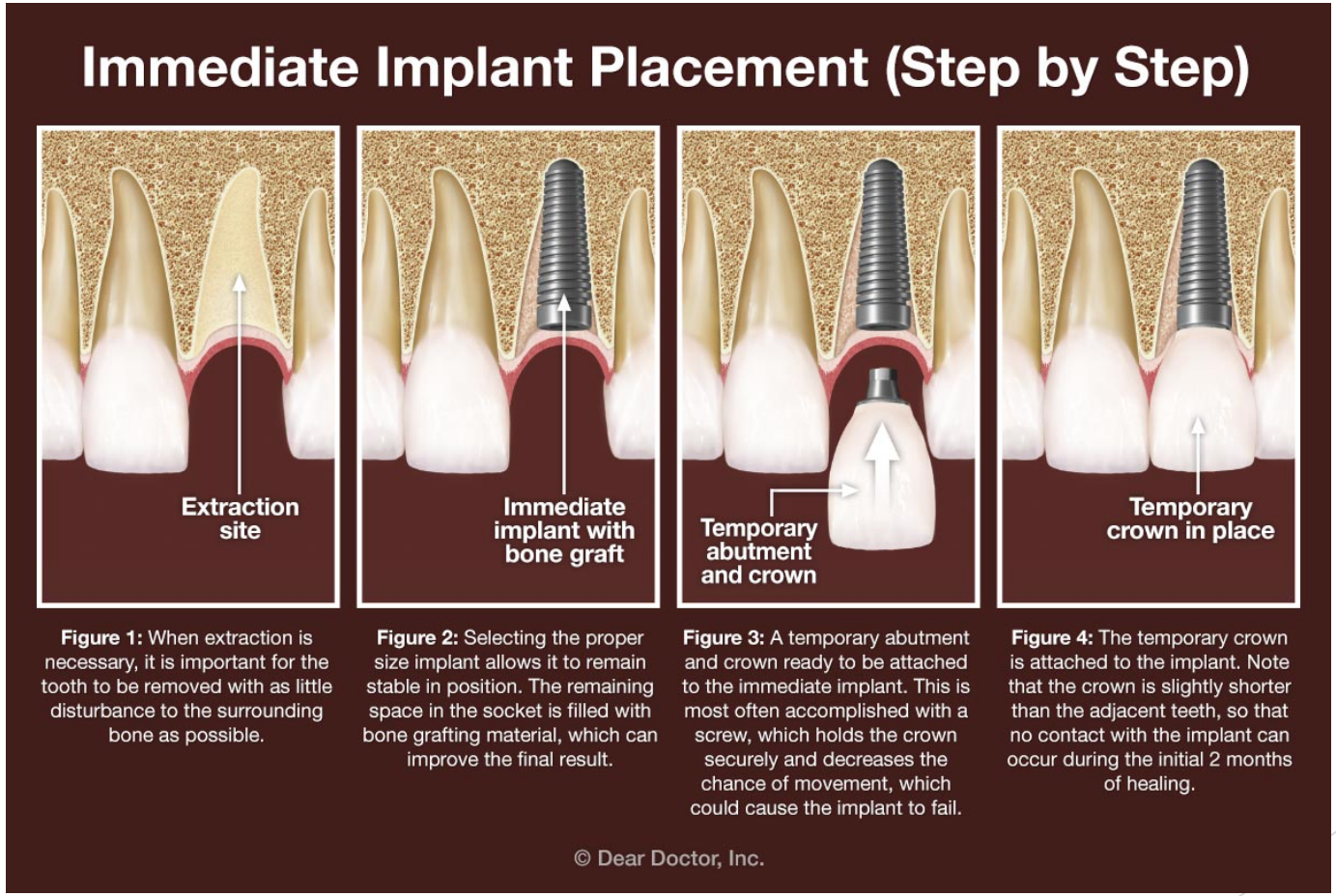
- IMPLANT FAILUIRE
- The cost of Implant will never fall on you
- If your implant fails, you have lost that patient and their entire family circle. I can guarantee that
- Do not EVER compromise on quality, because your reputation is on the line

The final objective should always be in mind

- In the end, we want to achieve one thing :

- PRIMARY Stability

What is Immediate Placement



What is immediate loading



Immediate placement vs Immediate Loading

- When to choose which protocol ?

- Clinical Discussion

The Benefits of “same day teeth”



The rise of Non Metal Implants

- Why Ceramic

