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# tissue management options for teeth & implants - the dermal ARC protocol

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Dr. Mathieu Nault

> [www.elatus.ca](http://www.elatus.ca)





## today's plan

- terminology
- recession risk factors
- classification systems
- analog & digital documentation (& scanning demo)
- monitoring vs. treatment . a decision that is based on your records
- live demos. straumann dermal graft & ARC method
- your patient OR pig jaw hands-on
- recap & discussion



BRIGHT IDEAS,  
MATERIALS &  
INNOVATIONS

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gingival biotype (phenotype)



Connective tissue and dermal grafts are routinely used in the management of gingival recession in the natural dentition. Collagen matrices, PRF are also being investigated. These materials & techniques are also pivotal in implant surgery to enhance tissue volume and improve post-restoration tissue levels.

make knowledge cumulative

- untreated buccal recession defects in individuals with good oral hygiene are highly likely to progress (78% of defects)
- pre-existing keratinized tissue amount influences the development and progression of recession.
- sites lacking keratinized tissue appear more susceptible to further clinical attachment loss



background

classification

treatment planning

root coverage

autogenous grafts

technique/material

alternatives

conclusions

# *mucogingival deformities*

recession & lack of keratinized tissue



background

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# mucogingival deformities

## lack of keratinized tissue & recession

Cortellini P, Bissada NF. Mucogingival conditions in the natural dentition: Narrative review, case definitions, and diagnostic considerations. 2017 World Workshop. J Periodontol 2018;89 (suppl 1): S204-213.

### recession

- frequent in adults . ↑ with age
- occurs with good or poor oral hygiene
- impact: esthetics . dentin hypersensitivity . carious/NCCLs

### keratinized tissue (kt)

- favorable oral conditions . a minimum amount is not needed
- lack of or minimal kt increases recession/inflammation risk

### periodontal phenotype or biotype includes ...

- gingival thickness
- keratinized tissue width
- bone morphotype (thickness)
- tooth/root dimension

background

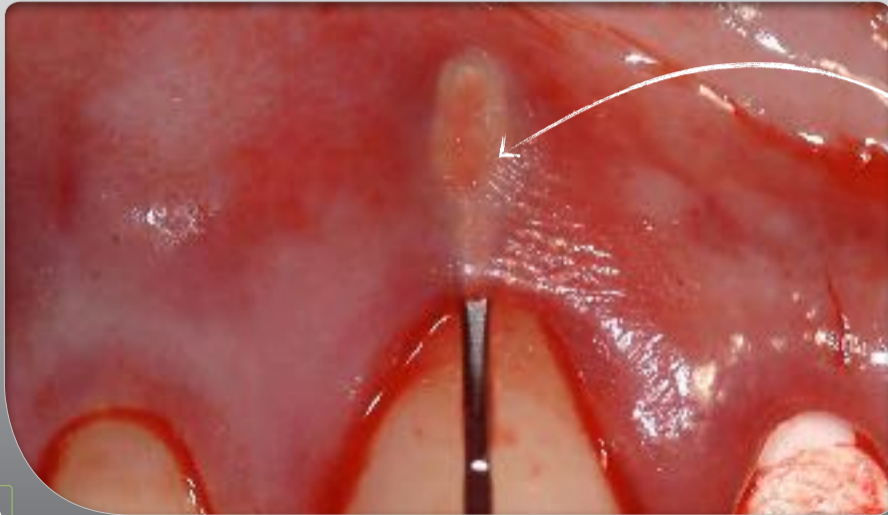
classification

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## phenotype evaluation methods

transgingival probing . probe visibility

- thin . probe can be seen through tissue ( $\leq 1\text{mm}$ )
- thick . probe cannot be seen through tissue ( $>1\text{mm}$ )

kan jy et al 2003  
de rouck t et al 2009



thin phenotype in  $< 1/3$ rd of patients

predominantly ♀

slender tooth form, narrow zone of kt, high scallop

less vascular . more risk for change ?

suggestion  $\uparrow$  response to plaque

thin phenotype prevalence relative to tooth type

11% premolars

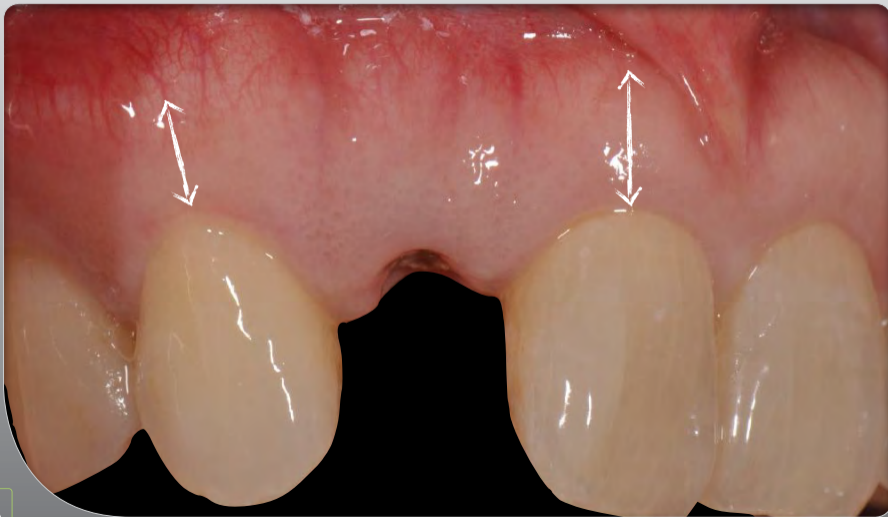
24% canines

23% lateral incisors

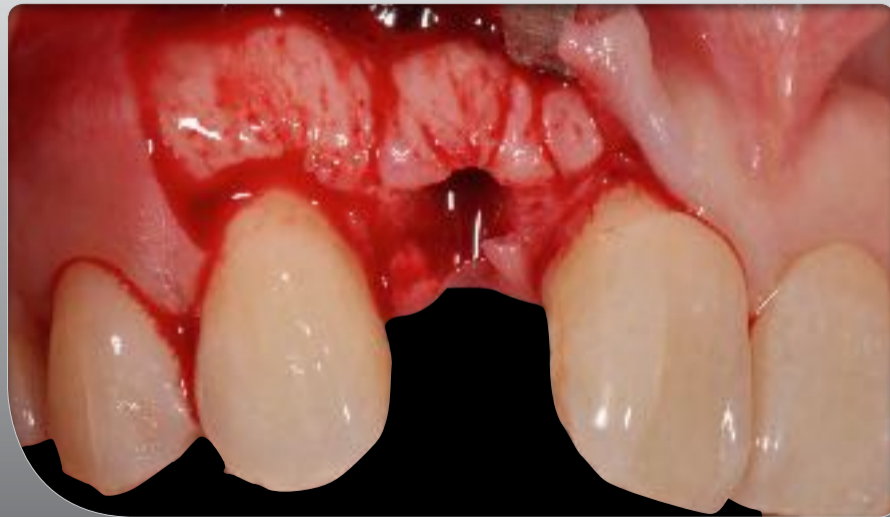
7% central incisors

thin phenotype

keratinized tissue width = gingival margin  $\rightarrow$  mucogingival junction



thick bone morphotype  
assessed by flap or CBCT



# why treat mucogingival deformities

recession & lack of keratinized tissue

- correct progressive recession & prevent further recession
- improve gingival tissue health, eliminate facial pockets extending beyond MGJ, frenum pulls
- cover & protect exposed root surfaces & reduce root caries risk
- address dentin hypersensitivity
- facilitate oral hygiene & reduce biofilm accumulation
- improve pink/white esthetics
- enhance tissues pre-prosthetically

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# recession risk factors AAP 2018

apical shift of gingival margin with respect to the CEJ

- evidence
- possible
- limited support

- |   |  |                            |
|---|--|----------------------------|
| 1 | thin gingival phenotype  |                            |
| 2 | lack of attached tissue (consensus minimum: 2mm keratinized tissue/1mm attached gingiva) |                            |
| 3 | root position & bone thickness   |                            |
| 4 | toothbrushing method   | (inconclusive association) |
| 5 | toothbrushing duration . force . frequency of changing brush . bristle hardness          | (potential association)    |
| 6 | intrasulcular margins & minimal/no attached gingiva                                      | (low evidence)             |
| 7 | orthodontics . facial direction of movement & gingival thickness <2mm                    | (low evidence)             |
| 8 | other . chronic inflammation & shallow vestibular depth, frenum position, clefts         | (low evidence)             |

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# Miller's 1985 classification *predicting outcomes*

Miller PD Jr. A classification of marginal tissue recession. Int J Periodontics Restorative Dent 1985;5(2):8-13.

class	preop facial tissue level	proximal soft tissue or bone level	projected root coverage
type 1	does not extend to MGJ	no soft tissue/bone level loss	100%
type 2	extends to or beyond MGJ	no soft tissue/bone level loss	100%
type 3	extends to or beyond MGJ	apical to CEJ & coronal to mid-facial FGM or tooth malposition	partial root coverage
type 4	extends beyond MGJ	apical to adjacent mid-facial FGM or tooth malposition	no /limited root coverage

background
classification
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## Miller's 1985 classification *limitations*

- 1 identification of MGJ difficult at times
- 2 residual keratinized tissue not considered
- 3 does not specify buccal or lingual . does not apply to palatal recession
- 4 cannot use system to classify blunted papilla only
- 5 predictive aspect not supported by clinical studies
- 6 predictive aspect does not match current/advanced treatment methods

background

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# classification systems to record marginal tissue recession

documentation . anticipating outcomes

Sullivan & Atkins 1968.

Miller 1985.

Smith 1997.

Nordland & Tarnow 1998.

Mahajan's modification/Miller 2010.

Cairo et al 2011.  
assessment of clinical attachment levels on buccal/interproximal sites.

- RT1 ~ Miller class I & II
- RT2 ~ Miller class III
- RT3 ~ Miller class IV

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# treatment oriented classification

## diagnostic considerations

1. keratinized tissue width
2. recession depth
3. gingival thickness
4. interproximal bone/tissue
5. tooth conditions (caries or NCCLs)



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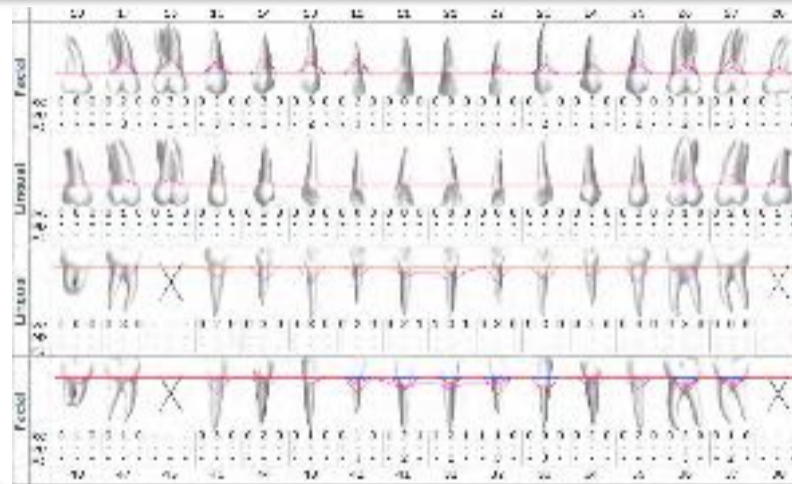
conclusions



prior to grafting



post-grafting

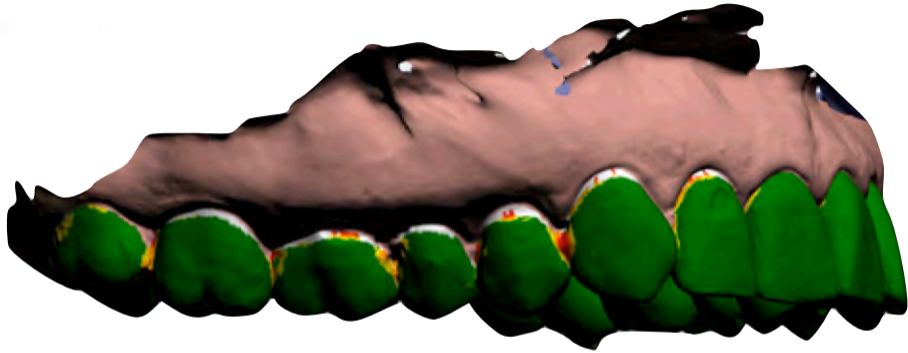


# OPTICAL SCANNING

- progressive tissue level & volume changes
- track wear/NCCL changes
- track stability of treated/untreated sites

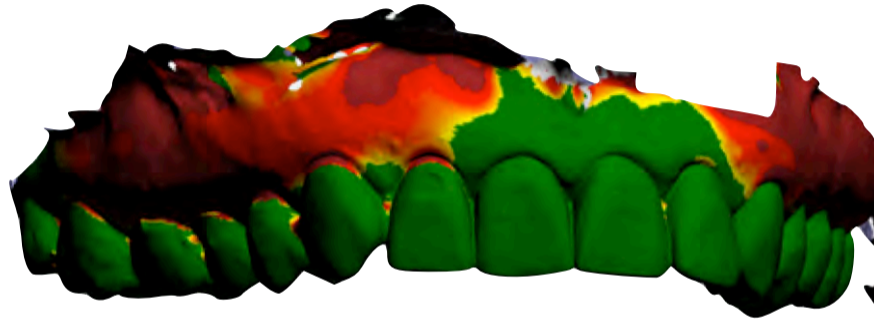
- > A NEW METHOD TO TREATMENT PLAN
- > MONITOR
- > ASSESS TISSUE STABILITY



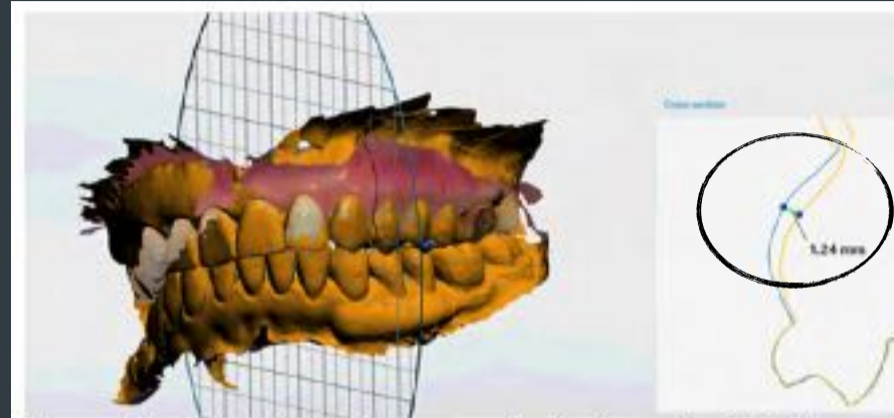
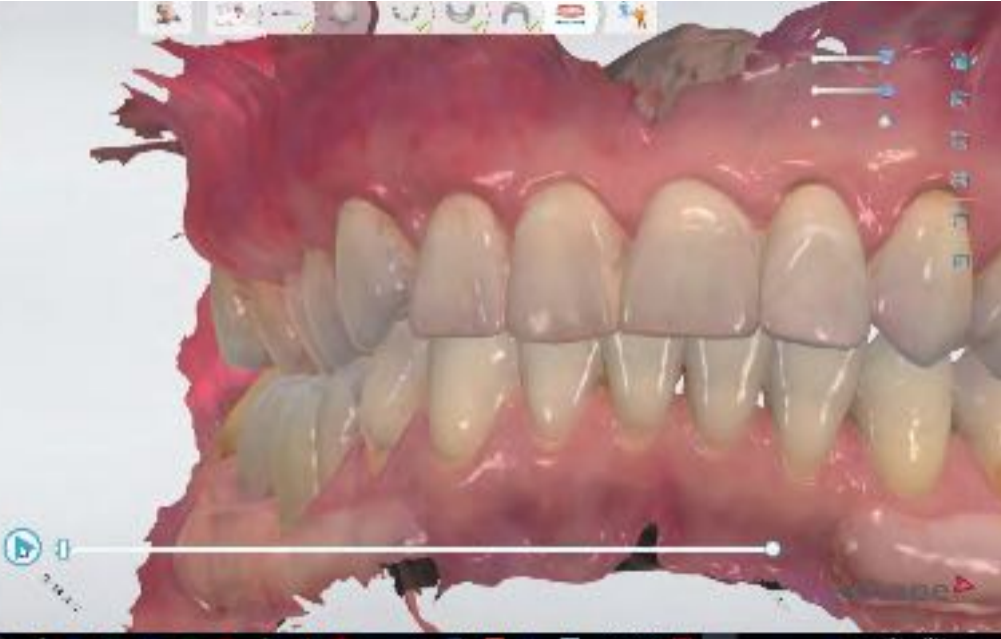


superimposition of scans  
time points 1 and 2 (1 year apart)

heat map - green indicates high scan correlation



significant soft tissue volume changes (red)  
pt's R- 3 weeks after dermal-ARC graft vs 1 year  
pt's L - prior to dermal-ARC graft vs 1 year



cross section left tissue volume gain 1.24mm

## why autogenous grafts vs. substitutes?

- anatomy of the hard palate
- number of recession sites to be treated/donor limitations
- patients who do not want to have palatal harvest
- market pressures

# TISSUE MANAGEMENT & MATERIAL OPTIONS IN CLINICAL PRACTICE

Kim DM, Neiva R. Periodontal soft tissue non-root coverage procedures: a systematic review from the AAP Regeneration Workshop. J Periodontol. 2015;86(2 Suppl): S56-72.

Chambrone L, Tatakis DN. Periodontal soft tissue root coverage procedures: a systematic review from the AAP Regeneration Workshop. J Periodontol. 2015; 86(2): S8-51.

Wu Q, Qu Y, Gong P, Wang T et al. Evaluation of the efficacy of keratinized mucosa augmentation techniques around dental implants: a systemic review. J Prosthet Dent. 2015;113(5): 383-390.

Zuhr O, Baumer D, Hurzeler M. The addition of soft tissue replacement grafts in plastic periodontal and implant surgery: critical elements in design and execution. J Clin Periodontol. 2014;41(s15): 123-142.

## ROOT COVERAGE PROCEDURES

(recession improvement, CAL gain, KT gain)

## NON-ROOT COVERAGE PROCEDURES

subepithelial connective tissue grafts - gold standard

coronally advanced flap + acellular dermal graft

coronally advanced flap + enamel matrix derivative

coronally advanced flap + collagen matrix

study heterogeneity ... no conclusive results

viable alternatives to palatal donor tissue

FGGs have disappeared from the esthetic zone ...  
limited to esthetically irrelevant applications



FGGs have disappeared from the esthetic zone ...  

---

limited to esthetically irrelevant applications

pre-op



2 week post-op deepithelized free gingival graft



pre-op



## procedures

localized sites- flap movement

multiple sites - flap movement

treatment of localized or multiple marginal recessions

pedicle or sliding flap, double papilla, semilunar, coronally advanced

tunnel techniques & modifications (releasing incisions, VISTA, pinhole)

## procedures

localized sites- flap movement

multiple sites - flap movement

## materials

autogenous grafts

allografts

wound healing enhancers

biomaterials

treatment of localized or multiple marginal recessions

pedicle or sliding flap, double papilla, semilunar, coronally advanced

tunnel techniques & modifications (releasing incisions, VISTA, pinhole)

thin or thick free gingival graft (FGG)

connective tissue graft (CTG- palate/tuberosity)

acellular dermal matrix graft

PRF, EMD, rhPDGF-BB, cell therapies

GTR barrier membranes, xenogenic CM

# key points aap consensus 2015

- all reviewed procedures improved recession
- CTG-procedures provided best outcomes
- strong evidence supporting acellular dermal grafts & enamel matrix materials
- some evidence for platelet derived GF & xenogeneic CM
- most support in treatment of miller class I/II
- limited available evidence in miller class III/IV

## Periodontal Soft Tissue Root Coverage Procedures: A Consensus Report From the AAP Regeneration Workshop

Mehdi N. Tetakbi,<sup>1</sup> Leandro Chambrone,<sup>2</sup> Edward P. Allen,<sup>3</sup> Burton Langer,<sup>4</sup> Richard K. McCallum,<sup>5</sup> Christopher T. Richardson,<sup>6</sup> Ion Zebzegel,<sup>7</sup> and Homayoun H. Zadeh<sup>8\*</sup>

**Background:** Management of gingival recession defects, a common periodontal condition, using root coverage procedures is an important aspect of periodontal regenerative therapy. The goal of the panel, several soft tissue root coverage procedures group was to develop a consensus report based on the available scientific evidence of root coverage procedures, including guidance for future research and identification of the best evidence available to measure different clinical scenarios.

**Methods:** The group reviewed and discussed the accompanying systematic review, which covered treatment of single-tooth recession defects, multiple-tooth recession defects, and additional treatment questions on related clinical topics. The consensus group members identified additional material for consideration by the group in advance and at the time of the meeting. The group also identified evidence of future research.

**Results:** A consensus on coverage procedures involving guided and unguided connective tissue grafts, including for Miller Class I and II recession defects. Suboptimal connective tissue graft (CTG) procedures involve the best root coverage outcomes. Acellular dermal matrix graft (ADM) or enamel matrix derivative (EMD) is an option for all recession defects. Top (CTG) can serve as alternatives for single-tooth recession defects. Additional research is needed to define the following: 1) assess the treatment outcomes for multiple tooth recession defects, excluding other than maxillary central and premolar teeth, and Miller Class II and III recession; 2) assess the role of patient and site specific factors on procedure outcomes; and 3) assess evidence of periodontal outcomes.

**Conclusions:** Predictable root coverage is possible for single-tooth and multiple-tooth recession defects with CTG procedures providing the best root coverage outcomes. Alternatives to CTG are supported by evidence of varying strength. Additional research is needed on treatment outcomes for specific sites.

**Clinical Recommendations:** For Miller Class I and II single-tooth recession defects, CTG procedures are the best root coverage outcomes. ADM or EMD is an option for all recession defects. Additional research is needed to define the following: 1) assess the treatment outcomes for multiple tooth recession defects, excluding other than maxillary central and premolar teeth, and Miller Class II and III recession; 2) assess the role of patient and site specific factors on procedure outcomes; and 3) assess evidence of periodontal outcomes.

**\*\*\* VIGNETTE**

Gingiva, surgery, gingival recession, guided tissue regeneration, periodontal surgical flap, aesthetic dentistry, dental splinting, endodontics.

background

classification

treatment planning

root coverage

autogenous grafts

acellular dermal graft

conclusions

# cochrane systematic review 2018

## key points

- multiple interventions evaluated
- procedures better accepted by patients:
  - reduced operator time
  - elimination of donor site & perceived morbidity
  - smaller palatal grafts deemed acceptable



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# cochrane systematic review 2018

## conclusions of the review

1. ADMG, xenogenic CM, EM protein have produced similar gains to CTG based procedures
2. CTG is recommended where increased width of keratinized tissue is expected/required
3. CTG is still the gold standard procedure . highest MRC & CRC
4. ADMG (1°) and X-CM (2°) are considered suitable alternatives where CTG is not desired
5. outcomes are not improved by root modification agents/specific root preparation methods
6. some loss of root coverage can occur over time with all procedures . relapse if <2mm KT at start

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# *connective tissue grafts*

what can be expected

background

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## CASE ILLUSTRATION #1



## treatment outcomes - miller class I & II recession

Zucchelli G, De Sanctis MD. Treatment of multiple recession-type defects in patients with aesthetic demands. J Periodontol 2000;71:1506-1514

Chambrone L, Pannuti CM, Tu YK et al. Evidence-based periodontal plastic surgery. II. An individual data meta-analysis for evaluating factors in achieving complete root coverage. J Periodontol 2012;83:477-490.

- ct graft /coronally advanced flap - as high as 97% root coverage reported
- 88% complete root coverage

## CASE ILLUSTRATION #2



eliminating restorations & decreasing root prominences







### CASE ILLUSTRATION #3



pre-op



3 month follow-up



## CASE ILLUSTRATION #4



root  
coverage

volume  
enhancement



## CASE ILLUSTRATION #5



Griffin TJ, Banjar SA, Cheung WS. Reconstructive surgical management of an amalgam tattoo using an a cellular dermal matrix graft: Case reports . Compend Contin Educ Dent 2005;26:853-859.

Phillips GE, John V. Use of a subepithelial connective tissue graft to treat an area pigmented with graphite. J Periodontol 2005;76:1572-1575.

Campbell CM, Deas DE. Removal of an amalgam tattoo using a sub epithelial connective tissue graft and laser deepithelialization. J Periodontol 2009;80:860-864.



## TECHNIQUE REVIEW



# recipient site preparation

- scale to remove calculus
- plaque and biofilm . polish with pumice
- modify root convexity with rotary instrumentation if necessary
- remove caries or class V restorations
- no evidence for root surface bio-modification (etching with ttc, citric acid, EDTA)

background

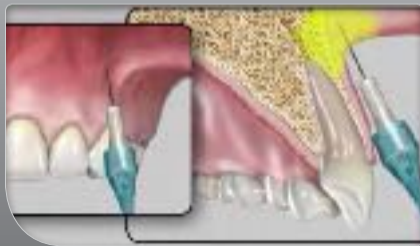
classification

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## the wand STA injection system

- controlled flow rate/pressure
  - improves patient experience
- use
  - nerve blocks
  - supraparosteal infiltrations
  - intraligamentary injections

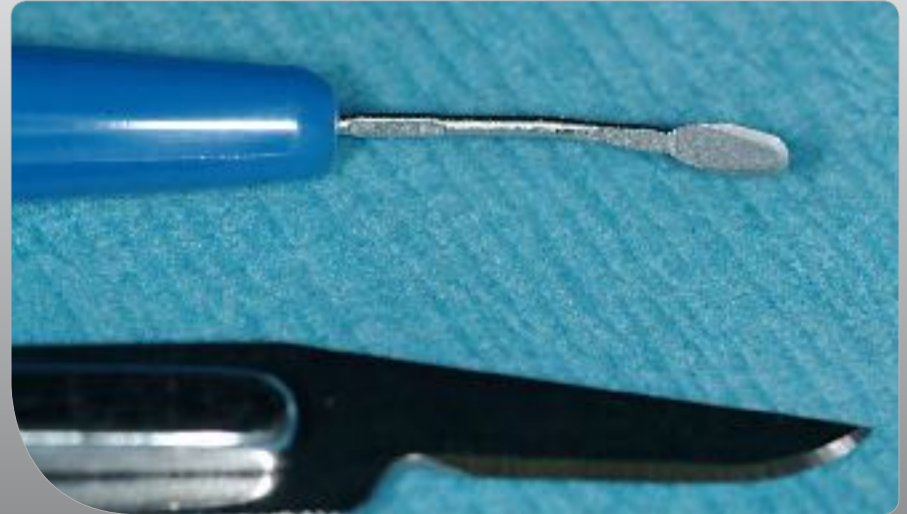
## microsurgical site preparation

ophthalmic surgery knives

[www.pronorthmed.com](http://www.pronorthmed.com)

- 1.25mm mini-crescent angled knives
- sharper & more precise chemically etched blades
- enhanced visibility & non-glare
- higher graft vascularity resulting in 8% higher root coverage

Burkhardt R, Lang NP. Coverage of localized gingival recessions: comparison of micro- and macrosurgical techniques. J Clin Periodontol 2005;32:287-293.



## MILLER CLASS I





**adapting a connective tissue graft**  
tunnel procedure



### surgical technique

- exposed ct graft vs. graft covered with flap

### outcomes @ 12 weeks

- root coverage NSD (88% : 93%)
- complete root coverage NSD (79% : 64%)
- change in keratinized tissue width NSD (1.5mm vs. 0.9mm)

Han JS, John V, Blanchard SB et al. Changes in gingival dimensions following connective tissue grafts for root coverage: comparison of two procedures. J Periodontol 2009;79:1346-1354.



## MILLER CLASS III







Garces-McIntyre T, Carbonell JM et al. Coronal advanced flap in combination with a connective tissue graft. Is the thickness of the flap a predictor for root coverage? A prospective clinical study. J Clin Periodontol 2017;44(9): 933-940.

coronally advanced flap & CT graft: flap thickness did not appear to be a predictor for CRC

this technique may be a method of choice when treating thin biotypes.



pre-op



post-op



# The Subepithelial Connective Tissue Graft Palatal Donor Site: Anatomic Considerations for Surgeons

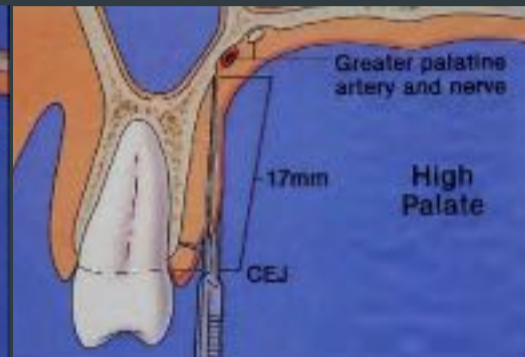
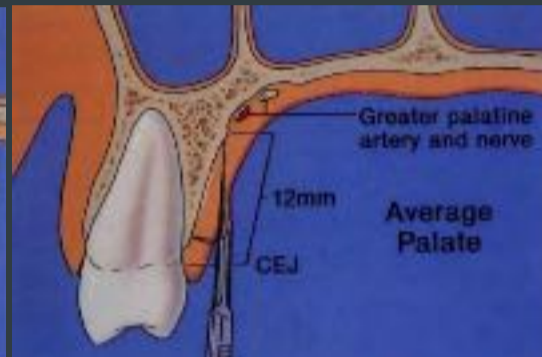
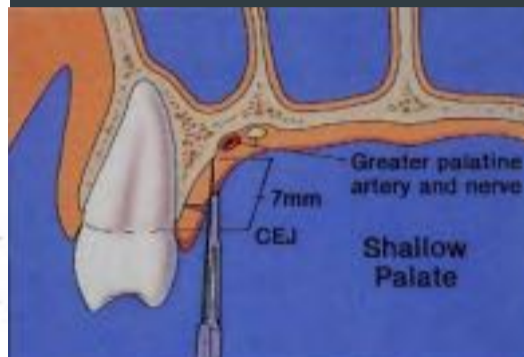


Journal of Oral Maxillofacial Surgery  
Volume 60, Number 1, February 2002  
DOI: 10.1097/00006123-200202000-00001  
www.jos.com

Surgeons have long been concerned about the ability to harvest a large enough graft from the palate to meet the needs of the recipient site. The purpose of this study was to determine the anatomic considerations for the harvest of a large enough graft from the palate to meet the needs of the recipient site. The study was conducted on 10 patients who had undergone a maxillary or mandibular reconstruction. The patients were divided into two groups: those who had a shallow palate and those who had a high palate. The results of the study showed that the harvest of a large enough graft from the palate was possible in both groups, but that the harvest was easier in the high palate group. The authors conclude that the harvest of a large enough graft from the palate is possible in both groups, but that the harvest is easier in the high palate group.

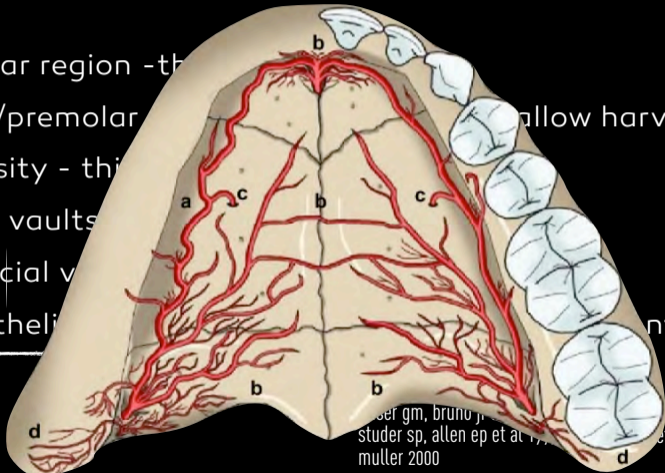
Dr. Robert J. Goss, Jr., is an Associate Professor of Oral and Maxillofacial Surgery, University of Texas at Houston, Houston, Texas. Dr. Goss is also a member of the American Association of Oral and Maxillofacial Surgeons, the American Society of Maxillofacial Surgeons, and the American Society of Plastic Surgeons. He is also a member of the American Society of Maxillofacial Surgeons, the American Society of Plastic Surgeons, and the American Society of Maxillofacial Surgeons.

Received October 15, 2001. Received revised November 15, 2001. Accepted for publication December 15, 2001.



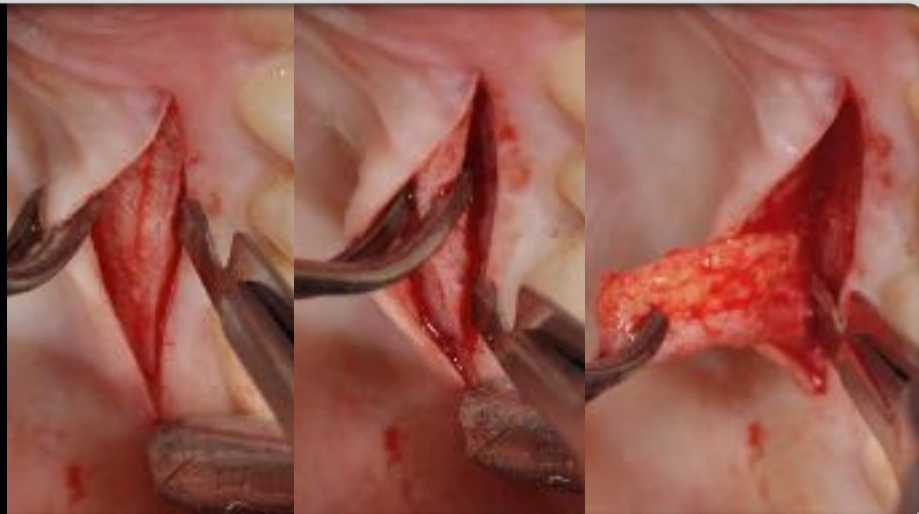
# DONOR SITE CLINICAL CONSIDERATIONS

1st molar region - thin  
canine/premolar  
tuberosity - thin  
palatal vaults  
superficial v  
subepitheli



er gm, bruno j  
studer sp, allen ep et al 1997  
muller 2000

2003  
et al 2015



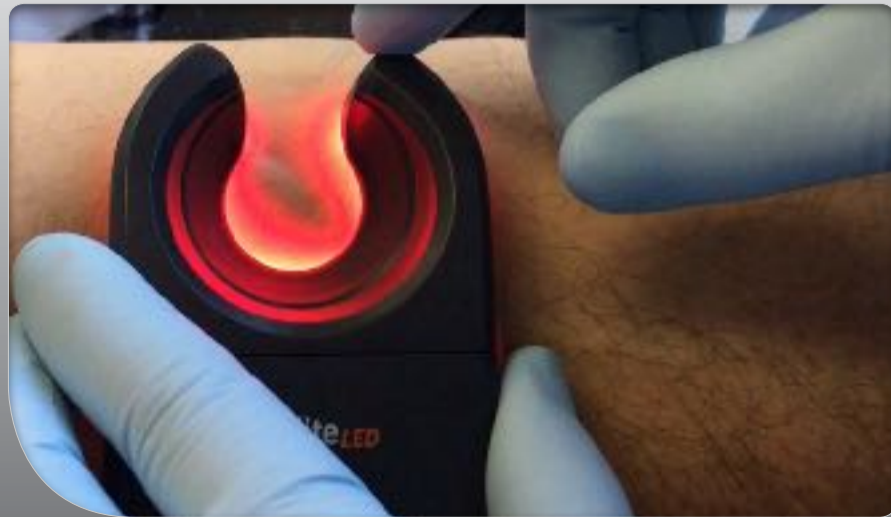
iPRF & aPRF- platelets recruit osteoblasts, endothelial cells, fibroblasts  
sustained growth factor release for 7-28 days  
improve cell migration/proliferation, support hemostasis  
soft tissue healing & time benefits  
similar outcomes



(donor site)  
platelet rich fibrin (I-PRF) sheets OR collatape-soaked iPRF



veinlite side-transillumination  
[www.pronorthmed.ca](http://www.pronorthmed.ca)



(donor site)

platelet rich fibrin (I-PRF) sheets & collatape-soaked iPRF

- iPRF & aPRF- platelets recruit osteoblasts, endothelial cells, fibroblasts
- sustained growth factor release for 7-28 days
- improve cell migration/proliferation, support hemostasis
- soft tissue healing & time benefits





## platelet rich fibrin . 25 cases . split mouth evaluation

- patient experience  
18/25 reported less donor site (prf) post-surgical pain
- operator observations  
intra-surgical bleeding more rapidly controlled  
healing . similar 11/25 . accelerated 14/25

periacryl. glustitch



10 days post-op



multi-layered collagen tape/iPRF



I-PRF sheet



collagen tape/iPRF



optional palatal stent

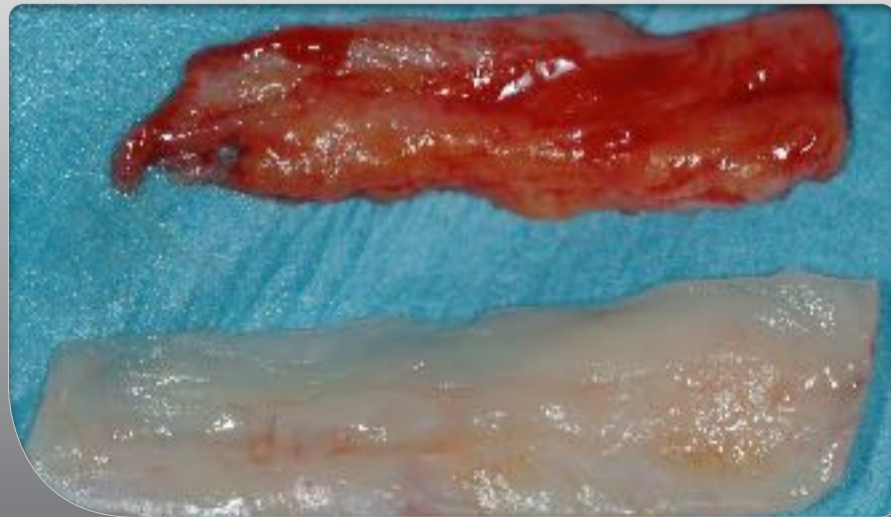
multi-layered collagen tape/iPRF

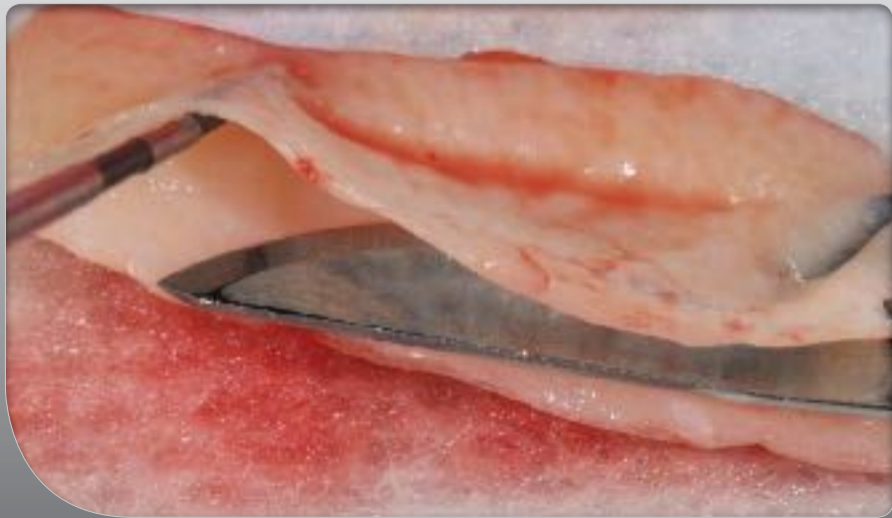
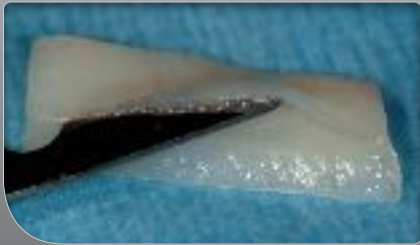


I-PRF sheet



graft quality variability

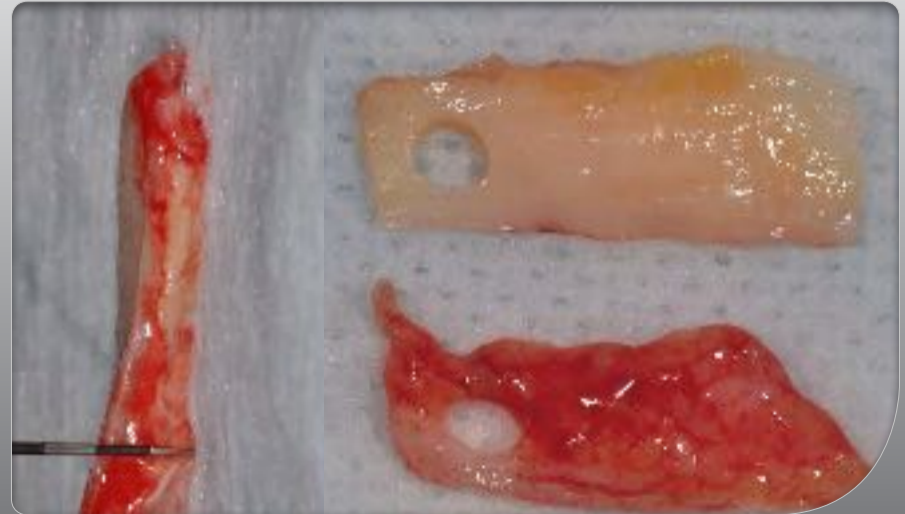




Bert K, Pifl M, Hirtler L et al. Relative composition of fibrous connective and fatty/glandular tissue in connective tissue grafts depends on the harvesting technique but not the donor site of the hard palate. J Periodontol. 2015;86(12):1331-1339.

Heil A, Schwindling FS, Jelinek C et al. Determination of the palatal masticatory mucosa thickness by dental MRI: a prospective study analyzing age and gender effects. Dentomaxillofac Radiol 2017. Pub ahead of print.

- palate mucosa thickness range: 2.35 - 6.89mm
  - thickness increased with age (30-39 to 40-49).
  - insignificant gender impact
  - molars lowest average thickness vs. premolars/canines
- anteroposterior composition differences
- high variability in composition (% CT, fat/glandular tissue)
  - thick palates - higher % FGT, thinner lamina propria
- tissue quality dependent on harvesting technique.
  - superficial ... more fibrous
  - deeper ... fatty/glandular



80243-2

Type of complication	n (%)
----------------------	-------

Surgery was "very stressful" for patient	1 (0.2)
Total	5 (1.0)

background

## classification

treatment planning  
root coverage

autogenous grafts

technique/material  
alternatives

## conclusions

# acellular dermal grafts

epidermal layer & dermal cellular structures removed . eliminates factors responsible for graft rejection/infection  
collagen/elastin/vascular channels- acts as a scaffold for vascular cells & fibroblasts to repopulate the matrix

- no donor site/avoid second surgical site
- shallow palates limit size of graft harvested
- consistent tissue quality
- treat large areas in one appointment
- improved patient acceptance
- literature validation for the treatment of multiple recessions
- goal . CREATE FUNCTIONAL VS MORE KERATINIZED TISSUE

Cummings/Kaldahl/Allen J Perio 2005

Abou-Arrei/Kaur/Vassilopoulos/Geurs J Perio 2017

background

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# acellular dermal grafts . class I and III collagen bundles & elastic fibres

Wei et al. 2002, Cummings et al. 2005, Scarano et al. 2009, Batista et al 2001,  
Gapski et al. 2005, Cairo et al. 2008, Moslemi et al. 2011, Schlee & Esposito 2011

- multiple material options . unique processing / handling features .
  - (Straumann) AlloGraft Dermal Matrix
  - Alloderm (BioHorizons)
  - Dermis (Zimmer)
  - PerioDerm (Dentsply)
  - OrACell (Salvin)
  - DynaMatrix (Keystone Dental) **porcine**
  - Mucograft (Geistlich) **porcine**
- effect of folded or layered ADM controversies . impedance of vascularization . shrinkage

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# acellular dermal matrix grafts

traditional/historic protocols 'pat allen style'

- dentist guided - patient decision
- unique flap & graft handling & post-op care
- indications
  - shallow or thin palate
  - multiple treatment areas
  - avoid morbidity of donor site





# acellular dermal matrix grafts

## considerations

- envelope or papillary or releasing incisions
- hydrated and shaped graft
- complete/passive flap advancement required
- sutures maintained for weeks to months
- prophylactic antibiotic coverage

3 weeks post-op



7-0 vicryl with spatula blade. ethicon



continuous sling suture



14 days post-op



## Ethicon sutures- J&J prolene & pronova

- P series - best/highest quality
- F series - 2nd best
- needle design minimizes tissue trauma & stays the course
- thinner . flat . coated
- 7-0 prolene . non-resorbable monofilament



miller class III recession defect



12 months postop



**C** compromised flap vascularity



post-op 10 days



post-op 20 days

miller class III and IV . CAF & ADMG



non-passive suturing/closure ? C



pre-op



6 months post-op



6 months post-op



# the evolution of flap design [ & material selection ]

Zadeh HH. Minimally invasive treatment of maxillary anterior gingival recession defects by vestibular incision subperiosteal tunnel access and platelet-derived growth factor bb. *Int J Periodontics Restorative Dent*. 2011;31:653-660.

Chao JC. A novel approach to root coverage: the pinhole surgical technique. *Int J Periodontics Restorative Dent*. 2012; 32(5): 521-531.





# factors that influence outcomes

Richardson, CR, Allen EP, Chambrone L, et al. Periodontal soft tissue root coverage procedures: Practical applications for the AAP Regeneration Workshop. Clinical Advanced in Periodontics. Vol 5:1: Feb 2015.

- patient/lifestyle -  
smoking
- site characteristics -  
initial tissue thickness, residual keratinized tissue (kt)  
NCCL depth, anatomic factors
- technique-related -  
biomaterial . surgical technique selection . clinician experience  
surgical positioning of marginal tissue coronal to CEJ . microsurgery  
flap tension . flap thickness (>0.8mm) ie full/partial thickness. vertical releasing incisions

background

classification

treatment planning  
root coverage

autogenous grafts

acellular dermal graft

conclusions

## CASE ILLUSTRATION #1



post-op 5 weeks



pt. right- post-op 12 months  
pt. left- post-op 2 weeks



## CASE ILLUSTRATION #2

miller class III . prior to class V removals





# the evolution of flap design

16 gauge needle access point(s)  
OR  
'VISTA incision'

background

classification

treatment planning  
root coverage

autogenous grafts

**technique/material  
alternatives**

conclusions

set of 4 tunnelling instruments . available from [www.pronorthmedical.ca](http://www.pronorthmedical.ca)



# 'arc' acellular dermal matrix graft

Leziy S, Miller B. Acellular dermal tissue augmentation procedures for teeth and implants: the dermal ARC protocol. Manuscript in preparation.







# 'arc' acellular dermal matrix graft



4 weeks post-op

12 months post-op



pre-op



2 year post-op



# FLAP MANAGEMENT & root coverage

- 35% CRC in the control group (split thickness)
- 80% CRC in the test group (split/full/split thickness)
- significant association CRC & flap thickness after elevation
- presence of periosteum in the flap may play important role



CTG . full thickness apical access approach



post-op 2 weeks . superficial graft harvest/iPRF



post-op 4 weeks superficial graft harvest/iPRF





## post-operative care

- verbal and written post-surgical instructions
- sutures maintained for weeks to months
- use of anti-bacterial and anti-inflammatory rinses/gels
- pain management . ibuprofen . acetaminophen . combinations . other
- swelling & bruising management . ice packs . optional steroid 2-3 days
- antibiotics . loading dose & post-op

background

classification

treatment planning  
root coverage

autogenous grafts

technique/material  
alternatives

conclusions

# comparison ctg & dermal ARC protocol





pre-op right



pre-op left



class V restorations removed / reshaped

CT graft



acellular matrix graft



preoperative



5 weeks post-surgery



preoperative



5 weeks post-surgery





## factors that influence graft material choice

	connective tissue grafts (autogenous)	acellular dermal graft (allograft)
patient preference (personal data)	30%	70%
peri-surgical antibiotics	not required	required
indications	single or up to 6-8 teeth	large/multiple sites (not ideal for single tooth)
donor site/tissue quality	variable	"consistent" quality (thickness can vary)
donor site quantity	limited areas	unlimited
recipient gingival thickness <1mm	minor impact	not ideal
recipient keratinized tissue width	minor impact	flap reflection & graft coverage challenge
recipient shallow vestibular depth	minor impact	flap passivity & graft coverage challenge



mk

thank you  
sonia & mathieu