



„ELITEAM”- ELI INTÉZET LÉTREHOZÁSA A SZEGEDI
TUDOMÁNYEGYETEMEN: INTERDISZCIPLINÁRIS KUTATÁSOK
MEGALAPOZÁSA A LÉZEREK ÉS ALKALMAZÁSAI TERÜLETÉN

LASER DOPPLER FLOWMETRY CLINICAL PRACTICE

ZSOFIA BERE
UNIVERSITY OF SZEGED, DEPARTMENT OF OTO-RHINO-LARYNGOLOGY HEAD
AND NECK SURGERY

SZÉCHENYI 2020



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TÁMOP-4.2.2.D-15/1/KONV-2015-0024 projekt

Microcirculation

Introduction

Problem

Objectives

Materials
and
Methods

Results

Conclusion

Discussion

Noninvasive measurement of microcirculation: Laser Doppler flowmetry

- Initial state
- Effectivity of a treatment
- Regression/Progression
- Follow up
- Tissue vitality (intraoperative)



diabetes



burn



reconstructive surgery

Introduction

Poblem

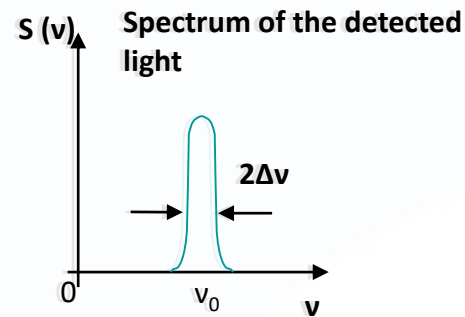
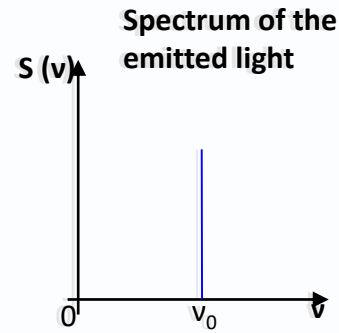
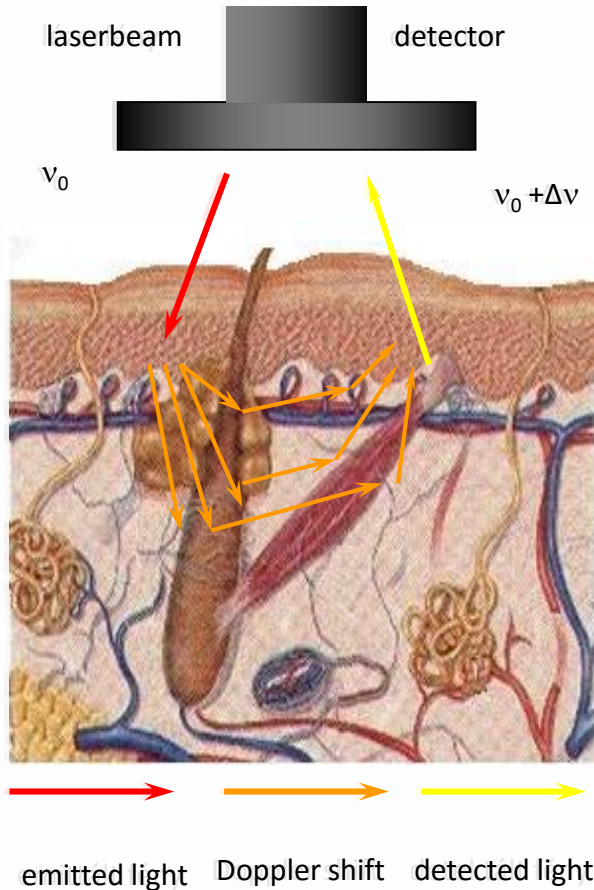
Objectives

Materials and Methods

Results

Conclusion

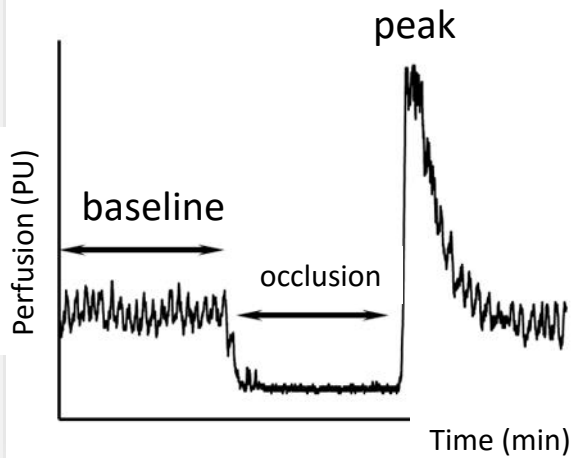
Discussion



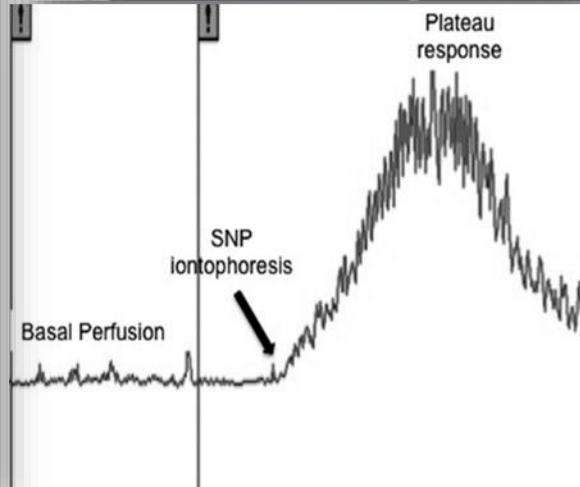
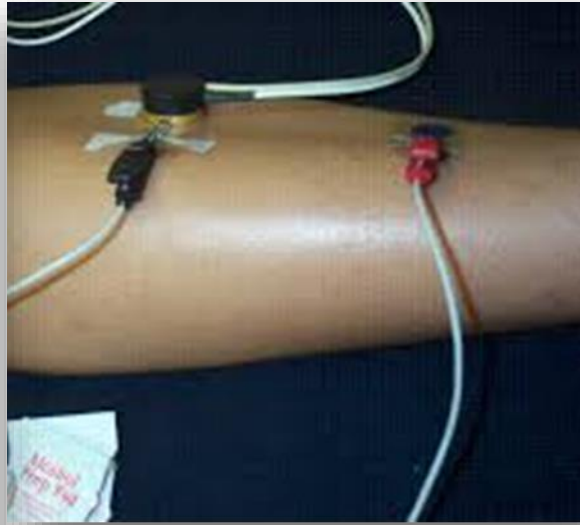
Doppler shift correlates with blood flow

Reactivity test

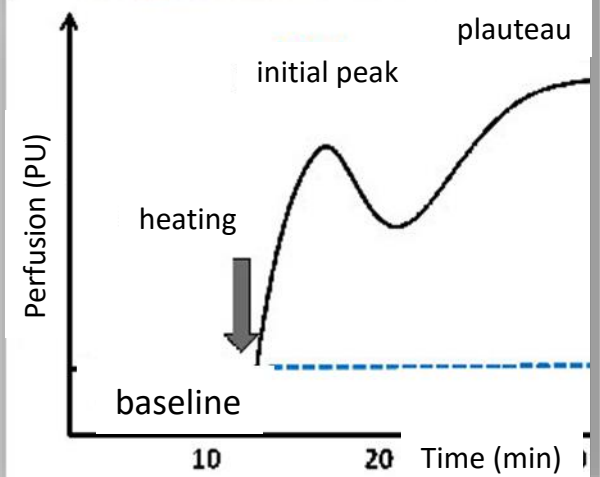
Postocclusive reactive hyperemia



Iontophoresis



Local heating



Bone Anchored Hearing Aid (BAHA)

Development of new surgical technique → Clinical study to prove the advantages of the new method with Laser Doppler flowmetry



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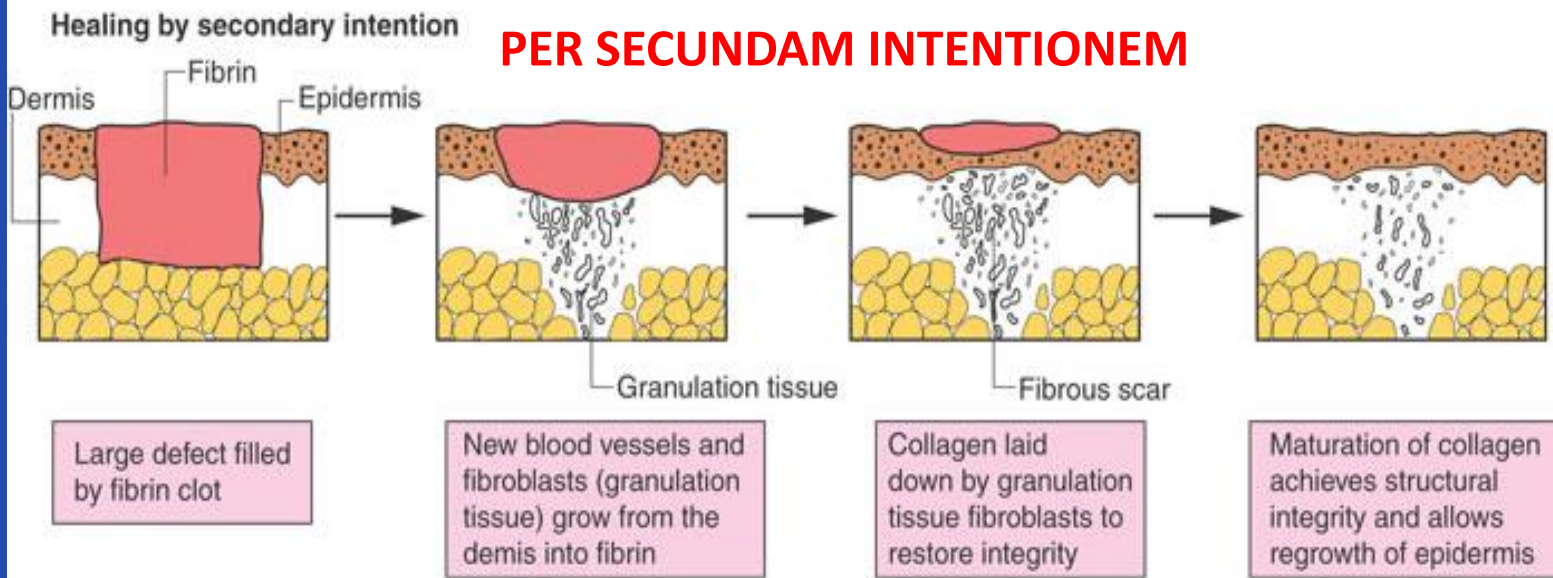
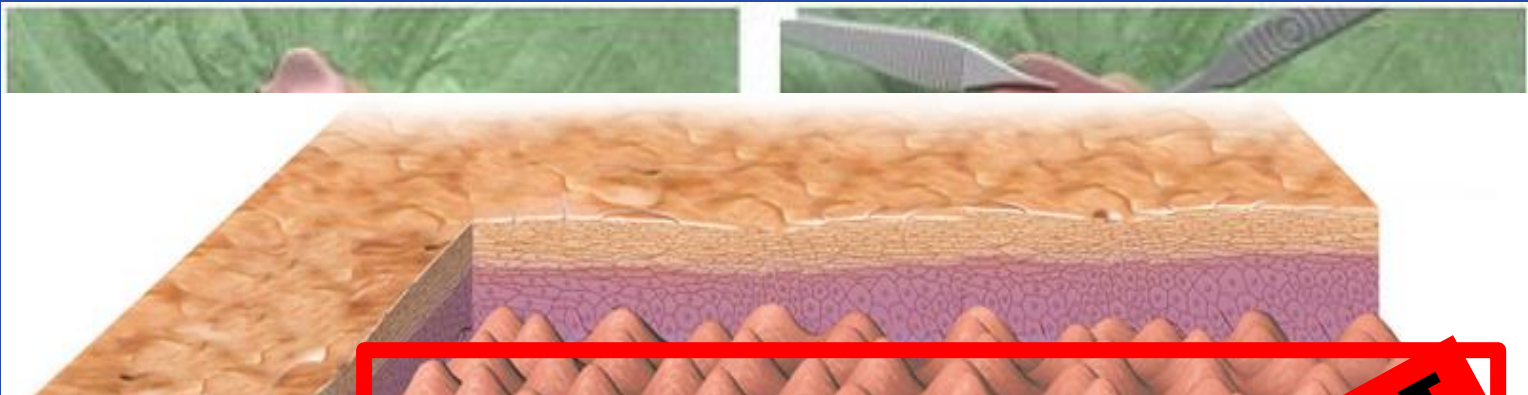
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Cochlear™ Baha® BIA400 with DermaLock™ technology

Introduction

Problem

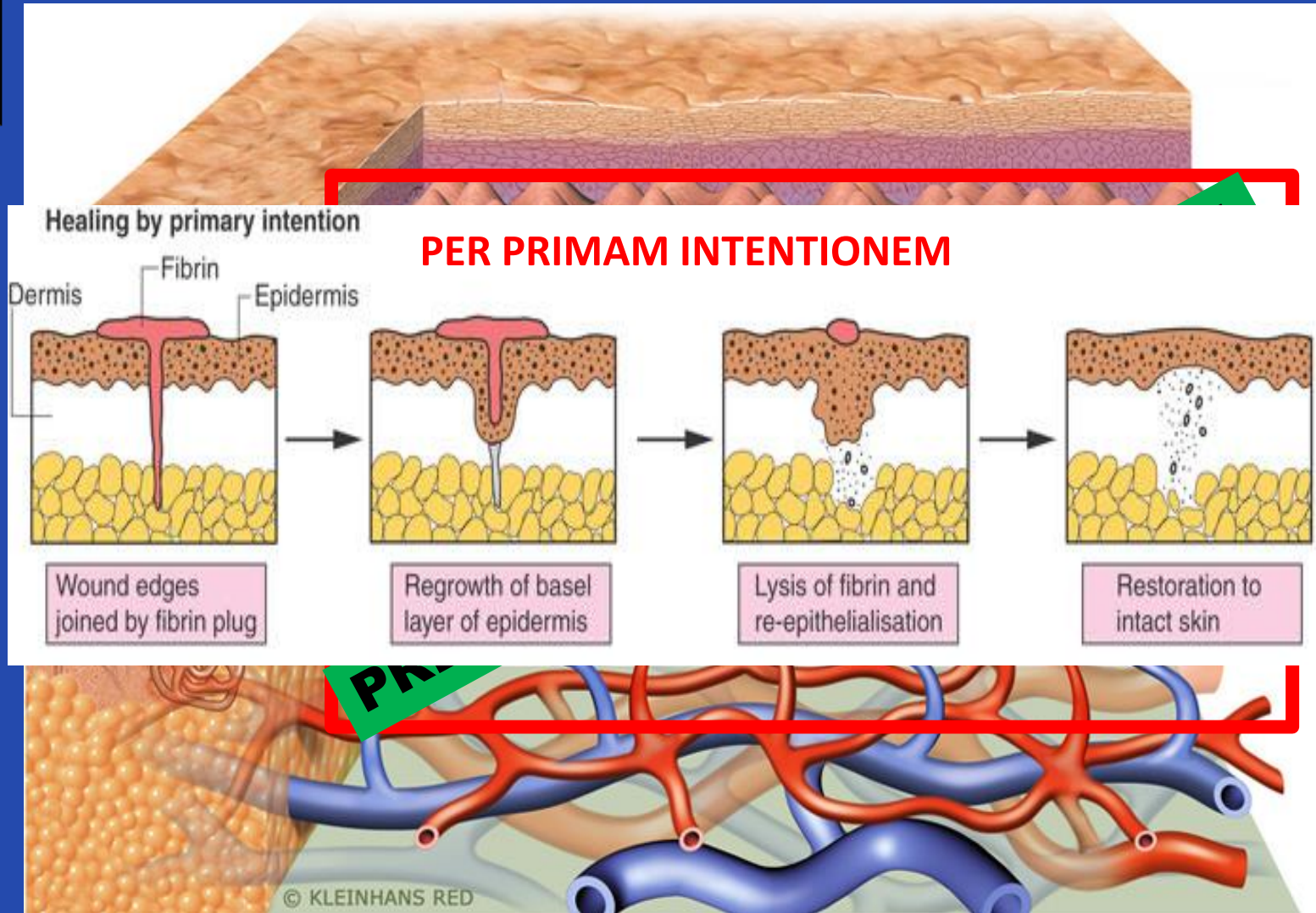
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Introduction

Problem

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smaller incision line+soft tissue preservation

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Introduction

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Discussion

**Dermatome+flap+soft tissue reduction (STR)
versus
Smaller incision line and soft tissue preservation (STP)**

**Microvascular reactivity of the periimplant area in patients
underwent BAHA implantation**

**measurement of
microvascular bed reactivity with *local heating provocation test***

laser-Doppler flowmetry

Introduction

Problem

Objectives

**Materials
&
Methods**

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Discussion

Soft tissue reduction group (STR) n=7

operated AND non operated (contralateral) side

Soft tissue preservation (STP) n=10

operated AND non operated (contralateral) side

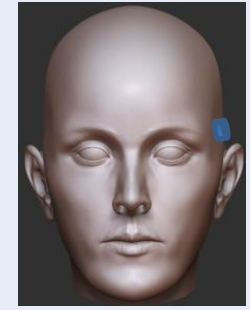
Naive controls: n=13

no operatio, both side

Perimed Periflux 5000 double channel laser doppler flowmeter

Local heating test-Dopper probe with temerature controller

Analysis: Perisoft



Introduction

Problem

Objectives

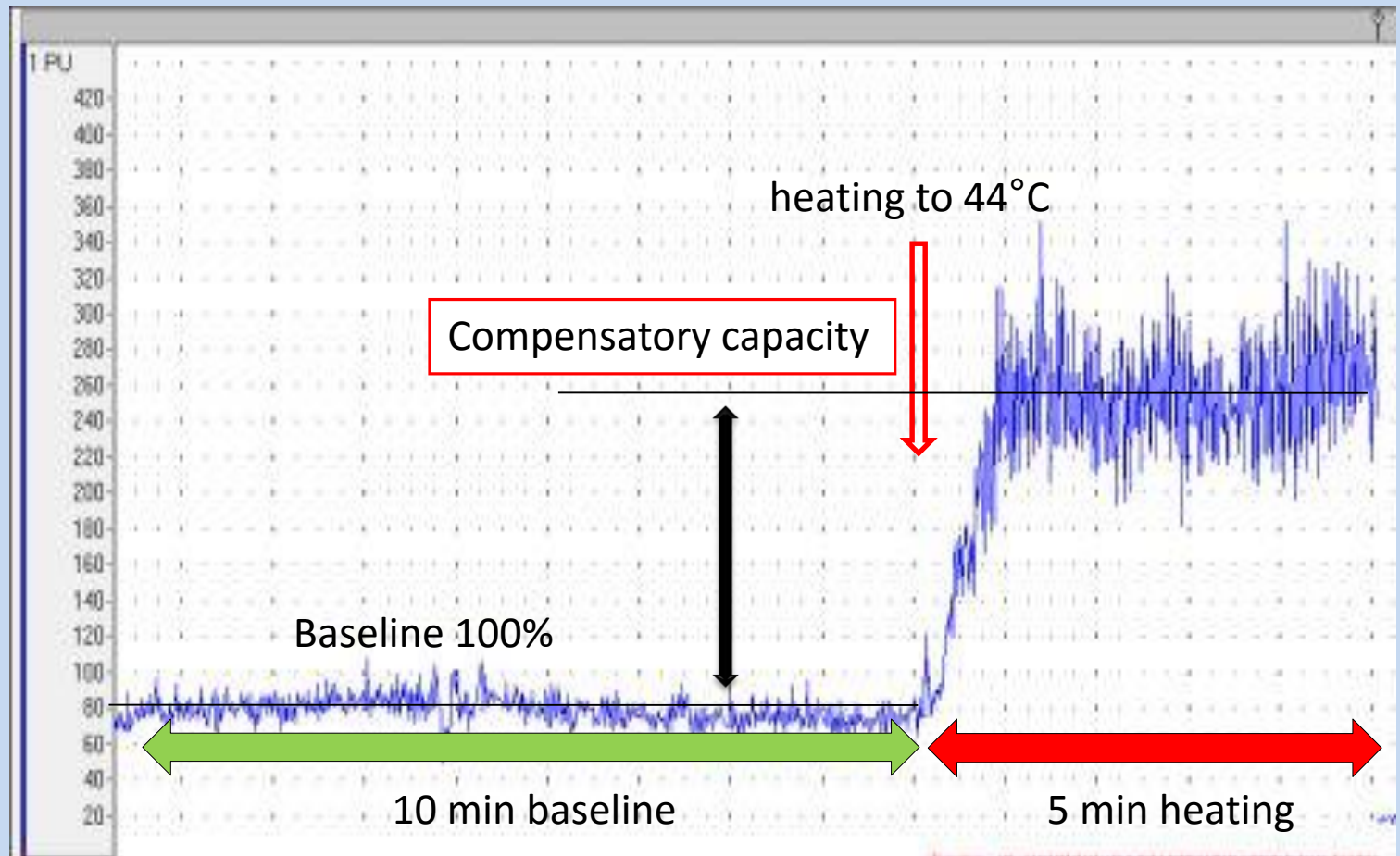
**Materials
&
Methods**

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Conclusion

Discussion

- record: 10 min baseline- 5 min heating (44°C)
- non-operated side- operated side periimplant area
- % of flow increase



Introduction

Problem

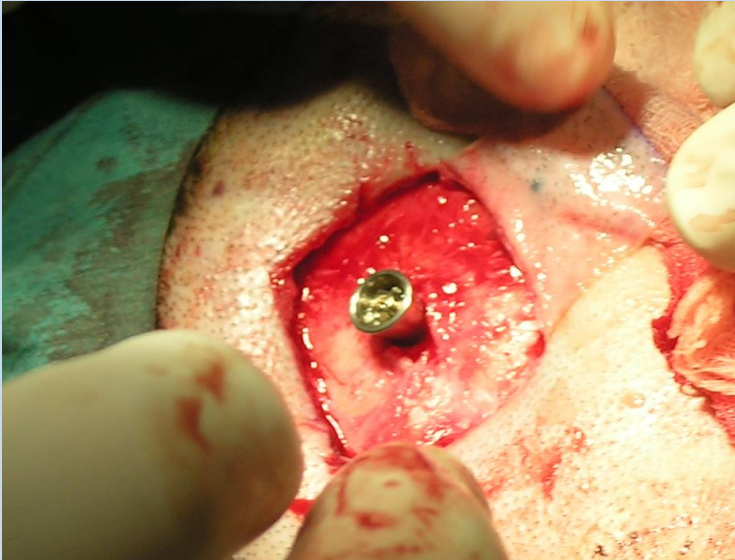
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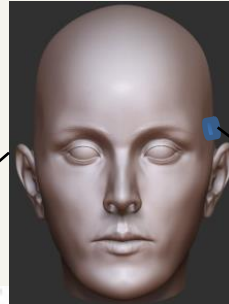
Soft Tissue Reduction
STR



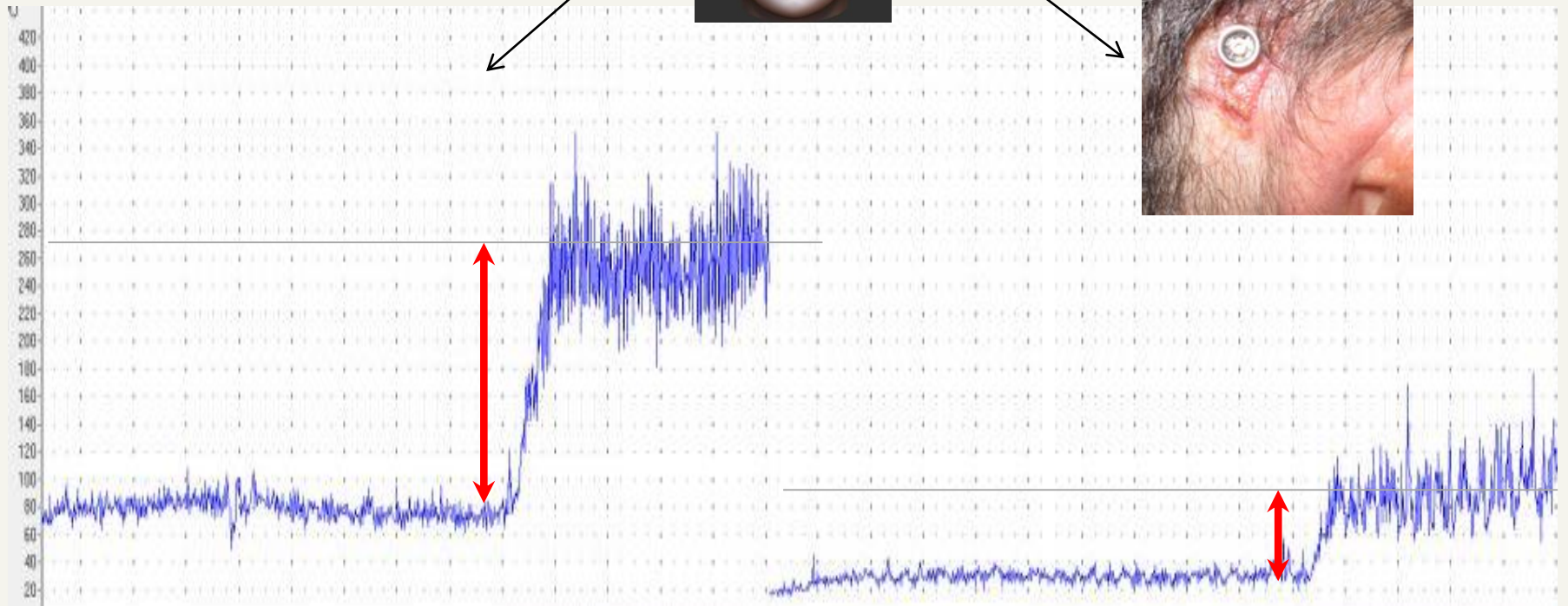
Soft Tissue Preservation
STP

Representative record patient No. 2 soft tissue reduction STR

non-operated side

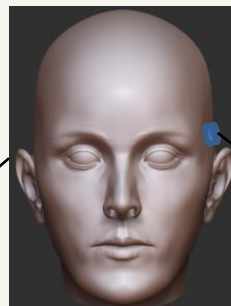


operated side



Representative record patient No. 6 soft tissue preservation STP

non-operated side



operated side



Introduction

Problem

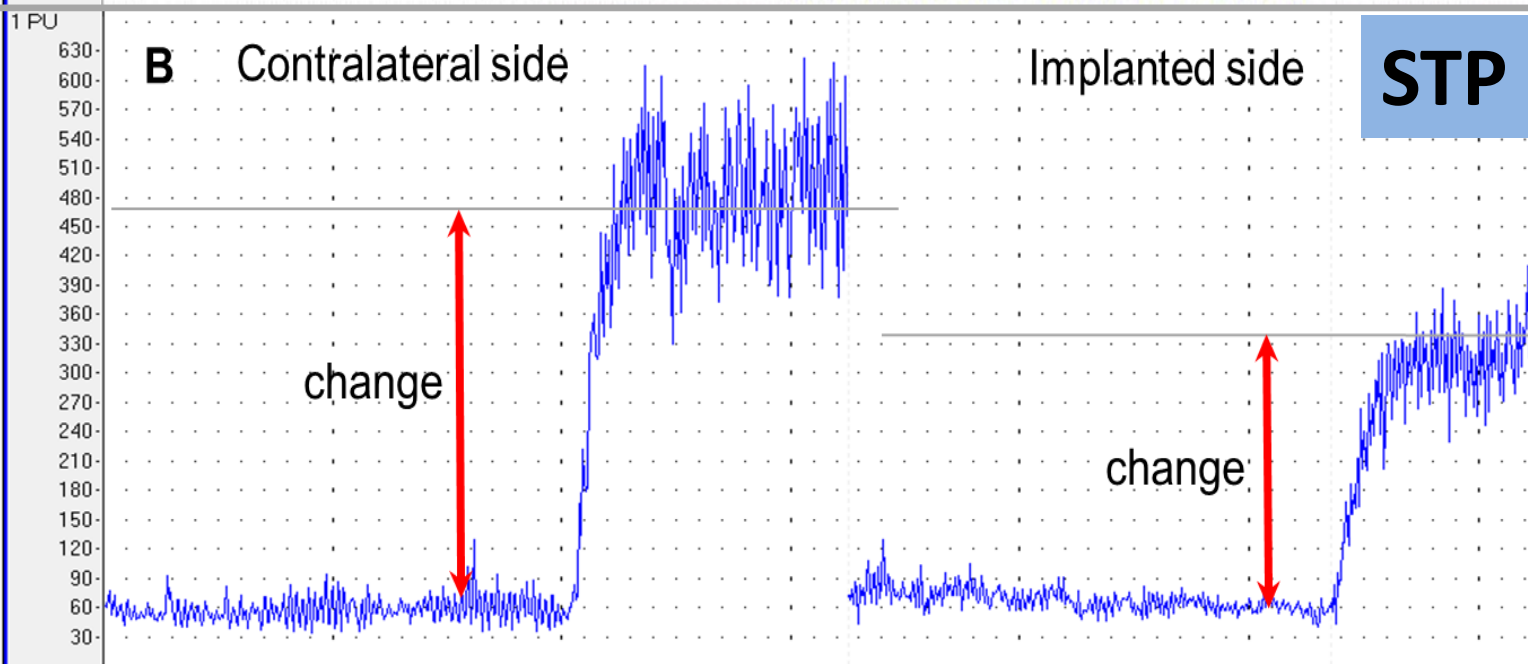
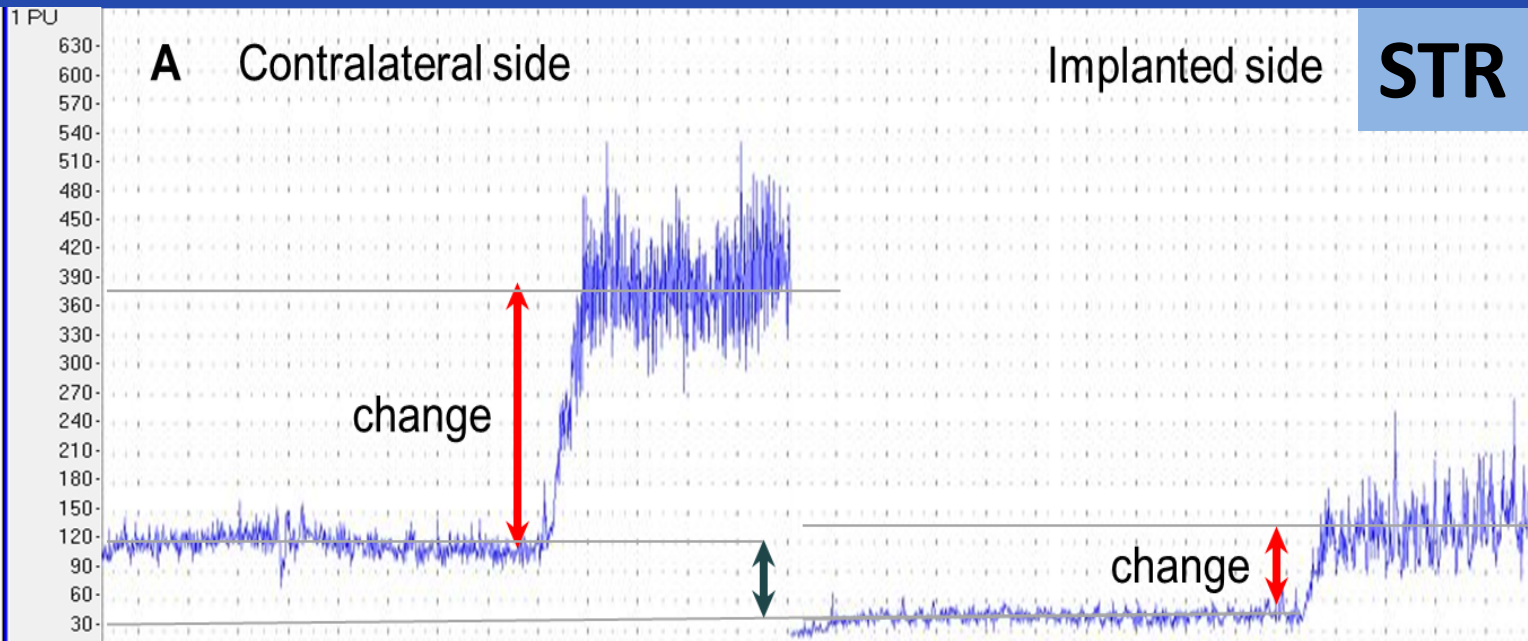
Objectives

Materials & Methods

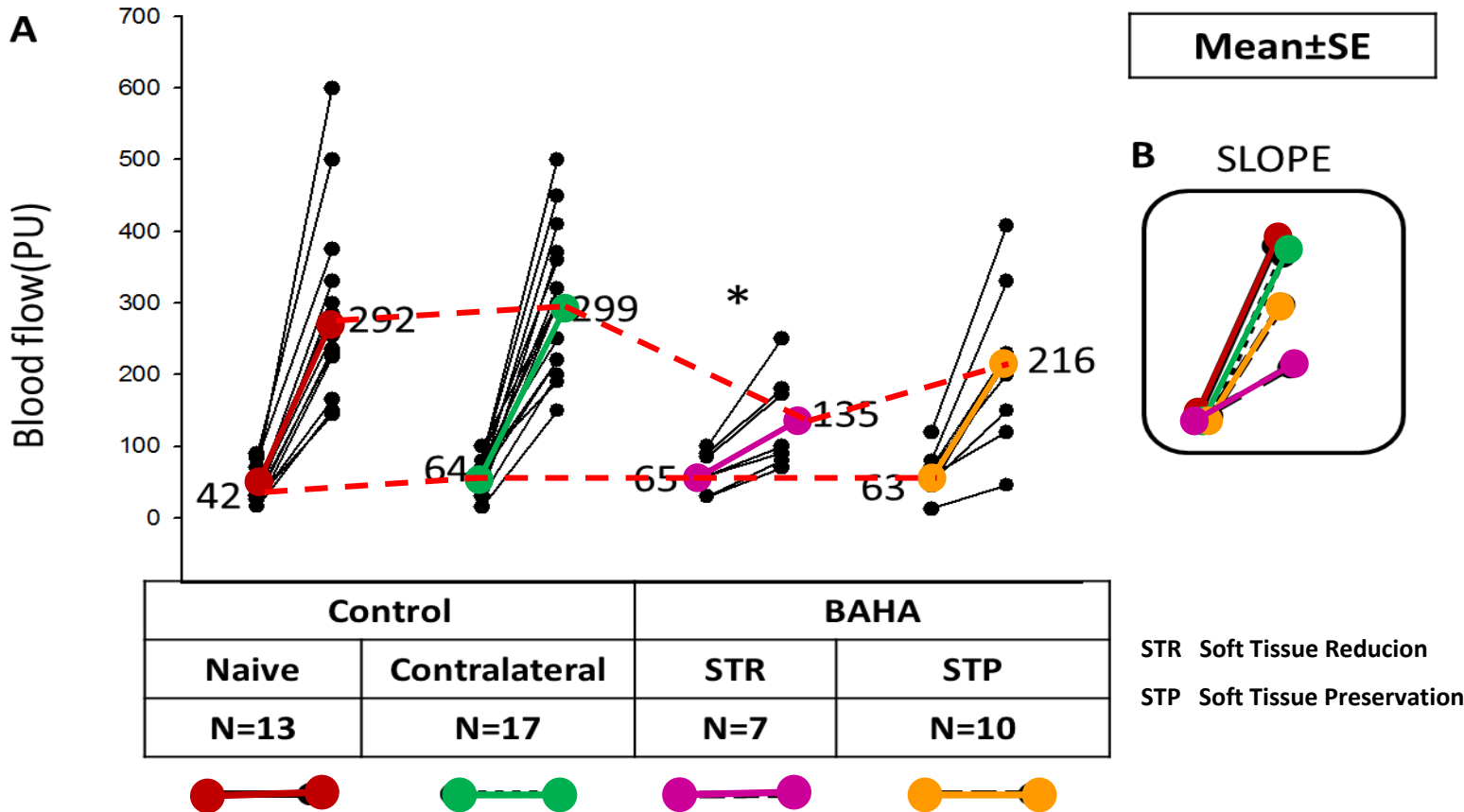
Results

Conclusion

Discussion

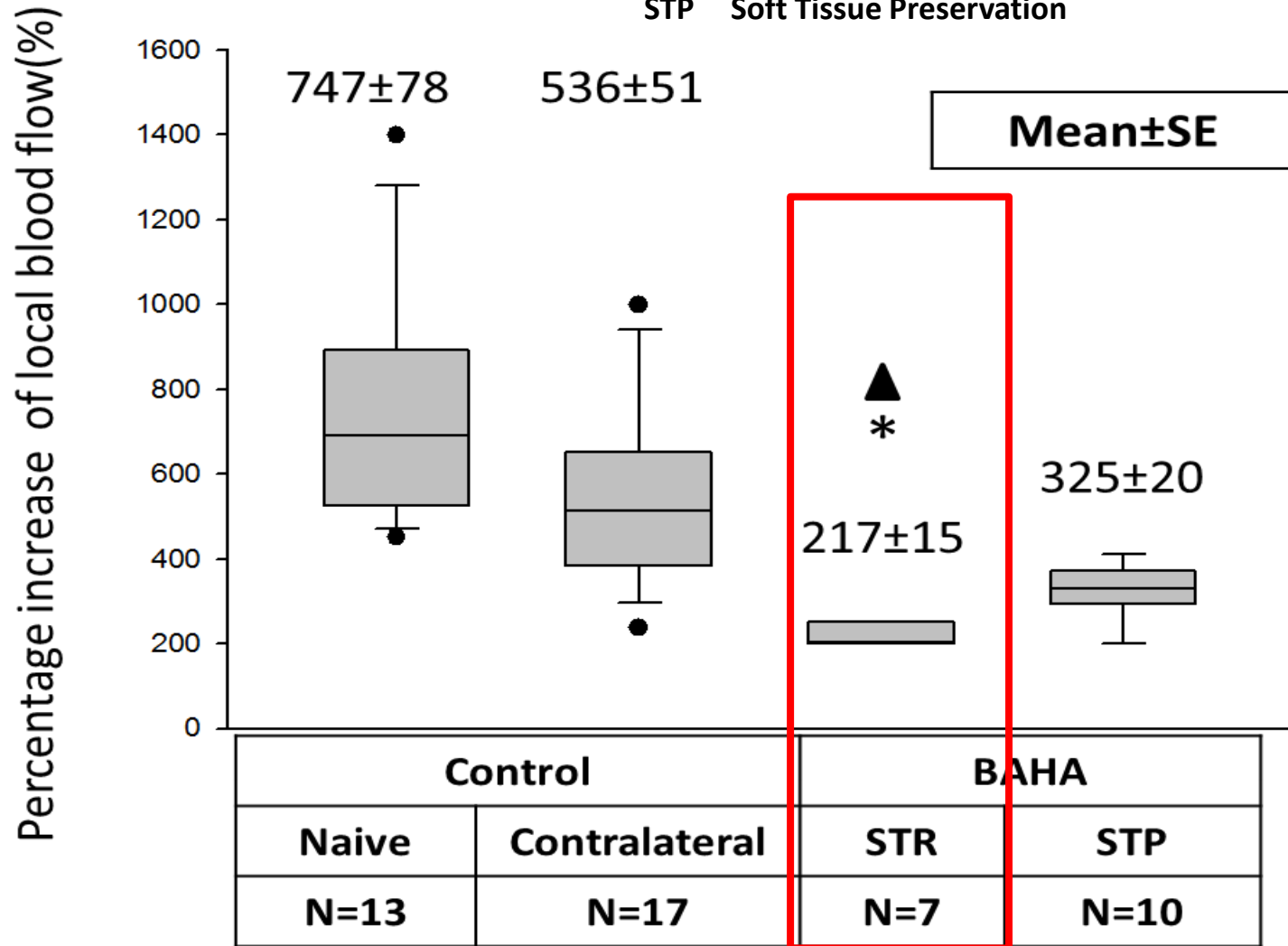


	Control		BAHA	
	Naive	Contralateral	STR	STP
Baseline	42.2±6.8	64.1±5.6	65.0±10.6	62.8±8.6
Provocation	291.8±37.4	299.4±24.7	134.6±25.4	216.4±32.2



STR Soft Tissue Reducion

STP Soft Tissue Preservation



Introduction

New technique → **Shorter surgery time**

Problem

The **impairment** of vascular reactivity → **increased in**

Objectives

dermatome+soft tissue reduction method → **soft tissue**

Materials
&
Methods

preservation reduces the possibility of tissue damage

due to preserved perfusion → **Less postoperative**

complication

Results

Clinical observations also prove the result of the

measurement

Conclusion

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THANK YOU FOR YOUR ATTENTION

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