

# IN SITU TISSUE ENGINEERING WITH INTEGRA

## THE RECONSTRUCTIVE UTILITY OF A DERMAL REGENERATION TEMPLATE

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INGENIERÍA DE TEJIDOS IN SITU CON INTEGRA   La Utilidad Reconstructiva de una Plantilla de Regeneración Dérmica



*Something beautiful from a harsh landscape. —◆◆— Springtime in the Sonoran Desert —◆◆— Algo hermoso de un paisaje áspero.*



# Biological Effects of Integra

Single device - dual role:

1 - high grade acute artificial skin.

2 - then becomes the skin  
regenerant.

Not alive, tolerates adverse conditions.

“Hides” wound from the host.

Eliminates inflammation.

Controls pathological behavior.

Embryonic neodermis.

No scar.

No contraction.

Tangential histoconduction.

## Effects on acute wounds:

Immediate wound closure.

Controls effects of inflammation.

Minimizes pathergy and injury.

## Effects on chronic wounds:

Survives harsh wound conditions.

Eliminates inflammation.

Stabilizes pathological CAP wounds.

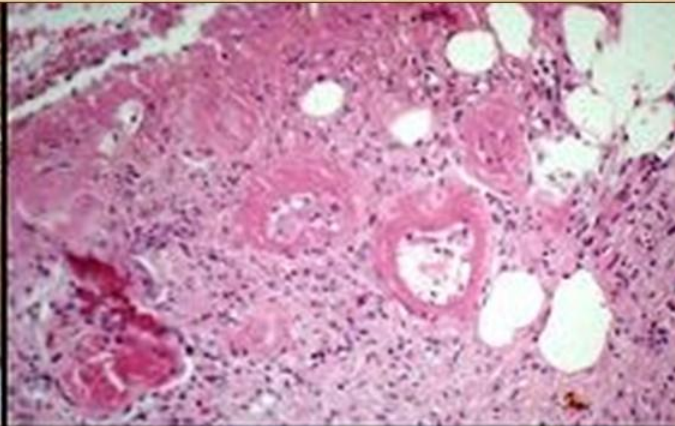
# THE RECONSTRUCTIVE UTILITY OF A DERMAL REGENERATION TEMPLATE

## Chronic Wounds

## Reconstruction







*69 f*



*hyper-  
coagulable*

*protein C  
cryoglobulins*







*77 f*

*Sjogren's*



## Integra for chronic pathological wounds - Outcomes, by diagnosis

Diagnostic category (% of patients per category)	fully healed	> 2/3 healed	< 2/3 healed	failed
Macro-arterial	58	8	16	18
Immunopathic	74	16	5	5
Venous / lymphedema	88	---	6	6
Hypercoagulable	86	---	14	0
Mechanical / anatomical	88	12	---	0
Radiation / malignancy	72	28	---	0
Diabetes / neuropathy	0	20	40	40
Unknown	60	20	20	0
Micro-occlusive	100	---	---	0
Trauma / surgery	100	---	---	0
Granulomatous / infectious	50	50	---	0
Adjunct	100	---	---	0
<b>Total</b>	<b>71</b>	<b>10</b>	<b>10</b>	<b>9</b>

Integra used to close chronic wounds.

**120 patients.**

**90%**  
of exposed bones, joints, tendons and organs were successfully closed.

If patients now recognized as poorly selected are excluded (extreme arterial insufficiency, and diabetic plantar ulcers), the success rate for healed wounds was **92%**.

Gottlieb ME, Furman J: Successful Management and Surgical Closure of Chronic and Pathological Wounds Using Integra®. Journal of Burns & Surgical Wound Care, 3:2, 2004. ([journalofburnsandwounds.com](http://journalofburnsandwounds.com)).

Gottlieb ME. Management of Complex and pathological Wounds with Integra. In: Lee BY, ed. The Wound Management Manual. New York, McGraw-Hill, 2004: 226-289. (ISBN 0-07-143203-5).





# THE RECONSTRUCTIVE UTILITY OF A DERMAL REGENERATION TEMPLATE

Chronic Wounds

Reconstruction





# PARADIGMS OF CONVENTIONAL WOUND CLOSURE & RECONSTRUCTION

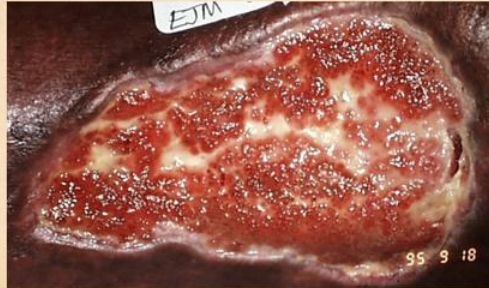
All depend on normal post-inflammatory wound healing.



**0 -  
Topical  
Care  
&  
Natural  
Contraction**



**1 - Simple Repairs**



**2 - Grafts**



**3 - Flaps**



## About Surgery . . .

Surgery cures many problems.  
It should be used when appropriate.

For some problem wounds, conventional surgery can solve the problem, but it might be best avoided due to unreasonable risks of failure or risk to the patient.

There are some problem wounds that conventional surgery simply cannot solve.

## About Flaps . . .

Flaps are the romantic heroes of reconstructive plastic surgery. They have a pivotal role in the closure of complex wounds.

When the stakes are high for successful closure, good flaps get the job done.

... BUT ...

There are times when flaps simply cannot be done or will not survive.



# Sir Flapalot





LE MORTE DE  
**Flapalot**

## A FOURTH INDEPENDENT PARADIGM OF SURGERY

### *In-Situ Tissue Engineering*

Integra is a distinct paradigm of surgery, in-situ tissue engineering, independent of normal wound healing (unlike repairs, grafts, flaps). It suppresses normal repair, and it initiates embryonic histogenesis.

*It succeeds where conventional modalities fail.*

### *Integra: not an Alternative, the Indicated Option*

In cases presented, Integra was the preferred option, not just because flaps and grafts were ineligible, but because it was the best modality –

*Superior results with less risk.*

### *The Knight of Pathological Wounds*

There are many wounds that conventional surgery simply cannot solve. Flaps remain the heroes of reconstructive plastic surgery. But for closing problem wounds,

*Integra is the modern Excalibur.*



**Understanding when a flap should be used, but cannot be used, is to understand when Integra should be used in lieu of conventional surgery.**



## Benefits & Virtues

### **Critical coverage,**

**Acute care of patient,  
Acute preservation & closure of wound,  
Major trauma and illness.**

Rapid closure of wound.  
Mitigation of inflammation.  
Averts secondary necrosis and inflammation.  
Mitigation of fluid losses, pain, etc.  
Quickly applied.  
No donor sites or additional trauma.  
No risk to patient.  
No interference or compromise of subsequent care.

### **Biological superdressing,**

**Chronic and pathological (CAP) wounds.**

Same as above.  
Tolerant of adverse conditions.  
Control of persistent wound pathology.  
Eligible for reapplication.

### **Essential coverage,**

**Acute preemptive reconstruction.**

Closes and protects structures.  
Comparable to flaps.  
Applied acutely, contractures are avoided.  
Joint mobilization is sooner and more effective.  
Less need for subsequent rehabilitation.  
Better cosmesis.  
Prevent late reconstruction.  
Preserves options for later reconstruction.

## INTEGRA COLLAGEN-GAG MATIX

## THE RECONSTRUCTIVE UTILITY OF A DERMAL REGENERATION TEMPLATE

### Chronic Wounds

### Reconstruction

#### **Reconstruction,**

**Late restoration of altered or missing features.**

Same as above.  
Correction of contractures.  
Correction of skin quality.  
Avoids or corrects scars and contractures.  
No donor sites.  
Sustained correction.  
Superior to skin grafts.  
Comparable to flaps.  
Superior to flaps in select areas (e.g. dorsum of hand).



# INTEGRA - PRESENTATIONS ARE ON THE WEBSITE

[arimedica.com](http://arimedica.com)

[arimedica.com/subjects\\_integra.htm](http://arimedica.com/subjects_integra.htm)

*Managing Complex and Pathological Wounds with Integra - A Gallery of Cases  
et al.*



*Something beautiful for all seasons. —••— Winter Storm in the Sonoran Desert —••— Algo hermoso para todas las estaciones.*





*58 m intra-arterial injection injury*









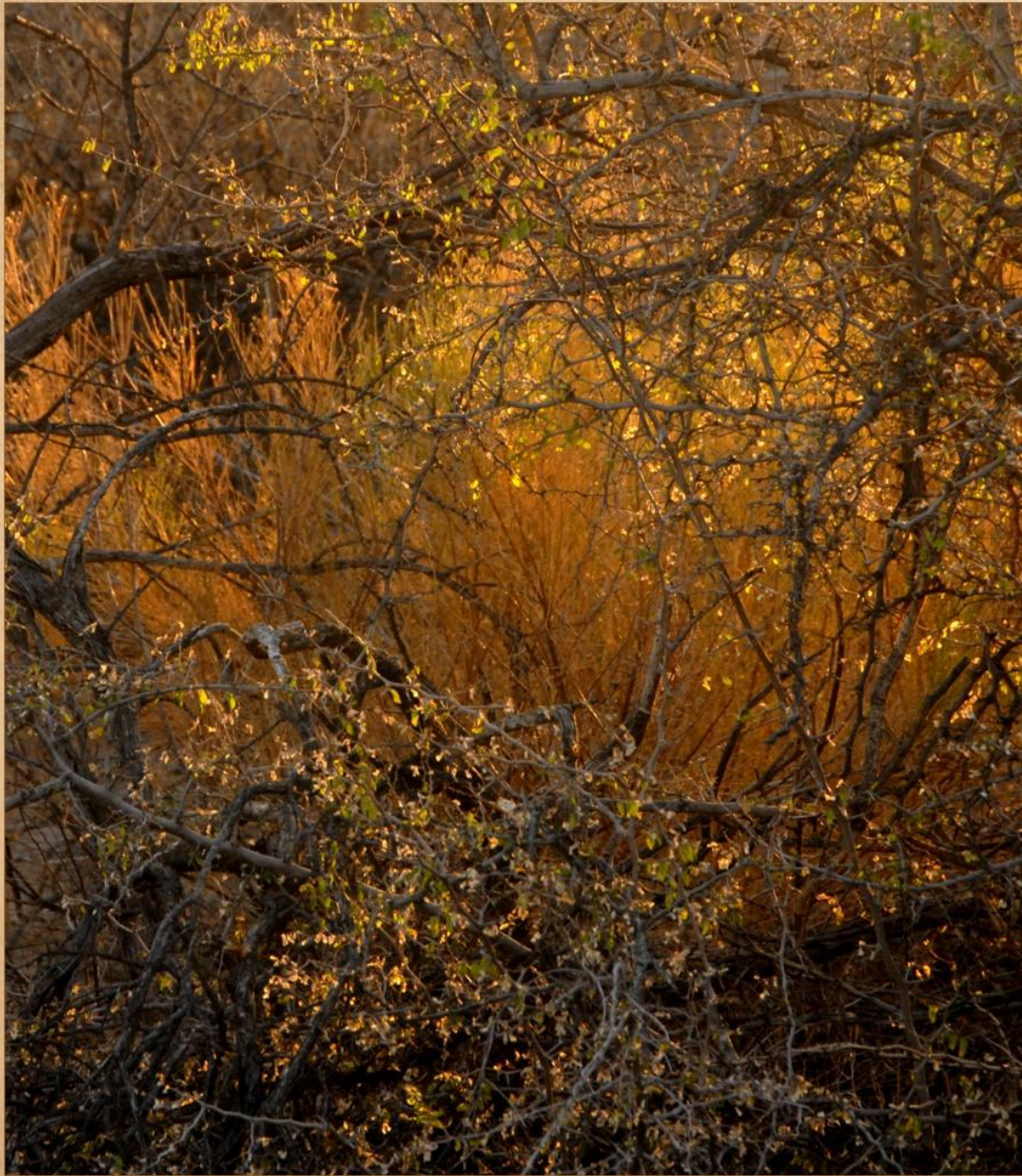
*44 f achilles rupture hypercoagulable (anticardiolipin)*





*These cases  
courtesy of other surgeons.*





**INTEGRA**  
**RECONSTRUCTION**  
**OF SPECIAL**  
**ANATOMICAL AREAS**

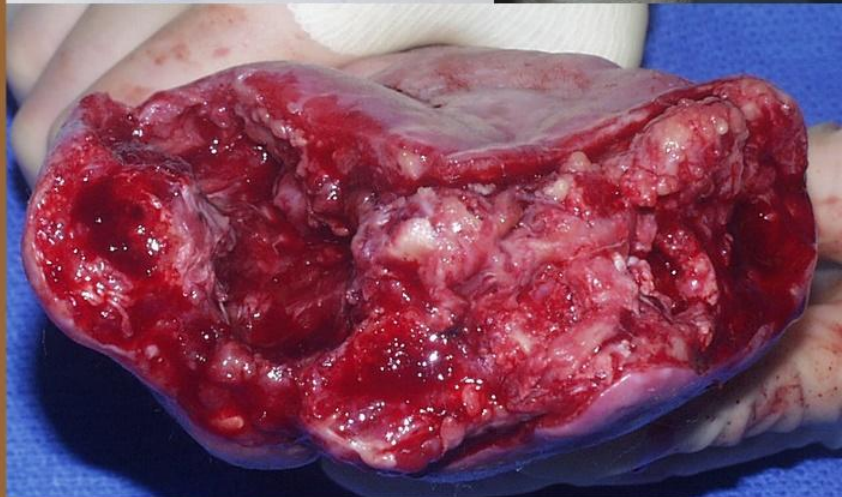


**Hand**

**Achilles**

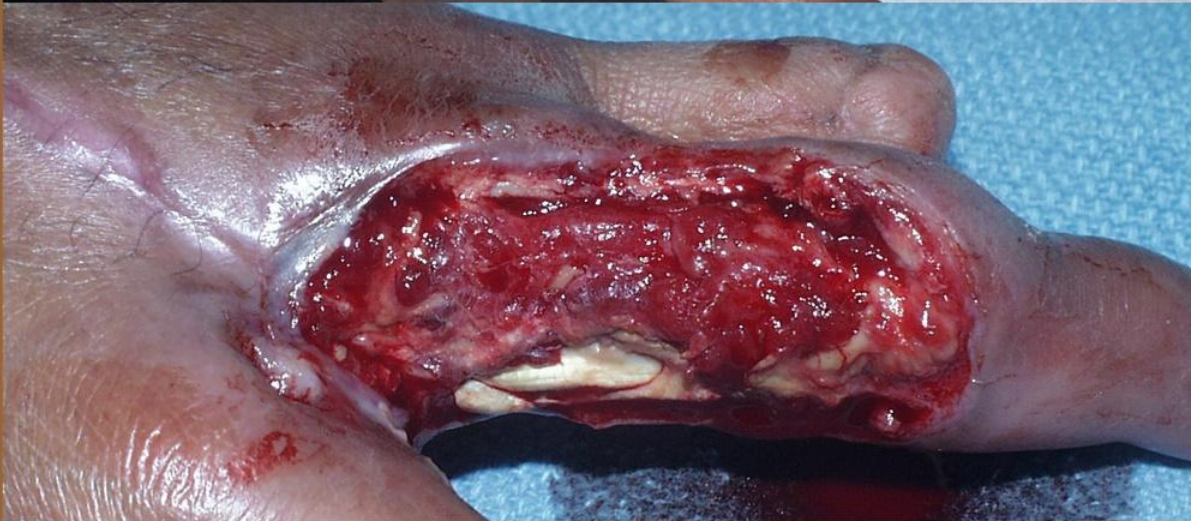
**Heel**





**Hand**





**Hand**





**Achilles**

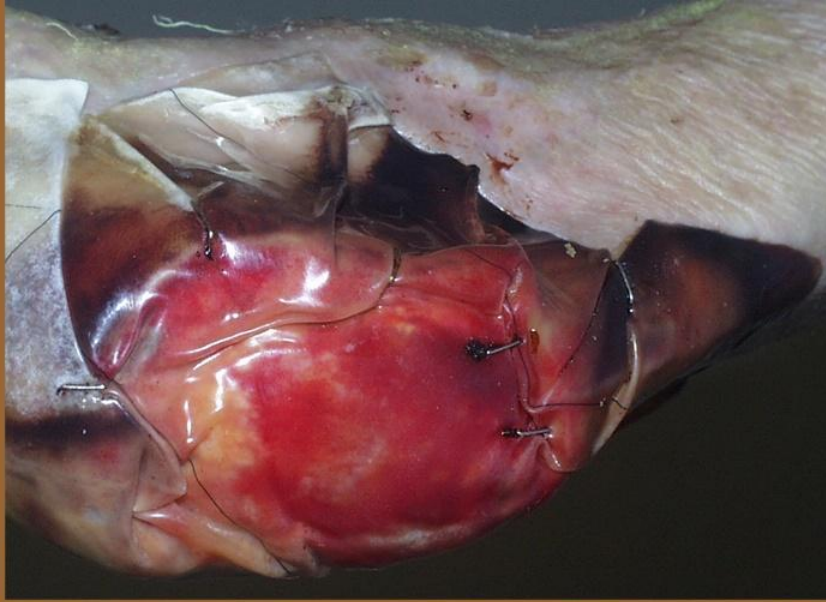




**Achilles**







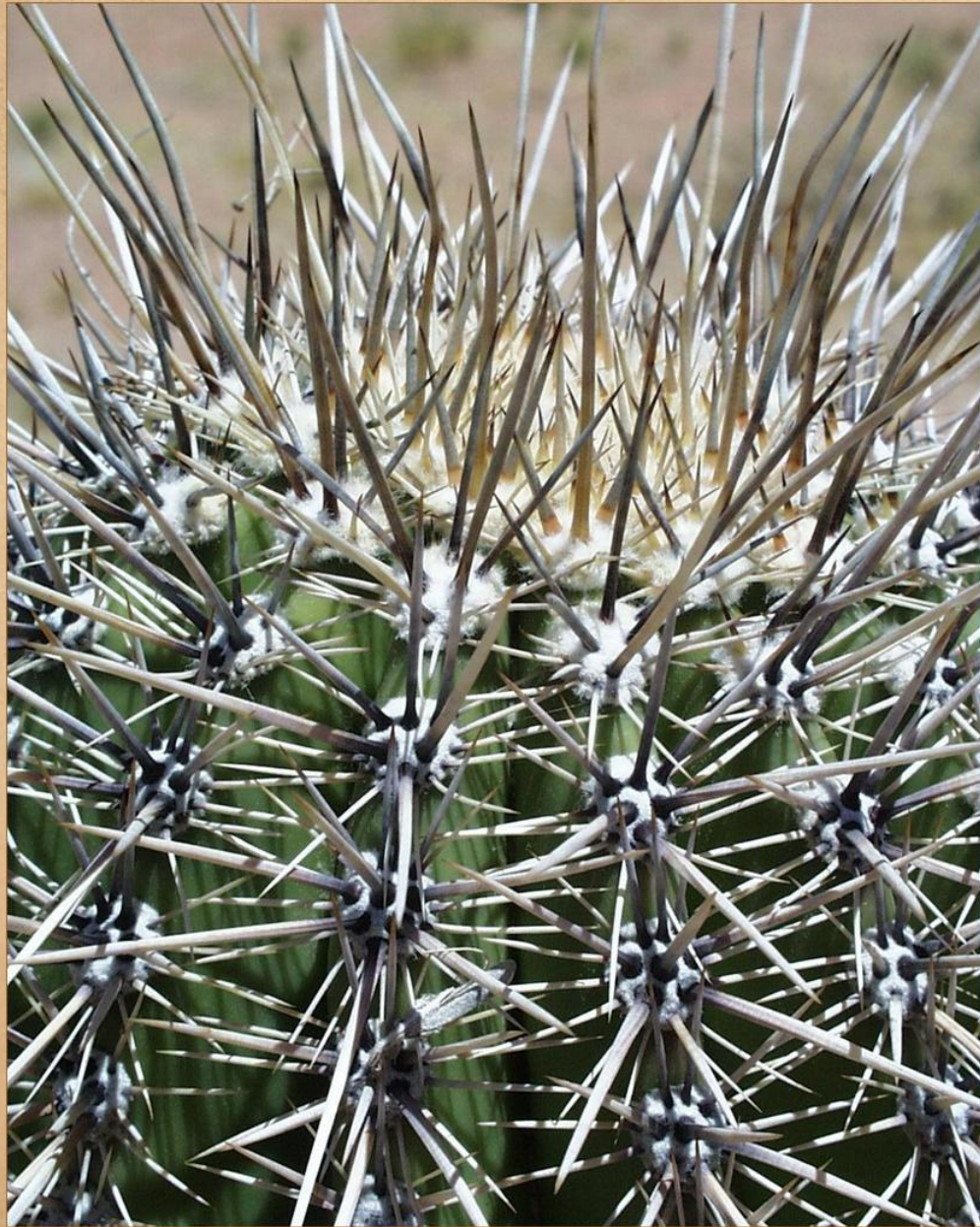
**Heel**





**Heel**





# **INTEGRA**

**SKIN & SURFACE  
RESTORATION  
& RECONSTRUCTION**



**Temporary  
skin substitute**

**Flap donor  
site coverage**

**Visceral coverage**



Temporary skin substitute

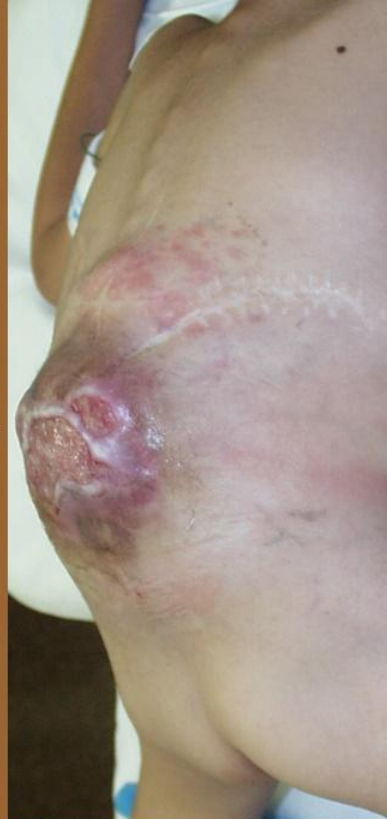






**Donor site coverage**

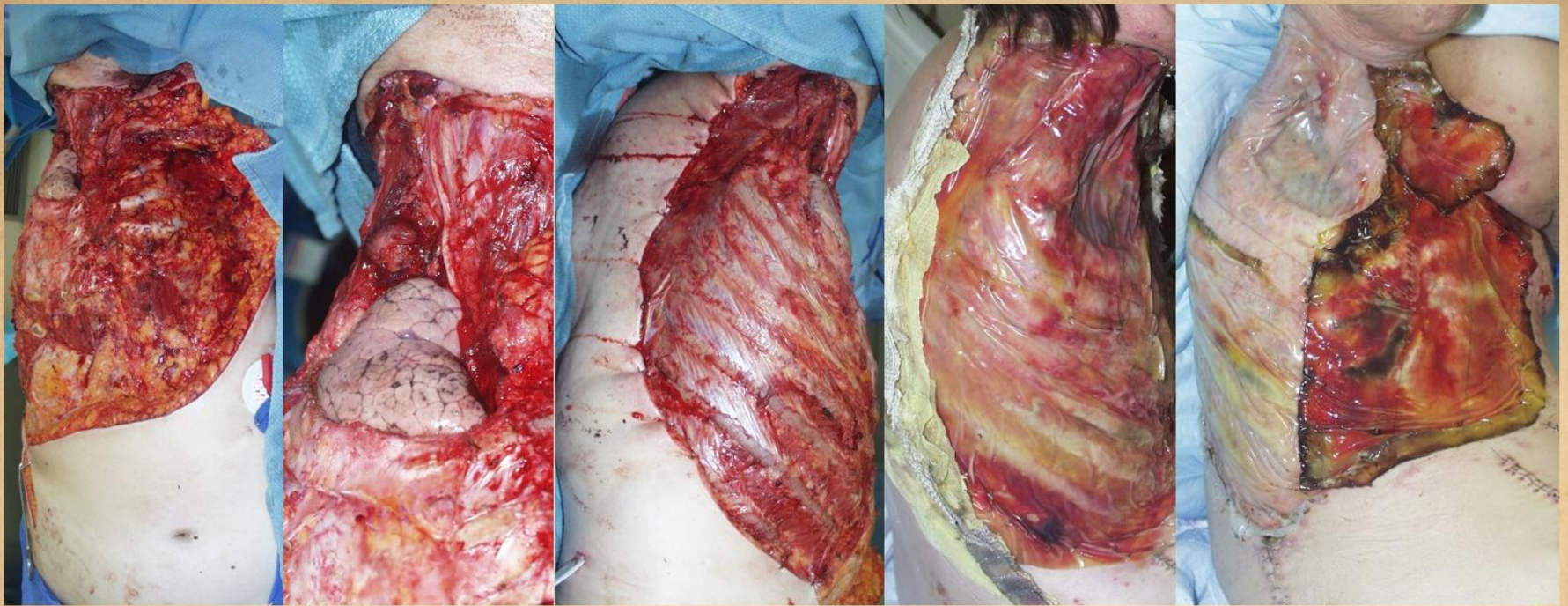




**Donor site coverage**

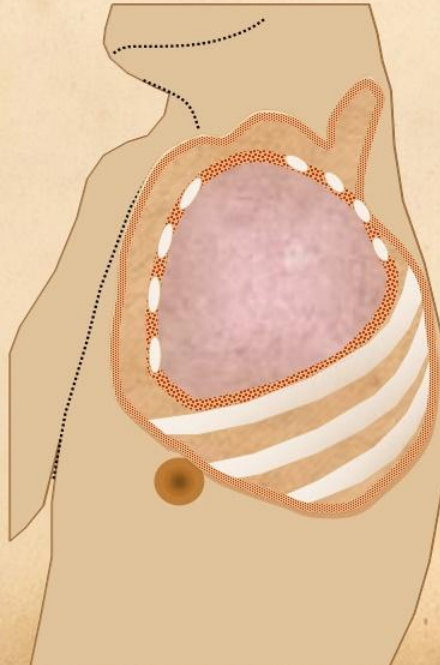






**Visceral coverage**

**Flap delay**







# **INTEGRA**

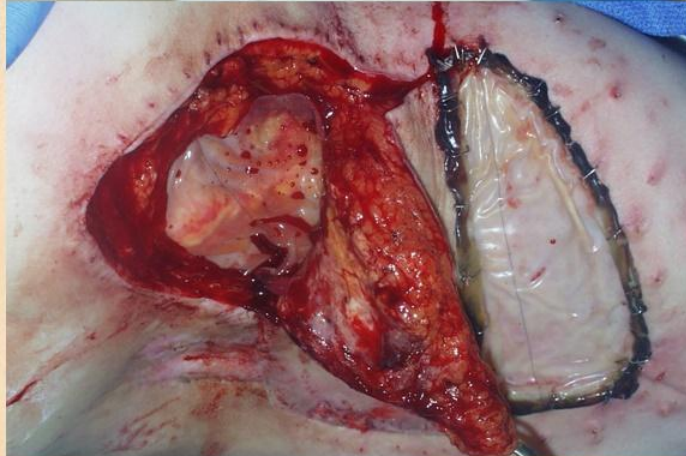
## **RECONSTRUCTION OF DEEP TISSUES & DEFECTS**



**Flap delay**

**Histoconductive  
dead space filler**





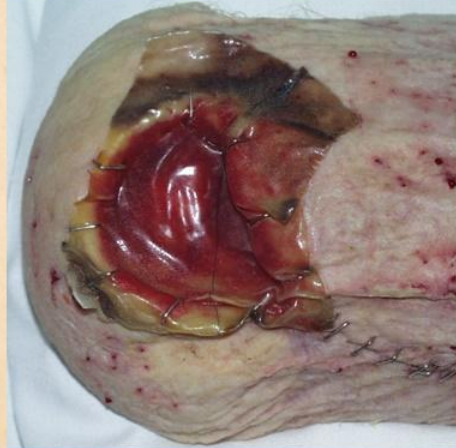
**Protecting  
and  
promoting  
flap delay**



# Histoconduction







**Dead  
space  
filler**





# **INTEGRA**

## **RECONSTRUCTION OF DEEP TISSUES & DEFECTS**

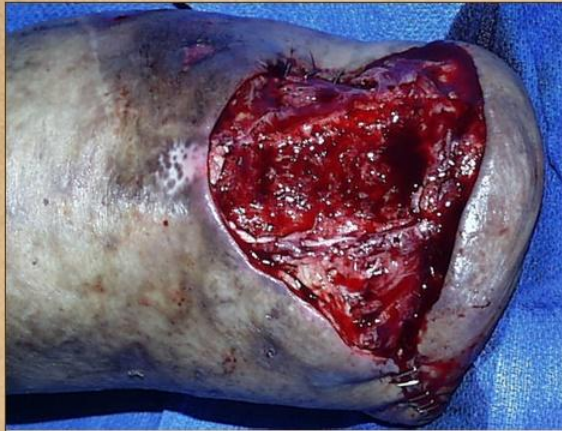
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**amputations**

**limb preservation**

**dermatofasciectomy**





**Amputation  
& limb  
preservation**





**Amputation limb preservation**





**Amputation  
& limb  
preservation**







## **Dermatofasciectomy**

*( Primary lymphedema )*



# Dermatofasciectomy

(*CAP wounds*)



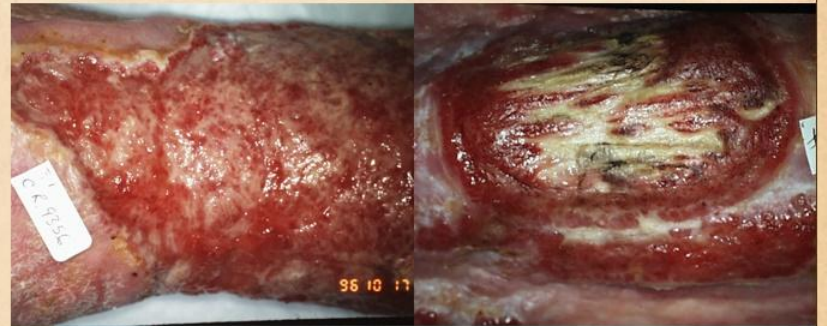




**Dermatofasciectomy**



*(CAP wounds)*







# INTEGRA

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**COLLAGEN-GAG MATRIX**

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**DERMAL REGENERATION  
TEMPLATE**

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**Versatile**

**RECONSTRUCTIVE AGENT**

for  
a broad range of pathologies,  
clinical problems, and  
anatomical areas.

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Solves problems when flaps should  
be used but cannot be used.

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Characteristics like dermis -  
no scar, no contractures.

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Solves wound healing impaired  
chronic and pathological wounds.



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ספר חנוכה

ו

חנוכה



