

2017 MID-ATLANTIC
CONFERENCE

7th ANNUAL CURRENT CONCEPTS IN
VASCULAR THERAPIES

2017

The number '2017' is rendered in a large, white, sans-serif font. The zero is replaced by a green graphic of a vascular tree, showing a main trunk branching into smaller vessels, symbolizing the theme of vascular therapies.

Bradley A Levitt, DPM

April 21, 2017

**To Achieve Limb Salvage
The Wounds Must Heal**

Disclosures

None

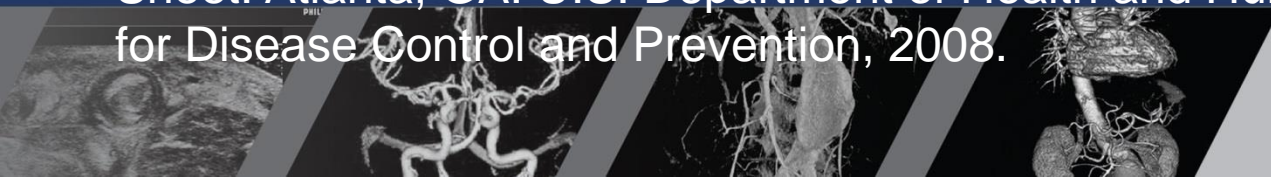


Limb Salvage Statistics

Amputation (per 1000 patients with Diabetes)

- Toes 1.8
- Foot 0.5
- Below Knee 0.9
- Above Knee 0.4

Centers for Disease Control and Prevention. 2007 National Diabetes Fact Sheet. Atlanta, GA: U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, 2008.



Limb Salvage

- Size
 - Length, Width, depth
- Location
 - Forefoot, midfoot, hindfoot
 - Joint
 - Bone Prominence
- Appearance
 - Wound bed
 - Surrounding tissue
 - Exudate
 - Smell

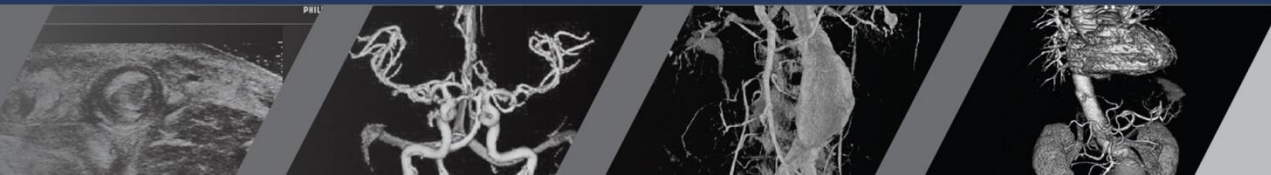


Wound Healing



Factors

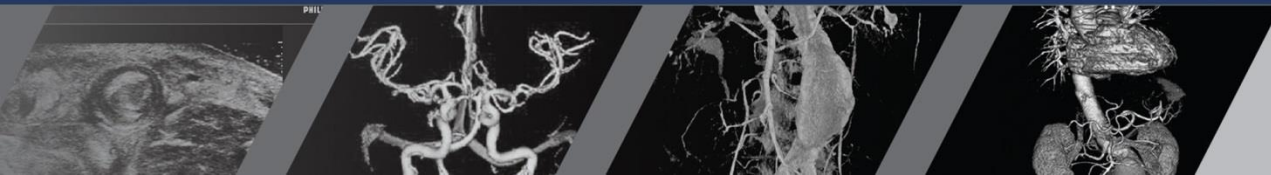
- Adequate Pedal Circulation
- Infection Control
- Biomechanics
- Host Factors



Circulation

Tissue Perfusion

Please Do this!!!!!!!!!!!!!!!



Angiogram

- Procedure Selection
- Dominant Flow



Angiosomes

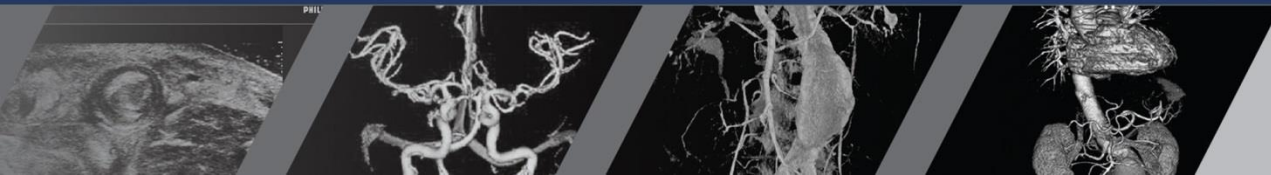


Taylor GI, Pan WR. Angiosomes of the leg: anatomic study and clinical implications. *Plast Reconstr Surg* 1998;102(3):599–616.



Fluorescent Intraoperative Tissue Angiography

- Arterial Perfusion
- Venous Outflow

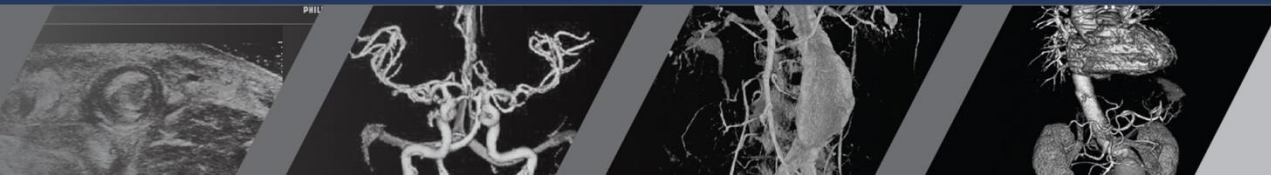


Fluorescent Intraoperative Tissue Angiography



Infection Control

- Abscess Drainage
- Tissues Debridement
 - Digit amputations
 - Ray resections
 - Joint resections



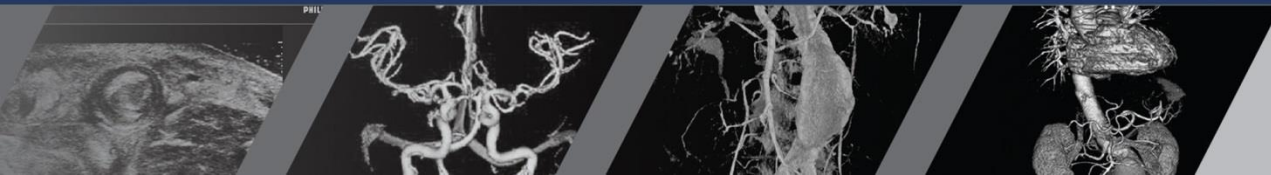
Infection Control

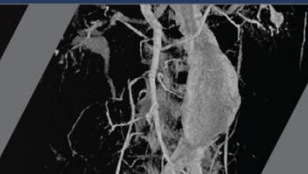
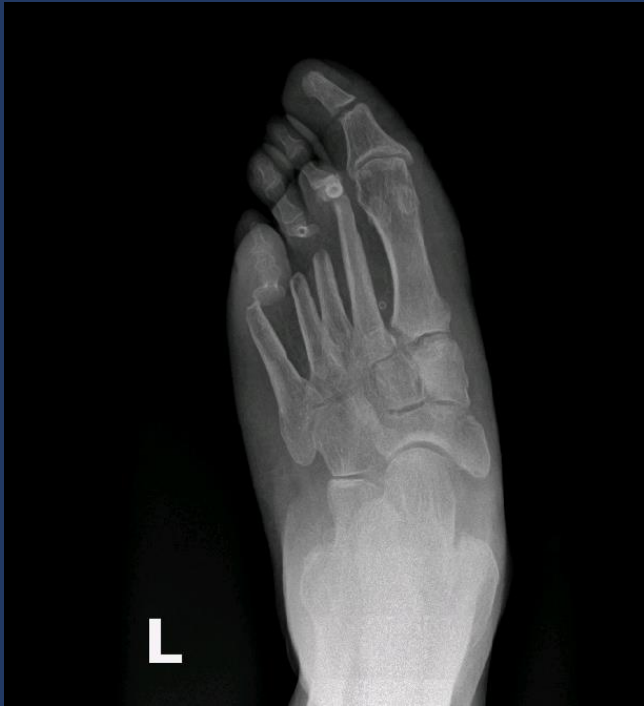
- Intravenous Antibiotics
- Antibiotic Vehicles
 - Polymethylmethacrylate (PMMA)
 - Collagen – Gentamicin Sponge
 - Lactic Acid Polymers



Biomechanics

- Weight Distribution
 - Bone Architecture
 - Tendon Balancing





Host Factors

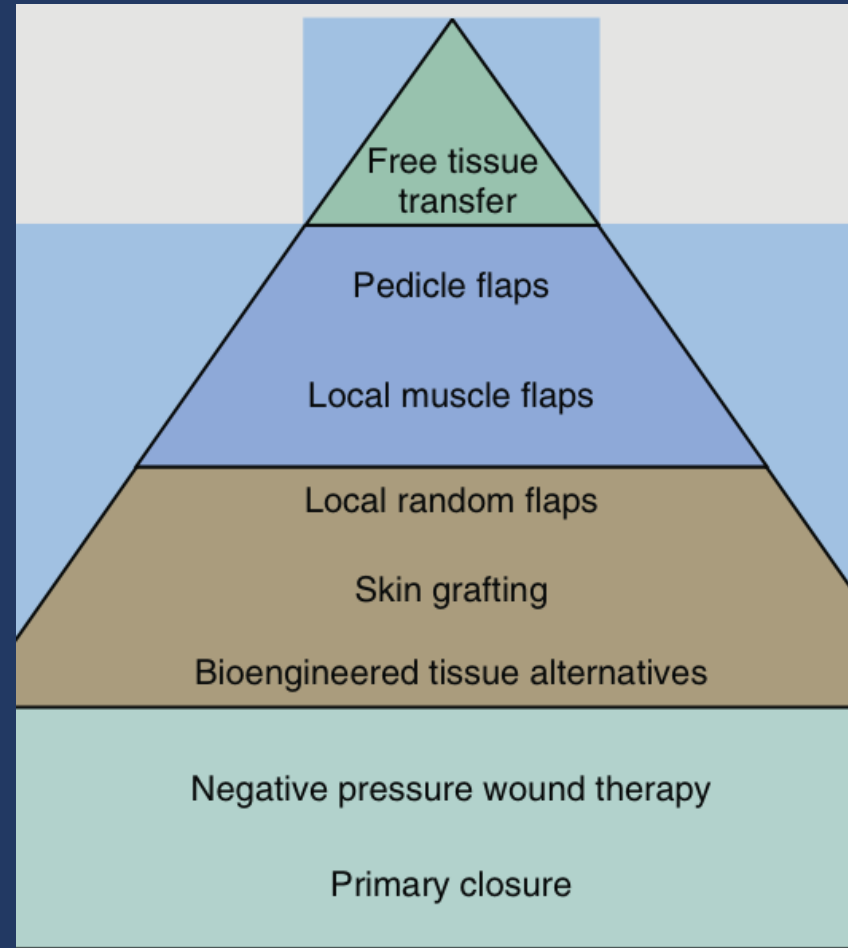
- Medical comorbidities
- Social Conditions



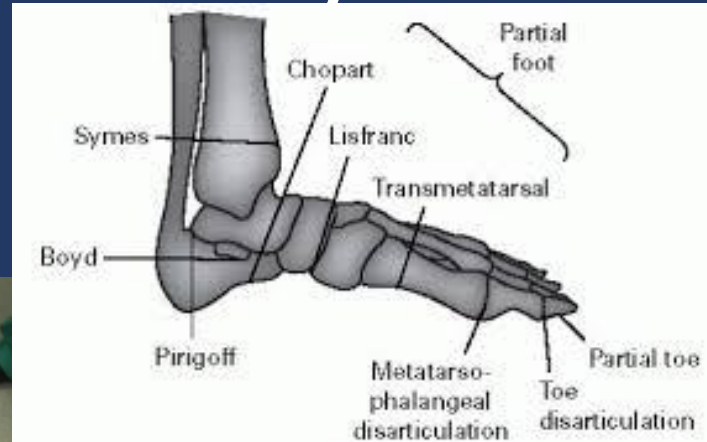
Limb Salvage



Reconstructive Ladder

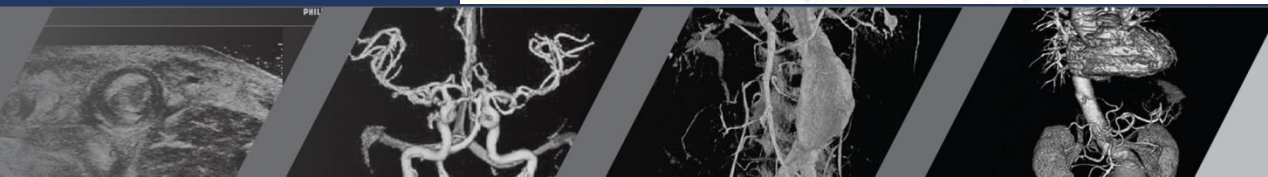
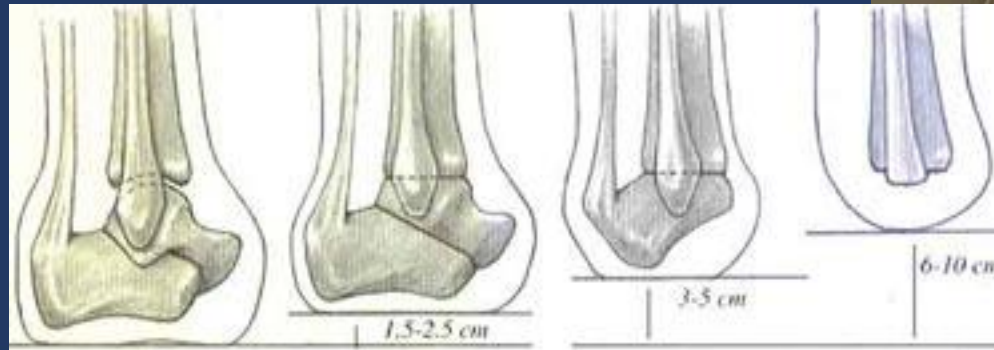


Primary closure

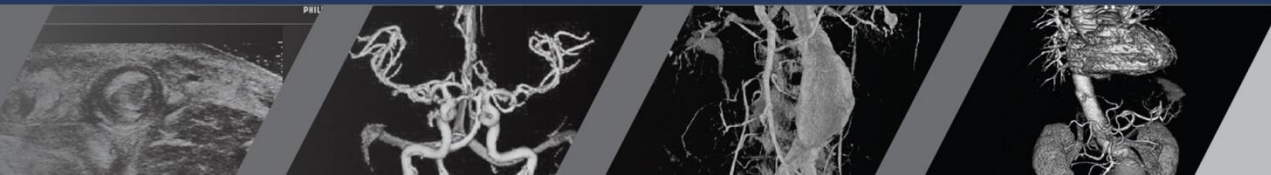
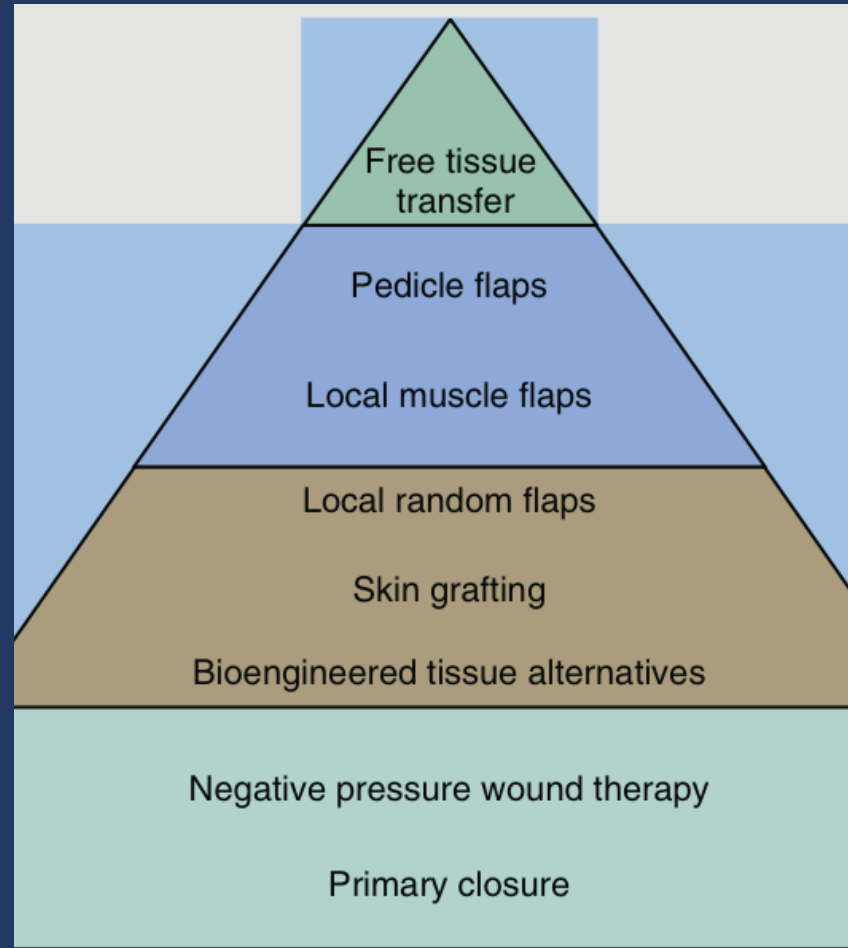


Amputations

- Preservation of Foot Architecture
 - Foot length
 - Plantar Grade



Reconstruction



Negative Pressure Wound Therapy

- Soft tissue management
- 75-125mmhg



Vac w/ fluids

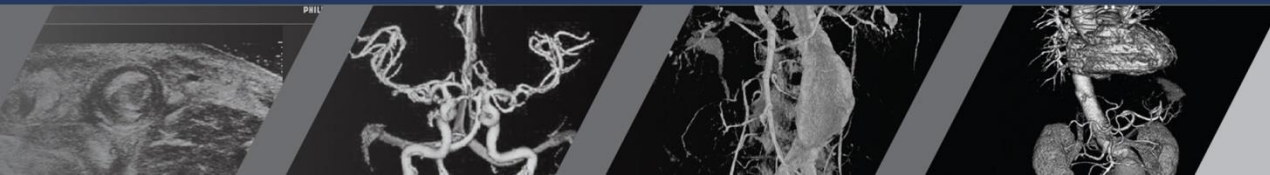
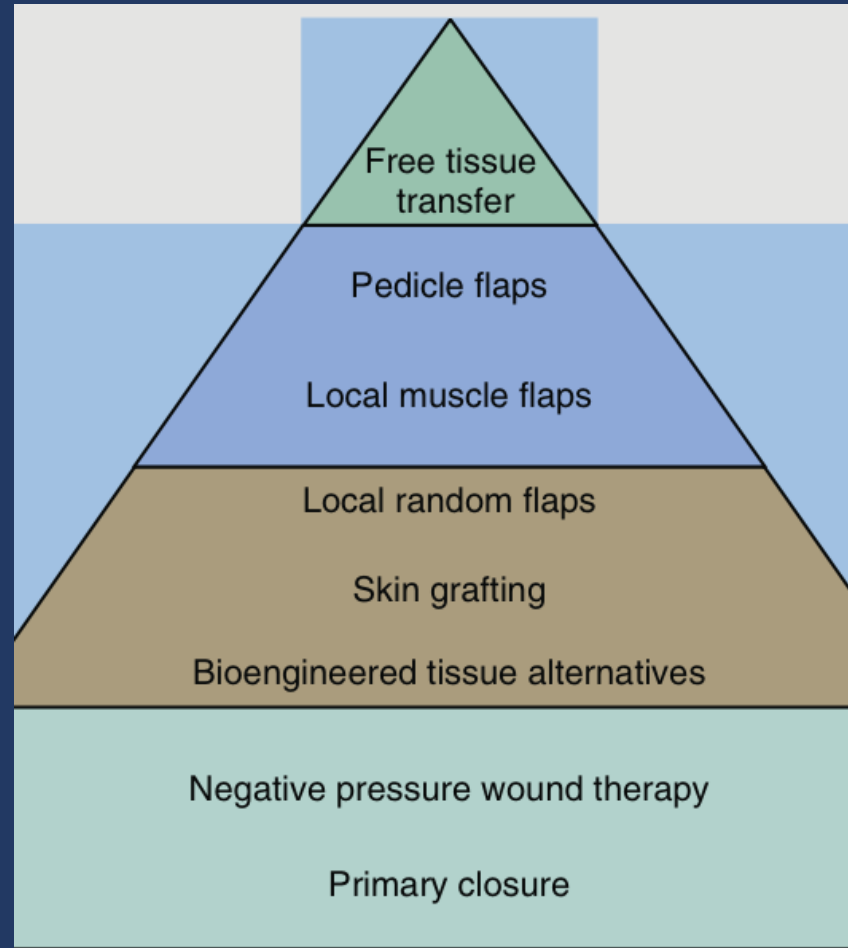
Solution Class	Solution
Biguanides	Polyhexanide 0.1% (Prontosan)
	Polyhexanide 0.2 or 0.4%
Isotonic Solutions	Normal Saline
	Lactated Ringer's
Hypochlorite Based Solutions	Sodium Hypochlorite 0.125%
	Microcyn
Silver Nitrate	Silver Nitrate 0.5%
Others	benzalkonium chloride
	octenide dihydrochloride
	malfenide acetate

-Kim PJ, The impact of negative-pressure wound therapy with instillation compared with standard negative-pressure wound therapy: a retrospective, historical, cohort, controlled study. [Plast Reconstr Surg](#). 2014 Mar;133(3):709-16. doi: 10.1097/01.prs.0000438060.46290.7a.

-Paola DL, Diabetic foot wounds: the value of negative pressure wound therapy with instillation. [Int Wound J](#). 2013 Dec;10 Suppl 1:25-31. doi: 10.1111/iwj.12174.



Reconstruction



Tissue Equivalents

ACell® UBM Hydated/lyophilized Wound Dressing • Affinity™ • AlloPatch HD™ • AlloSkin™ • AlloSkin™ RT • Allowrap™ • Amnioband®/Guardian • AMNIOEXCEL® • Amniofix® • Aongen™ Collagen Matrix • Architect® ECM, PX, FX • ArthroFlex™ (FlexGraft) • Atlas Wound Matrix • Avagen Wound Dressing • AxoGuard® Nerve Protector (AxoGen) • BioDDryFlex® • BioDfence/BioDfactor • CellerateRX® (CRXa™) • Clarix® • Clarix® Flo • CollaCare® • CollaCare® Dental • Collagen Wound Dressing (Oasis Research) • CollaGUARD® • CollaMend™ • CollaWound™ • Collexa® • Collieva® • Conexa™ • Coreleader Colla-Pad • CorMatrix® • Cymetra® • Dermadapt™ Wound Dressing • Dermapure™ • DermaSpan™ • Dermavest™ • DressSkin • Durepair Regeneration Matrix® • Endoform Dermal Template™ • ENDURAgen™ • Excellagen • ExpressGraft™ • E-Z Derm™ • FlexiGraft® • FortaDerm™/PuraPly™ • GammaGraft • GraftJacket® Xpress, injectable • GUARDIAN • Hyalomatrix® • Hyalomatrix® PA • hMatrix® • Integra™ Flowable Wound Matrix • Integra™ Bilayer Wound Matrix • MariGen/Kerecis™ Omega3™ • MatriDerm® • MatriStem® Burn Matrix • MatriStem® Micromatrix Protocol Bioengineered Skin and Soft Tissue Substitutes Last Review Date: 11/16 Page 6 of 16 • MatriStem® Wound Matrix • Matrix HD™ • Mediskin® • MemoDerm™ • NeoForm™ • Neox® Flo • Neox® Cord • Neox® Wound Allograft • NuCel • NuShield™ • Oasis® Burn Matrix • Oasis® Wound Matrix • Oasis® Ultra • Pelvicol®/PelviSoft® • Permacol™ • Plurivest™ • PriMatrix™ • Primatrix™ Dermal Repair Scaffold • Puros® Dermis • RegenePro™ • Repliform® • Repriza™ • Revitalon™ • StrataGraft® • Strattice™ (xenograft) • Suprathel® • SurgiMend® • Talymed® • TenoGlide™ • TenSIX™ Acellular Dermal Matrix • TissueMend • TheraForm™ Standard/Sheet • TheraSkin® • Unite® Biomatrix • Veritas® Collagen Matrix • XCM Biologic® Tissue Matrix • XenMatrix™ **AB**



Tissue Equivalents

Diabetic Ulcers

Apligraf®

Dermagraft®

Integra® Dermal Regeneration
Template

Amniotic Membrane Graft

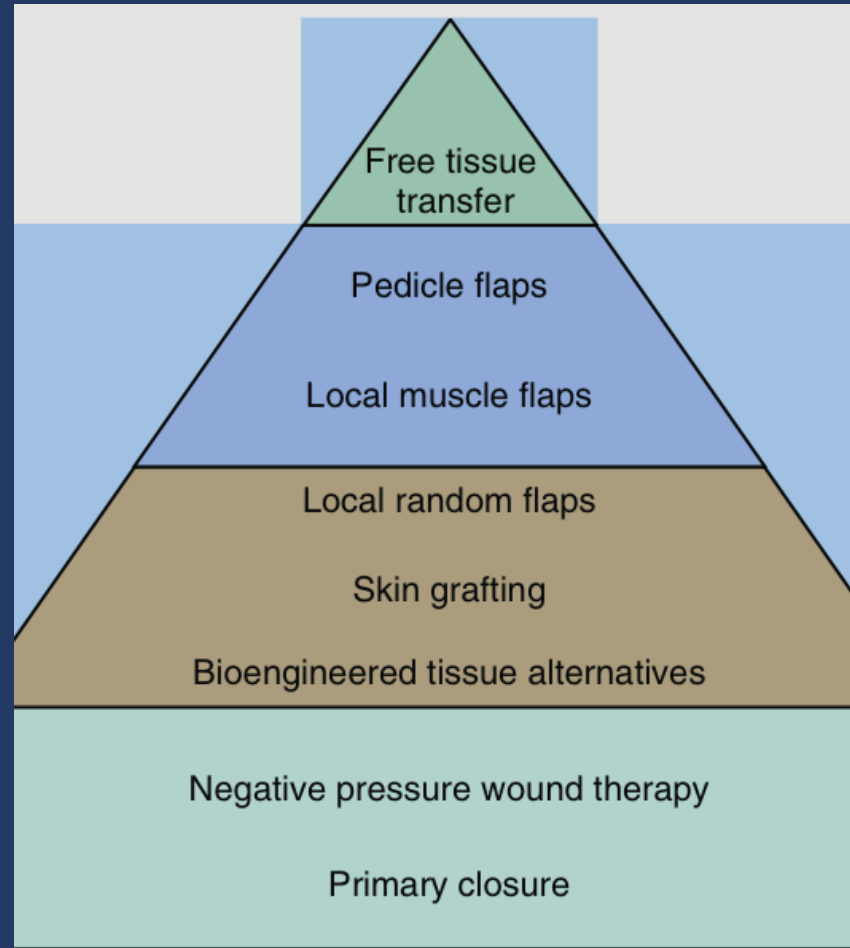
Venous Ulcers

Apligraf®

Oasis™ Wound Matrix

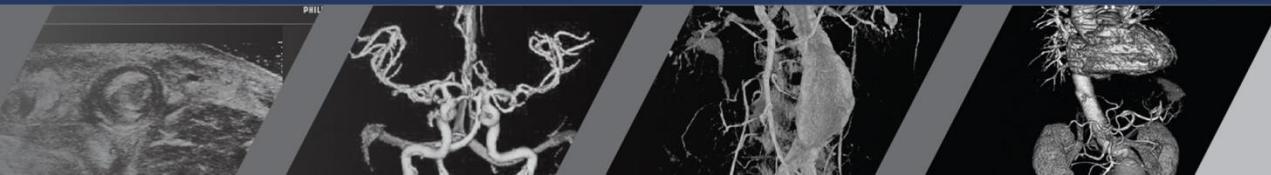
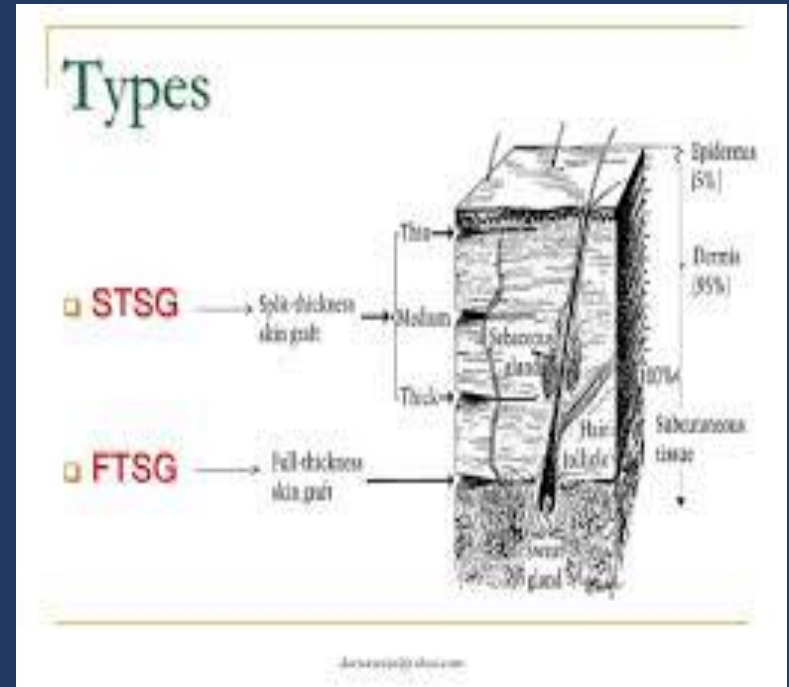


Soft tissue Reconstruction

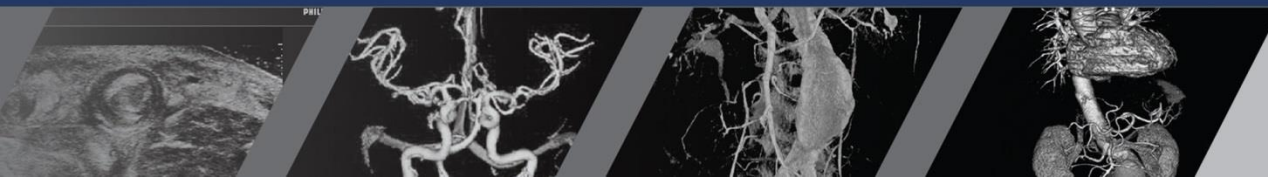


STSG

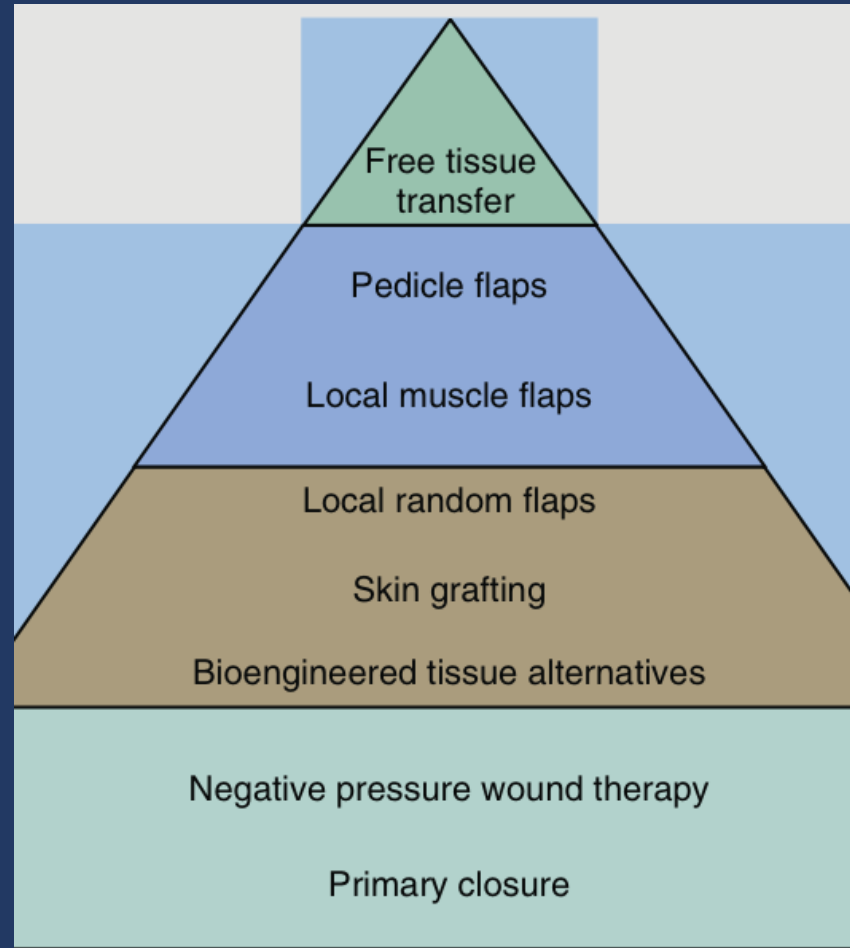
- 0.008-0.030 in



Split Thickness Skin Grafts



Soft tissue Reconstruction



Local Random Flaps

- Rotational



Local Random Flap

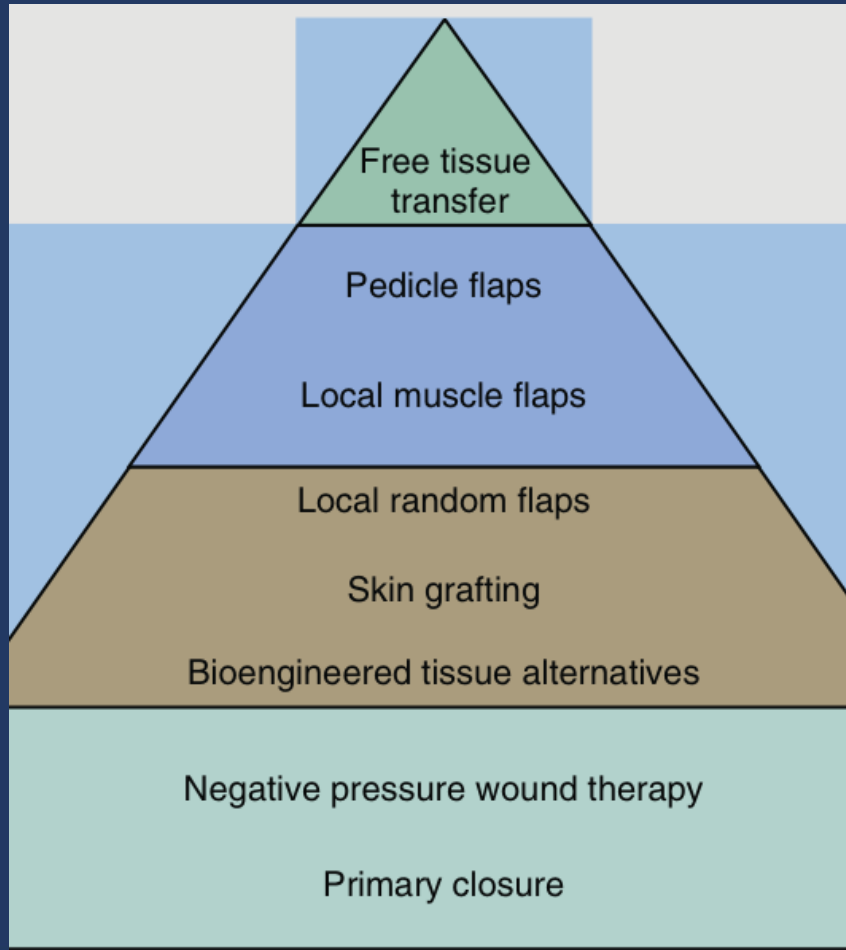
V to Y



Local Random Flaps

Rotational Flap





Local Muscle Flaps

- Type 1: One vascular pedicle
- Type 2: Dominant pedicle(s), minor pedicles
- Type 3: Two dominant pedicles
- Type IV: Segmental vascular pedicle
- Type V: One dominant pedicle and secondary segmental.



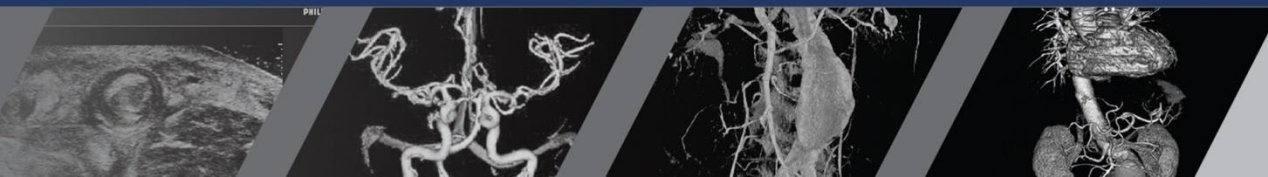
Abductor Hallucis

- Coverage
 - Medial Ankle
 - Calcaneus
 - Hindfoot
 - Plantar heel
 - Medial Midfoot



Abductor Digiti Minimi

- Coverage
 - Lateral ankle
 - Calcaneus
 - Lateral Midfoot
 - Plantar Lateral heel



Flexor Digitorum Brevis

- Coverage
 - Heel Pad



Pedicle Flaps

MPA

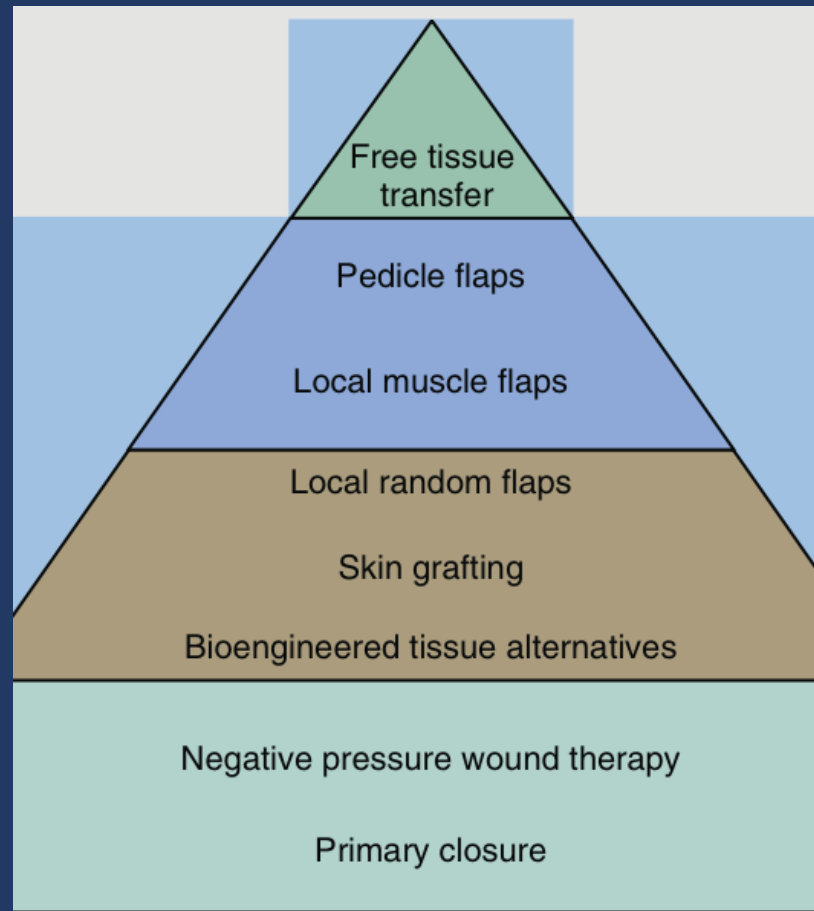
- Pedicle Length
 - Up to 3 cm
- Coverage
 - Medial hindfoot
 - Heel
 - Ankle



Reverse Sural

- Pedicle
 - Perforating Peroneal
 - 5-13cm above Lateral Malleolus
- Coverage
 - Achilles
 - Heel pad



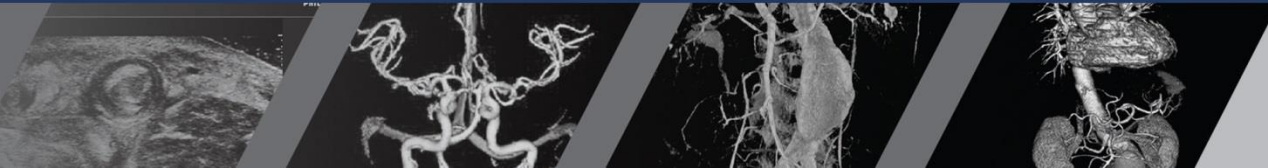
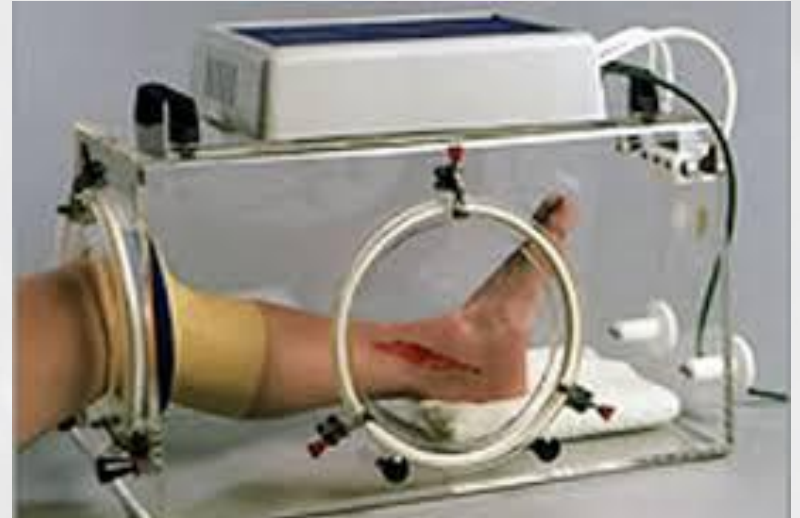


Free Tissue Transfer

Call Plastics!!!!



Last Resort



Thank You

