Grafts

by Matthew Helm, MD, and Paul Wirth, MD

Full thickness skin graft (FTSG)
Most common form of graft used in dermatologic surgery
Composed of full thickness epidermis and dermis
Classic donor sites include pre/post auricular skin, lateral neck, supraclavicular area • Burow's Graft: specialized FTSG utilizing skin adjacent to wound defect taken as Burow's triangles that would have otherwise been discarded
Defatting required to help allow nutrition to flow from wound bed into graft
Bolster utilized for first week in order to stabilize graft and keep in contact with wound bed

Stages of FTSG	Timing	Characteristics
Imbibition	Day 1-2	Ischemic period; graft sustained by passive diffusion from wound bed
Inosculation	Day 2-10	Dermal blood vessels of graft link with vessels of wound bed
Neovascularization	Starts day 7	New blood vessels and lymphatics grow in to graft from wound bed
Reinnervation/ Maturation	Starts at 2 months	Slow process, ongoing for years; graft blends in to surrounding skin and sensation returns

Split thickness skin graft (STSG)
Composed of full thickness epidermis + variable amounts of dermis
Classified by thickness • Thin: 0.13-0.30 mm • Medium: 0.30-0.46 mm • Thick: 0.46-0.76 mm
Can be harvested using a multitude of tools • Small to medium grafts: Free hand techniques using surgical scissors, scalpel blades, double-edged razors, Dermablade or a Weck blade • Large grafts: Electric dermatomes such as a Zimmer
Fenestrating the graft can increase the size of the graft if needed and allows for serosanguinous drainage, however, can decrease overall cosmesis

Composite graft
Contains more than two types of tissue • Skin + Cartilage or Perichondrium ○ Used to restore structure, commonly employed for full thickness defect repairs of the nasal ala and helical rim • Skin + Fat
Four stages after placement 1. Initial complete blanching of tissue 2. 6 hours: graft becomes pale pink indicating anastomosis of graft vessels with wound bed 3. 12 hours: graft becomes blue indicating venous congestion 4. 3-7 days: graft becomes light pink indicating survival

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Free Cartilage Graft
Used to restore architecture after significant cartilage loss to maintain structure of free margins
Donor sites include the auricular helix, antihelix, nasal septum, conchal bowl and ribs

Graft comparison	FTSG	STSG	Composite	Free cartilage
Match to surrounding tissue	Best	Worst	Moderate	N/A
Nutrition requirements	High	Low	Highest	Moderate
Vascularity of wound bed	High	Low	Highest	High
Risk of infection	Low	Low	Moderate	Moderate
Amount of contraction	Low	High	Low	N/A
Durability	Excellent	Moderate	Moderate	Good
Adnexal function	Excellent	Poor	Good	N/A
Uses	Coverage of defects of almost any site, best overall tissue match	Coverage of large areas, sites with limited vascular supply or those at high risk for recurrence	Repair of full thickness or deep alar defects	Repair of helical rim, partial/full thickness lower eyelid or alar rims defects

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