

# Topical Negative Pressure Therapy

# What is TNP?

- Topical negative pressure is the application of sub-atmospheric or negative pressure to a wound surface. The process includes the application of sub-atmospheric pressure, measured in mmHg, from an adjustable source, directly to a wound bed, via tubing inserted into/ between or on top of pieces of open-cell foam or a gauze dressing. A closed, controlled wound environment is then achieved by applying an adhesive polyurethane dressing over the top and sealing the edges.

# What does it look like?

RENASYS GO



# What type of wounds do we use it on?

- Open fractures
- Pre tibial lacerations
- Haematomas
- Lower limb trauma
- Infected joint replacement
- Pressure ulcers
- Diabetic ulcers
- Burns

# What is a split skin graft?

- Split skin grafting is where the top two layers of skin (epidermis/dermis) are shaved from a part of the body called the donor site. This healthy skin is used to cover wounds that are not able to be directly closed but have a healthy wound bed (graft site). The graft heals by taking up a blood supply from the base of the wound allowing the grafted skin to survive or 'take'.

# Split Skin Graft



# Different types of flaps

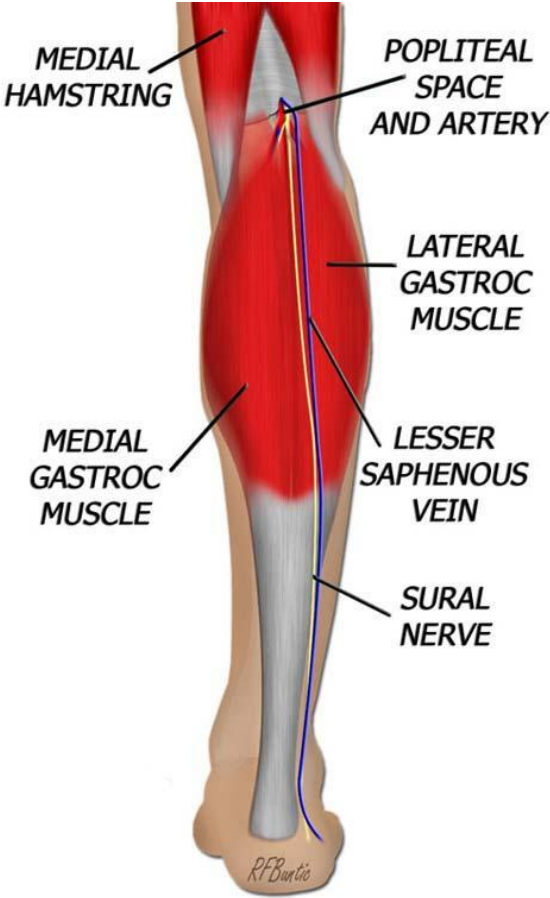
- Pedicle or local flaps are when tissue is left partly attached to the donor site and simply transposed to a new location keeping the blood supply intact.
- Myocutanoeus flaps add a layer of muscle to provide bulk that can fill a deeper defect. These flaps will need to be covered by a SSG.
- Free flaps are where tissue is completely detached from its blood supply at the origin and then transferred to another location. Circulation in the tissue is re established by reconnection of the blood supply by micro surgery.

# What is a gastrocnemius flap?

- A gastrocnemius flap is a myocutaneous flap when part of the gastrocnemius muscle is used to fill a significant tissue loss defect. Most commonly used for reconstructing wounds around the knee/upper third of the tibia. Each head of the gastrocnemius muscle receives its blood supply from the sural artery which are branches of the popliteal artery and ensures that the blood supply to this muscle is very efficient. The gastrocnemius muscle can therefore be used to cover a defect with little or no deficit when walking or normal running.



# Gastrocnemius Flap

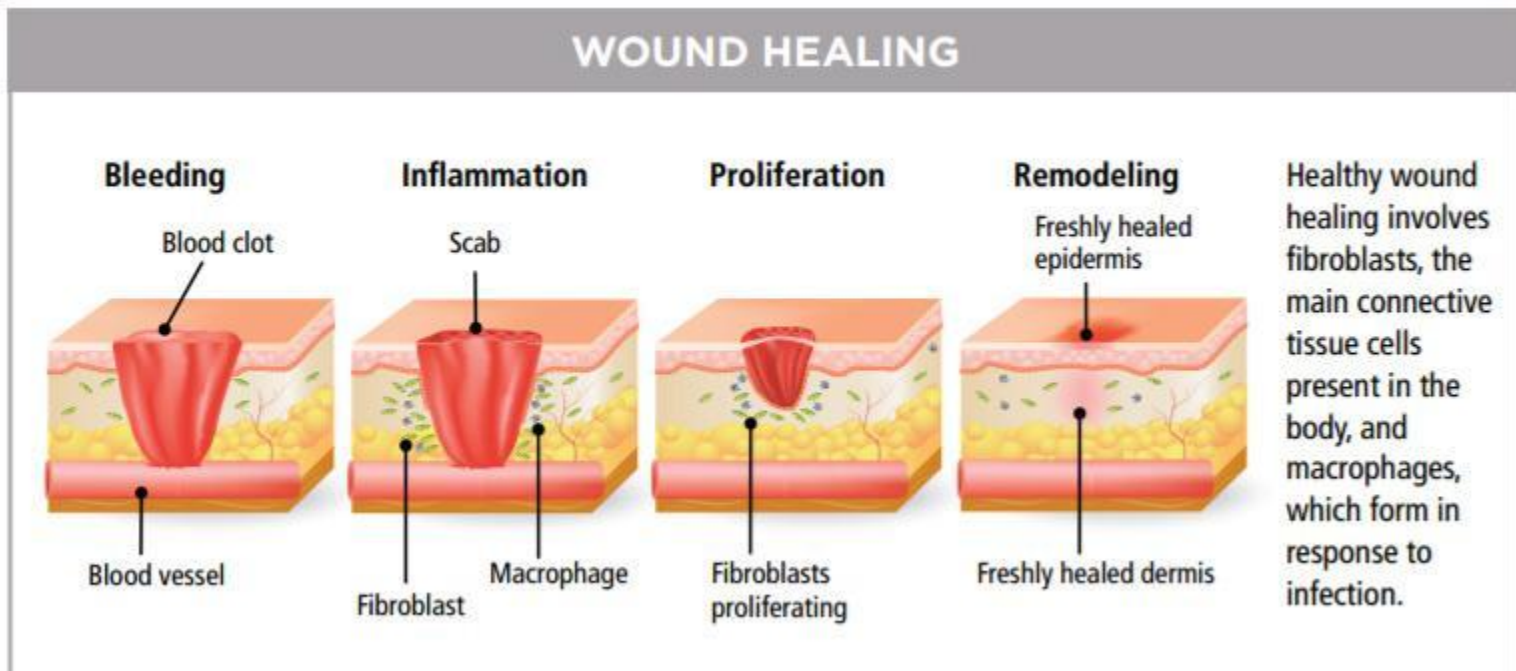


# Gastrocnemius Flap with SSG



Figure 2: Final cosmetic outcomes after the use of medial gastrocnemius muscle flap before and after the skin graft.

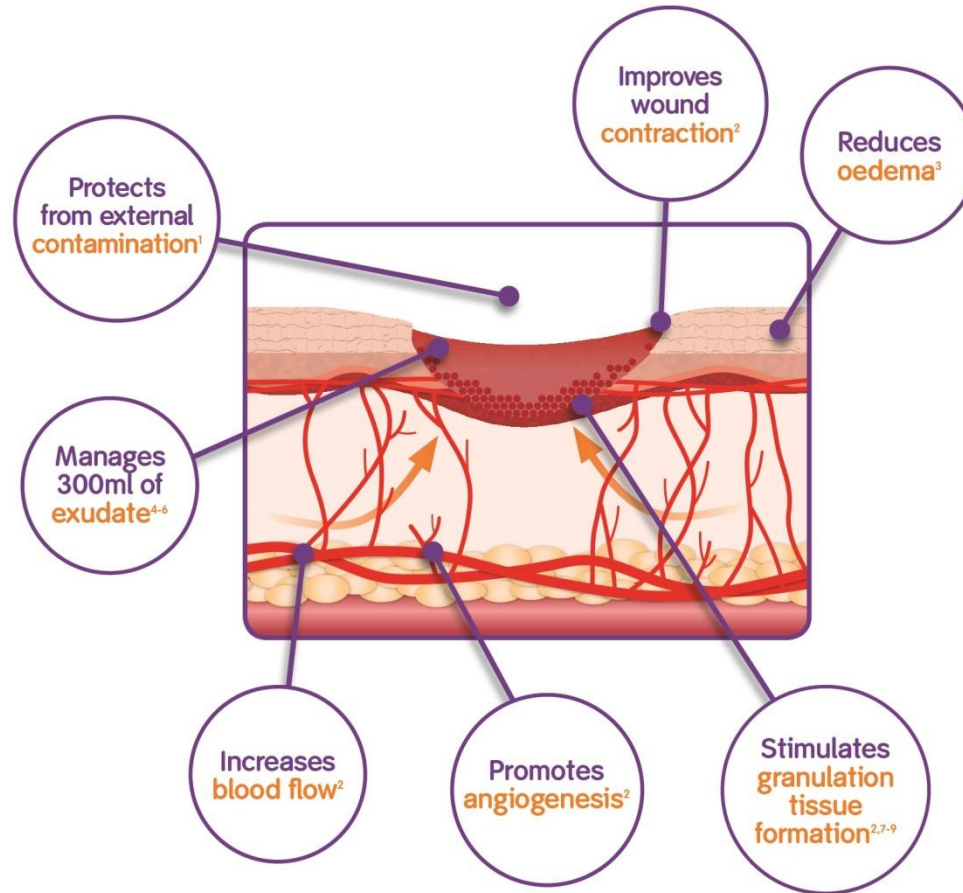
# 4 stages of wound healing



# How does TNP work?

- Reduces oedema
- Stimulates blood flow
- Reduces risk of infection
- Creates a moist wound healing environment
- Desloughing/debridement

# Diagram of TNP therapy



# Contraindications of TNP

- Fistula
- Necrotic tissue
- Anticoagulants
- Tumours
- Applying to vessels/organs

# Dressing Changes

- Topical negative pressure therapy is applied to the SSG/flap during theatre and is left in situ for 5-7 days. This ensures that the graft/flap will re-vascularise with the wound bed and prevents shearing. The TNP sponge is usually held in place with clips. After 5-7 days the plastic surgery team will come and remove the TNP dressing and inspect the graft/flap. Once TNP has been removed then a non adherent dressing (jelonet) is applied to prevent sticking.

# How do we ensure it is working?

- Is it plugged in/off the floor and the green light is working?
- Is the system at the correct pressure?
- Is there a care plan in place?
- Is the dressing sealed and intact?
- Is the cannister not full? (Change when cannister  $\frac{3}{4}$  full).
- Check once a shift



# Physiotherapy

## Skin Grafts

- Bed rest 48 hours
- Location
- Splinting
- Elevation
- TNP
- Bed excersises

## Local Flaps

- Bed rest 5 days
- Bair hugger
- Location
- Splinting
- Elevation
- TNP
- Dangle test

# Trouble Shooting

- Plastic Surgery Nurses
- Trauma Nurses
- Bleep Holder
- ANP's
- TNP Policy on the Sutranet