

Montefiore

Decubitus Ulcers: Prevention and Management

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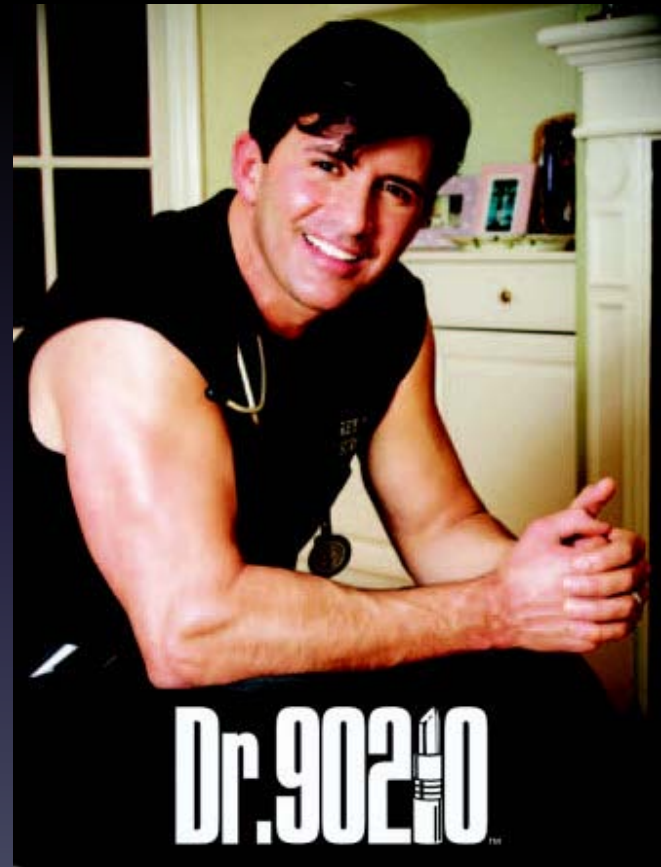


Disclosure

- Clinical Trial Investigator: Smith and Nephew

Plastic Surgery: Dr. 90210

- Dr. 90210
- Extreme Makeover
- Miami Slice
- Nip/ Tuck
- Reality TV?
- Fiction?



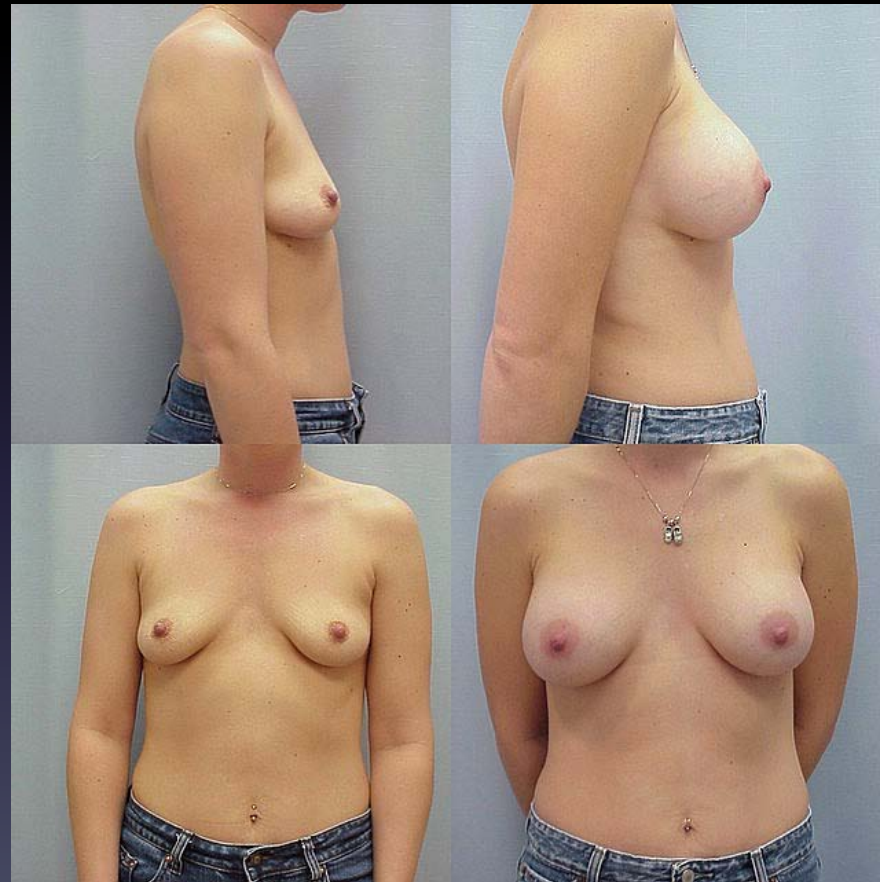
Plastic Surgery



- Craniofacial Surgery
- Hand Surgery
- Cleft Lip and Palate
- Burn Surgery
- Trunk/Lower Extremity Surgery
- Trauma Reconstruction
- Tumours/ Reconstruction
- Aesthetic Surgery



Aesthetic Surgery Breast Augmentation:



Cleft Lip and Palate



Bilateral Cleft Lip



Case 1:



- 18 mo boy
- Total nasal amputation
- Dogbite

Preop:



Microsurgery → HBO2 > Flap Failure (18mos)









Postop 9 mos (3yo)





Wound Healing

Pressure / Decubitus Ulcer

- “ a localized injury to the skin /and or underlying tissue usually as a result of pressure or pressure in combination with shear”

(NPUAP/ EPUAP Joint Statement 2007)

Pressure Ulcer: Sacrum



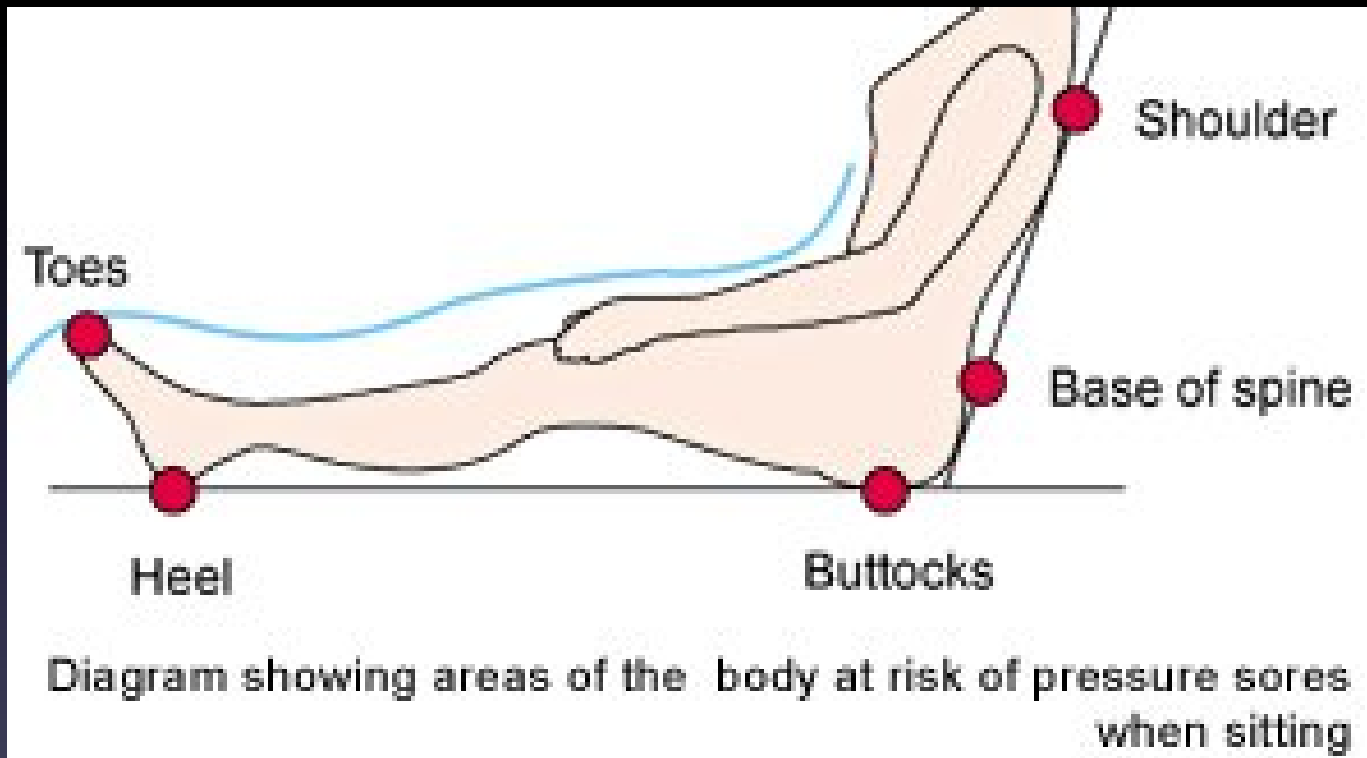
Pressure Ulcer

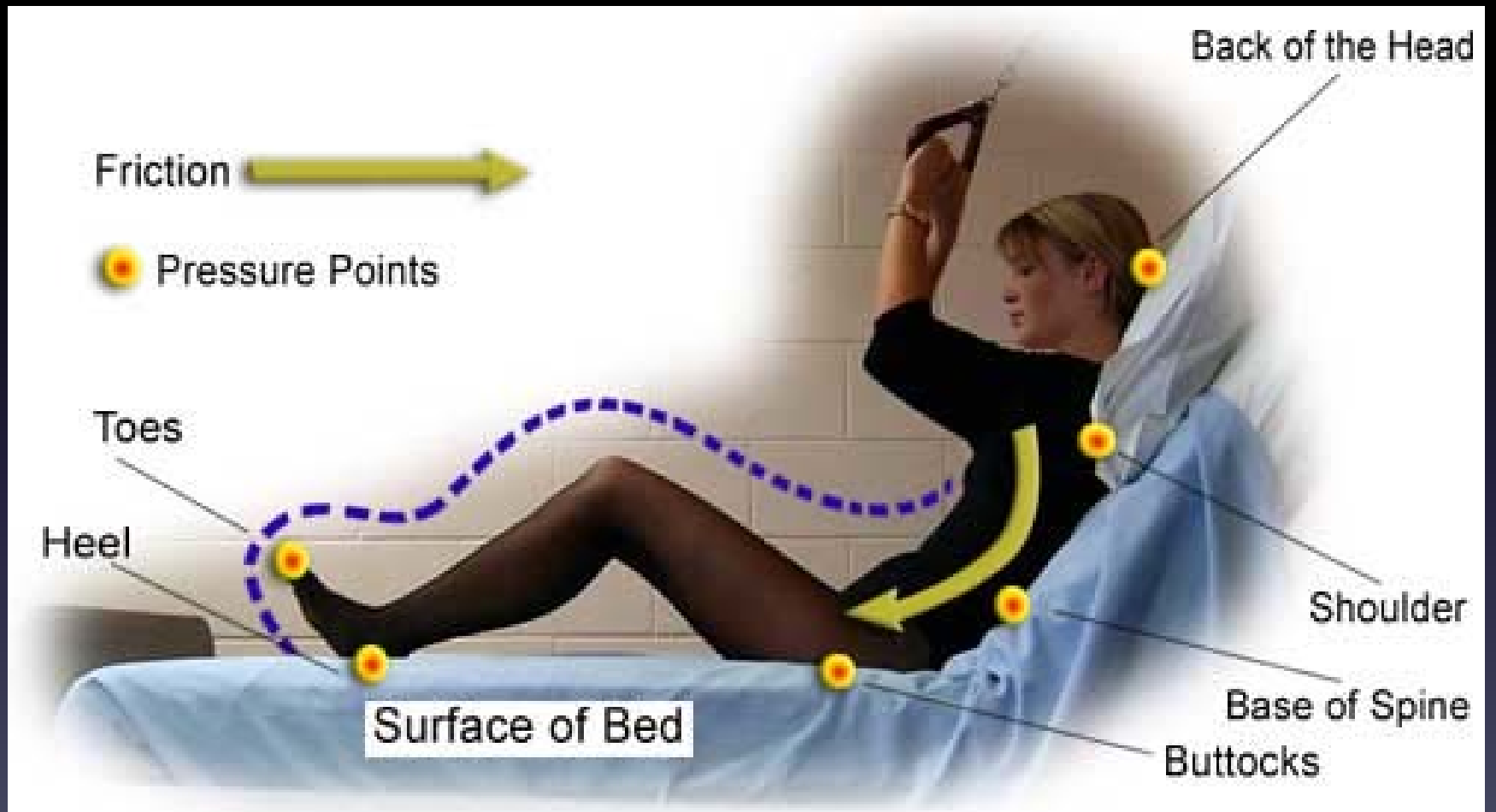
- 2.5 million pressure ulcers treated in US annually
- Cost of care: \$11 Billion Dollars annually (CMMS)
- 1993: 281,3000 admissions for pressure ulcers
- 2006: 503,300 admission for pressure ulcers
 - 79% increase (HCUP)

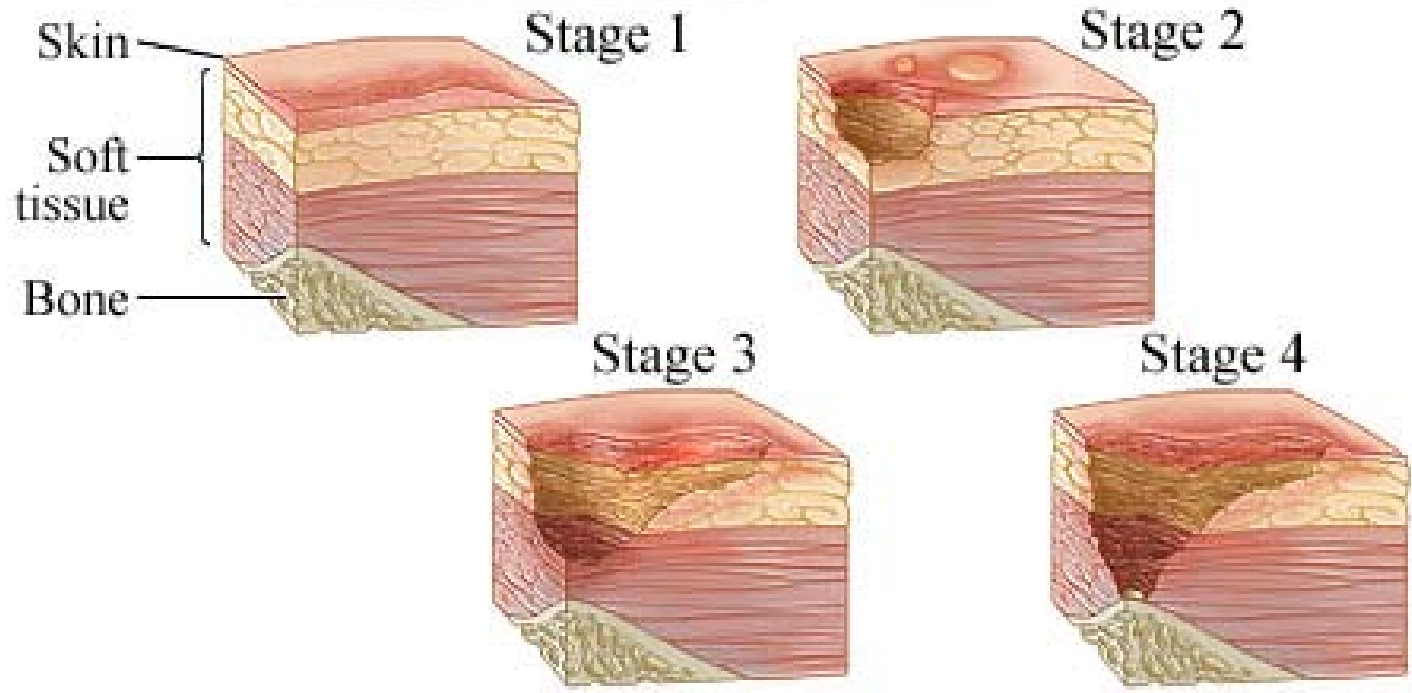
Predisposing and risk factors

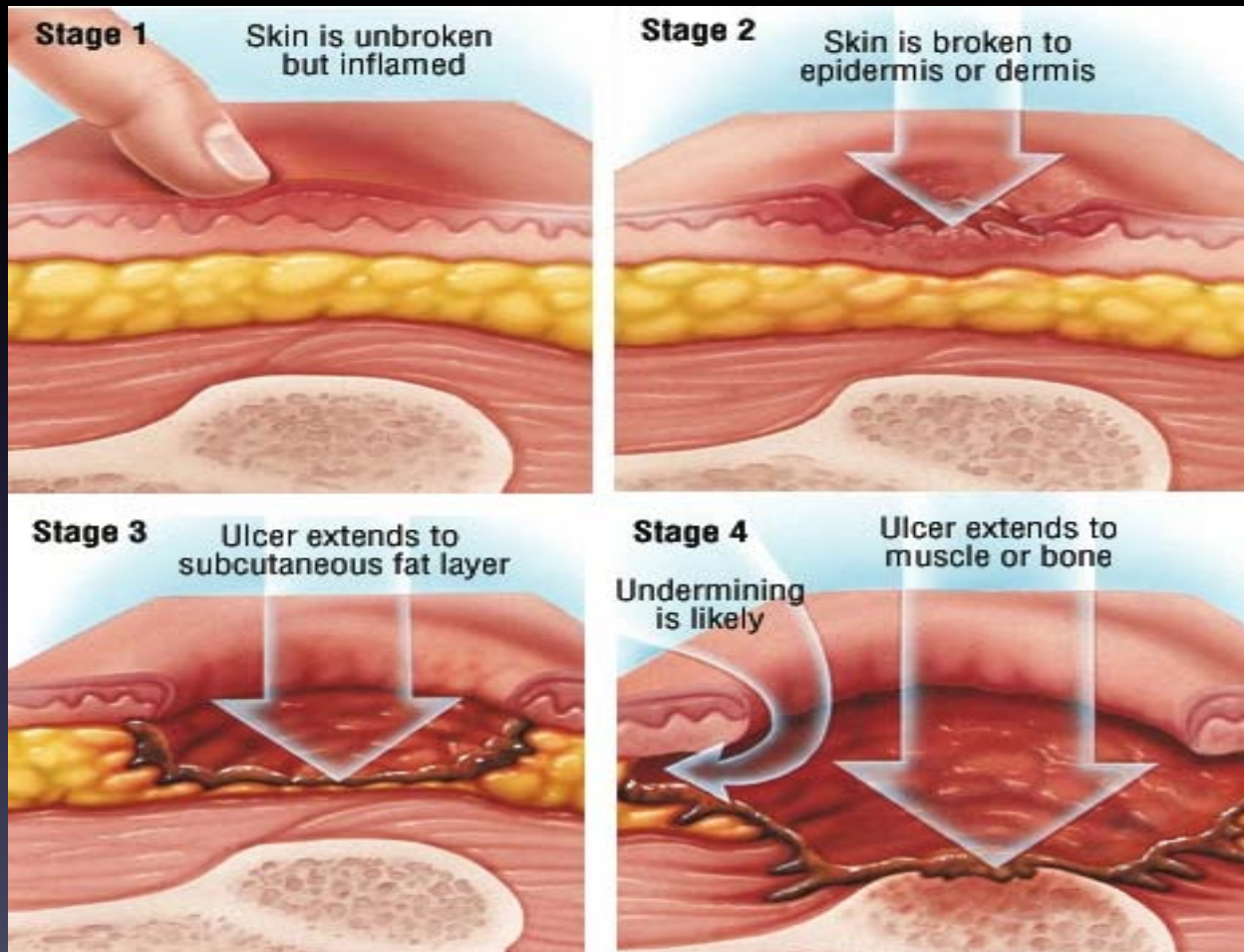
- Age: elderly =60% of all patients with pressure ulcers
- Neurologic/sensory disorders
- Immobility
- Malnutrition
- Mental Illness/Dementia
- Dehydration
- Diabetes
- Incontinence

Pressure Ulcers









Prominence /Proximity to Bone

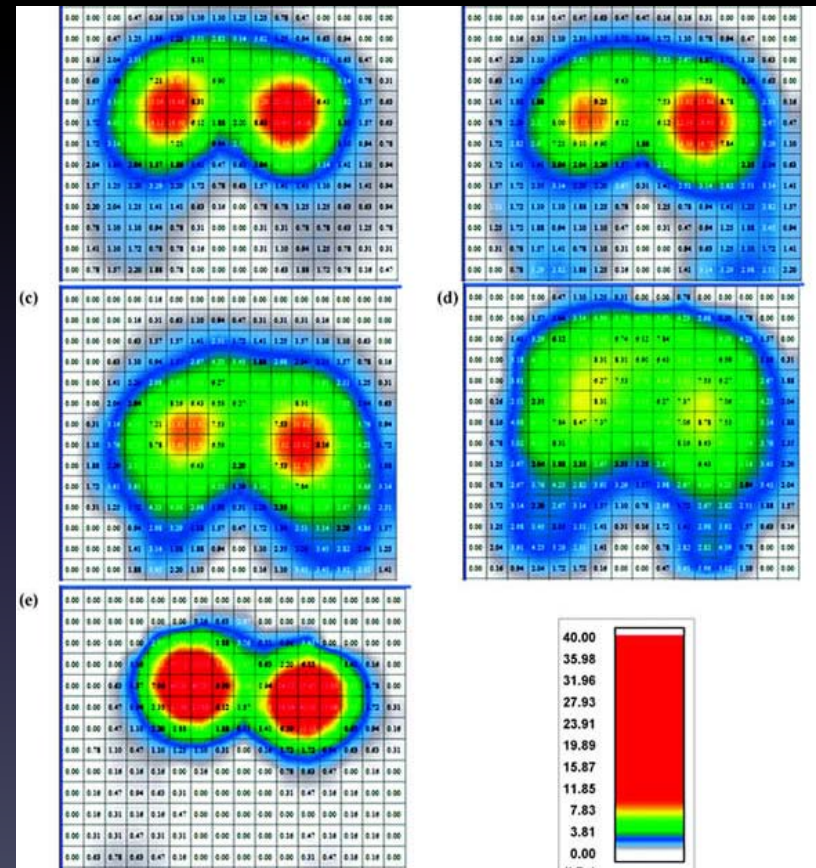


Sacrum/ Ischium



Prevention/ Diagnosis

- Pressure Mapping
- Wheelchair Testing



PRESSURE MAPPING

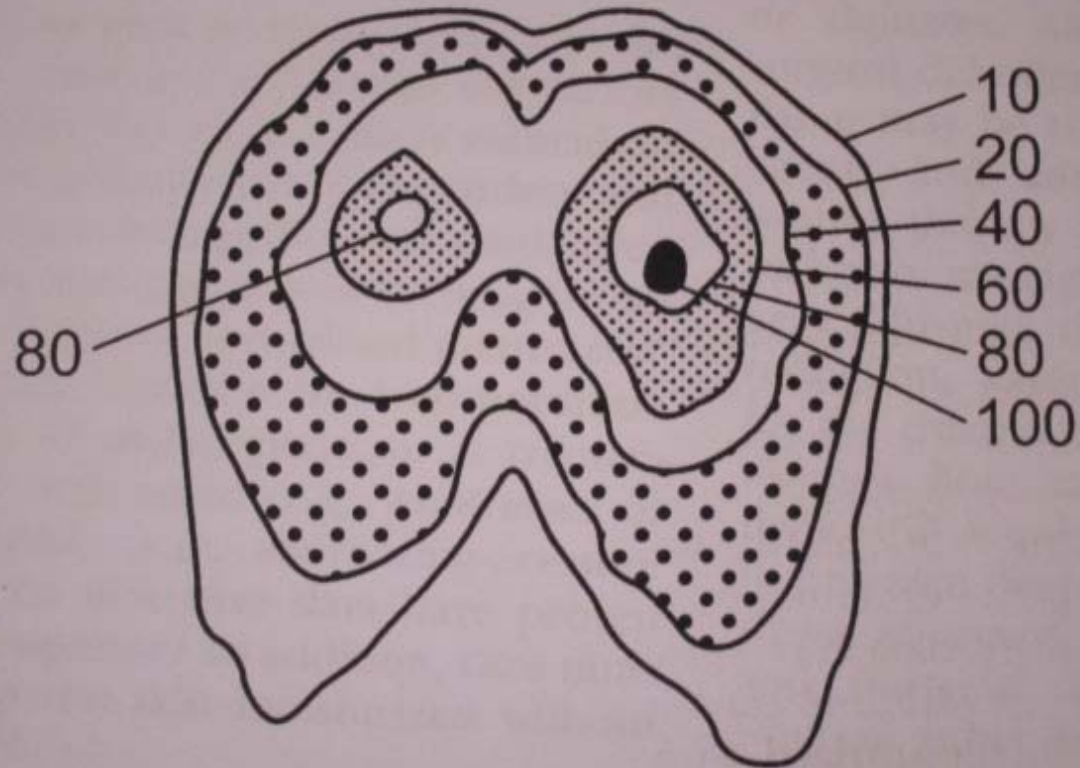
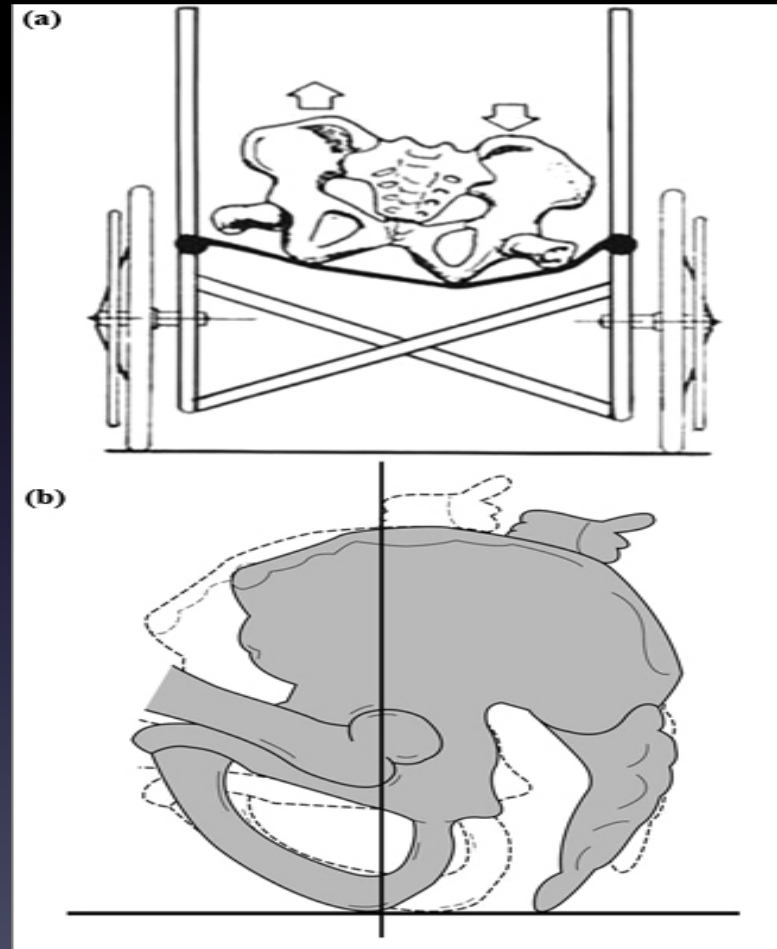


Fig. 1. Pressure distribution in a sitting position.

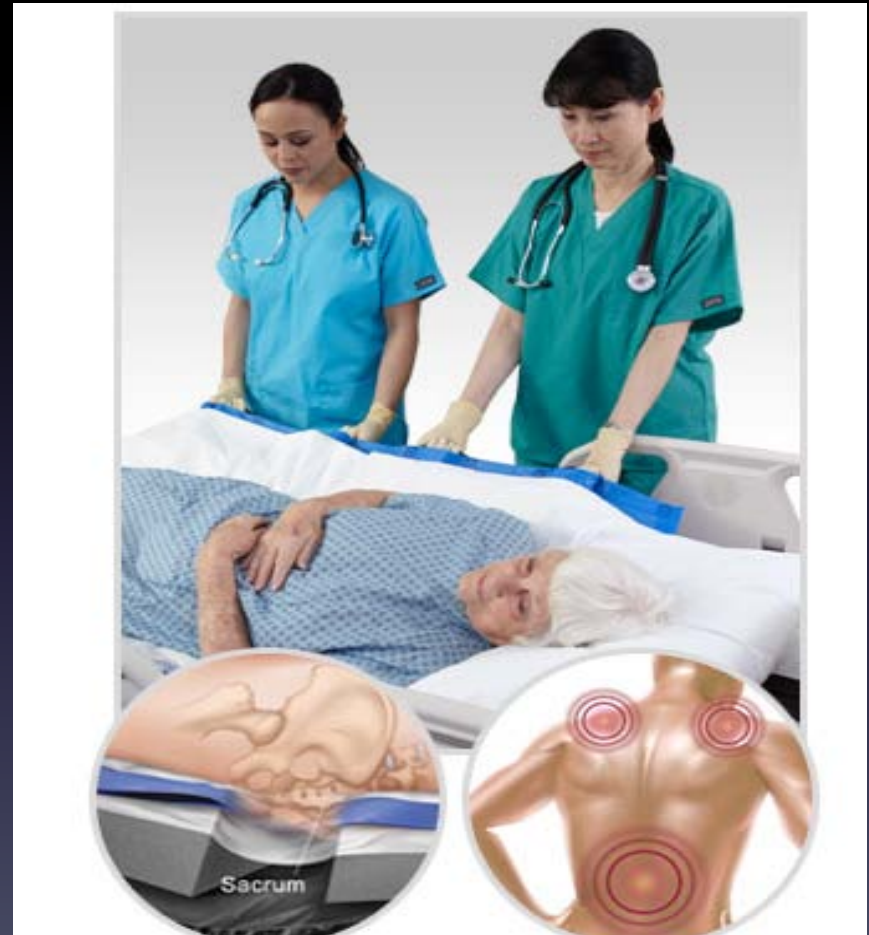
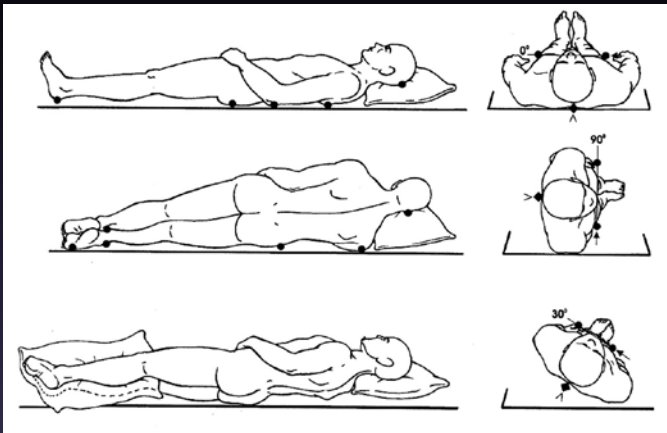
Identification of specific points of pressure



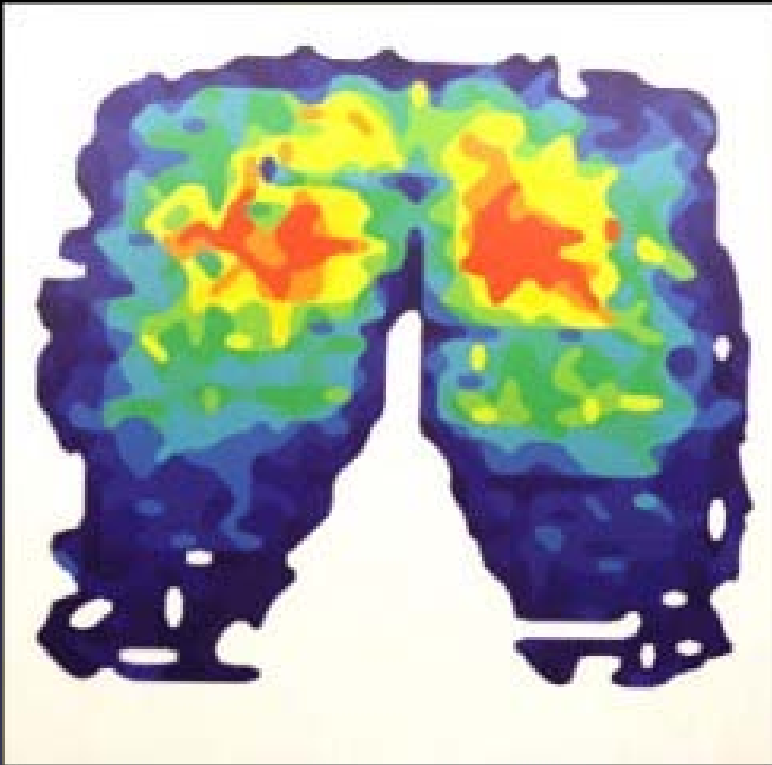
Prevention: Identification of Risk

- BRADEN SCALE
- WATERLOW SCALE
- NORTON SCALE
- VARIABLES:
 - MOBILITY/MENTAL STATUS. BMI.
NUTRITION. CONTINENCE

Prevention: Repositioning



Prevention: Surface



Pressure map of a seated patient showing high pressures (orange areas) over the ischial tuberosities.



Prevention: Support



Prevention

- Support Surface:
 - Cushion
 - Mattress
 - Bed system
 - Low pressure
 - Alternating Pressure

BED SURFACES

AIR FLUIDIZED

A feature of a support surface that provides pressure redistribution via a fluid-like medium created by forcing air through beads as characterized by immersion and envelopment.

ALTERNATING PRESSURE

A feature of a support surface that provides pressure redistribution via cyclic changes in loading *and unloading* as characterized by frequency, duration, amplitude, and rate of change parameters.

LATERAL ROTATION

A feature of a support surface that provides rotation about a longitudinal axis as characterized by degree of patient turn, duration, and frequency.

Low Air Loss

A feature of a support surface that provides a flow of air to assist in managing the heat and humidity (microclimate) of the skin.

Management



Management

- Risk Reduction
- Nutrition
- Additional Off-Loading
- Cleansing
- Padding

Management: Debridement

- Tissue Necrosis
- Bacterial Overload (Infection)
- Moisture Imbalance
- Impairment of Healing Edge (Undermining)
- (TIME)

Management: Debridement

Sharp Surgical Debridement



Management: Debridement

- Hydrosurgery
- Biologic:
 - Enzymatic
- Mechanical
 - Dressing
 - Negative Pressure
 - Autolytic

Compromised Wound Healing

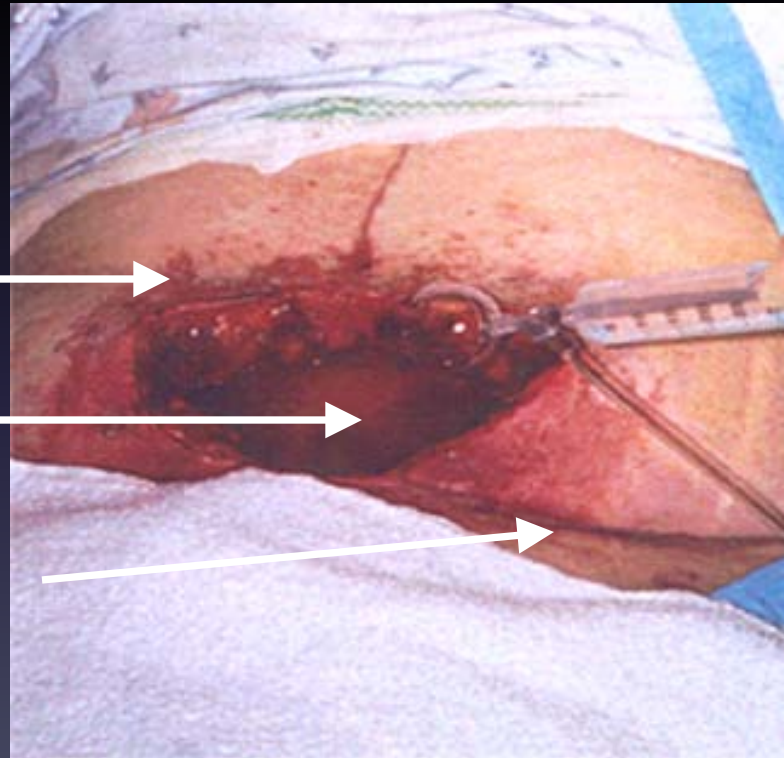
TMP's



Edema



Pathogen

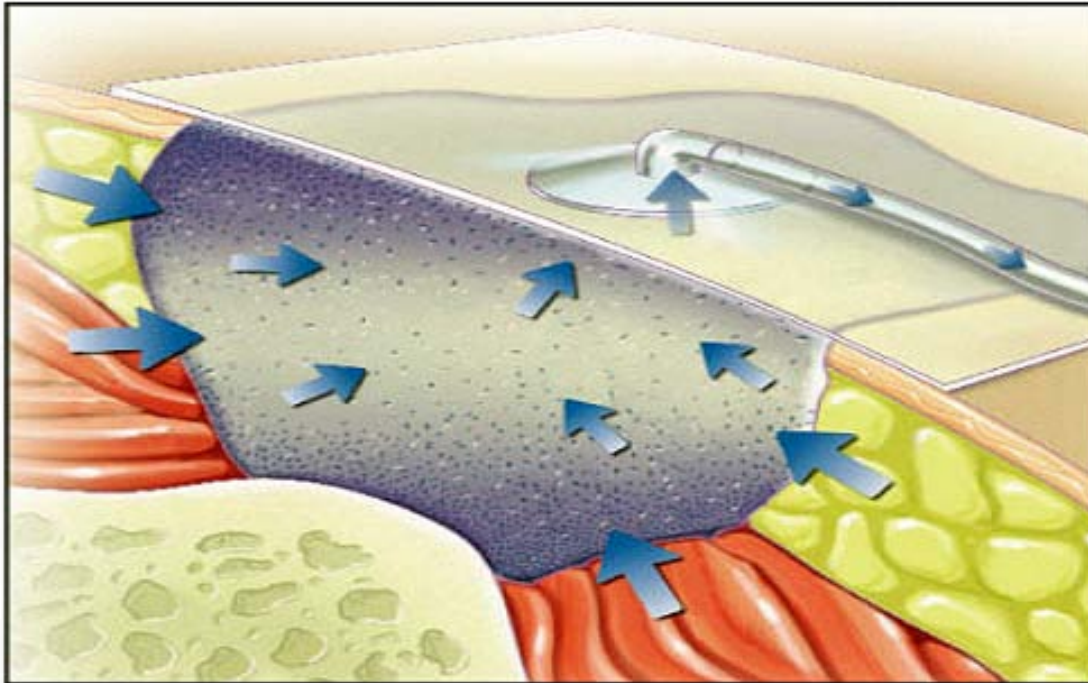


Reconstructive Surgery



- Negative Pressure Therapy: Vacuum

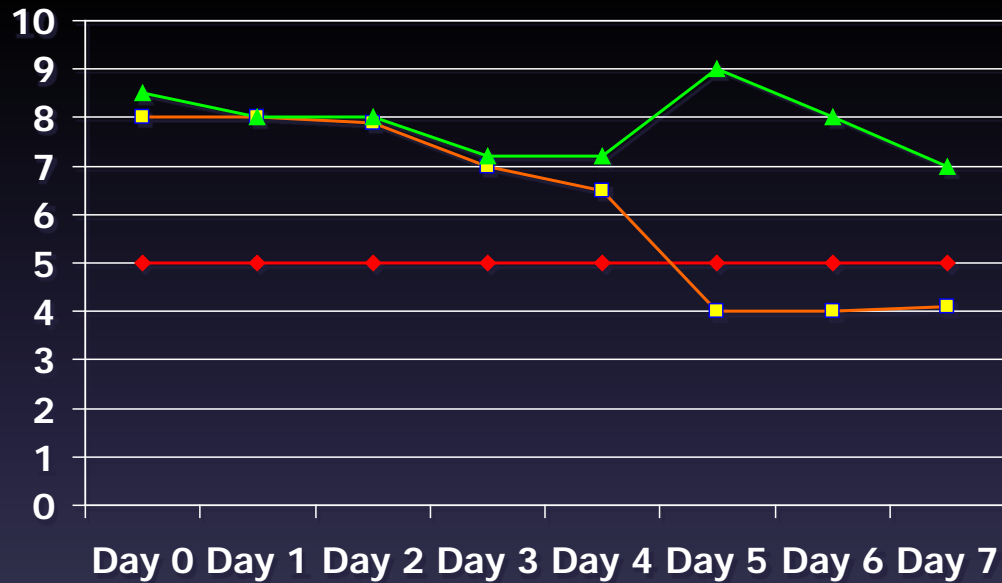
Mechanisms of Action



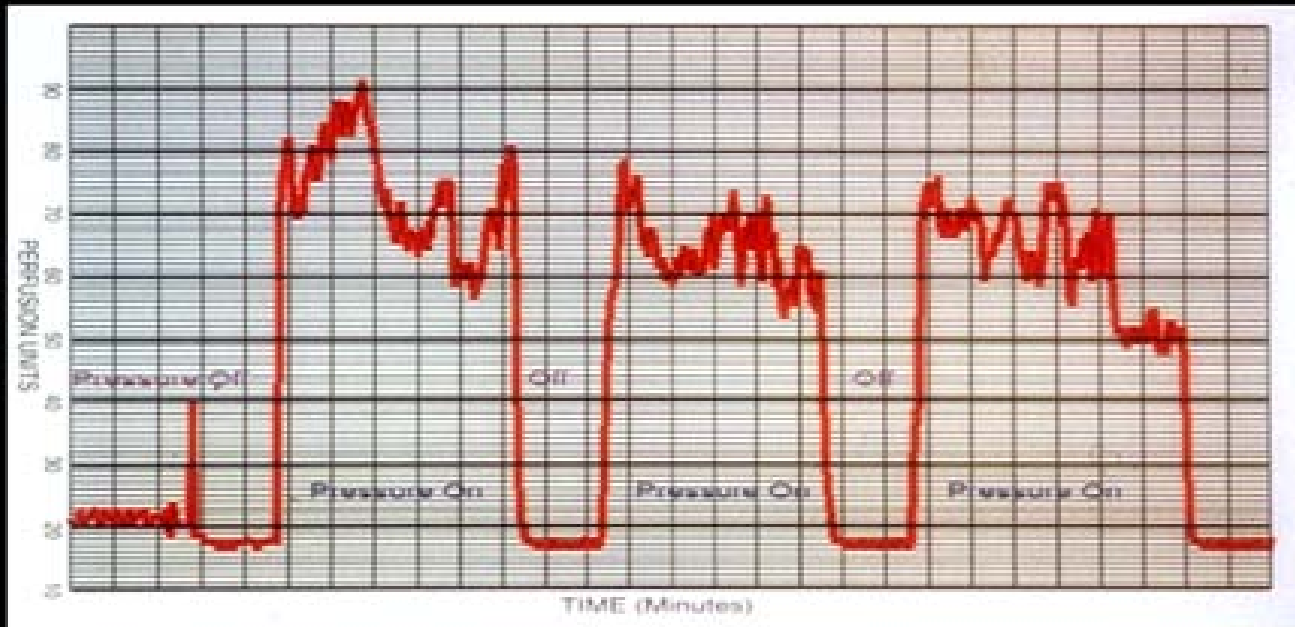
V.A.C. Therapy Illustration

Bacterial Clearance

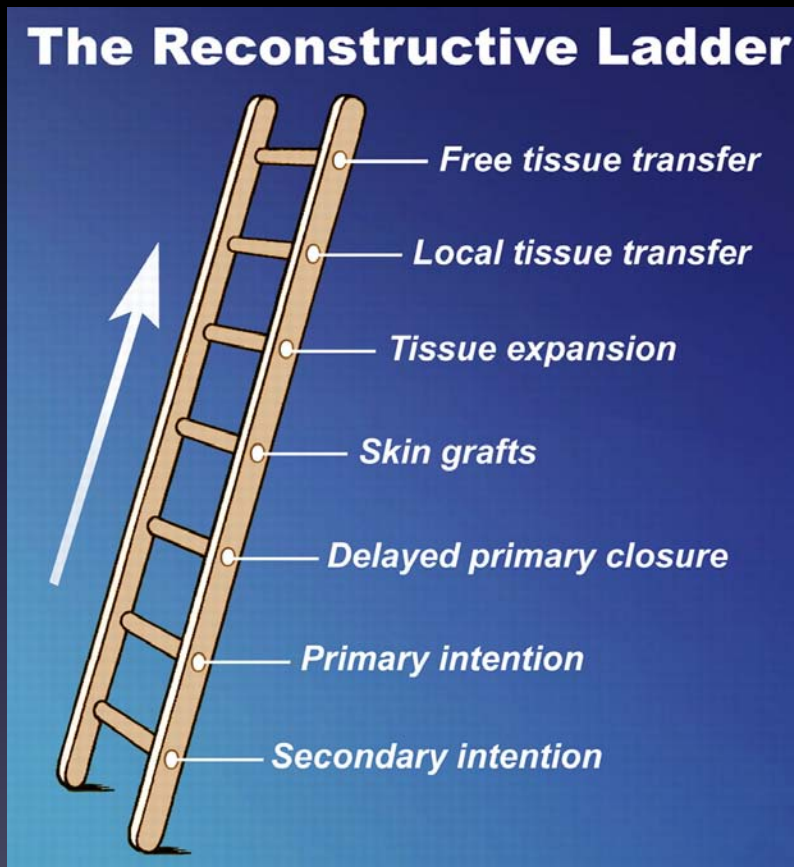
Mean of Log Organisms/Gram Tissue (n=5)



Blood Flow Data

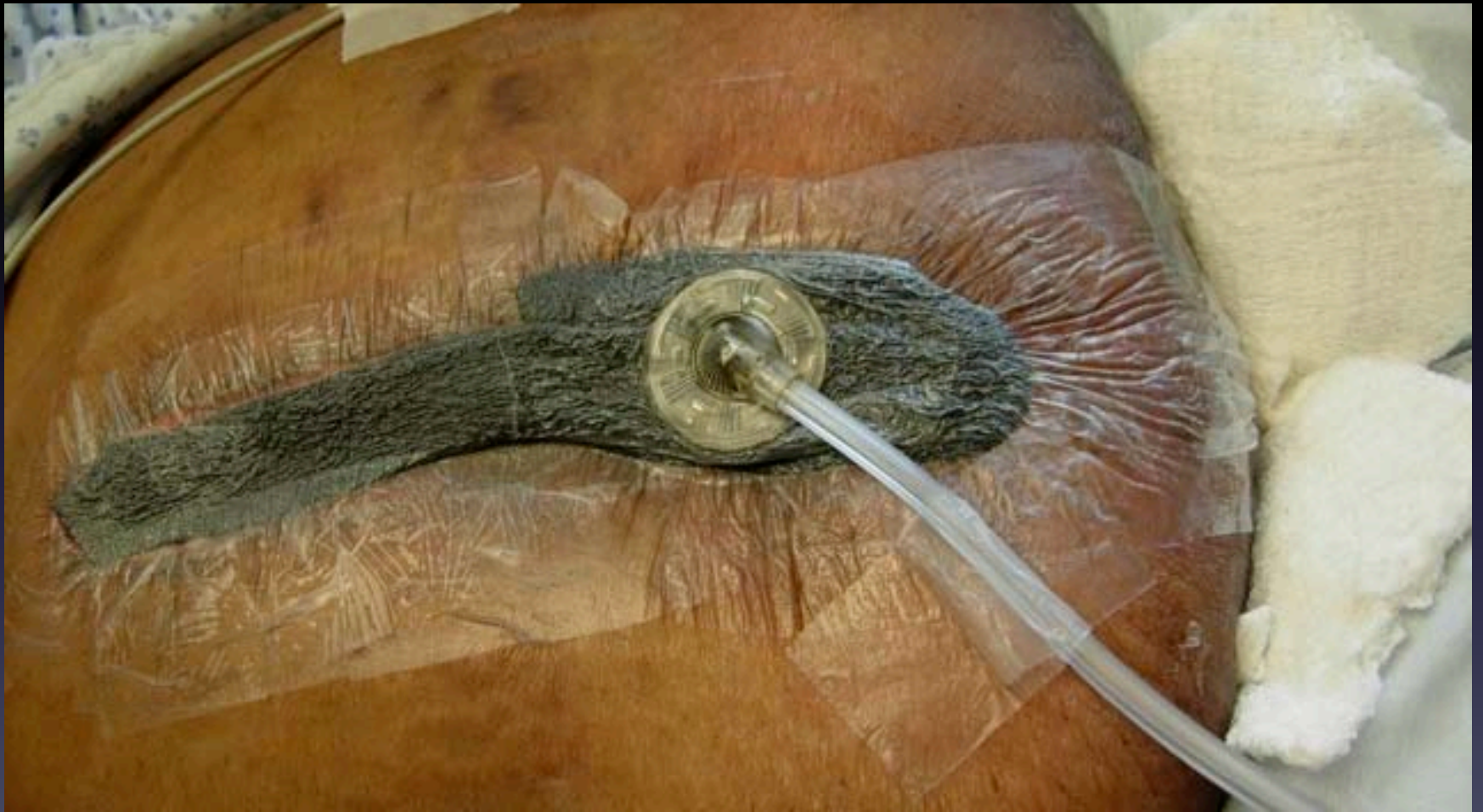


Reconstructive Surgery



- Reconstructive Ladder

Management : Surgery



Sacral Ulcer

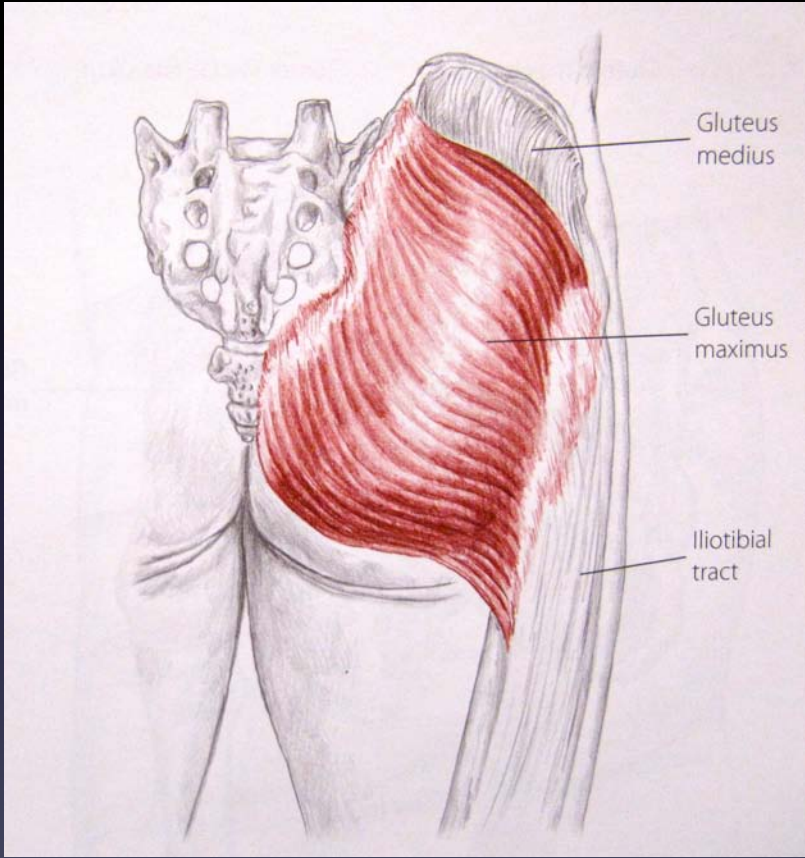






Debridement/ Wound Vac

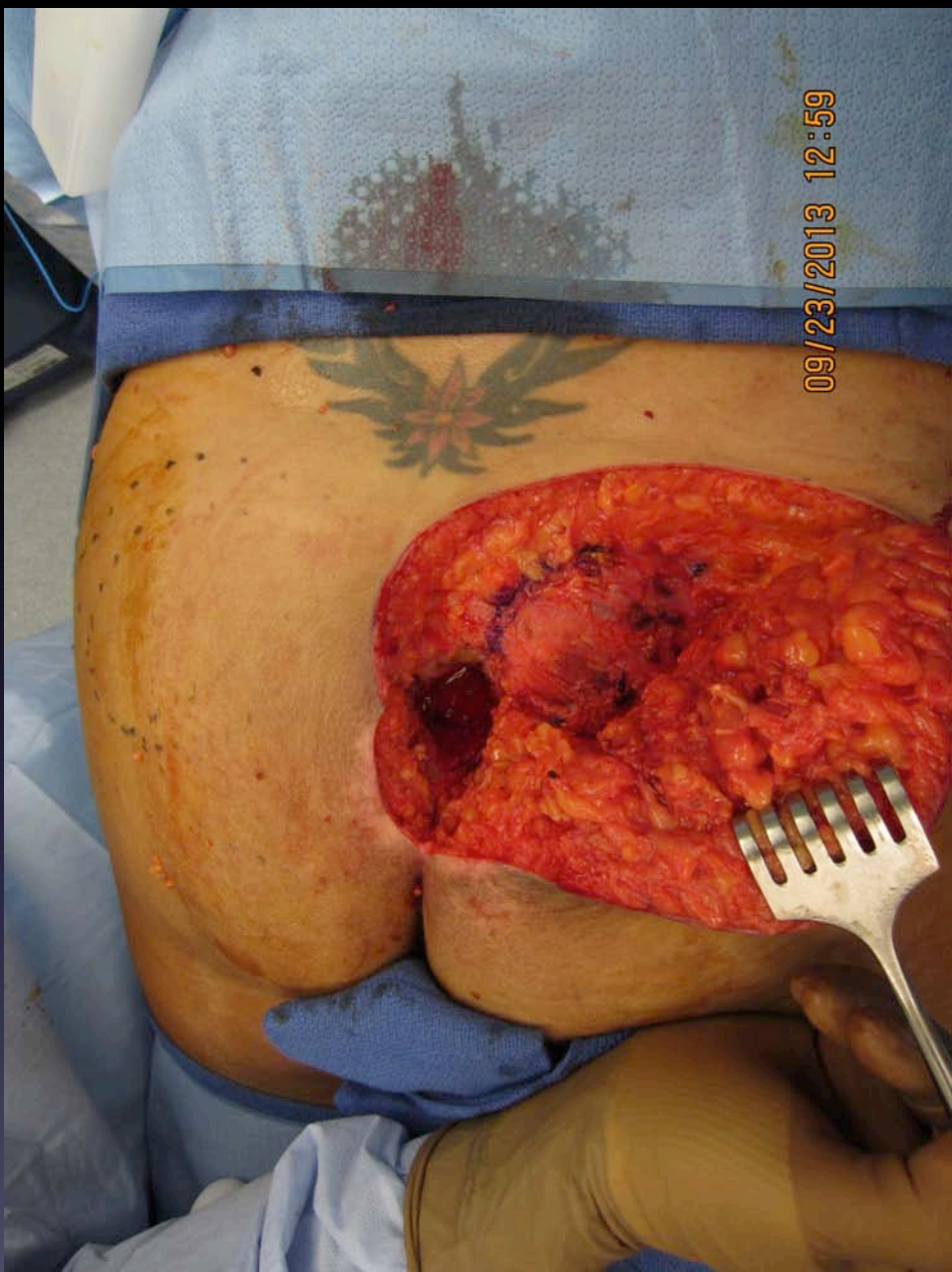






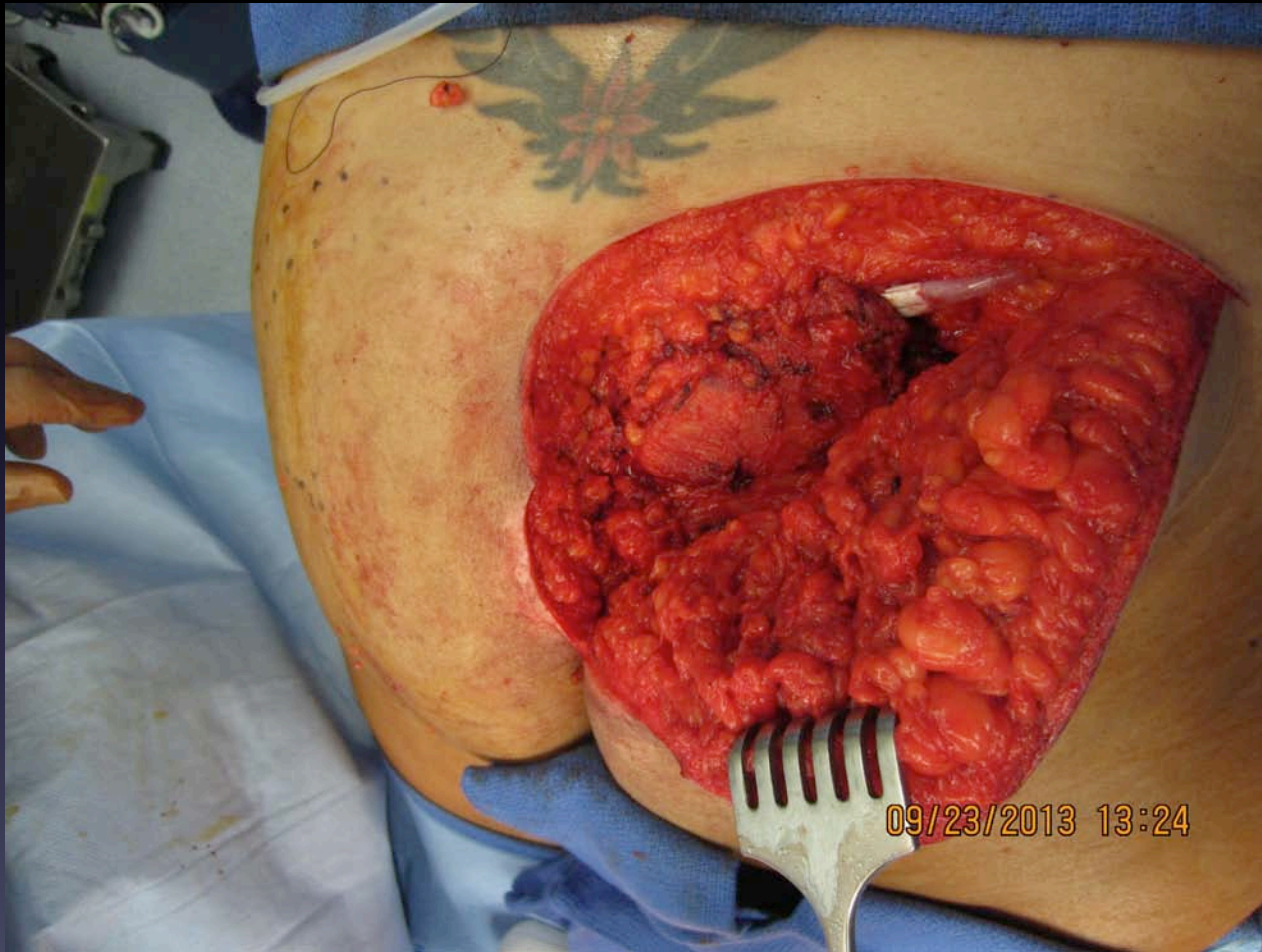
Sacral Ulcer





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Gluteus Muscle Flap







Negative Pressure Dressing

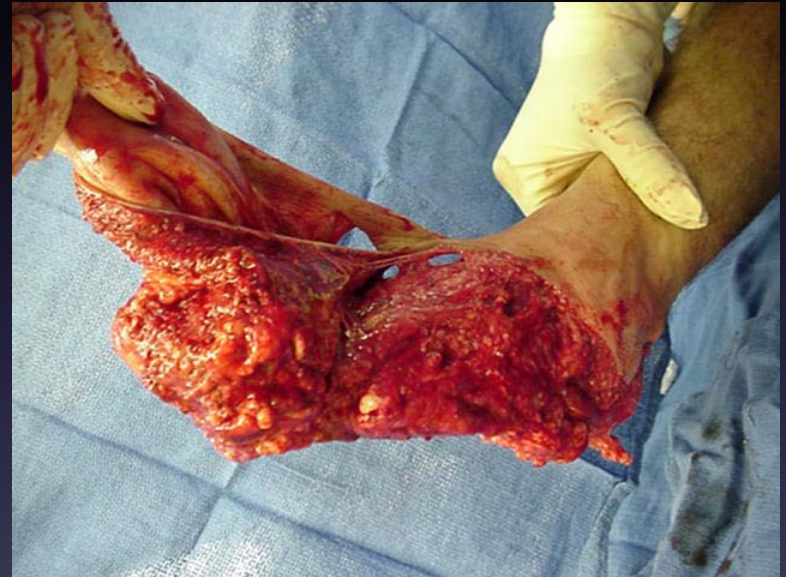
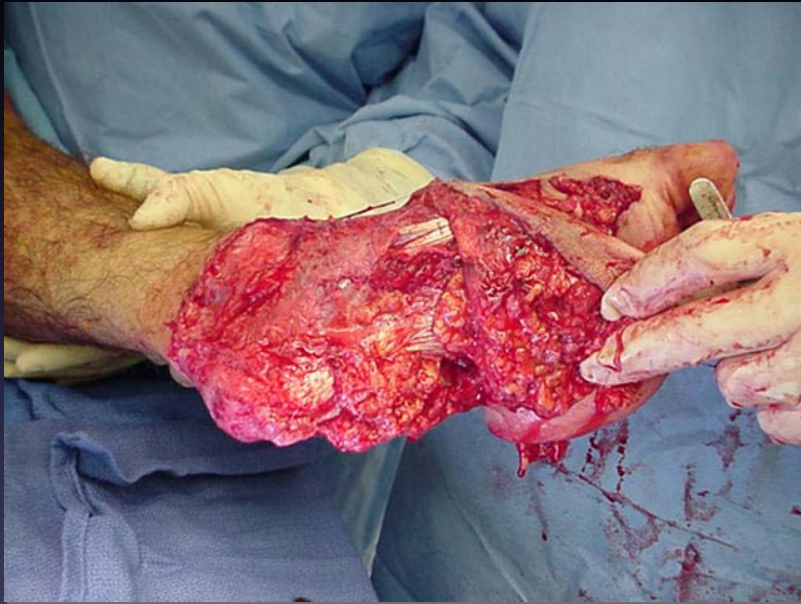


Reconstructive Surgery



- 50 yr old Fireman
- Grafts?
- Flaps : Local And Regional?
- Free Tissue Transfer?
- Amputation??

Reconstructive Surgery



Reconstructive Surgery



Pressure Ulcer Heel



- Ambulating
- Heel Breakdown

Sural Island Flap

- Jeng SF. Wei FC.

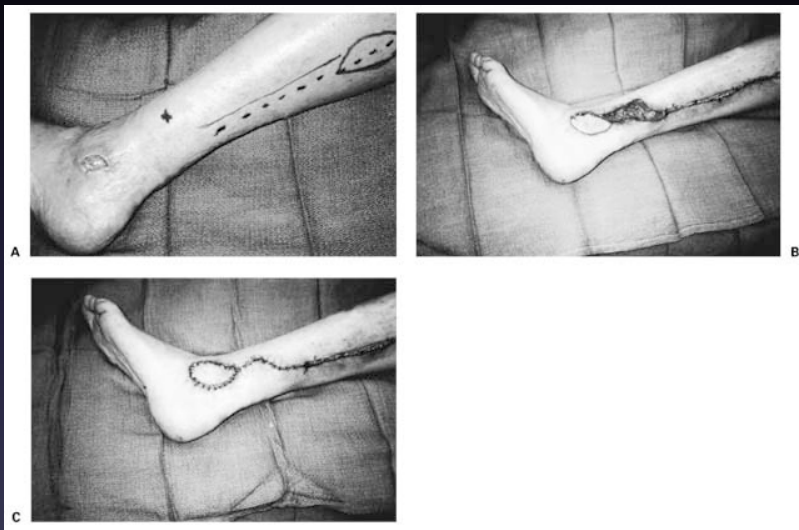
Distally based sural
island flap for foot and
ankle reconstruction.

Plastic &

Reconstructive

Surgery. 99(3):744-50,

1997 Mar



Reconstructive Surgery



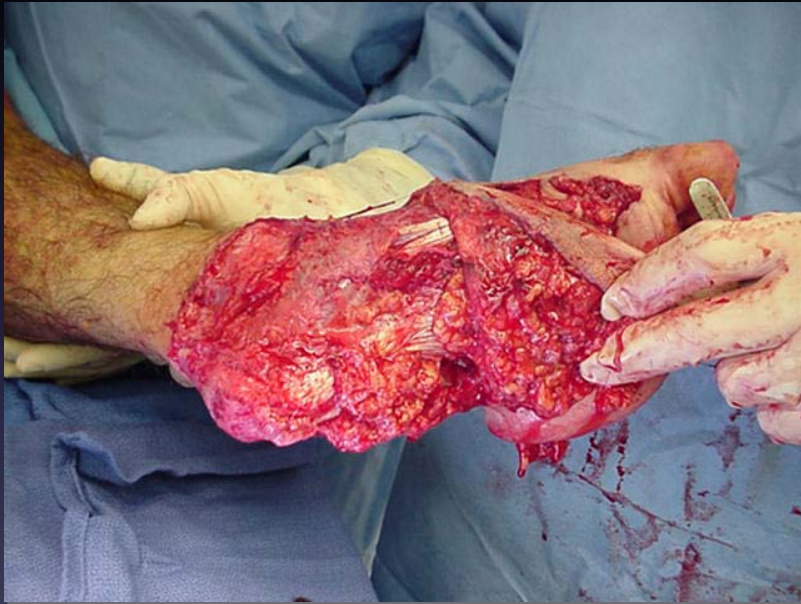
Reconstructive Surgery



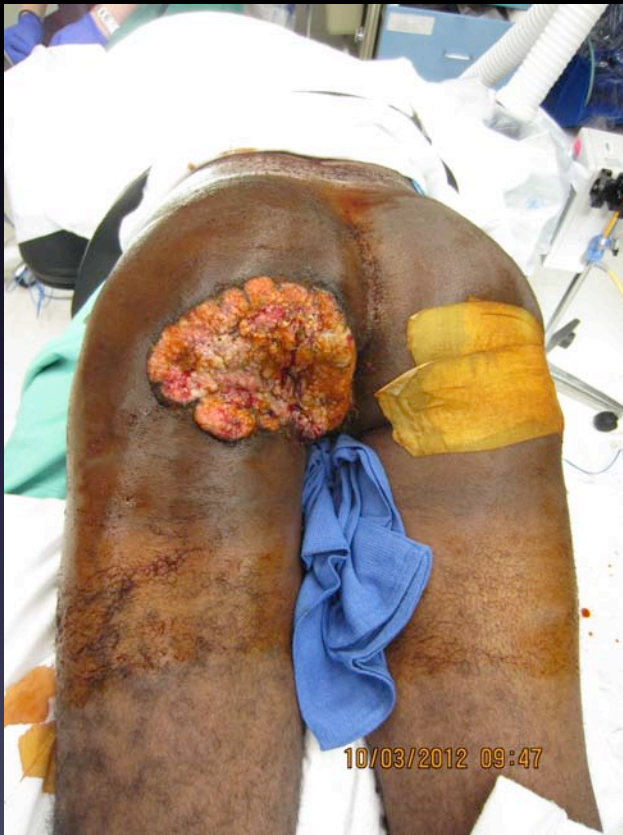
Reconstructive Surgery

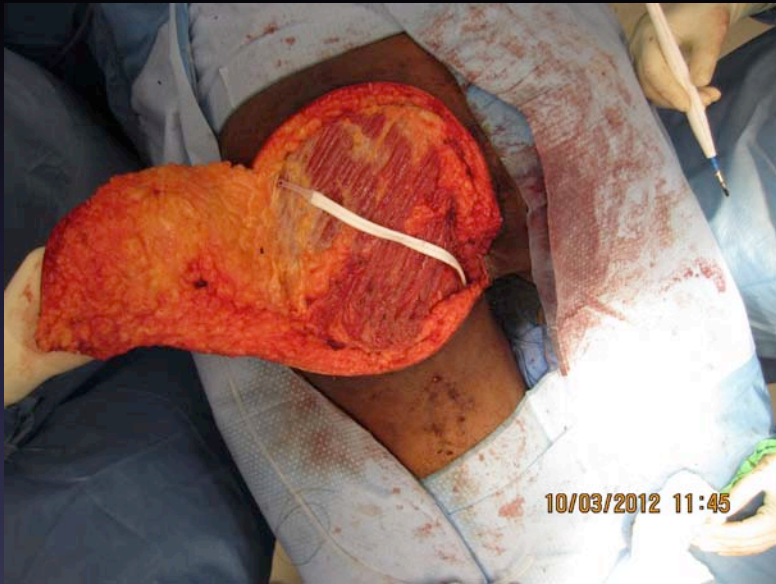


Reconstructive Surgery:



Late Sequelae: Marjolin's Ulcer: SCC





Fasciocutaneous Flap



- Control of Spasms
- Diversion of Urine/ Bowel Diversion
- Meticulous Postoperative Control of Pressure
- Nursing Care
- Recurrence = 3-80% approximately (depending upon location)

New Technology

- Negative Pressure Wound Therapy/ Closed Incisions
- Pressure Sensors
- Sensory Nerve Transfers

Pressure Sensors



Summary

- Pressure Ulcers: Incidence increasing
- Preventable
- Cost : Increasing Dramatically
- Litigation: Failure to prevent
 - (CMMS/Plaintiff Bar) 87% loss rate
- Increasing role of surgeons in management

Thank you!

