



Wound Care and the Nursing Home Dialysis Resident

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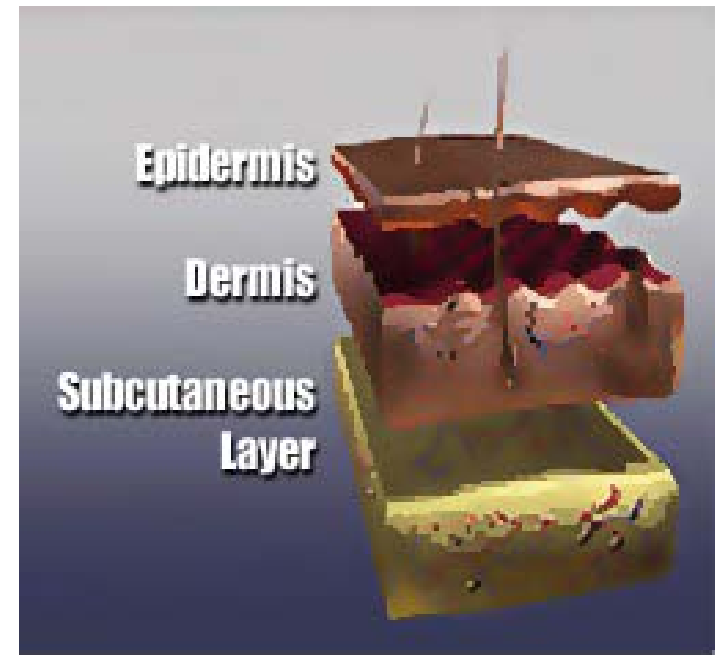
Impact of Pressure Ulcers

- **2006: 503,300 PU related hospitalizations with 45,500 (PU primary dx) 1 -25 died**
- **PU related hospitalizations were 13-14 days with cost of \$16,755 to \$20,430 vs. 5 days \$10,000**
- **CMS: Cost of treating PU in acute care (as secondary diagnosis)is \$43,180.00 per stay.**
- **Reduced quality of life due to pain, treatments, & increased mortality**
- **Litigation burden**



Soft Tissue Anatomy

- **2 Layers of skin**
 - **Epidermis**
 - **Outer protective layer**
 - **Dermis**
 - **Inner vascular layer**
- **Subcutaneous layers**
 - **Fatty layer**
 - **Muscle**
 - **Tendon, ligament**
 - **Bone**
 - **Joint capsule**



Pressure Ulcer

- **A pressure ulcer is localized injury to the skin and/or underlying tissue usually over a bony prominence, as a result of pressure, or pressure in combination with shear and/or friction.**



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Pressure ulcers tend to occur at bony prominences



Sacrum---tail bone, most common site

Therefore avoid, Semi Fowler's position or slouching in bed or chair

Pressure ulcers tend to occur at bony prominences

Heels---second most common site

Immobile or numb legs, leg traction

Higher risk in persons with peripheral vascular disease, hip fracture and neuropathy from diabetes



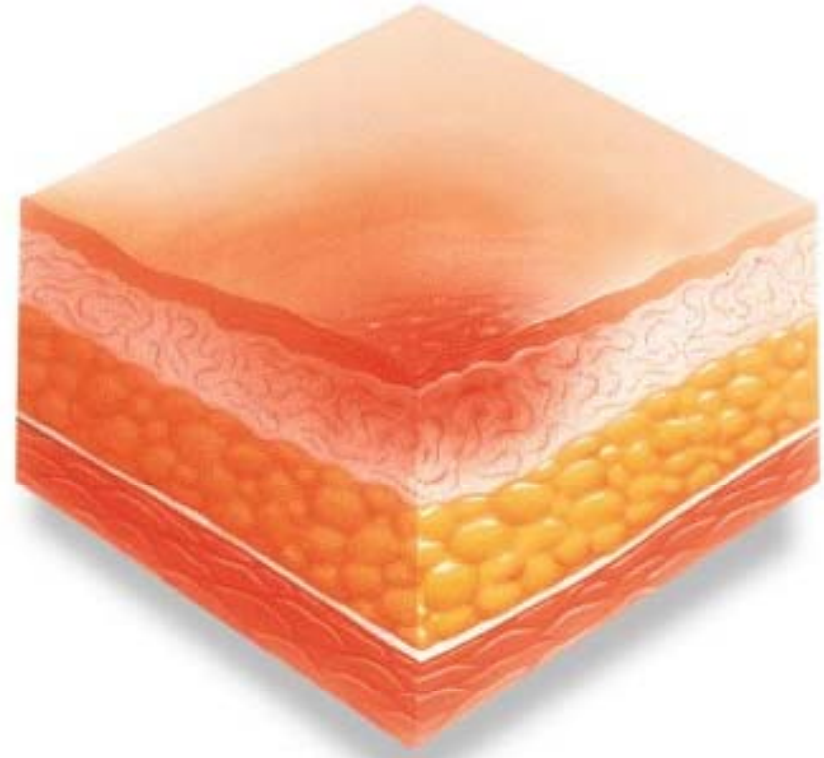
Other bony prominences



- **Trochanter---hip bone**
 - **Side lying, contractured patients at highest risk**
- **Lateral foot rather than heel itself**
 - **Side lying, rotated foot**
- **Ischium---sit here when erect**
 - **Paraplegics at highest risk**

Stage I Pressure Ulcer Definition

- **Intact skin with non-blanchable redness of a localized area usually over a bony prominence. Darkly pigmented skin may not have visible blanching; its color may differ from the surrounding area.**

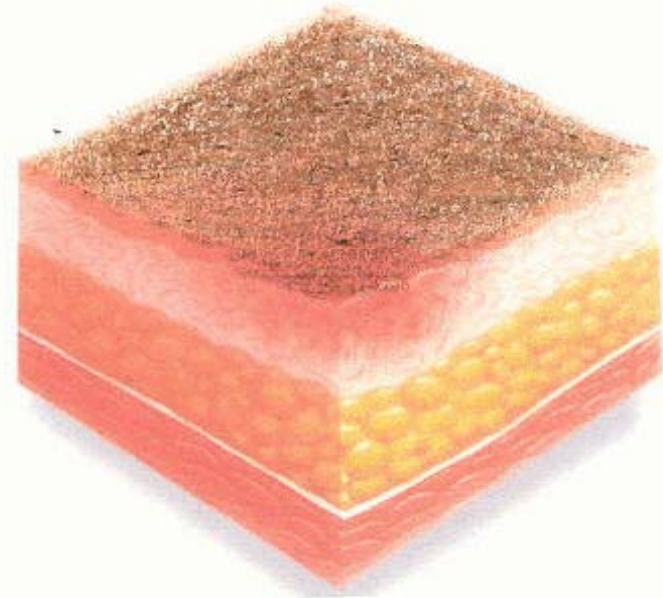


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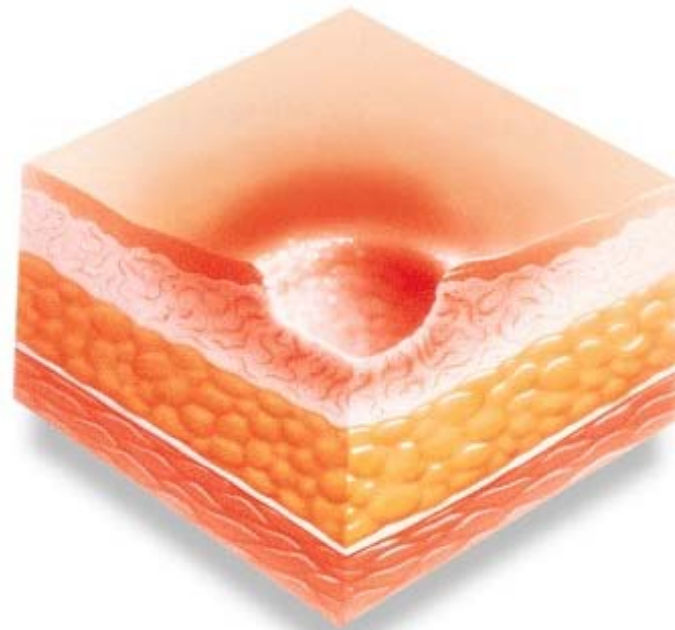
Stage I Description

- **The area may be painful, firm, soft, warmer or cooler as compared to adjacent tissue.**
- **Stage I may be difficult to detect in individuals with dark skin tones.**
- **May indicate “at risk” persons (a heralding sign of risk)**



Stage II Definition

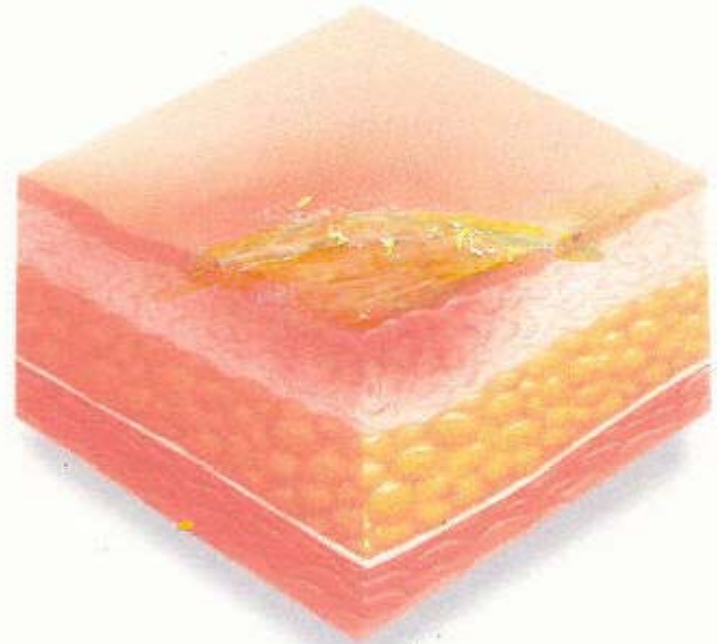
- **Partial thickness loss of dermis presenting as a shallow open ulcer with a red pink wound bed, without slough. May also present as an intact or open/ruptured serum-filled blister.**



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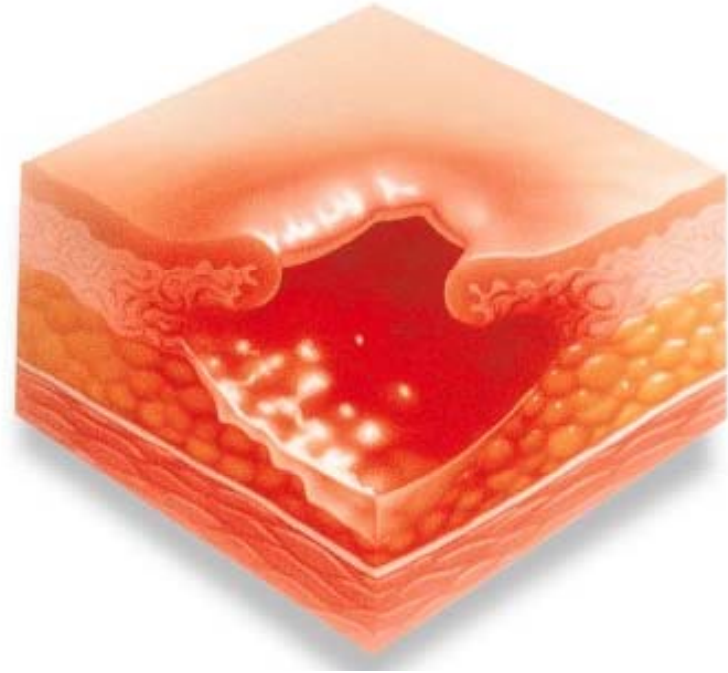
Stage II Description

- **Presents as a shiny or dry shallow ulcer without slough or bruising.***
- **This stage should not be used to describe skin tears, tape burns, perineal dermatitis, maceration or excoriation.**



Stage III Definition

- **Full thickness tissue loss. Subcutaneous fat may be visible but bone, tendon or muscle are *not* exposed. Slough may be present but does not obscure the depth of tissue loss. *May* include undermining and tunneling.**



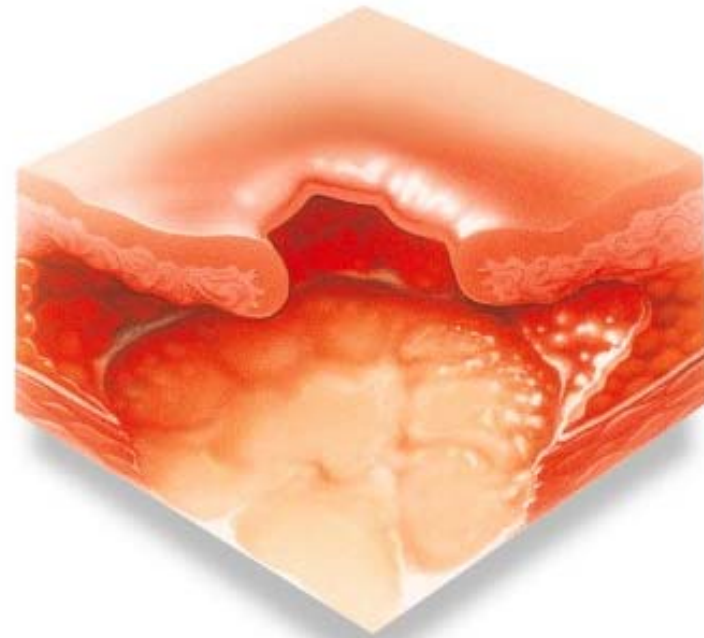
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Stage III Description

- **The depth of a stage III pressure ulcer varies by anatomical location. The bridge of the nose, ear, occiput and malleolus do not have subcutaneous tissue and stage III ulcers can be shallow. In contrast, areas of significant adiposity can develop extremely deep stage III pressure ulcers.**
- **Bone/tendon is not visible or directly palpable.**

Stage IV Definition

- **Full thickness tissue loss with exposed bone, tendon or muscle. Slough or eschar may be present on some parts of the wound bed. *Often* include undermining and tunneling.**

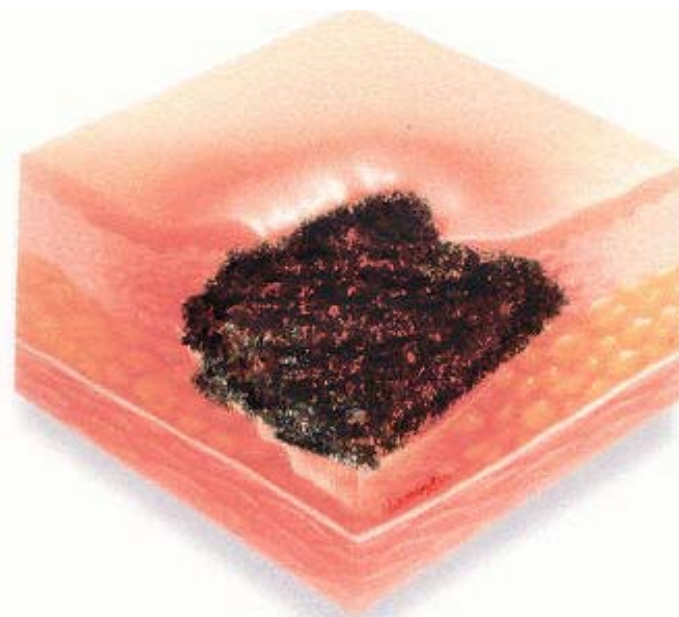


Stage IV Description

- **The depth of a stage IV pressure ulcer varies by anatomical location. The bridge of the nose, ear, occiput and malleolus do not have subcutaneous tissue and these ulcers can be shallow.**
- **Stage IV ulcers can extend into muscle and/or supporting structures (e.g., fascia, tendon or joint capsule) making osteomyelitis possible.**
- **Exposed bone/tendon is visible or directly palpable.**

Unstageable Definition

- **Full thickness tissue loss in which the base of the ulcer is covered by slough (yellow, tan, gray, green or brown) and/or eschar (tan, brown or black) in the wound bed.**



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Unstageable Description

- **Until enough slough and/or eschar is removed to expose the base of the wound, the true depth, and therefore stage, cannot be determined.**
- **Stable (dry, adherent, intact without erythema or fluctuance) eschar on the heels serves as “the body’s natural (biological) cover” and should not be removed.**

Deep Tissue Injury Description

- **The area may be preceded by tissue that is painful, firm, mushy, boggy, warmer or cooler as compared to adjacent tissue.**
- **Deep tissue injury may be difficult to detect in individuals with dark skin tones.**
- **Evolution may include a thin blister over a dark wound bed. The wound may further evolve and become covered by thin eschar.**
- **Evolution may be rapid exposing additional layers of tissue even with optimal treatment.**

Phase of Wound Healing

- **Hemostasis: Stops hemorrhage**
- **Inflammatory: Neutrophils destroy bacteria > macrophages are rich in biological regulators, cytokines and growth factors for healing**
- **Proliferation: granulation tissue, fibroblasts synthesize and deposit extracellular proteins**
- **Maturation: 7 days after injury & can last a year, collagen synthesis**

CMS:F Tag 314

Risk Factors: examples



- **Impaired/decreased mobility and decreased functional ability**
- **Co-morbid conditions, such as end stage renal disease, thyroid disease or diabetes mellitus**
- **Drugs such as steroids that may affect wound healing**
- **Impaired diffuse or localized blood flow, for example, generalized atherosclerosis or lower extremity arterial insufficiency**

F Tag 314 examples cont.

- **Resident refusal of some aspects of care and treatment**
- **Cognitive impairment**
- **Exposure of skin to urinary and fecal incontinence**
- **Under nutrition, malnutrition and hydration deficits**
- **A healed ulcer**

Avoidability

- *The resident developed a pressure ulcer, and the facility did not do 1 or more of the following:*
- **Evaluate the resident' clinical condition and pressure ulcer risk factors**
- **Define and implement interventions consistent with resident needs, resident goals, and recognized standards of practice**
- **Monitor and evaluate the impact of the interventions**
- **Revise the interventions as appropriate.**

Unavoidability

- *The resident developed a pressure ulcer even though the facility:*
- **Evaluated the resident's clinical condition and pressure ulcer risk factor**
- **Defined implemented interventions that are consistent with resident needs, goals, and recognized standards of practice**
- **Monitored and evaluated the impact of the interventions**
- **Revised the approaches as appropriate**

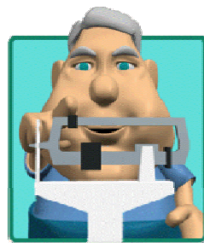
Nutrition Guidelines

- **Screening : Braden nutrition sub-scale**
- **Assessment**
- **Nutrition interventions/care plan
resident specific**
- **Monitor interventions**
- **Re-Evaluate**
- **Document**



Anthropometric/ Biochemical Values

- **Current Weight vs Dry Weight**
- **Albumin**
- **Bun/Creatinine**
- **Potassium/Sodium**
- **Hgb A1C**



Elderly

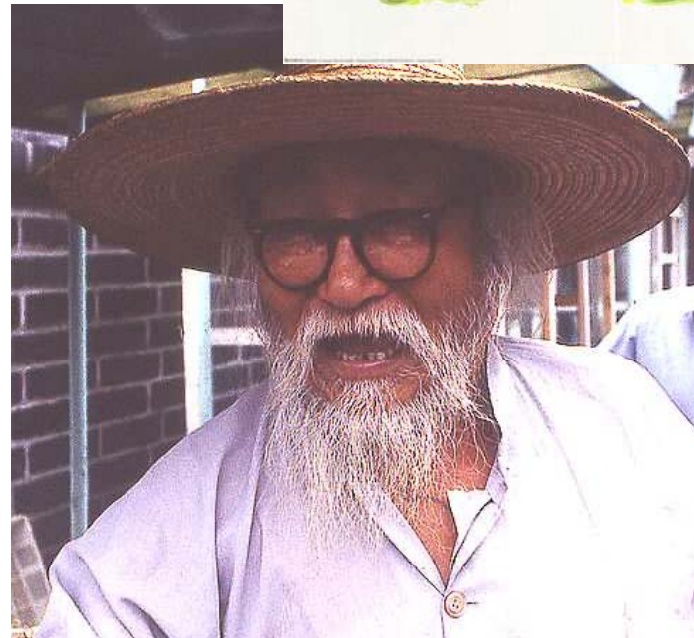
- Decreased Caloric Intake
- Dental Problems
- ↓ Activity = Muscle Wasting / Falls
- Sarcopenia
- Decreased Immune Function
- Weight Loss
- Slow Wound Healing



Age

■ Advanced Age

- ↓ Macrophage efficiency
- ↓ Capillary fragility
- ↓ Fibroblast activity
→ ↓ collagen synthesis
- Delayed contraction, remodeling & epithelial cell migration
- ↑ Likelihood for co-morbidities



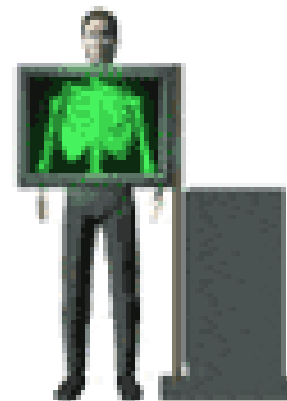
Body Composition

Lean Body Mass

- **Skeletal/Smooth Muscles**
- **Enzymes**
- **Collagen**
- **Metabolically Active**

Fat Mass

- **Adipose Tissue**
- **Metabolically Inactive**



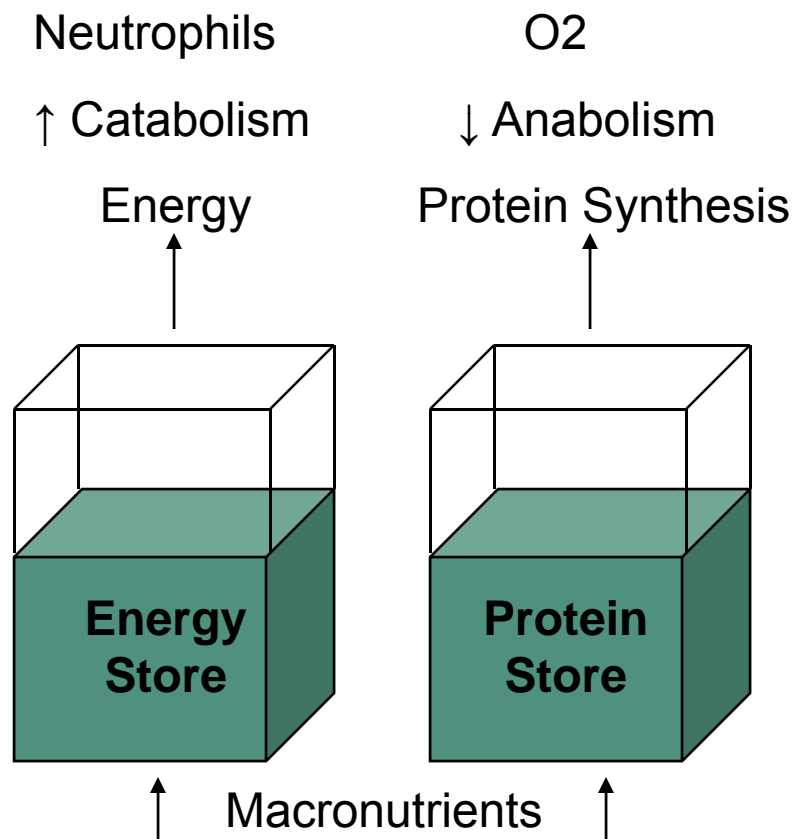
Involuntary Weight Loss

% Total Weight Loss	Complications	Mortality Rate
10%	Impaired Immune Function	20%
30%	Weakness; pneumonia; poor healing	50%
40%	Death (from pneumonia)	100%

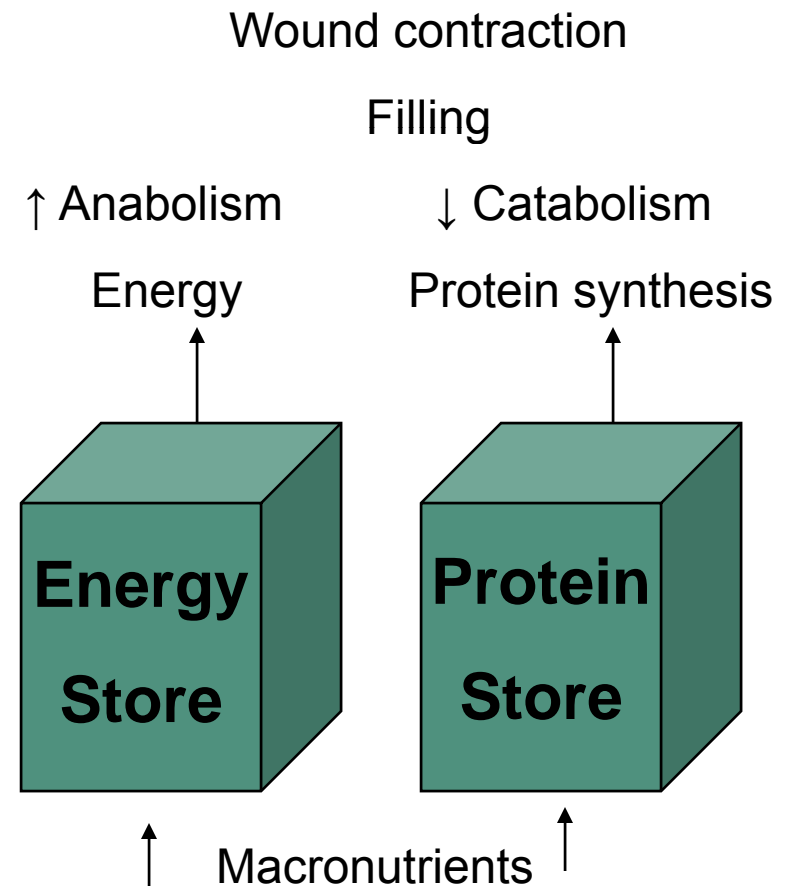
The Non-healing Chronic Wound

Failure to Heal by 12 Weeks

The Non-healing Wound



The Healing Wound



Energy Requirements: NPUAP

- ❑ **30-35 Kcalories/Kg/BW**
under stress with PU
- ❑ **Adjust for weight loss/gain or level of obesity**



Revise & Liberalize Dietary Restrictions

- **ADA Position Paper**
- **Quality of life issues vs compliance with diet limitations**



Long Term Care Medical Model vs Social Model

- **OBRA: committed to medical model**
- **Assisted Living Facilities/Home Health**
- **Culture Change**
- **Residents Rights**
- **F Tag 325: Nutrition**

Culture Change

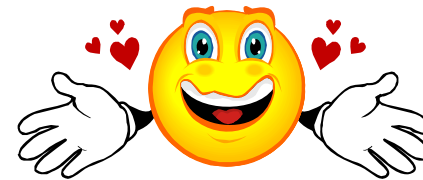
Five Core Principles

- **Respect**
- **Empowerment**
- **Community**
- **Relationships**
- **Choice**



Best Practices: Would I eat this way in my own home?

- **Family- style dining**
- **Selective Menus/Buffets**
- **Quality of Life vs Compliance**
- **Renal/Diabetes Issues**



Provide Enhanced Foods/Supplements

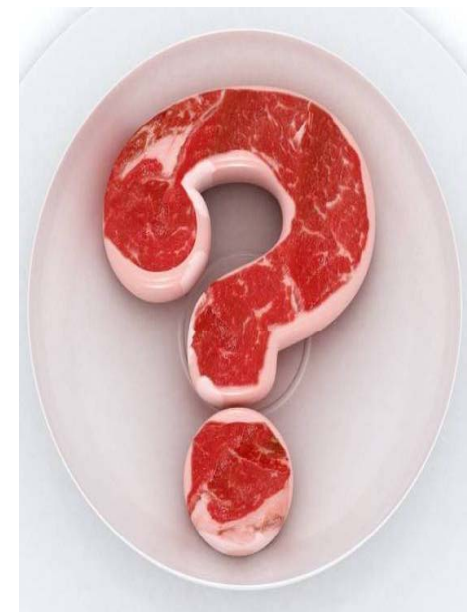
- Provide enhanced food/supplements
- Timing of supplements
- Consuming supplements during treatment
- **Are foods & supplements consumed?**



Protein: NPUAP Guideline

- ❑ 1.25-1.5 grams/kg body weight
- ❑ Increased protein linked to improved healing rates
- ❑ Monitor healing & adjust as needed
- ❑ Assess renal function

(Lee 2006)



Amino Acids

Arginine

- Promotes transport of amino acids into cells
- May become conditionally essential during acute stress
- Stimulates collagen synthesis

Glutamine

- May function as fuel source for fibroblasts and epithelial cells
- May become conditionally essential during acute stress such as wound healing

Amino Acids

- **Additional research is needed to recommend arginine alone or combined with other nutrients**

(Langer et al Cochrane Database 2003)



Fluid: Hydration Guideline

- Meet hydration needs
(including water
content of food)**
- Provide additional
fluids for insensible
water loss**
- Monitor for dehydration**
- Fluid restriction ?**



Micronutrients

Vitamins:

- **Vitamin C: DRI met with 90 mg per day in diet**
- **Mega doses not shown to accelerate healing**

Minerals:

- **Zinc: confirm deficiency, monitor dose and length of time provided**
- **40 mg/day UTL**
- **Copper: anemia & high zinc levels**

(ter Riet 1995)

Supplements: NPUAP



- Offer vitamin/ mineral supplement daily if intake is poor or deficiency is confirmed
- Renal vitamin

Enteral Nutrition

- Does the patient and/or family desire TF?
- Long or short term solution?
- Risks and benefits
- Cyclic feedings
- Determine if patient **actually** receives TF as prescribed



Areas of Concern

- **Meal time: Are supplements provided?**
- **Transportation**
- **Lab Values**
- **Communication between RD at dialysis and LTC ,RD**

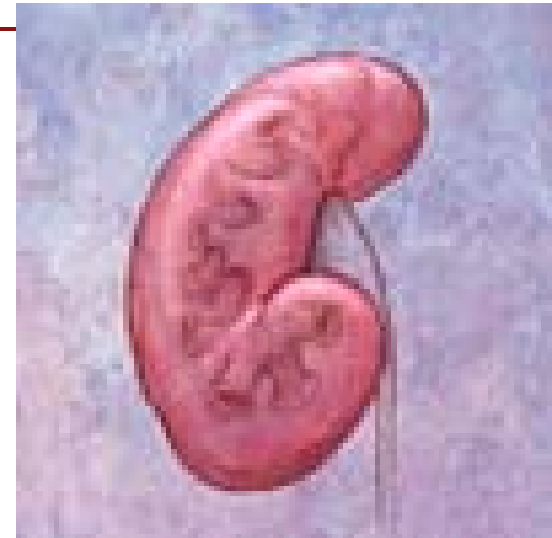
Resident's goal

Care plan



Renal Disease

- ↓ RBCs
- ↓ Granulation tissue
- Edema
- Pain management
- Resident with diabetes on dialysis



Hyperglycemia

- Reduces oxygen to tissues
- Increases healing times
- Dehydrating effect
- Increases infections
 - Urinary
 - Respiratory
 - Soft tissue



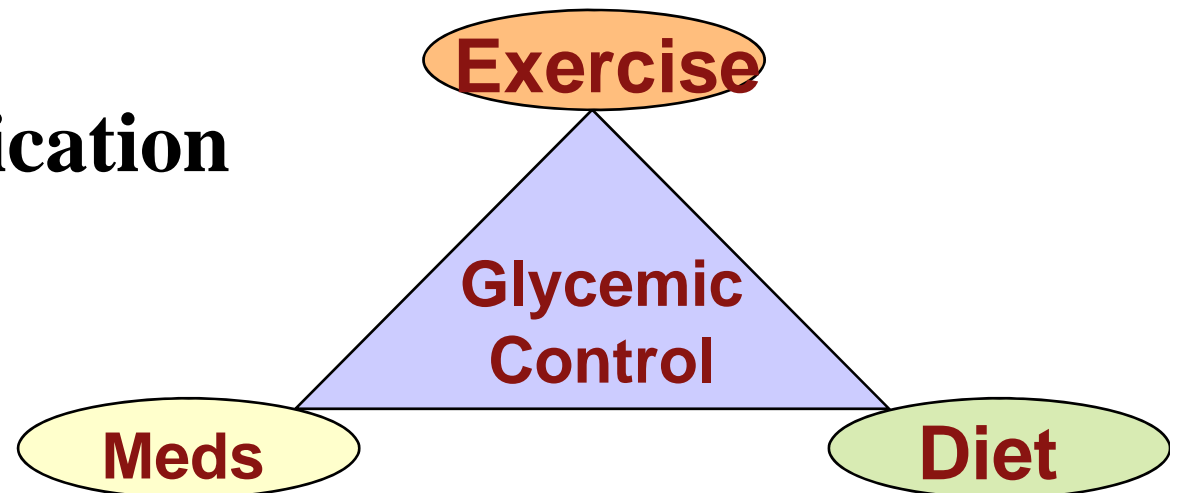
Diabetic Hyperglycemia



- **Impaired Leukocyte action**
- **Reduce wound contraction**
- **Slowed epithelization**
- **Neuropathy**
 - **Unaware of injury**

Glycemic Control

- **Complex carbohydrate**
- **Balanced / Consistent Carbohydrate**
- **Protein**
- **Exercise**
- **Meals / Medication**



Recipe for Success

- **Assess and intervene early**
- **Document and re-evaluate plan of care**
- **Discuss goals: Patient, family, staff**
- **Determine need for nutritional support (TPN/TF)**
- **Palliative / Hospice Care**



Bon Appétit !!

