

Psychosocial Aspects of Wound Healing

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Renee Cordrey, PT, PhD(c), MSPT, MPH, CWS
Genesis Rehab Services
Rcordrey@earthlink.net

Objectives

1. Explain how psychological and emotional health can affect the wound healing process.
2. Assess the psychosocial domain of their patients.
3. Describe 3 challenges persons living with chronic wounds and their caregivers face.

Outline

- Introduction
- Review of the wound healing process
- Stress
- Depression and anxiety
- Community health
- Stretch break
- Social Support
- Lived experience of a wound
- Conclusion and questions

Your Practice

- Do you assess psychosocial factors?
- Which factors?
- How do you assess it?

- Do you intervene? How?

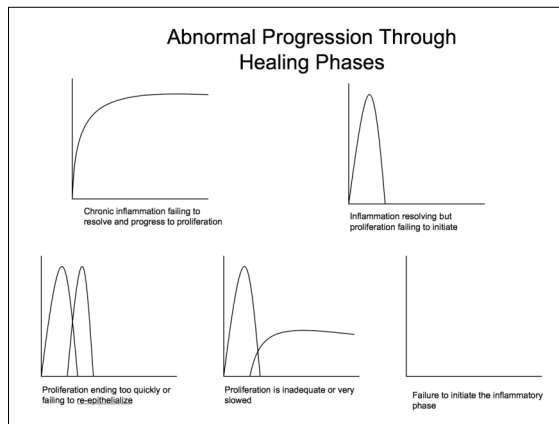
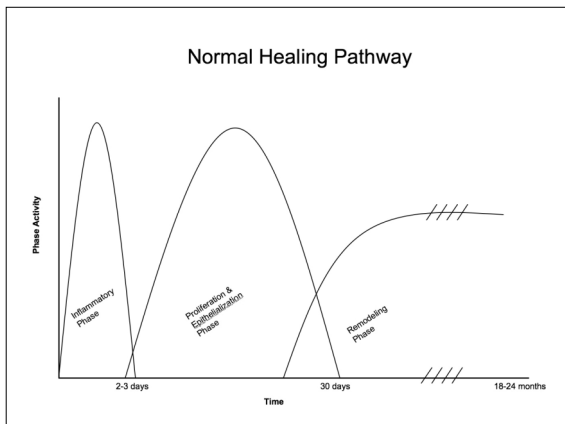
History of Mind-Body Medicine

- Traditional Chinese Medicine and Ayurvedic Medicine
- Hippocrates
- Forgotten with “modern medicine”
- Resurgence in 20th century
 - Placebo effect (1920s), stress (1940s), fight or flight response (1940s)
 - Lab techniques advanced (1970s)
 - Psychoneuroimmunology, psychoneuroendocrinology (1990s)
 - Psychosomatic medicine
 - NIH Mind-Body Institutes, National Center for Complementary and Alternative Medicine

Impact of Chronic Wounds

- \$12 Billion cost in US in 2004
 - Direct and indirect costs
- 4.78 million: chronic wounds prevalence (2004)
- Affects person with a wound, family, economy
 - Caregivers experience health impacts
- Faster healing has great rewards

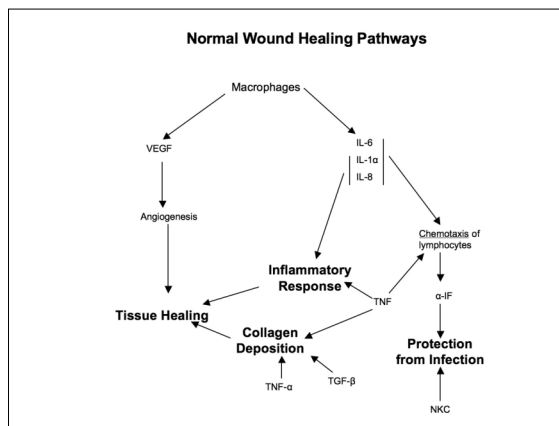
Burden of skin diseases, 2005



Acute vs Chronic Wounds

<ul style="list-style-type: none"> • Acute <ul style="list-style-type: none"> - Progress along pathway - Balance of inflammatory and regulatory cytokines - Limited proteolysis - Normal cells - Low-bioburden - Simple, single-factorial 	<ul style="list-style-type: none"> • Chronic <ul style="list-style-type: none"> - Stalled in or between a phase - Excessive inflammatory cytokines - Excessive proteolysis - Senescent cells - High bioburden - More complicating co-morbidities
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Harding 2005



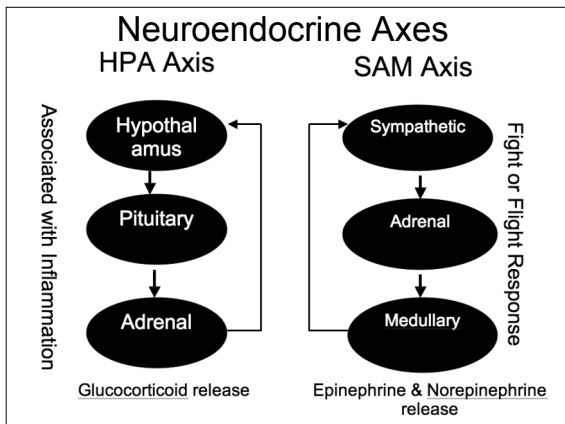
What is Stress?

- Term coined by Selye
 - Physiologic response to noxious stimuli
- Psychological definition now
 - Perceived situation or condition is greater than the ability to adapt to it
 - Emotional distress
- Perception of stressor is important
- Internal and external factors
- Eustressor vs Distressor

Selye, 1936, 1998

Common Stressors With Wounds

- Economic
- Social
- Chronic wound
 - Pain
 - Fear of infection or amputation
 - Fear of unknown
 - Time

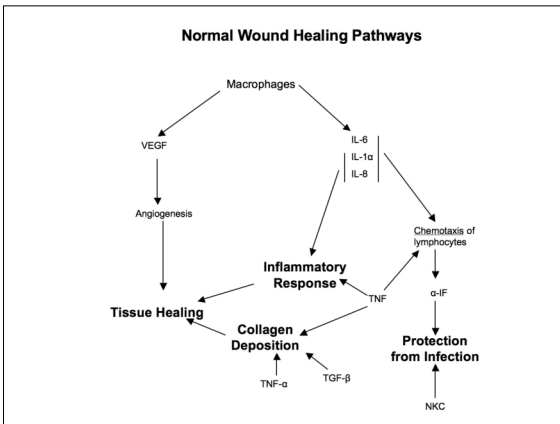


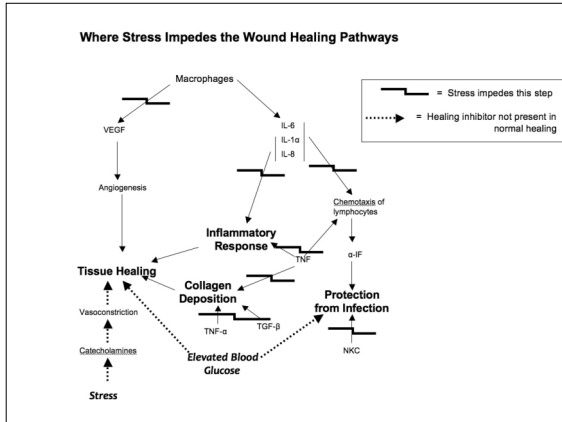
- ### Stress Is Associated With
- Faster progression from HIV+ to AIDS (Leserman, 2000)
 - Increased sensitivity to pain (Bruegel, 1971)
 - Peptic ulcers without H pylori or NSAID use (Levenstein, 1971)
 - Exacerbation of rheumatologic conditions (Kabat-Zinn, 1998, Kantor 1990, Farber 1993, Ring 1993, Buske-Kirschbaum 1998)
 - Higher cancer mortality and recurrence (Spiegel, 1998)
 - Overall decline in health status (Malarkey, 1995)
 - Increased susceptibility to colds (Cohen 1998, 1999, 2002, 2005)
 - Reduced vaccine effectiveness (Glaser 1992)

- ### Stress Affects Caregivers
- Caregivers of loved-ones with Alzheimers, matched with controls
 - Lower circulating T-lymphocytes (Kiecolt-Glaser, 1987; Esterling, 1996)
 - Effect persisted an average 3 years after death of loved one

- ### Acute vs Chronic Stress
- Acute
 - Short term immune benefit (Vileikyte 2007)
 - Chronic
 - Effects last beyond stressor
 - Reduced cortisol sensitivity (Vileikyte 2007)
 - Less inflammatory inhibition
 - Down-regulation of receptors
 - Poorer response to acute stressors (Pike 1997)
 - Reactivity to stress varies (Kunz-Ebrecht 2003)

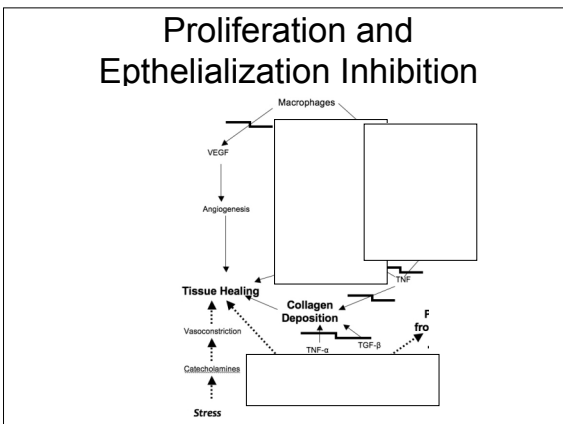
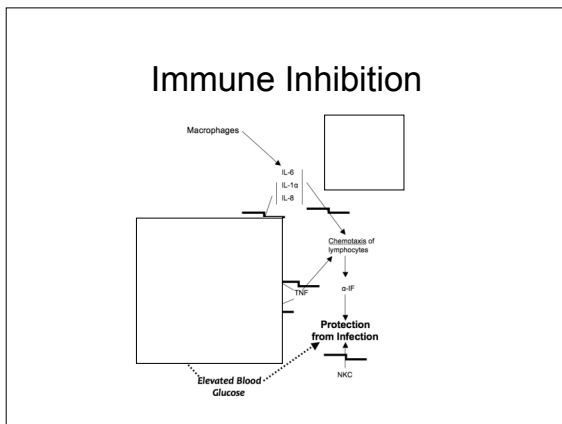
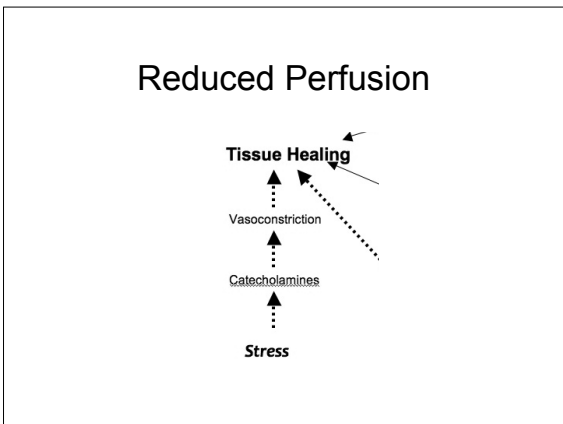
- ### Stress and Wound Healing
- All studies to date on acute wounds
 - Focus on re-epithelialization phase
 - Blister or punch biopsy wounds

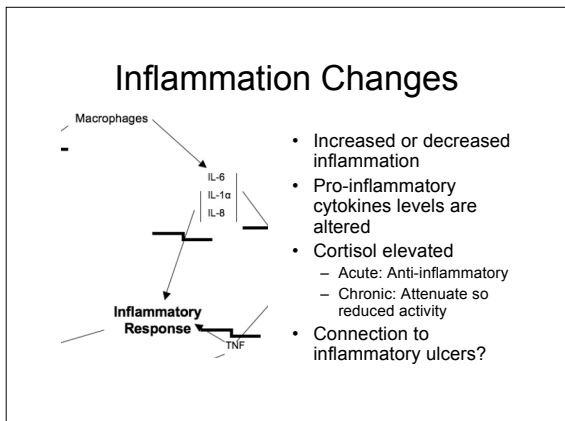




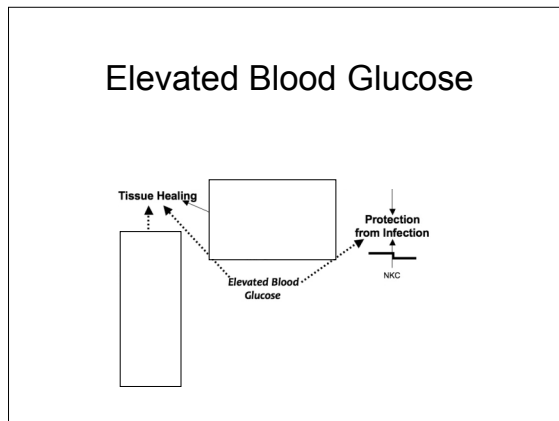
- ### Impacts from Stress
- Reduced perfusion
 - Immune inhibition
 - Proliferation and epithelialization inhibition
 - Increased or decreased inflammation
 - Elevated blood glucose

- ### Stress and Behavior
- Correlations between stress and diet, sleep, tobacco use, alcohol use, exercise, caffeine intake not seen in multiple studies (Kiecolt-Glaser, 1987; Kiecolt-Glaser 1995; Esterling, 1996; Glaser 1999)
 - Comparing high stress to low stress
 - Comparing good healers to poor healers





- Increased or decreased inflammation
- Pro-inflammatory cytokines levels are altered
- Cortisol elevated
 - Acute: Anti-inflammatory
 - Chronic: Attenuate so reduced activity
- Connection to inflammatory ulcers?



Stress and Acute Wound Healing

- Wound physiology changes
 - Increased inflammatory cytokines (Kiecolt-Glaser, 2005; Leserman et al, 2000)
 - Reduced TNF reactivity, reduced IL-1beta in blister fluid (Kiecolt-Glaser 2005)
 - Suction blisters on healthy women (Glaser, 1999)
 - IL-1alpha, IL-8 (pro-inflammatory) lower with higher stress
 - Cortisol higher with stress

Stress & Acute Wound Healing

- Anger control (Gouin et al, 2008)
 - Slower healing with worse anger control
 - Higher cortisol levels
- Increased infection rate (Padgett et al, 1998)
 - Mouse study

Stress and Acute Wound Healing

- Stress slows healing rate
 - Mice with restraint stress (Padgett et al, 1998; Rojas et al, 2002; Eijkelkamp et al, 2007; Horan 2005)
 - 46% less closure with stress than without food and water
 - Oral surgery (George, 1980; George, 1982)
 - Suction blister wounds Alzheimer caregivers (Kiecolt-Glaser, 1995)
 - Palate wounds during exams (Marucha, 1998)
 - Punch biopsies (Ebrechet et al, 2004)
 - Correlated with higher cortisol levels
 - Marital distress (Kiecolt-Glaser, 2005)

Stress Reduction & Therapy

- Increased natural killer cell cytotoxicity in older persons (Kiecolt-Glaser 1985)
- Improved natural killer cell activity and alpha interferon levels (Richardson 1990, Fawzy 1993, Kiecolt-Glaser 1987)
- Improved immune cell counts and function with relaxation intervention during exams (Kiecolt-Glaser 1996)
- More anti-inflammatory cytokines and fewer pro-inflammatory cytokines with relaxation during exams (Koh 2008)

Stress Reduction & Therapy

- Prolonged cancer survival (Spiegel 1998)
- Faster resolution of psoriasis flare-ups (Kabat-Zinn 1998)
- Improved fasting blood sugar and insulin levels (Paul-Labrador 2006)
 - Diabetics and non-diabetics

Assessing Stress

- Physiologic measures
 - Salivary cortisol
 - Serum cortisol
 - Level peaks after waking
 - Circadian rhythm
- Psychologic measures
 - “Pen and paper” measures

Life event scales

- Lists of common stressful events
 - Psychiatric Epidemiology Research Interview (PERI)
 - Life Events and Difficulties Schedule (LEDS)
- Does not consider if positive or negative stressor
- Does not factor perception of stressor

Perceived Stress Scale

- 4, 10, 14 item scales
- Considers how a person feels about the previous 4 weeks
 - Time frame can be adjusted
 - Accounts for range of stressors
- 0-4 scale for each item
- Often used
 - Correlated with healing process for acute wounds
- Well-validated
- No norms established

Cohen 1983, 1988

Glaser 1999, Ebrecht 2004, Kloostra 2006, Sharp 2007

<http://www.psy.cmu.edu/~scohen/PSS.html>

PSS-10

___0=never ___1=almost never ___2=sometimes ___3=fairly often ___4=very often

In the last two weeks, how often have you:

1. been upset because of something that happened unexpectedly?
2. felt that you were unable to control the important things in your life?
3. felt nervous and "stressed"?
4. felt confident about your ability to handle your personal problems?
5. felt that things were going your way?
6. found that you could not cope with all the things that you had to do?
7. been able to control irritations in your life?
8. felt that you were on top of things?
9. been angered because of things that were outside of your control?
10. felt difficulties were piling up so high that you could not overcome them?

Score Yourself

- Items 1, 2, 3, 6, 9, 10
 - Count as scored
- Items 4, 5, 7, 8 (positive items)
 - Reverse score
 - 0=4, 1=3, 2=2

Addressing Stress

- Referral for psychological therapy
- Relaxation techniques
 - Guided imagery, visualization
 - Contract-relax
 - Encourage stress-reducing activities
- Patient and family

Depression & Anxiety

- Screening of people with chronic wounds for depression and anxiety (UK) (Jones 2006)
 - Hospital Anxiety and Depression Scale
 - 27% prevalence for depression
 - 26% prevalence for anxiety
 - Low cut-off score expects false negatives

Depression & Anxiety

- 44% of people with chronic venous ulcers (>4 mos) reported depression in interview (Hareendran 2005)
 - Fewer exclusion criteria than Jones study, so may be more representative
- Anxiety and depression associated with higher cortisol levels (Vileikyte 2007)
- Anxiety and depression associated with slower chronic wound healing (Cole-King 2001)

Screening for Depression

- PRIME-MD PHQ
 1. During the past month, have you often been bothered by feeling down, depressed, or hopeless?
 2. During the past month, have you often been bothered by little interest or pleasure in doing things?
- “Yes” to either question prompts more assessment or referral

Whooley 1997

Community Health

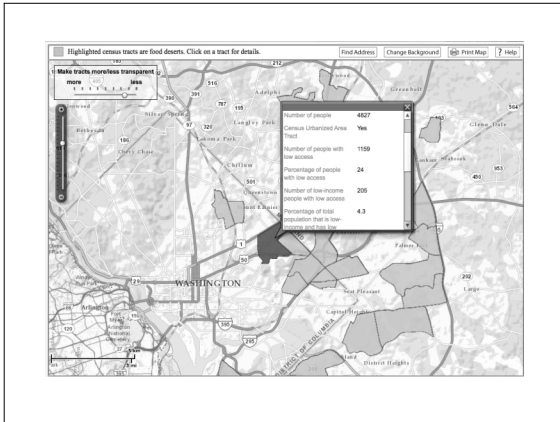
- Member of a community
- Social impacts on health
- Culture
- Economic status
- Community resources

Nutrition

- Food deserts
 - Low income community where 500 people or 33% in tract with low access to affordable, healthy food
 - 1 mile or 10 miles
 - Few grocery stores in low-income communities
 - Transportation difficulties



<http://www.ers.usda.gov/data/fooddesert/fooddesert.html>



Transportation

- Can they come to appointment?
- Difficulties
 - Bus schedules and bus fare
 - Paratransit system
 - Car gasoline and repairs
 - Where do they live?
- How can you accommodate them?

Safe Places to Exercise

- Areas safe after dark?
 - In daylight?
- Community resources
 - Cost?
- Social interaction valuable
- Where can the kids play?

Social Support

- Help with care
- Emotional support
- Financial support
- Cultural practices
- Social isolation with wound
- Physical and mental impacts

Social Support and Health

- Mixed findings
- High stress and low social support each contribute to poor mental health (Kornblith 2001)
 - Strong social support did not buffer stress
- Health status positively impacted by higher social support (Sherbourne 1992)
- Difficult to separate stress from social support in studies

Social Support and Cancer

- Support group correlated with more natural killer cells in blood (Kiecolt-Gaser 1987, Esterling 1996, Alzheimers caregivers studies)
- Malignant melanoma patients with 6-week group therapy program: Increased NK activity, better coping ability, lower stress, lower mortality, lower recurrence in 5 years (Fawzy 1993)
 - Effects still present after 6 months, some after 10 years
- Psychosocial intervention slows cancer progression and isolated people have doubled cancer mortality (Goodwin 1987, Reynolds 1990, Spiegel 1998, Eil 1992, Osborne 2005, Reyes Ortiz 2007)

Social Support and Immunity

- Poor marital quality and separated/divorced (as proxy for support network) women and men (Kiecolt Glaser 1988a, 1988b)
 - Poor control of virus latency, poor lymphocyte responsiveness and counts, fewer NK cells, more sick days

Social Support and Healing

- Mitigates effects of stress
 - Wounded and stressed mice healed faster with positive social contact (Detillion 2004)
 - Oxytocin counteracted cortisol rise
 - Oxytocin injection without socialization also effective
- Blister wounds heal faster in “low hostility” couples (Kiecolt-Glaser 2005)

Assessing Social Support

- Simple questions
- MOS Social Support Survey (Sherbourne 1991)
 - 20 questions on 1-5 scale
 - Asks if there is someone available to help with various things
- Many other scales
 - Lengthy, better for research

Addressing Social Support

- Encourage them to take advantage of it
- Encourage them to seek it out
- Connect them to resources

Lived Experience With a Wound

- Decreased mobility
- Decreased ADL ability
- Changing dressing
- Time for care
- Pain
- Odor
- Exudate management
- Infection
- Sleep disturbance
- Loss of sexual intimacy
- Lifestyle changes

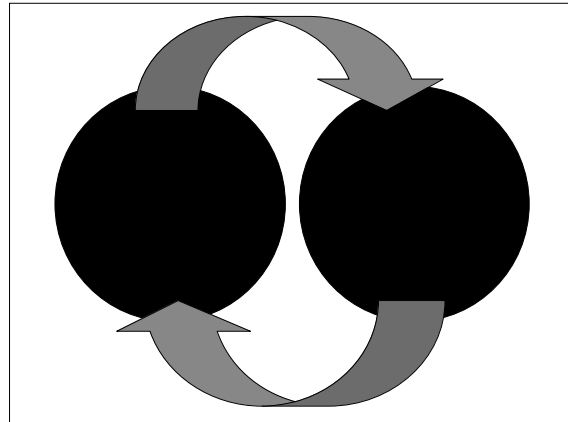
Lived Experience

- Quality of life
- Self-perception
 - “wounded self”
 - Social and family roles disrupted
 - Loss of independence
 - Style of attire
 - “Loss of self”
- Interests on hold
- Social isolation
- Boredom
- Loss of modesty
- Underlying condition persists

Neil 2000, Kinmond 2003, Moffatt 2006, Snyder 2006, Green 2009, Green 2010

Lived Experience

- Those with non-healing ulcers with greater physical and psycho-emotional impairments (Hareendran 2003)
 - Not associated with size, duration
- Physical effects of wound can influence mental health
 - Likely inverse as well



Impact on the Family

- Alteration in family roles
- Financial
- Time, schedules, routines
- Intimacy
 - Greater or lower level
- Mental health

Pittman 2003

The Psychosocial Domain

- Include in assessment and plan of care
- An important dimension
- Can influence overall well-being including wound healing