

# Complex Wounds Management Adjuncts- Vacs, Flaps, and Ointments

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Director, Advanced Reconstructive Care (ARC) Program

Director, Microsurgery and Microsurgery Research

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Bronx, NY



QuickTime™ and a  
H.264 decompressor  
are needed to see this picture.



# Complex Wound Management- Truth, Fiction, and Fantasy

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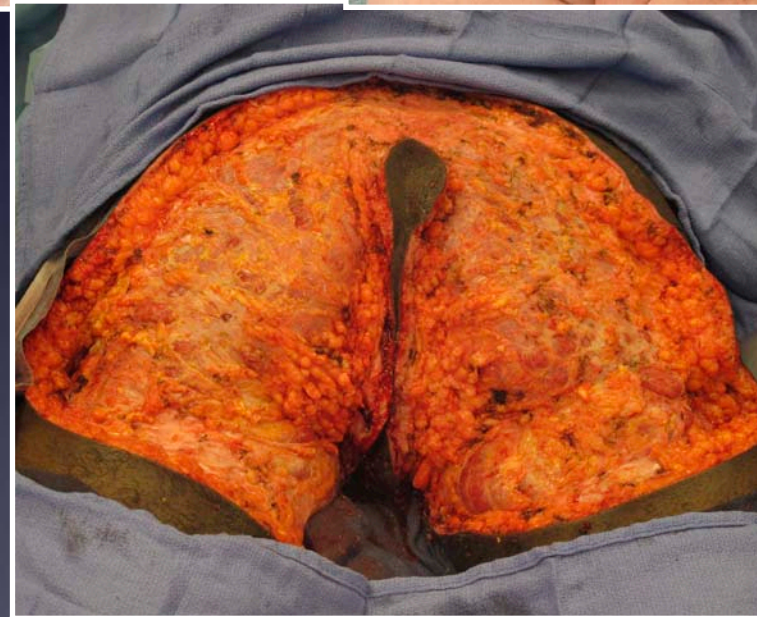


# Disclosures

- Consultant, Medical Modeling, Inc.
- Consultant, Stryker, Inc.
- Speakers Bureau, Lifecell, Inc.
- Founder, OscarSurgical, LLC



# What is a Wound?





# What is Wound Healing?

- Organism's global response to injury
- Skin, muscle, liver, heart, brain, bone, etc.
- Modulated at multiple points
- Complex

# Why Should We Care?

- Part of almost every patient's care
- Influenced by almost everything we do
  - Operative trauma
  - Nutrition
  - Medication
  - Radiation therapy
  - Nursing care

# Truths

1. Wounds are often complex
2. Forget techniques
3. Remember principles







1. Remove foreign bodies
2. Bring divided parts together
3. Unite these parts
4. Conserve and preserve tissue

Guy de Chauliac 1300-  
1368



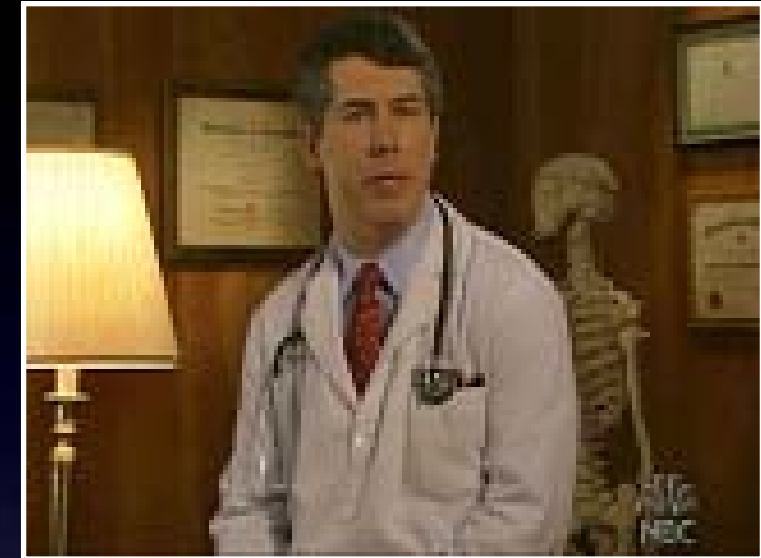
Recipe for success-

Substitute turpentine, egg  
yolk, rose oil

For  
boiling elder oil

Je le pansay, Dieu le guarit

Ambroise Pare 1510-  
1590



# Dr. Turlington, SNL, 2011



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# Why do some wounds fail to heal?

- Age
- Ischemia
- Reperfusion injury
- Infection or bacterial burden
- Malnutrition
  - Global
  - Nutrient-specific
- Foreign bodies
- Diabetes
- Steroids
- Uremia
- Jaundice
- Cancer
- Genetic causes (e.g., Ehlers-Danlos, Werner syndromes)
- Irradiation
- Chemotherapy
- Tobacco use
- Alcohol use
- Edema
- Pressure

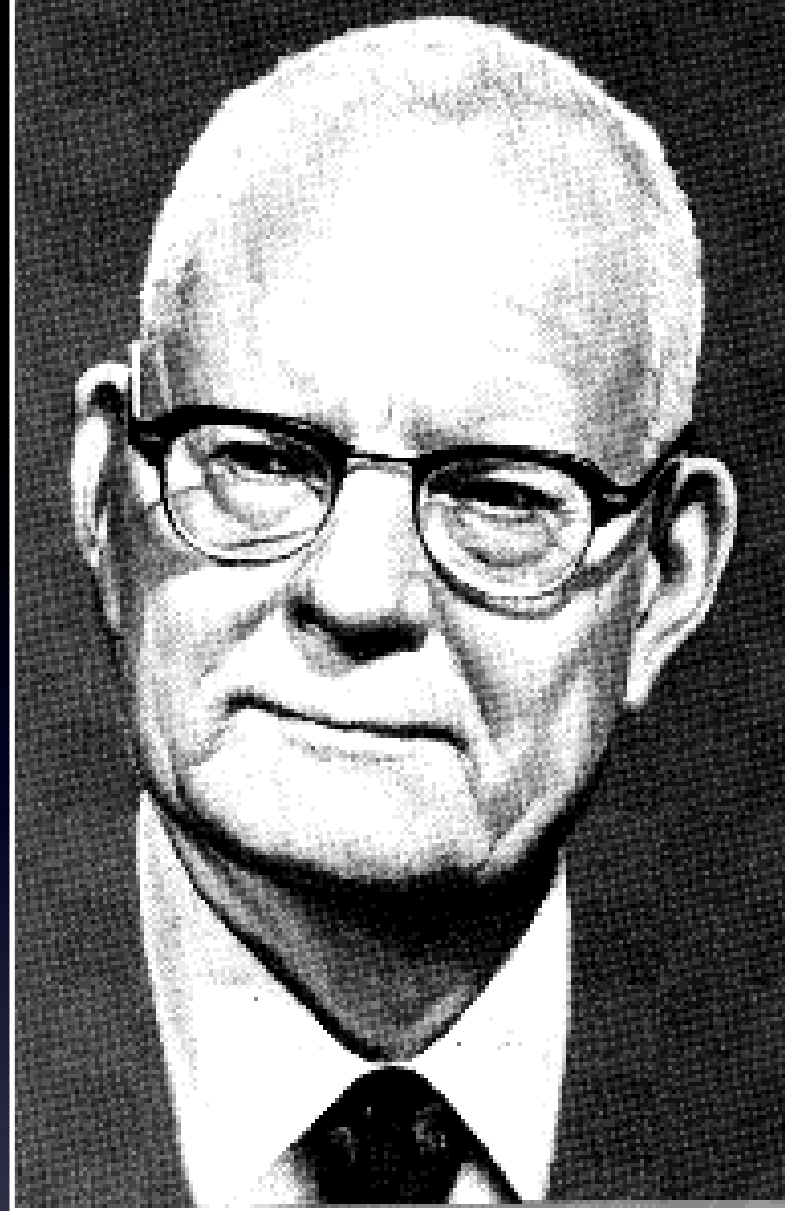
# (All) Wound Management Principles

- Debride unhealthy tissue
- Pressure relief
- Maximize nutrition
- Manage exudate
- Infection control



# A funny thing happened on the way to the forum...

- Debride unhealthy tissue- “Biological dressing”
- Pressure relief- “I’m sure it’s being done”
- Maximize nutrition- “Consult nutrition”
- Manage exudate- “tell the MS III to change the dressing”
- Infection control- “looks clean to me”



In God we trust.  
All others bring data.





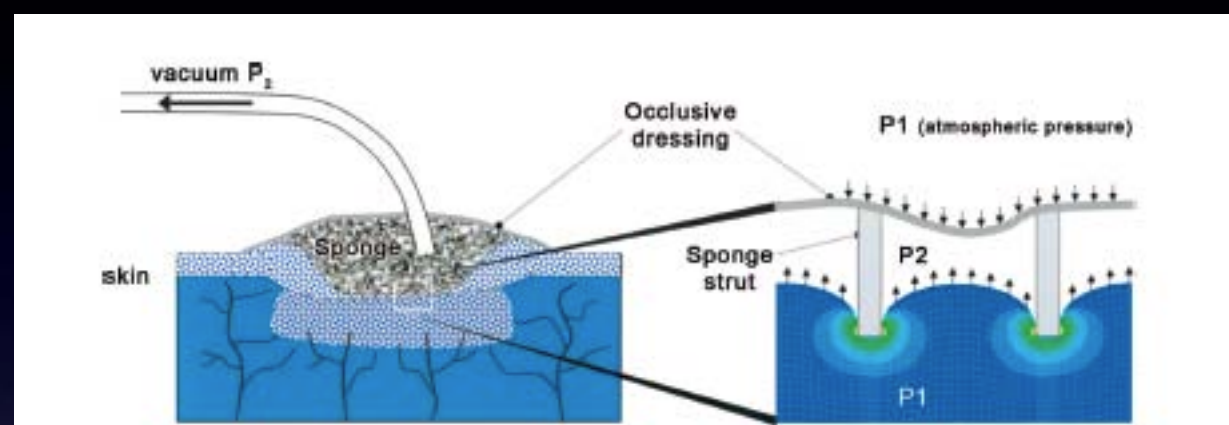
## Vacuum-Assisted Closure: A New Method for Wound Control and Treatment: Animal Studies and Basic Foundation

Morykwas, Michael J. PhD; Argenta, Louis C. MD; Shelton-Brown, Erica I.; McGuirt, Wyman BS; *Annals of Plastic Surgery*, 1997

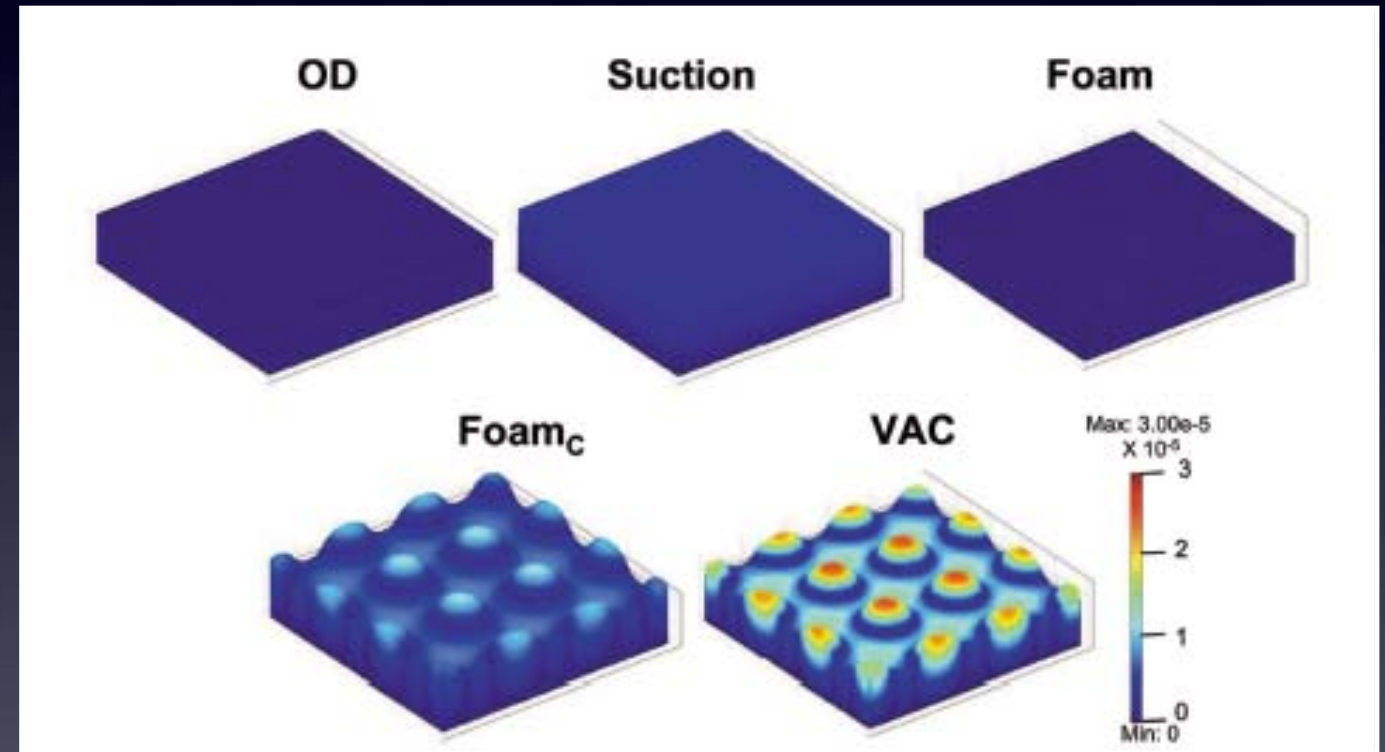
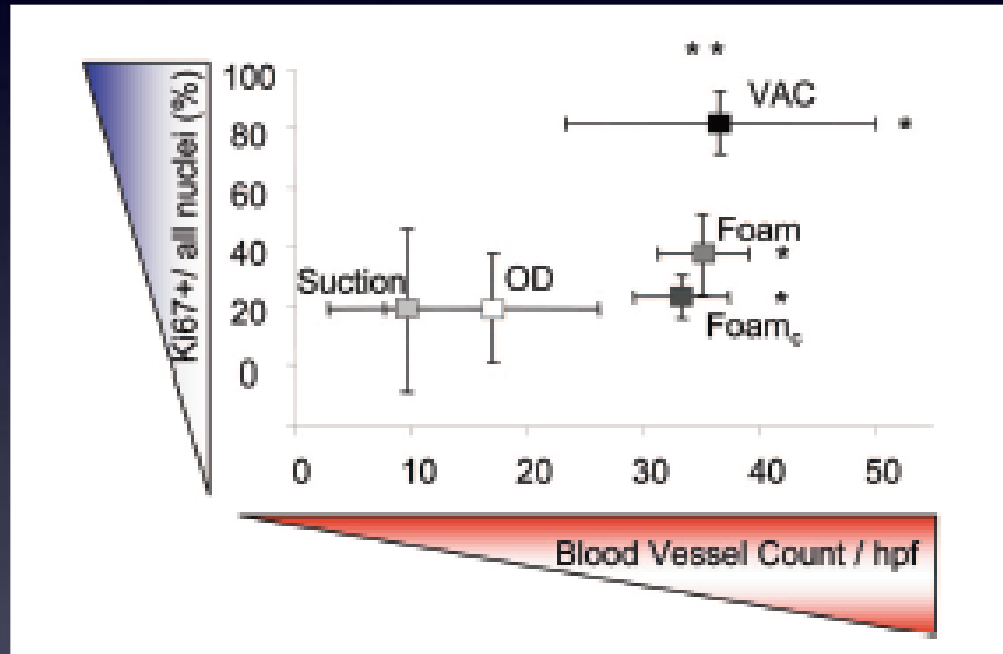
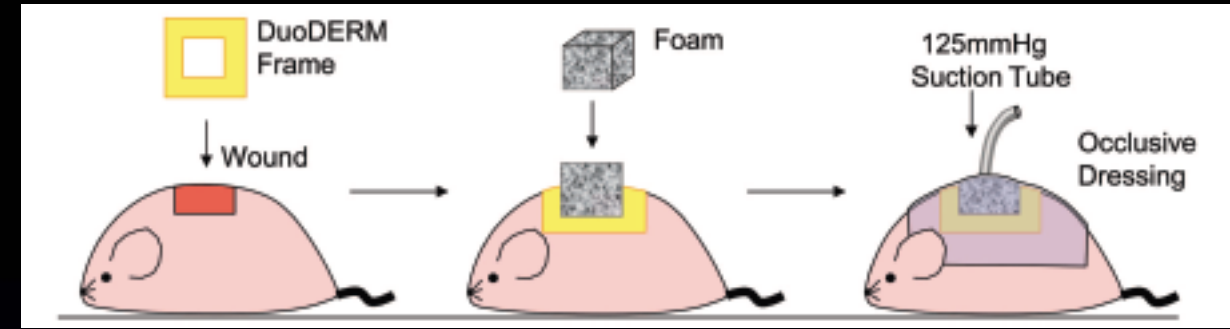
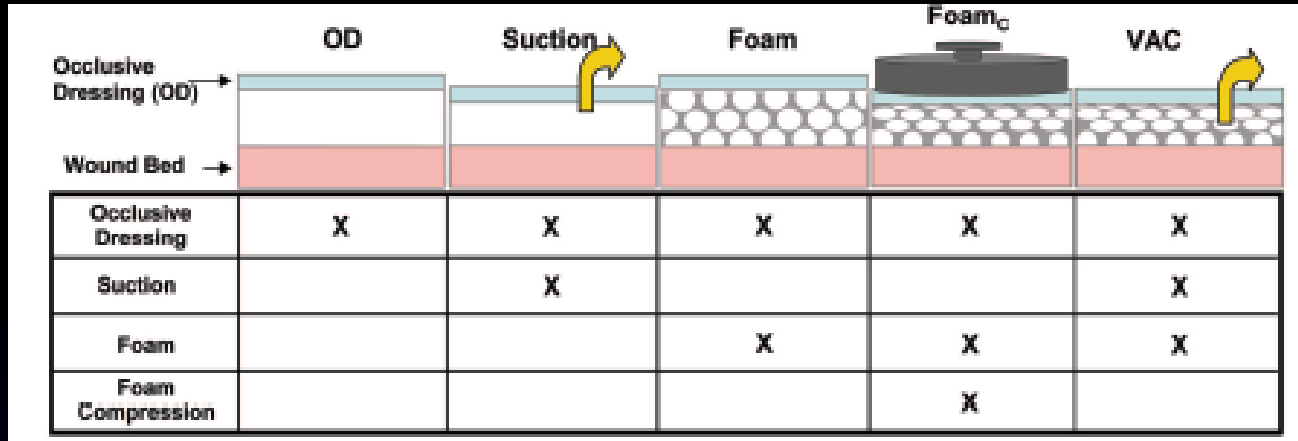
# Birth of an Era



# How does NPWT work?



- Increased perfusion- sponge itself
- Fluid removal- negative pressure
- Microdeformation- cell proliferation
- Macrodeformation- decreased surface area



# NPWT Applications

- Diabetic foot
- Pressure ulcers
- Open abdomen
- Traumatic wounds
- Skin graft bolsters
- Chest wounds



# NPWT with Instillation

## Negative-Pressure Wound Therapy with Instillation: International Consensus Guidelines

Acute or chronic wounds  
Contaminated wounds  
Diabetic wounds  
Traumatic  
Exposed bone  
Decubitus  
Exposed hardware

Dwell time 10-20 min

Continuous, not intermittent

NWPT cycle 1-2.5 hr, at 125-250mmHg

Lavasept (polyhexanide)  
Prontosan (polyhexanide, betadyne)  
Superoxidized water

# Circulation

JOURNAL OF THE AMERICAN HEART ASSOCIATION



American  
Heart  
Association®

## Constitutive Expression of phVEGF<sub>165</sub> After Intramuscular Gene Transfer Promotes Collateral Vessel Development in Patients With Critical Limb Ischemia

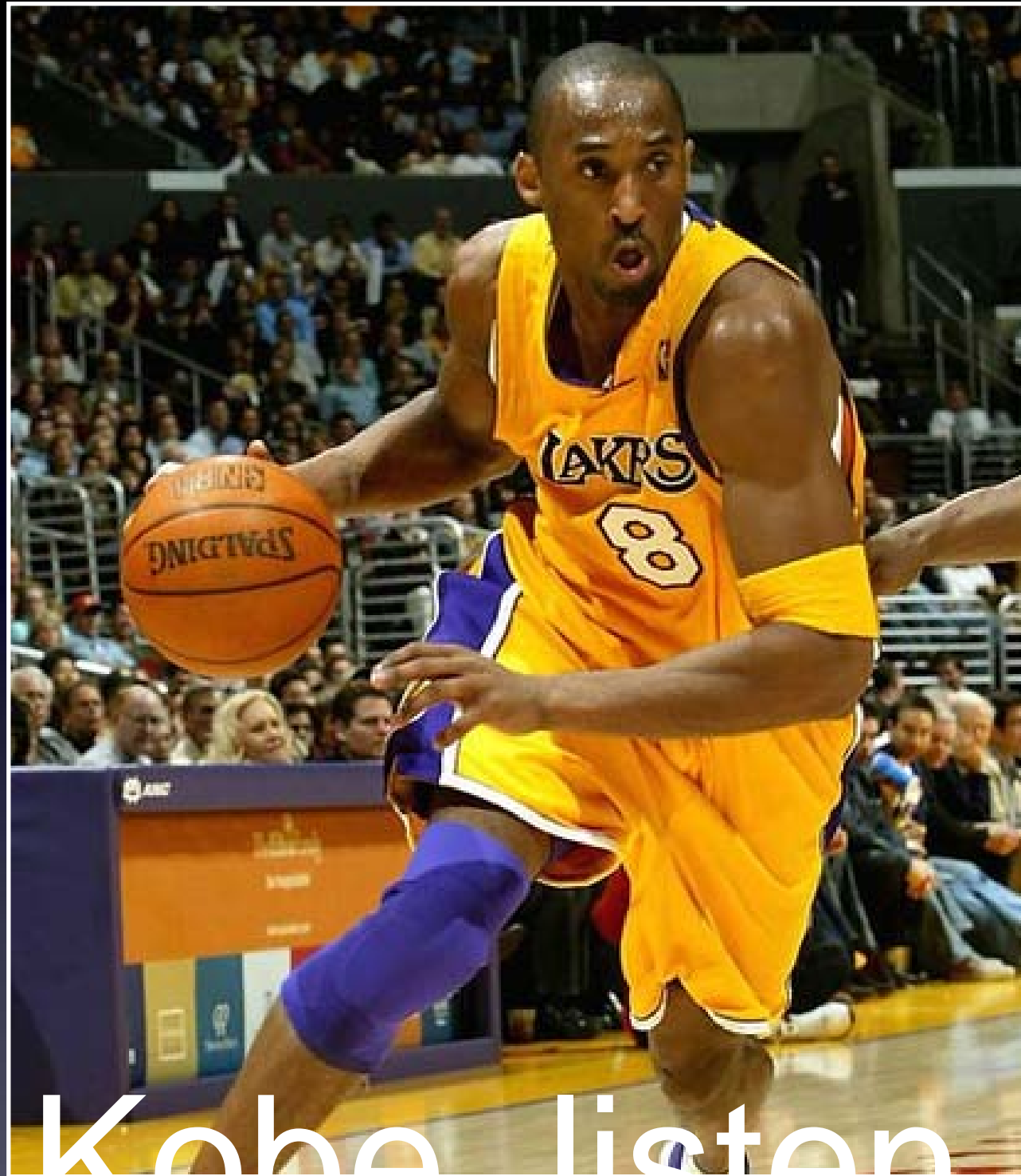
Iris Baumgartner, Ann Pieczek, Orit Manor, Richard Blair, Marianne Kearney, Kenneth Walsh  
and Jeffrey M. Isner

*Circulation.* 1998;97:1114-1123

Don't believe the  
hype

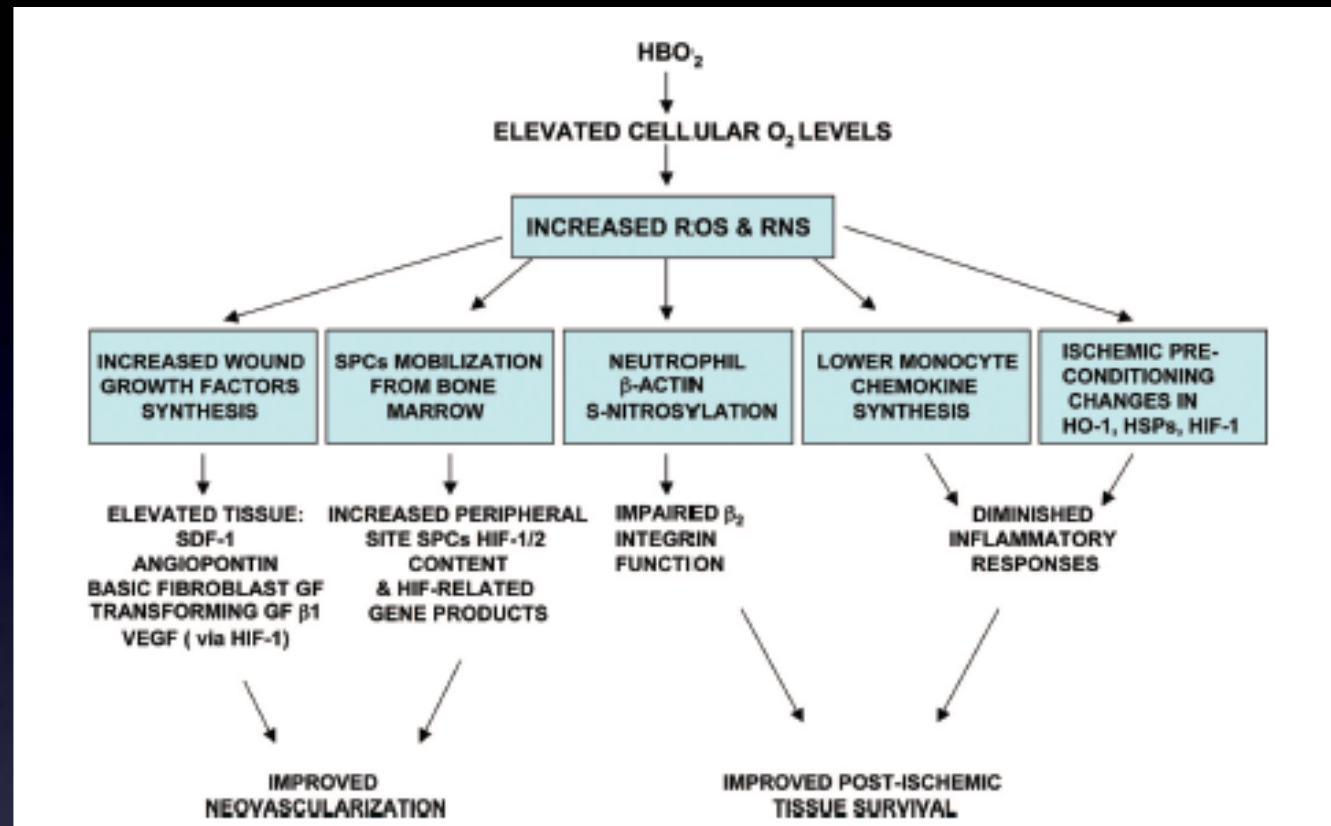


No, seriously



Kobe, listen,  
seriously





Thom, PRS

# HBO? Try Showtime



# Energy-based modalities? Shocking

# Why so few winners?

- Multiple variables
- Heterogeneous conditions
- Complex choreography
- Battle lasts forever

# What Works

- Healthy patients- if sick, make them better
- Healthy wounds- if suboptimal, optimize
- Healthy tissues- bring from elsewhere
- NPWT- when in doubt, VAC-it



# What May or May Not Work

- Creams
- Ointments
- Salves
- Poultices
- Potions
- Spells
- Oxygen

- M...

Time wounds all  
heels.

- John Lennon