



VIDANT[™]
Medical Center

SO YOU THINK YOU CAN DANCE?

**Empowering the
Vascular Patient to take the Lead**

Kim Smith, MA, CCEP, PYT
Certified Clinical Exercise Physiologist
Medical Yoga Therapist
Cardiovascular & Pulmonary Rehab



Medicine is an Art

- “Art” = skill acquired by experience, study, or observation
- An occupation requiring knowledge or skill



How do you teach someone to Dance who is an unwilling partner?



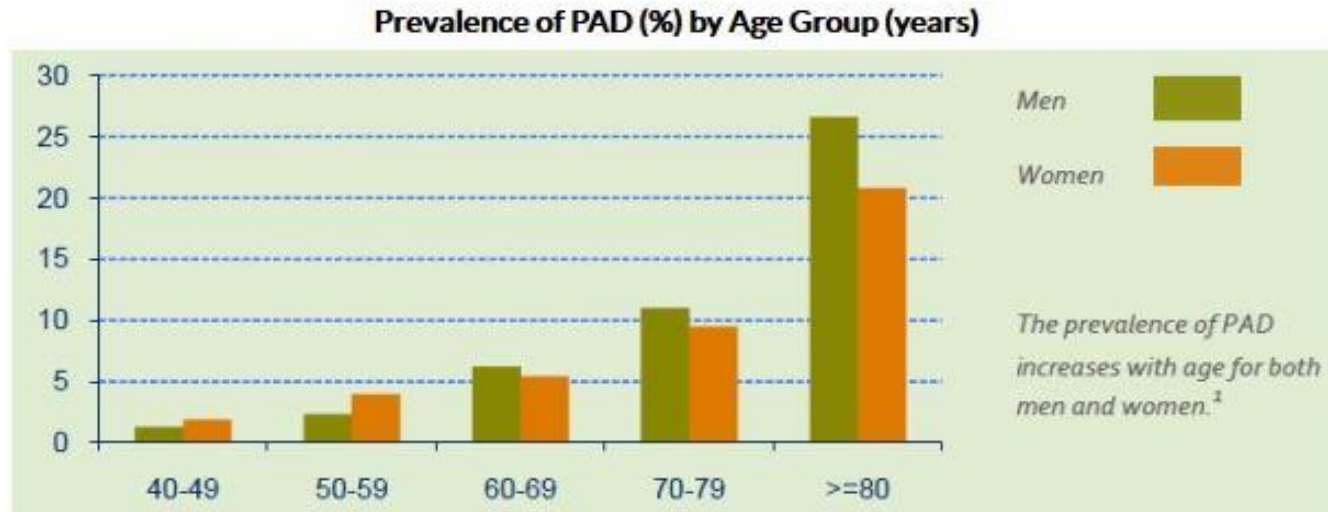
Empowerment Objectives

Adherence through Partnership:

- Observation
 - Needs & values
 - Barriers
 - Depression
- Sensitivity
 - See from their perspective
- Common language
 - Risk factors
 - Pain assessment
- Relinquish control
 - Commit
 - Trust partnership



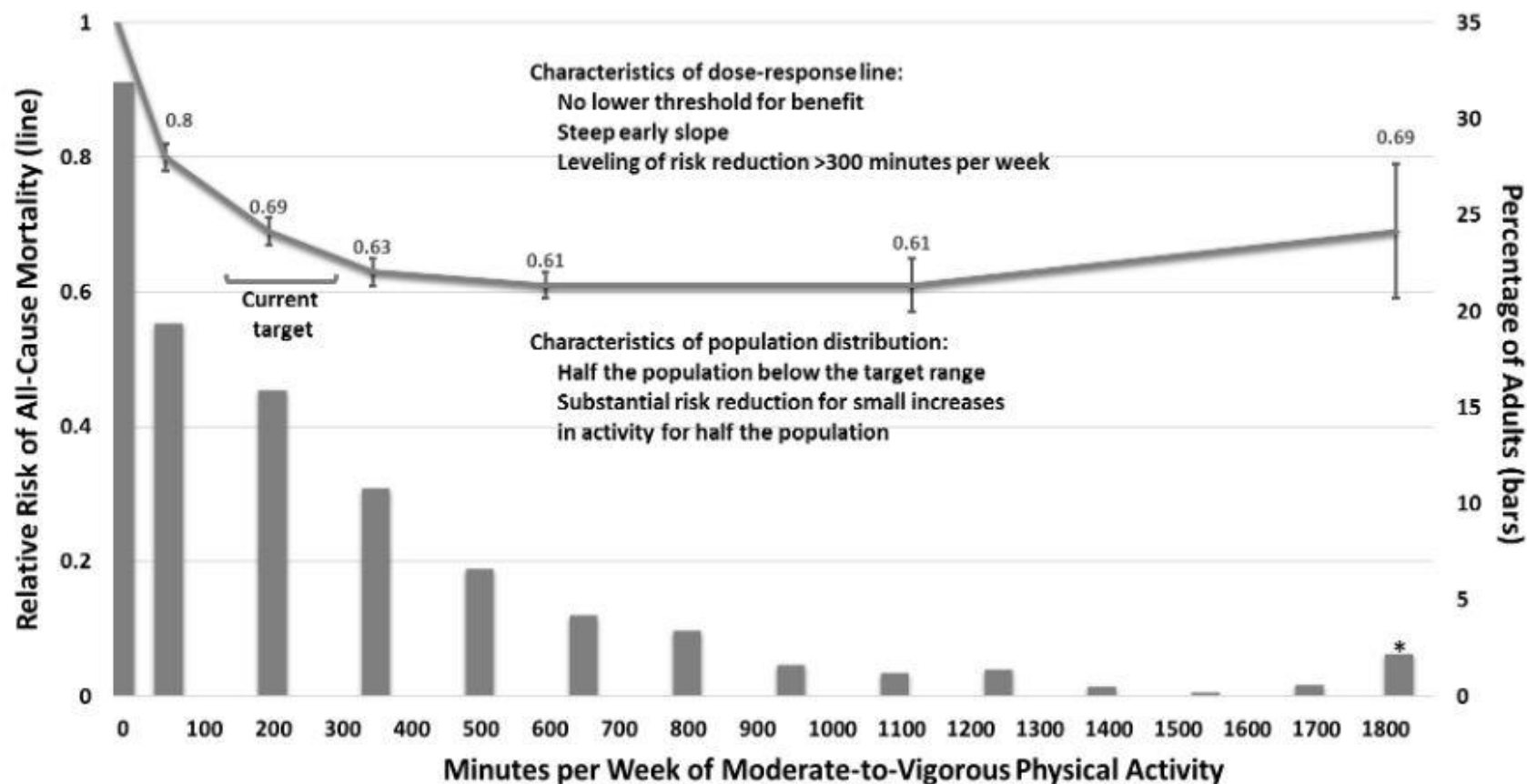
CDC Overview of Peripheral Artery Disease



- 8.5 Million in the US
 - Classic Symptoms
 - Pain
 - Ache
 - Cramp
 - Buttock/Hip/Thigh/Calf
 - Other Symptoms
 - Muscle atrophy
 - Hair loss
 - Smooth shiny skin
 - Diminished pulses
 - Non-healing wounds
- Up to 40% deny pain

Effect of Exercise on Mortality

Figure D-1. Risk of All-Cause Mortality and Self-Reported Physical Activity, by Minutes of Moderate-to-Vigorous Physical Activity per Week



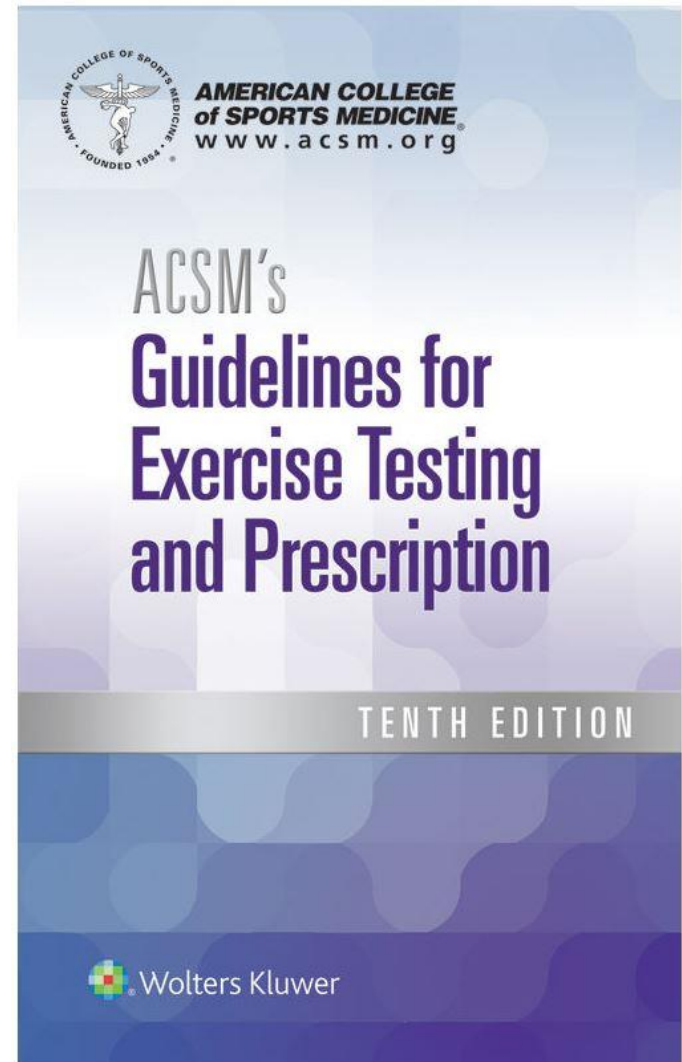
Note: *Includes all adults reporting greater than 1800 minutes per week of moderate-to-vigorous physical activity.

Source: Adapted from data found in Arem et al., 2015² and National Center for Health Statistics, 2015.³

How do I convince my partner to Dance?

Models for Understanding Physical Activity Behaviors:

- Social Cognitive Theory
- Trans theoretical Model
- Health Belief Model
- Decreasing Barriers

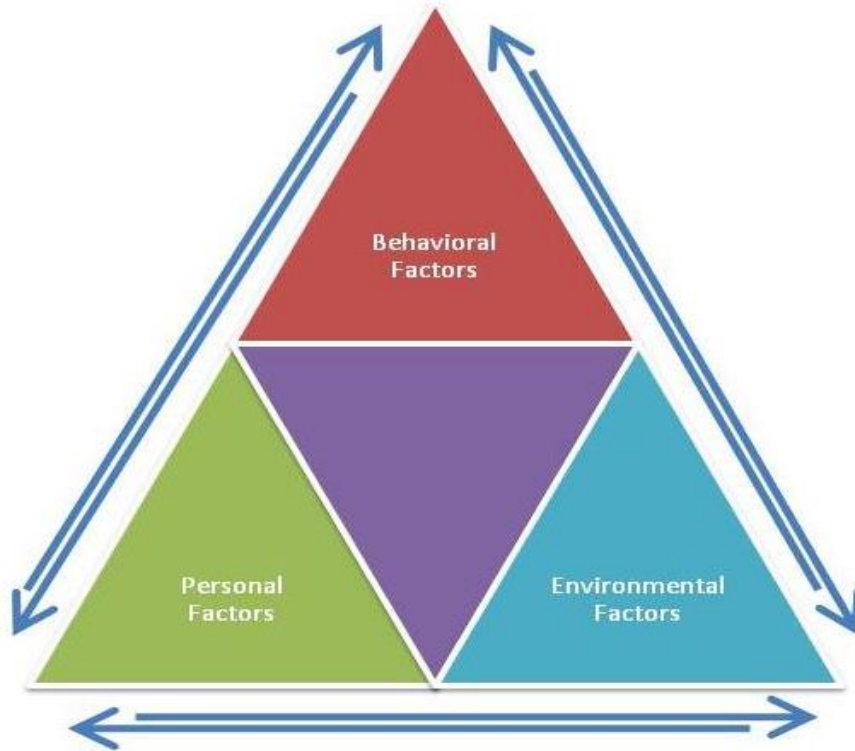


Self Efficacy



“Self-efficacy is an individual's belief in his or her innate ability to achieve goals.”

Social Cognitive Theory (SCT)

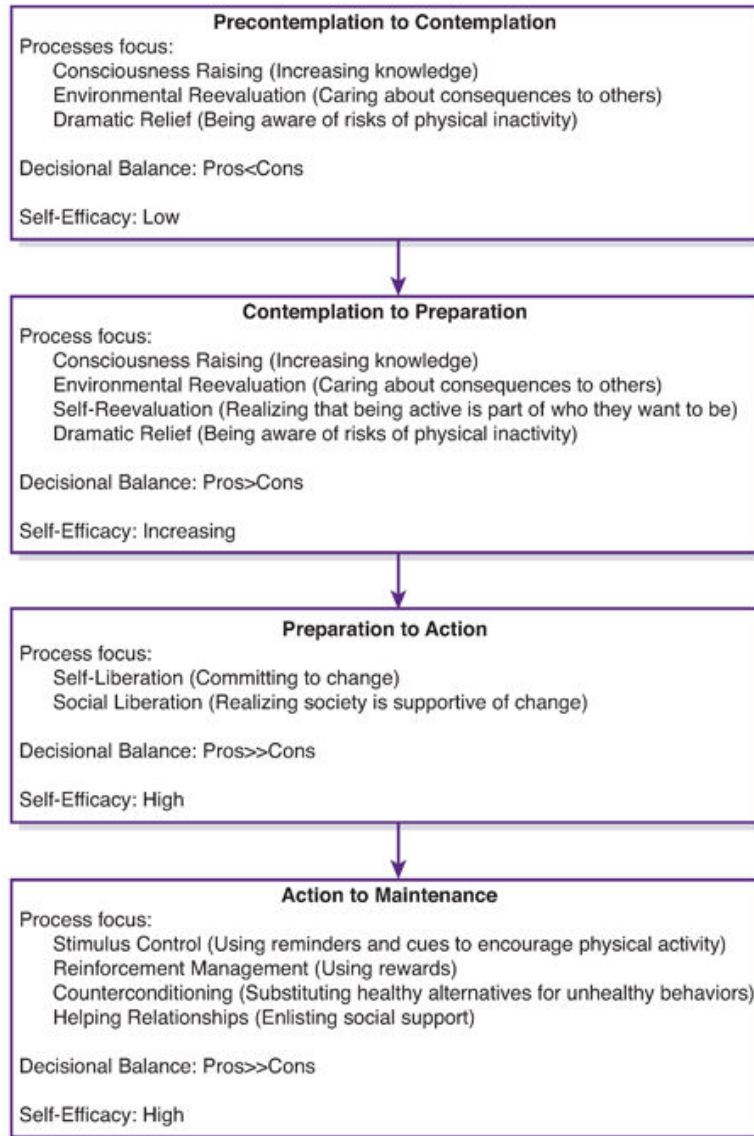


Self Efficacy

- Types
 - Task
 - Barrier
- Higher Self Efficacy
 - Increased
 - Effort
 - Persistence
 - Resilience
- Self regulation
 - Goal setting
 - Self monitoring
 - Self reward

Wood, & Bandura. (1989). Self-Efficacy & Social Cognitive Theories [Digital image]. Retrieved October 16, 2018, from <https://wikispaces.psu.edu/display/PSYCH484/7>.
Self-Efficacy and Social Cognitive Theories

Trans theoretical Model (TTM)



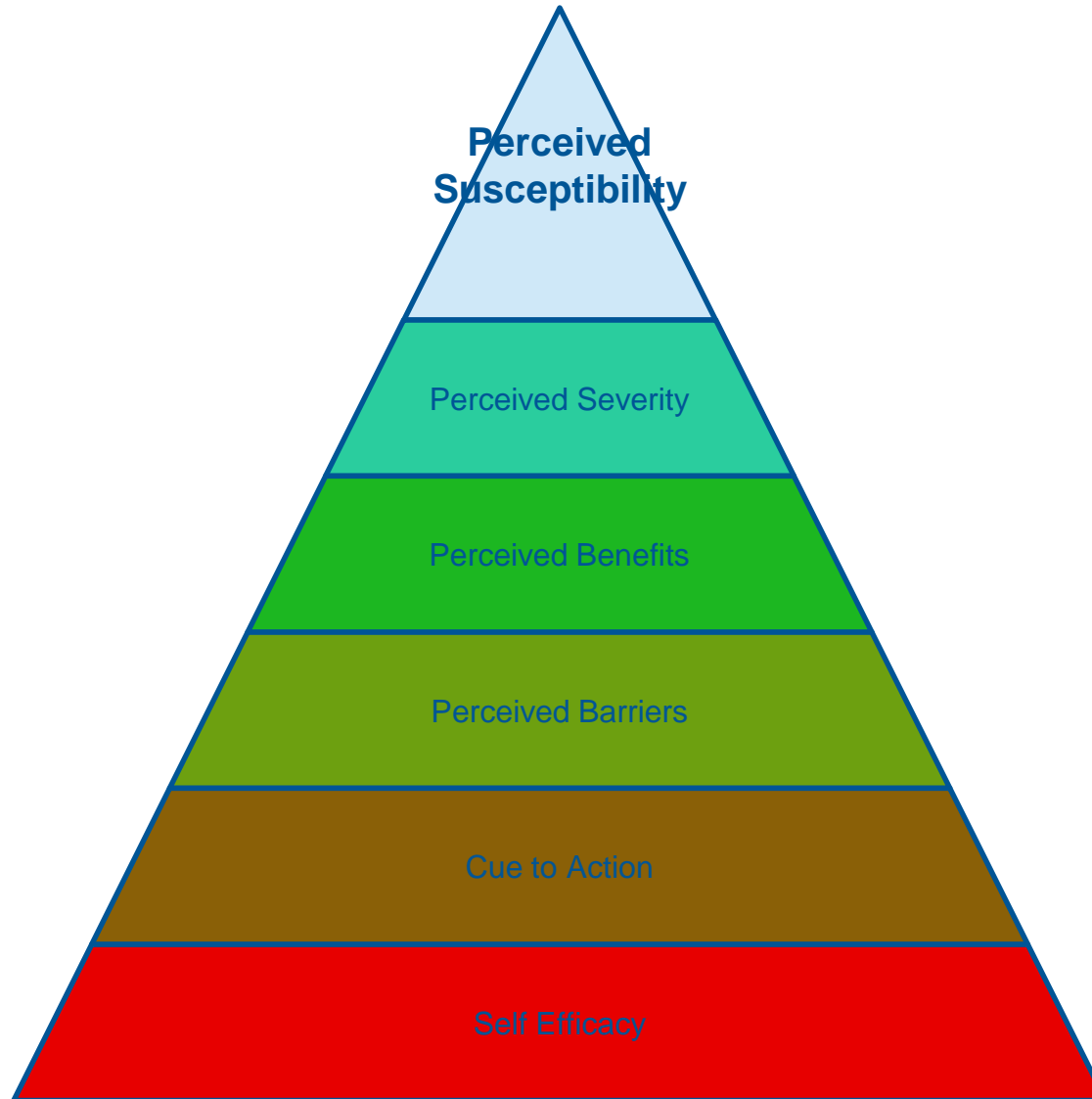
Self Efficacy

Low

Moderate

High

Health Belief Model (HBM)



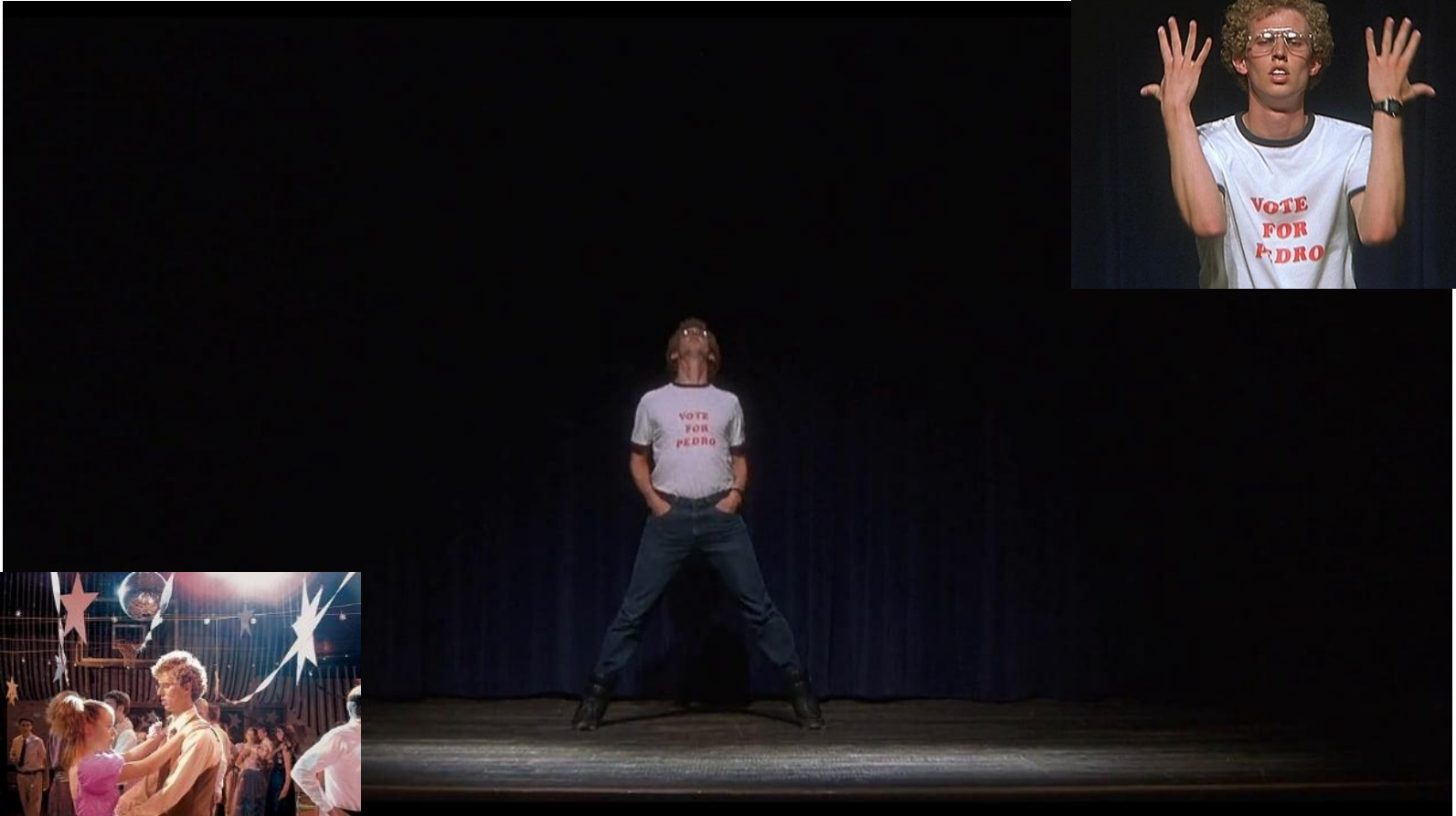
Decreasing Barriers to Physical Activity

TABLE 12.3

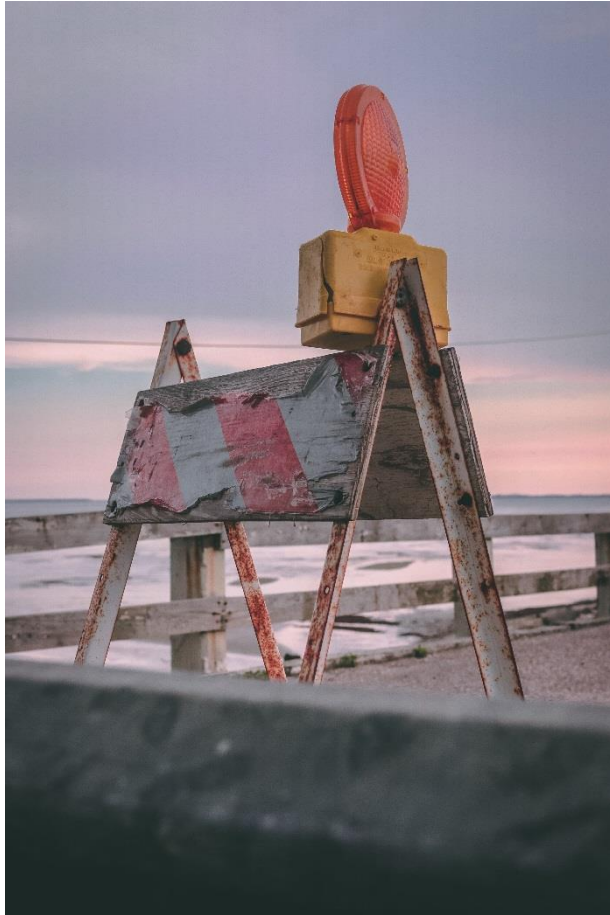
Most Common Exercise Barriers (16), Relevant Theories, and Potential Strategies

Common Problem	Percentage of Endorsing Barrier	Applicable Theories	Example Strategies
"I don't have enough time."	69%	SCT, TPB, SET	<ul style="list-style-type: none"> ■ Discuss modifications to FITT principles ■ Examine priorities/goals ■ Brief counseling/motivational interviewing
"I don't have enough energy."	59%	SCT, HBM, SET, TPB	<ul style="list-style-type: none"> ■ Discuss modifications to FITT principles ■ Brief counseling/motivational interviewing ■ Discuss affect regulation techniques for setting exercise intensity
"I'm just not motivated."	52%	SCT, HBM, TPB, TTM, SET, SDT	<ul style="list-style-type: none"> ■ Discuss attitudes and outcome expectations ■ Determine stage of change and provide stage-tailored counseling ■ Examine perceived susceptibility and severity ■ Discuss potentially effective reinforcements
"It costs too much."	37%	HBM, TTM, SET	<ul style="list-style-type: none"> ■ Examine exercise alternatives to meet goals ■ Evaluate exercise opportunities in the environment
"I'm sick or hurt."	36%	TTM	<ul style="list-style-type: none"> ■ Discuss maintenance/relapse prevention ■ Discuss alternative exercises to keep progressing toward goals

Self Efficacy *Personified*



Help patients plan for success!



Common Barriers for the Patient with PAD

Psycho-emotional effects of Pain

Fear

- Producing pain
- Worsening pain
- Future degradation
- Financial implications
 - Short term
 - Long term



Psycho-emotional effects of Pain

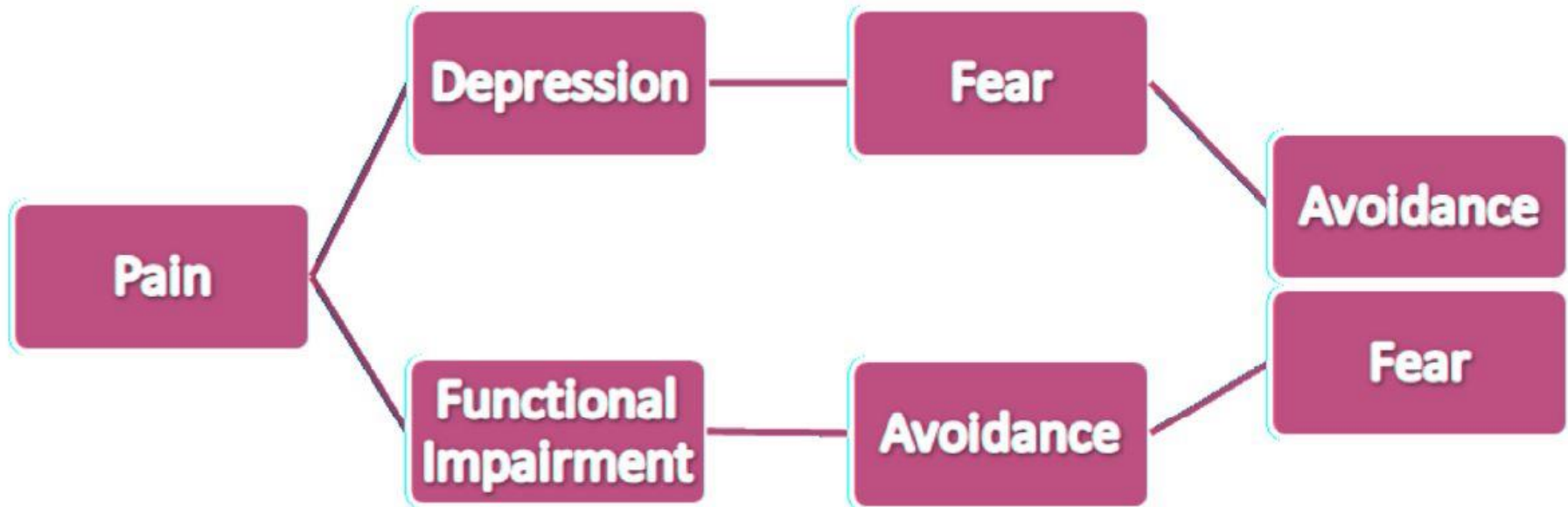


Avoidance of Physical Activity

- Natural aversion
- Further debilitation
 - Decreased strength & endurance
 - Loss of independence
 - Burdening others

Progression from Pain to Fear-Avoidance

Emotional Contributions



Physical Contributions

Figure.

Schematic representation of the general progression from pain to fear-avoidance

Wood, et al (2012), & Sharath et al (2017)

Psycho-emotional effects of Chronic Disease

Guilt

- Did this “to themselves”
- “Earned this”
 - As a result of
 - Lifestyle choices
 - Smoking
 - Untreated HTN
 - Obesity
 - Sedentary lifestyle



Psycho-emotional effects of Chronic Disease

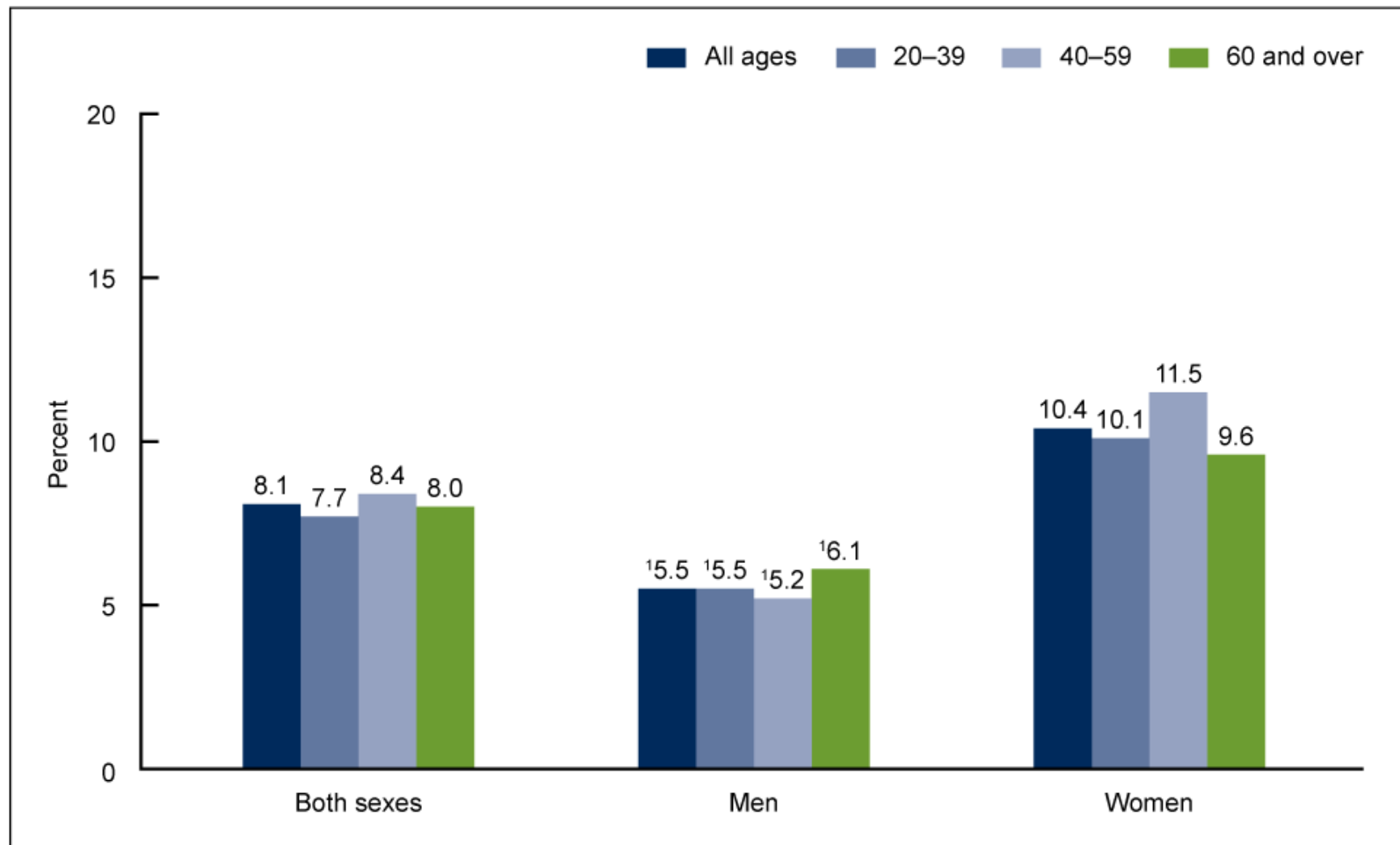
Hopelessness Depression

- Too Late
- Can't improve S&S
- Emotional fatigue
 - Chronic long term burden



Percentage of Adults with Depression in US

Figure 1. Percentage of persons aged 20 and over with depression, by age and sex: United States, 2013–2016



¹Significantly different from females in same age group.

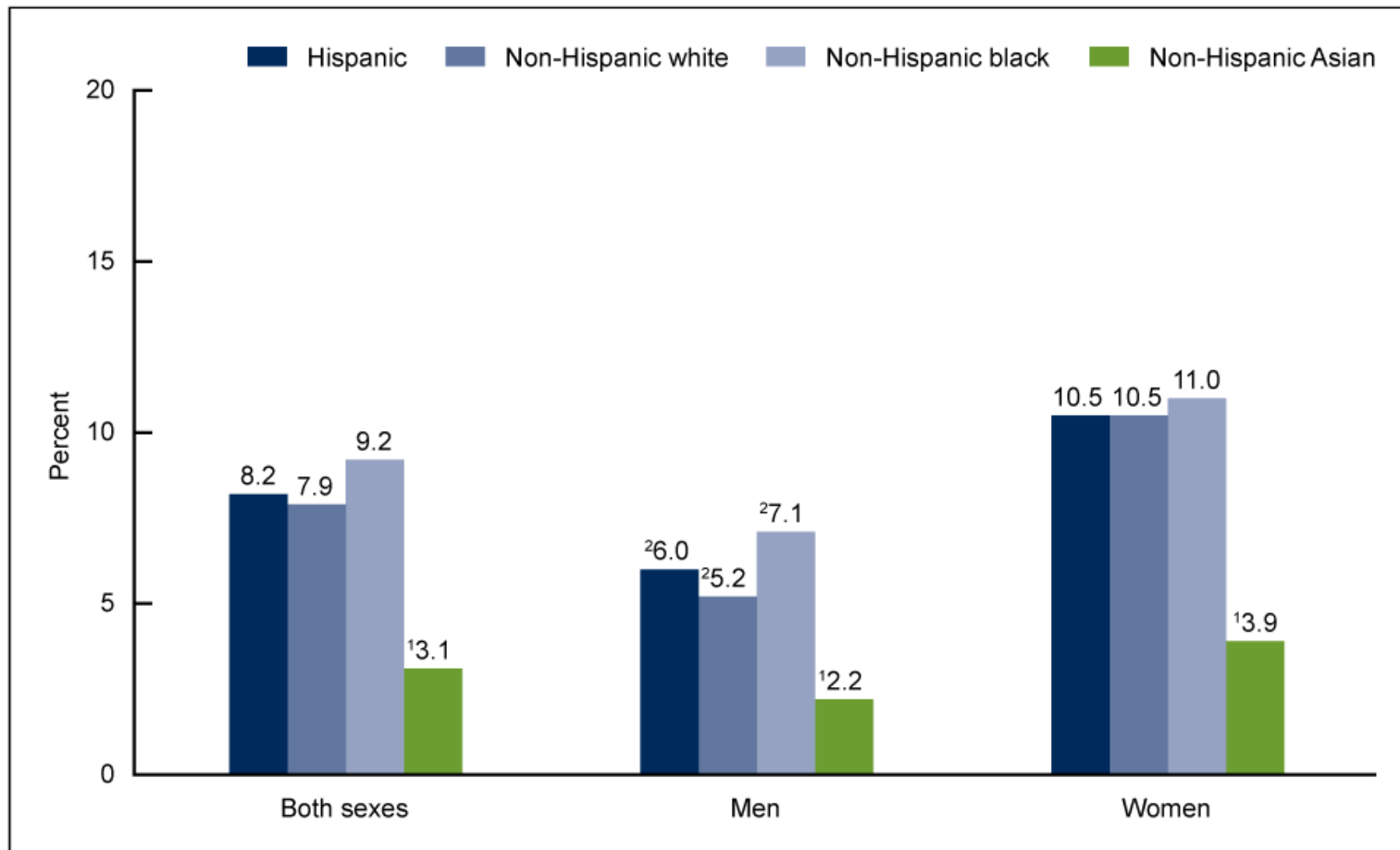
NOTES: Depression was defined as a score greater than or equal to 10 on the Patient Health Questionnaire. Access data table for Figure 1 at:

https://www.cdc.gov/nchs/data/databriefs/db303_table.pdf#1.

SOURCE: NCHS, National Health and Nutrition Examination Survey, 2013–2016.

Adults with Depression by Race in the US

Figure 2. Percentage of persons aged 20 and over with depression, by race and Hispanic origin and sex: United States, 2013–2016



¹Significantly lower than Hispanic, non-Hispanic white, and non-Hispanic black.

²Significantly lower than women of the same race and Hispanic-origin group.

NOTES: Depression was defined as a score greater than or equal to 10 on the Patient Health Questionnaire. Access data table for Figure 2 at: https://www.cdc.gov/nchs/data/databriefs/db303_table.pdf#2.

SOURCE: NCHS, National Health and Nutrition Examination Survey, 2013–2016.

Increased Burden of Depression with PAD

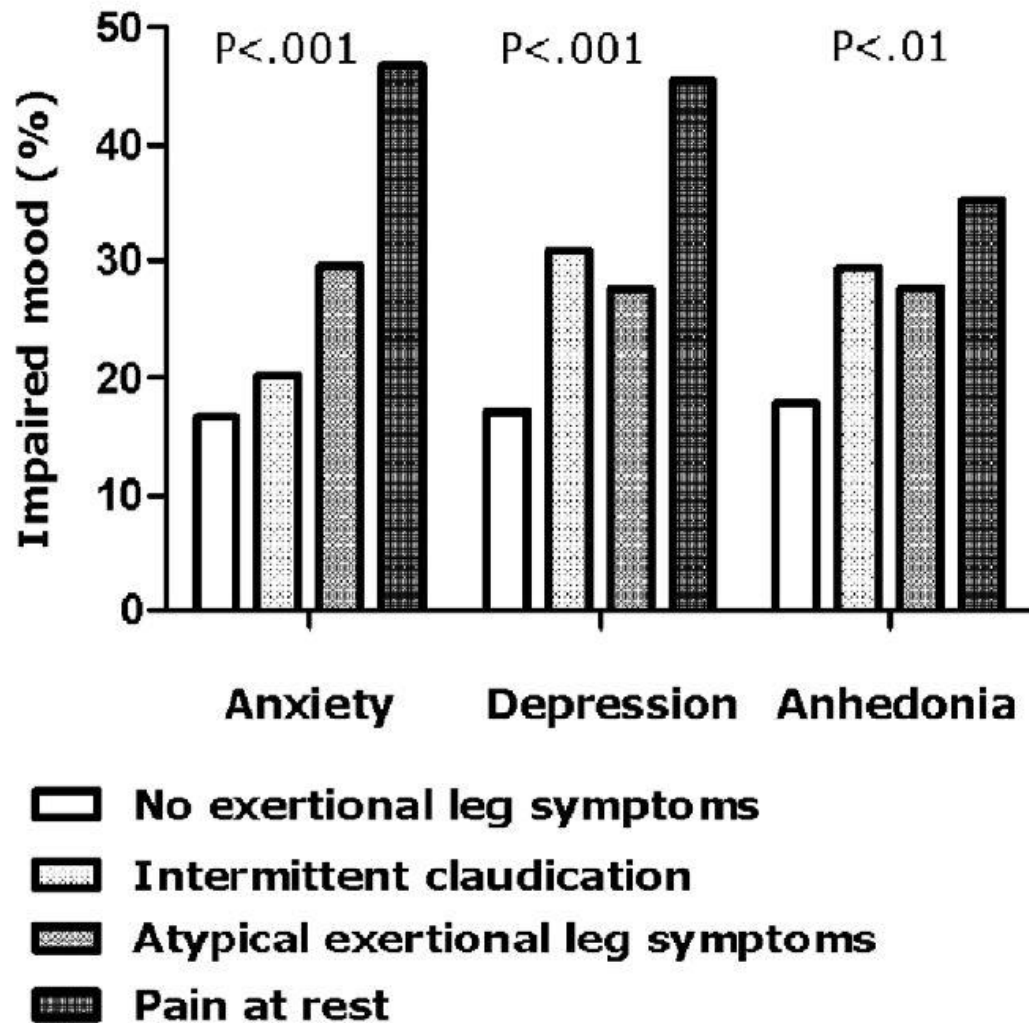


Figure 1 Prevalence (%) of impaired mood (anxiety, depressive symptoms, and anhedonia) stratified by leg symptom categories.

Smolderen, K. G., Hoeks, S. E., Pedersen, S. S., Domburg, R. T., Liefde, I. I., & Poldermans, D. (2009). Lower-leg symptoms in peripheral arterial disease are associated with anxiety, depression, and anhedonia. *Vascular Medicine*, 14(4), 297-304.

Signs & Symptoms of Depression

- **Mood**

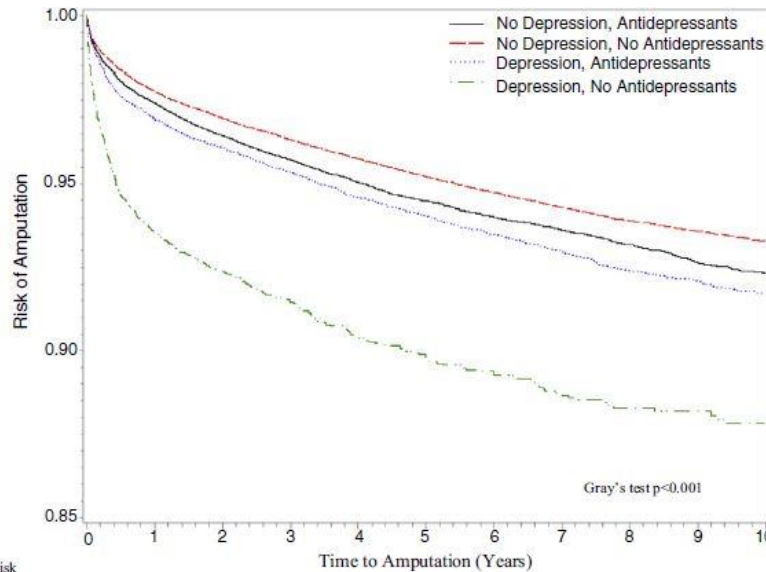
- Anxiety
- Apathy
- Discontent
- Guilt
- Hopelessness
- Loss of interest or pleasure
- Mood swings
- Sadness

- **Other S&S**

- Agitation
- Excessive sleepiness
- Restless sleep
- Insomnia
- Irritability
- Excessive hunger
- Social isolation
- Lack of concentration
- Repetitive thoughts

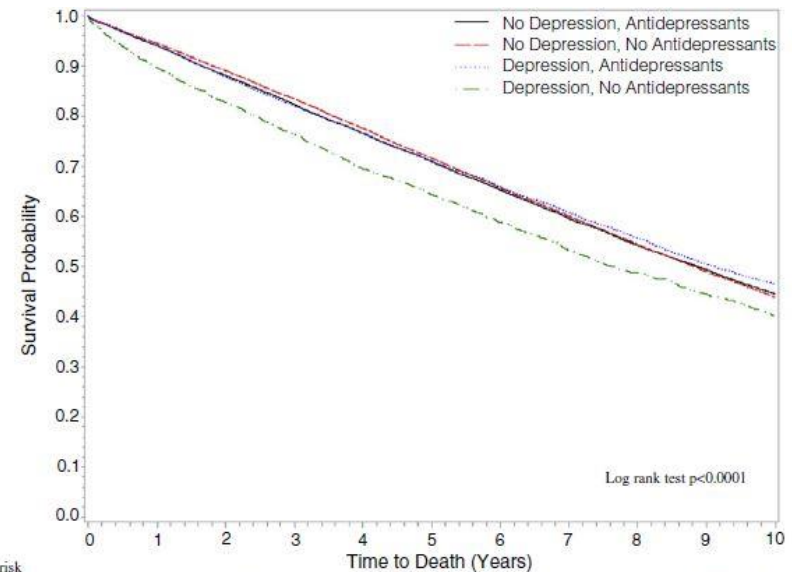
Depression Related to Poor Outcomes

Depression & Risk of Amputation



N at risk		0	1	2	3	4	5	6	7	8	9	10
No Dep., No AD	No Dep., No AD	95,534	88,516	78,749	67,797	57,319	47,182	37,878	29,576	22,520	16,604	11,408
	No Dep., AD	35,218	32,338	28,652	24,698	21,097	17,538	14,161	10,996	8,259	5,998	4,073
	Dep., AD	21,090	19,282	16,831	14,258	11,869	9,622	7,567	5,775	4,198	3,007	2,054
	Dep., No AD	3,805	3,219	2,663	2,148	1,687	1,323	1,004	729	508	362	221

Depression & Survival Probability



N at risk		0	1	2	3	4	5	6	7	8	9	10
No Dep., No AD	No Dep., No AD	95,534	90,222	80,612	69,558	58,931	48,609	39,046	30,530	23,276	17,141	11,763
	No Dep., AD	35,218	33,094	29,489	24,541	21,894	18,243	14,754	11,463	8,620	6,276	4,244
	Dep., AD	21,090	19,282	16,831	14,258	11,869	9,622	7,567	5,775	4,198	3,007	2,054
	Dep., No AD	3,805	3,219	2,663	2,148	1,687	1,323	1,004	729	508	362	221

Arya S, Lee S, Zahner GJ, Cohen BE, Hiramoto J, Wolkowitz OM, Khakharia A, Binney ZO, Grenon SM.
[The association of comorbid depression with mortality and amputation in veterans with peripheral artery disease.](#)
 J Vasc Surg. 2018 Aug;68(2):536-545.e2. doi: 10.1016/j.jvs.2017.10.092. Epub 2018 Mar 24.

Depression as a Pivotal factor in Adherence

Depression & PAD

- Complex origins
 - Deep “roots”
- Risk with PAD diagnosis
 - 2-4X greater
- Poor Outcomes
 - Increased
 - Morbidity
 - Mortality
 - Decreased
 - QOL



Physiological Aspects to Consider

Even WITHOUT S&S:

- Decreased
 - Calf muscle area
 - Functional performance
 - QOL
- Increased
 - Calf muscle fat
- Changes in
 - Hemodynamics
 - Muscle structure
- Progressive denervation
- Deconditioning
 - DOE
 - Fatigue
 - Weakness
 - May deny “pain”
 - Difficulty with
 - ADL’s
 - IADL’s
 - Fear
 - Decreases
 - Self worth
 - Self efficacy

Need a Common Language

- **Patient Description of PAD Pain**

- Cramping
- Aching
- Burning
- Heaviness
- Fatigue
- Loss of “power”

- Feels like legs will:

- “Give way”
- “Give out”

*Common Language
needed*

- Communication
- Trust in partnership

Need a Common Language



Lack of Knowledge:

- **Dance Steps**

- Disease process
 - Ignorance
 - Fear
 - Anxiety
- Risk Factors
 - Modifiable
 - Controllable

Behavioral Aspects to Consider

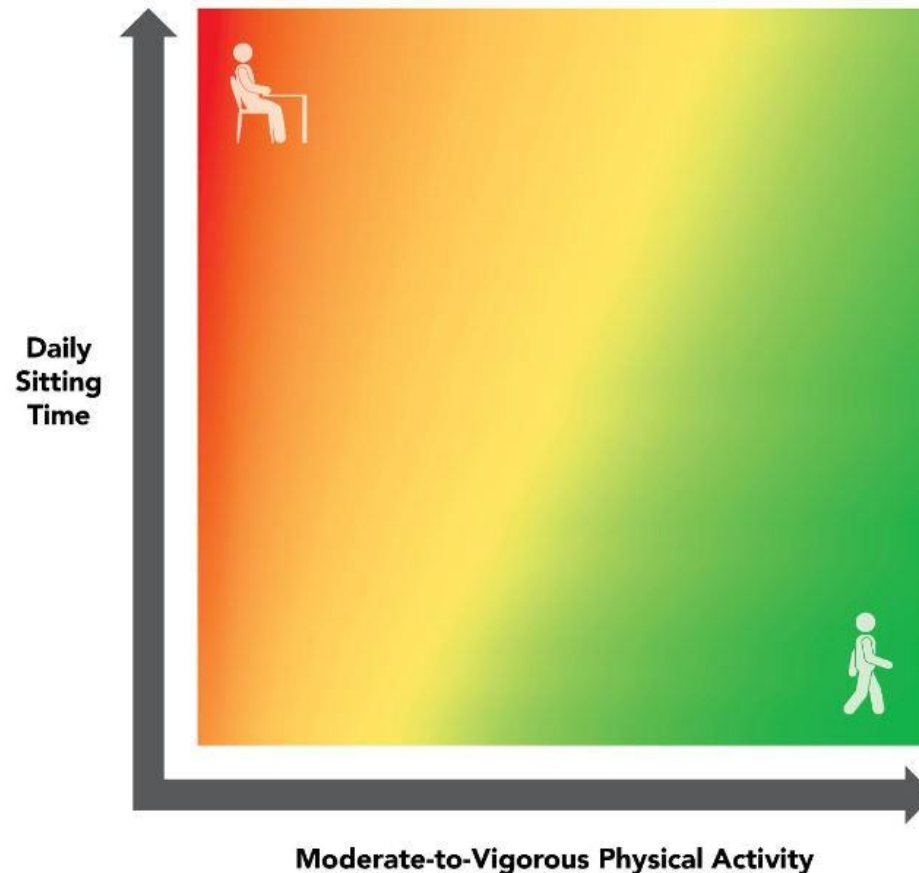
- Poor Stress Management & Coping Skills
 - Alcohol or substance abuse
 - Poor sleep habits
 - Overeating
 - Tobacco abuse
- Complex health history
 - DM
 - HLD
 - HTN
 - Obesity
- Increased health care burden
 - Financial cost to the Patient/System





Relationship: Sitting vs. Physical Activity

Figure D-2. Relationship Among Moderate-to-Vigorous Physical Activity, Sitting Time, and Risk of All-Cause Mortality



Risk of all-cause mortality decreases as one moves from red to green.

Source: Adapted from data found in Ekelund et al., 2016.⁴

Supervised Exercise Training (SET)

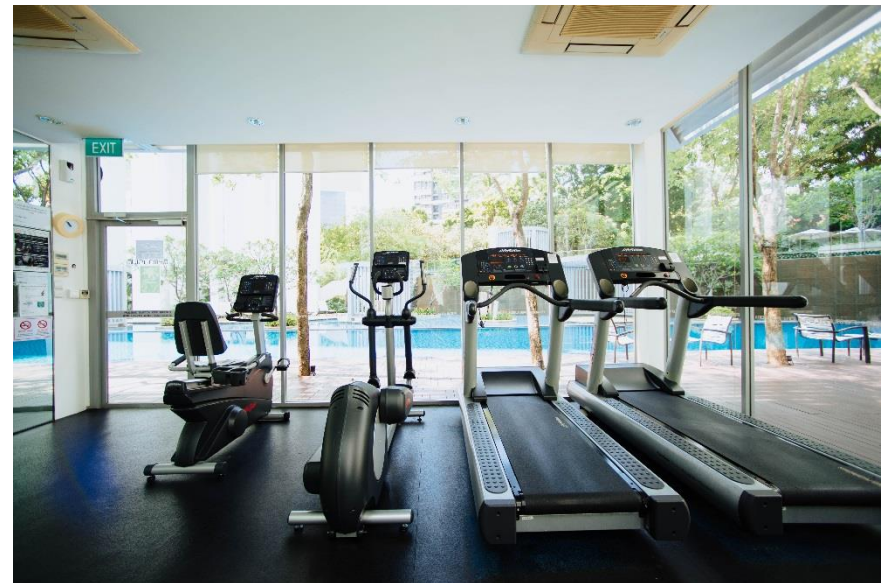
Consists of:

- Exercise
 - Individualized
 - Monitored
 - 12 weeks
 - Up to 36 sessions
 - 3X/week
 - 1.0 to 1.5 hrs/session
- Education
 - Common Language
 - “Dance Steps”
 - Disease process
 - Risk factors
 - Smoking cessation
 - Nutrition
 - Stress Management

Supervised Exercise Training (SET)

Treatment Goals:

- Reduce Symptoms
- Improve Function
 - ADL's
 - IADL's
- Improve QOL
- Screen for Depression
- Reduce hospitalization
 - RF Reduction



Supervised Exercise Training (SET)

Common Language

Benefits of Exercise:

- Improve
 - Muscle structure
 - Fiber diameter
 - Muscle function
 - Mitochondrial density
 - Capillary density
 - Blood sugars
 - Cholesterol
 - HDL
 - Triglycerides
- Improve
 - Mood
 - Inflammation
 - Sleep better
 - Weight control
 - Stress Management
 - Smoking cessation

Good News!

Walking NOT required!

Cycling associated with Improvement in:

- Muscle structure
- Muscle function
- Independent of location used

AACVPR reports cycling has been associated with improvements in:

- Walking distance
- Onset of symptoms



Supervised Exercise Training (SET)

Common Language

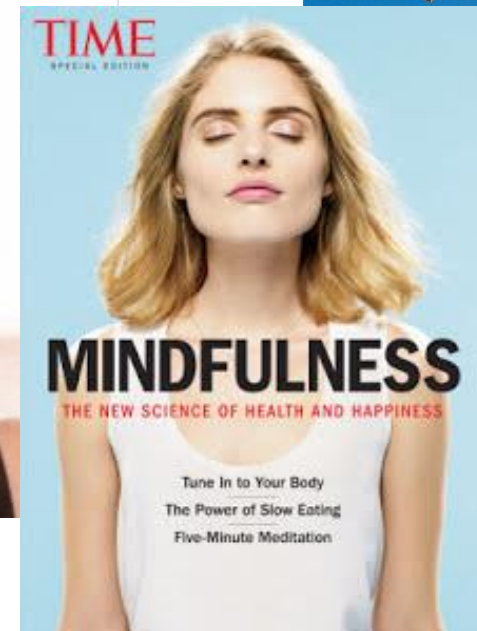
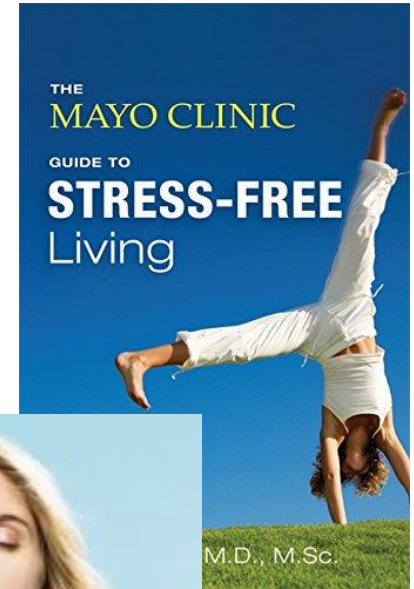
Risk Factor Management:

- Heart Disease
- Diabetes
- Cancer
- Hypertension
- Obesity
- Depression



Common Language helpful

Common Language: Stress Management



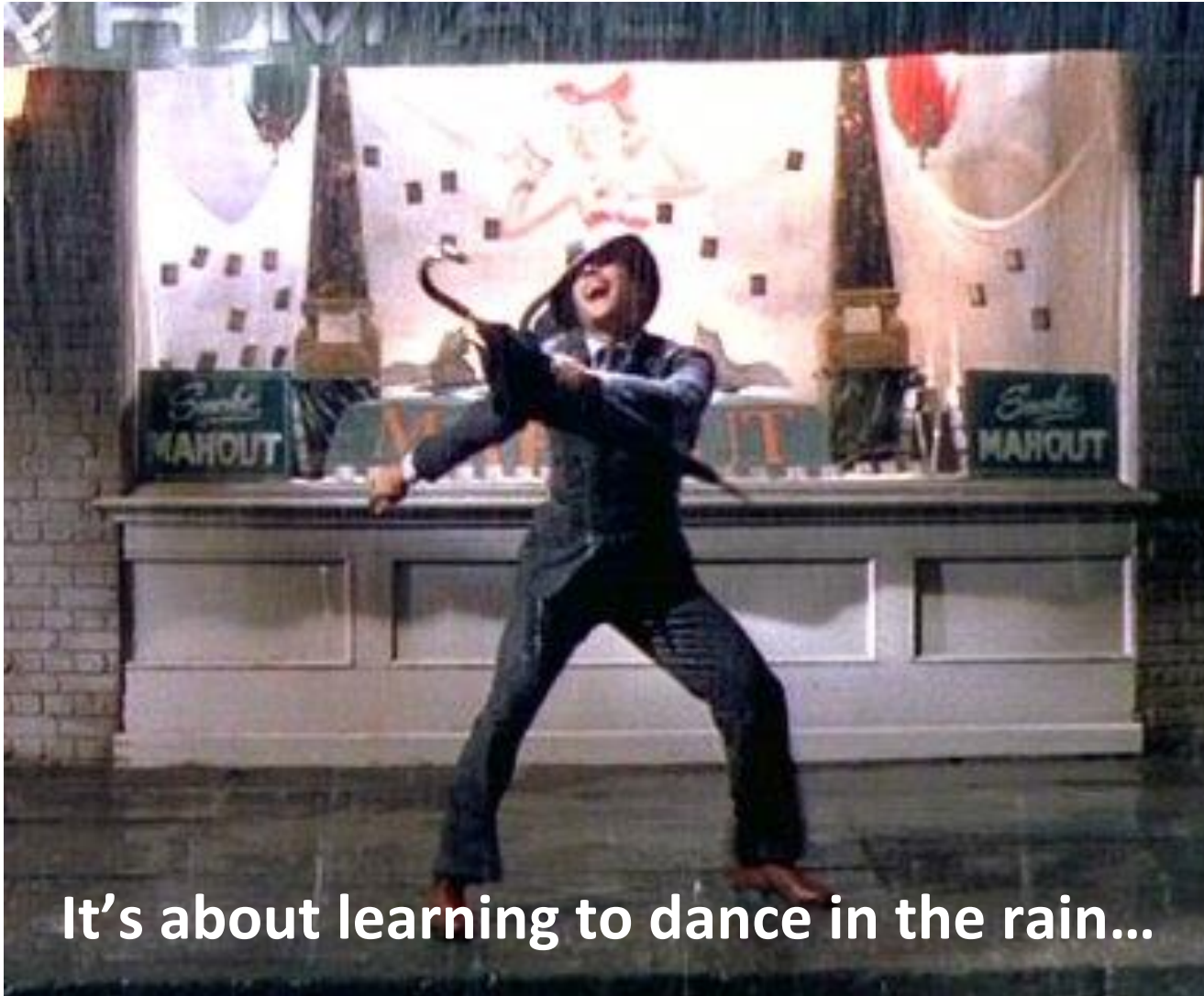
Common Language: *Stress Management*

Sood, D. (2015, January 12). Retrieved October 26, 2018, from <https://www.youtube.com/watch?v=GZZ0zpUQhBQ>

Our PAD Partners



Life isn't about waiting for the storm to pass...



It's about learning to dance in the rain...

Empowering the PAD Patient

- Partner WITH Them to
 - Improve Overall Adherence:

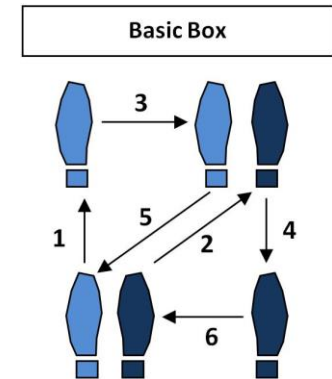
- Self Efficacy



- Screening for Depression

- Common Language (Risk Factors/Pain)

- Stress Management



References for Empowering the Vascular Pt

- See individual slides
- Additional references available upon request at:
- KNSmith@vidanthealth.com

Empowerment:



Step back and watch them Boogie!