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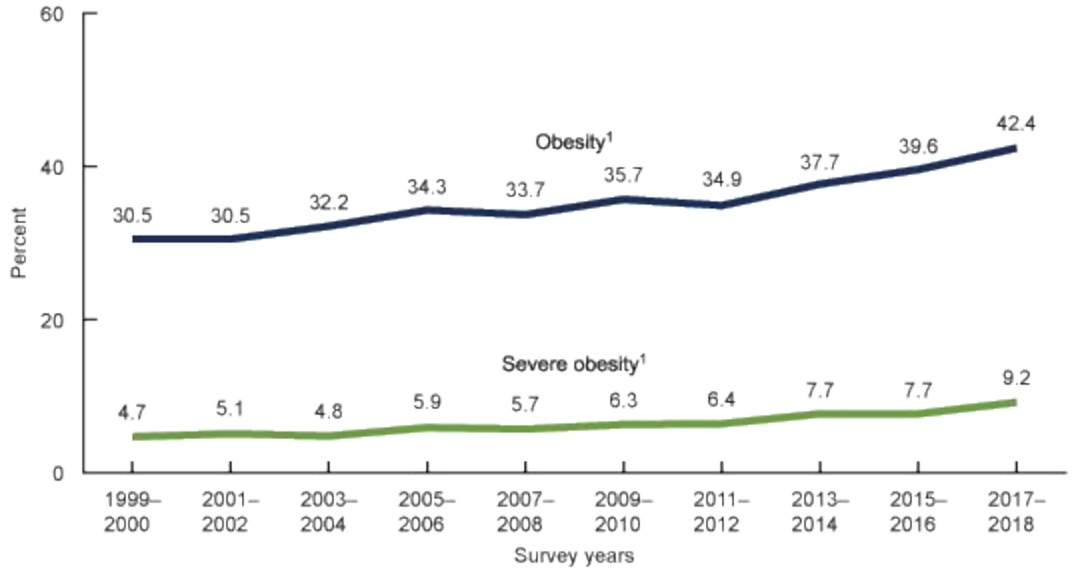
Lifestyle Medicine and Physical Therapy

David M. Morris, PT, PhD. FAPTA

US Health Statistics: Physical Activity and Smoking

- ✔ Only 21% of US adults meet the recommended level of physical activity. (CDC, 2017)
- ✔ 15.1% of adult population still smoke. (CDC, 2015)
- ✔ 30.5% of persons with disabilities smoke. (Rimmer and Rowland, 2008)
- ✔ Smoking - leading cause of preventable death
- ✔ More than 1/3 (36.5 %) of US adults are obese

US Health Statistics: Obesity Rates (CDC)



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Knowledge that will change your world

US Health Statistics: Sleep and Stress

- 40 million Americans suffer from chronic, long term sleep disorders
- Another 20 million experience occasional sleep problems
- 40% of women and 30% of men will experience sleep problems
- 75% of adults reported moderate to high levels of stress in the past month
- Nearly half reported that their stress has increased in the past year

US Health Statistics: Nutrition

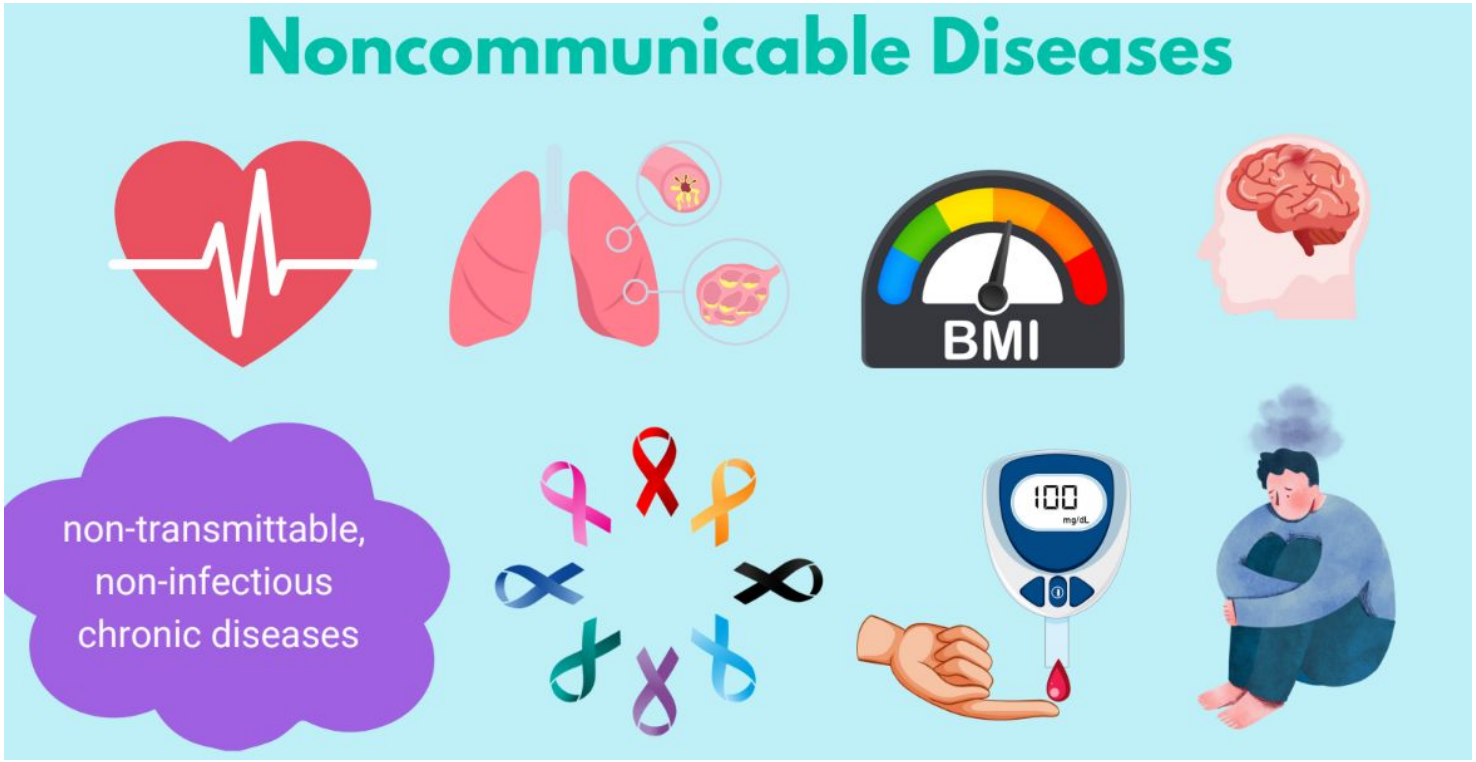
- Less than 1/3 eat the recommended 5 or more servings of fruits and vegetables/day
- Under-consume
  - Vitamin D, Calcium, Vitamin E, Vitamin K, Potassium, Fiber
- Over-consume
  - Folate, Sodium, Fat

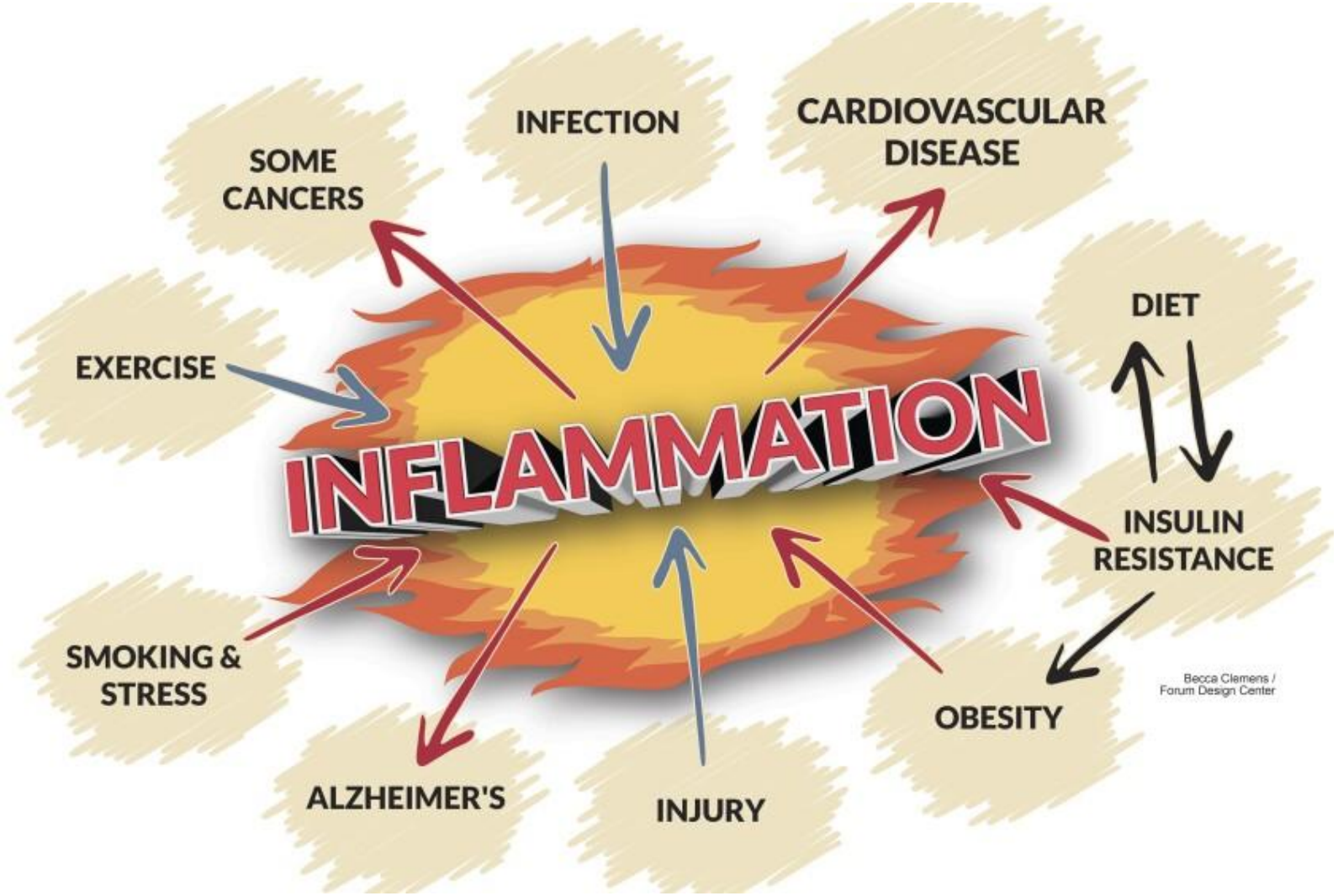
Questions???

- Obesity
- Poor nutrition
- Smoking
- Inactivity
- Poor sleep health
- High levels of stress

- **What drives poor health lifestyles?**

What do these Problems have in common?




INFECTION
CARDIOVASCULAR DISEASE
SOME CANCERS
DIET
EXERCISE
INFLAMMATION
INSULIN RESISTANCE
SMOKING & STRESS
OBESITY
ALZHEIMER'S
INJURY
Becca Clemens / Forum Design Center

Promotes Inflammation

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Knowledge that will change your world

Question???

Why do PT and PTAs need to be concerned with health lifestyles?

APTA Vision

"Transforming society by optimizing movement to improve the human experience."

Health Promotion and Wellness and Physical Therapy: Historical Perspective

- Various activities in APTA HOD
- APTA Strategic Plan
- Work by Elizabeth Dean, PT, PhD and Janet Bezner, PT, PhD, FAPTA
- APTA Task Force on PTs Role in HPW and Prevention
- APTA Council on Prevention, Health Promotion, and Wellness in Physical Therapy
- UAB Model of Health Focused Physical Therapy

Physical Therapists Role in Prevention, Wellness, Fitness, Health Promotion, and Management of Disease and Disability (HOD PO6-16-06-05)

- PT Uniquely qualified to serve in this role in the following ways:
  - Prevention, wellness, fitness and health promotion
  - Disease and disability management
  - Dynamic link between health and health care

Physical Therapists Role in Prevention, Wellness, Fitness, Health Promotion, and Management of Disease and Disability (HOD PO6-16-06-05)

- Roles includes
  - Education
  - Direct interventions
  - Research
  - Advocacy
  - Collaborative consultation
- Essential to APTA's Vision

Optimizing movement to improve the human experience

Health Priorities for Populations and Individuals (HOD P06-15-20-11)

- **Active Living**
  - Aging populations
  - Individuals and populations with health disparities
  - Individuals and populations with disabilities
- **Injury Prevention**
  - Falls prevention
  - Workplace injury prevention
  - Community-based injury prevention

Health Priorities for Populations and Individuals (HOD P06-15-20-11)

- **Educational, patient advocacy and referral opportunities**
  - Stress management
  - Smoking cessation
  - Sleep health
  - Nutrition optimization
  - Weight management
  - Alcohol moderation/substance free living
  - Violence free living
  - Adherence to health recommendations

Evidence of Health Promotion in Physical Therapy (cont.)

- **RC 28-07 Annual Visit With a Physical Therapist**

The APTA recommends that all adults visit a physical therapist at least annually to promote optimal health, wellness, and fitness as well as to slow the progression of impairments, functional limitations, and disabilities.

American Physical Therapy Association

- Website section: *Prevention, Wellness and Disease Management* - under Practice & Patient Care tab on home page at www.apta.org
- PT Learning Center
- **APTA Council on Prevention, Health Promotion, and Wellness in Physical Therapy**
  - Officially launched – January 1, 2018
  - HUB established in APTA Communities

Do physical therapists practice health promotion?

- As we review, ask yourself…**Do physical therapists *currently* practice health promotion and wellness consistently?**
- If yes…in what ways?
- If no…why not?

Review of the Literature…

- Do PTs Promote HPW in Clinical Practice?
  - ✔ Rea et al., 2004
  - ✔ Goodgold et al., 2005
  - ✔ Shirley et al., 2010
  - ✔ Bodner et al., 2011
  - ✔ Healey et al., 2012
- Is HPW Taught in Entry-Level PT Educational Programs?
  - ✔ Bodner et al., 2013
- What do Patients/Clients Think?
  - ✔ Black et al., 2016

Dean, 2009

- PT in the 21st Century
- Health-focused PT to influence the "crisis of lifestyle conditions."
- PTs competencies should include:
  - Smoking cessation
  - Nutrition optimization counseling
  - Substance abuse
  - Recommendations for physical activity/exercise
  - Stress management
  - Sleep hygiene and optimization

Dean, 2009

Table 1. Modifiable risk factors of the lifestyle conditions (modified from Bradberry, 2004; Charkoudian and Joyner, 2004; Heart and Stroke Foundation of Canada, 2003).

	Condition					
Risk factor	Cardiovascular disease	Cancer	Obstructive lung disease	Stroke	Diabetes	Osteoporosis
Smoking	X	X (↑ risk of all-cause cancer*)	X	X	X	X
Physical inactivity	X	X		X	X	X
Obesity	X	X	X	X	X	
Nutrition	X	X		X	X	X
High BP	X			X	X	
Dietary Fat**/ Blood Lipids	X	X		X	X	
Elevated glucose levels	X	X		X	X	
Alcohol***	X	X		?	X	X

*Smoking is not only related to cancer of the nose, mouth, airways, and lungs, but smoking increases the risk of all-cause cancer.
**Partially saturated, saturated, and trans-fats are the most injurious to health.
***Alcohol can be protective in moderate quantities, red wine in particular.

Dean, 2009

Physical therapists are well-positioned to provide health promotion services because of their:

- educational background in pathology and pathophysiology in relation to anatomy and exercise,
- expert knowledge, skills, and behaviors in exercise, fitness and wellness,
- opportunities for frequent and relatively lengthy contact with patients/clients, and
- their often close and trusting relationship with their patients/clients.

Proposed Minimum Health Competencies for Physical Therapist Practice and Inclusion in Curriculum of Entry-to-Practice Professional Educationa.

Table.
Proposed Minimum Health Competencies for Physical Therapist Practice and Inclusion in Curriculum of Entry-to-Practice Professional Education[a]

Lifestyle Health Behavior	Goals	Examinations/Assessments	Interventions/Behavioral Strategies and Approaches
Smoking	Not smoking (smoking cessation)	Smoking history Quit attempts, methods, and outcomes (successes and failures) Readiness to change	If at least at the contemplative stage of behavior change, then 5 A's[b] If at the precontemplative stage of behavior change, then 5 R's[c] Brief advice Potential recommendation or referral to other health professionals Follow-up, re-evaluation, and progression as needed
Nutrition/diet	Healthful diet Weight loss	Brief nutritional assessment determining: Body mass index Waist-to-hip ratio Readiness to change Ongoing supports and success	If at least at the contemplative stage of behavior change, then 5 A's If at the precontemplative stage of behavior change, then 5 R's Brief advice Potential recommendation or referral to other health professionals Follow-up, re-evaluation, and progression as needed
Sitting	Breaking up sitting with 2-min walks hourly	Profiles of daily sitting on weekdays and weekends (hours and minutes) Readiness to change	If at least at the contemplative stage of behavior change, then 5 A's If at the precontemplative stage of behavior change, then 5 R's Advice and intervention Follow-up, re-evaluation, and progression as needed
Activity	Increased regular physical activity throughout the day	Profile of general physical activity Readiness to change	If at least at the contemplative stage of behavior change, then 5 A's If at the precontemplative stage of behavior change, then 5 R's Advice and intervention Follow-up, re-evaluation, and progression as needed
Structured exercise (eg, resistance and aerobic)	Healthy muscle strength Healthy aerobic conditioning	Profile of regular structured exercise regimen (type, intensity, duration, frequency, and time) Readiness to change	If at least at the contemplative stage of behavior change, then 5 A's If at the precontemplative stage of behavior change, then 5 R's Advice and intervention Follow-up, re-evaluation, and progression as needed
Sleep (quality and quantity)	Optimal 7–9 h of mostly uninterrupted night's sleep	Profile of sleep quality and quantity over several successive representative days (eg, not on days off or vacation, no visitors staying)	If at least at the contemplative stage of behavior change, then 5 A's If at the precontemplative stage of behavior change, then 5 R's Potential recommendation or referral to other health professionals Follow-up, re-evaluation, and progression as needed
Anxiety, stress, and depressive symptoms	Manageable anxiety, stress, and depressive symptoms (ie, that do not persistently compromise daily activities and quality of life)	Hospital Anxiety and Depression Scale Psychological Stress Measure	If at least at the contemplative stage of behavior change, then 5 A's If at the precontemplative stage of behavior change, then 5 R's Potential recommendation or referral to other health professionals Follow-up, re-evaluation, and progression as needed

[a] Physical therapists should be competent in the standardized measurement of vital signs (resting heart rate and blood pressure) (2 repeated measures at least 2 minutes apart).
[b] The 5 A's are as follows: ask, advise, assess (readiness to change), assist, and arrange.
[c] The 5 R's are as follows: relevance, risks, rewards, roadblocks, and repetition.

Elizabeth Dean et al. PHYS THER 2016;96:940-948

Physical Therapy
Journal of the American Physical Therapy Association

Promoting Health and Wellness: Implications for Physical Therapist Practice (Bezner, 2015)

- Defined, compared and contrasted terms health, wellness and promotion
- Discussed role of PTs in promoting health and competences needed
- Identified barriers and opportunities
- Discussed interventional strategies to promote

- Physical activity
- Better nutrition
- Smoking cessation
- Better sleep
- Stress reduction

Magnusson et al., 2020

Original Research

Population Health, Prevention, Health Promotion, and Wellness Competencies in Physical Therapist Professional Education: Results of a Modified Delphi Study

Dawn M. Magnusson, Zachary D. Rethorn, Elissa H. Bradford, Jessica Maxwell, Mary Sue Ingman, Todd E. Davenport, Janet R. Bezner

Objective. Physical therapists are well positioned to meet societal needs and reduce the global burden of noncommunicable diseases through the integration of evidence-based population health, prevention, health promotion, and wellness (PHPW) activities into practice. Little guidance exists regarding the specific PHPW competencies that entry-level clinicians ought to possess. The objective of this study was to establish consensus-based entry-level PHPW competencies for graduates of US-based physical therapist education programs.

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T.E. Davenport, PT, PhD, Physical

Lein et al., 2017

Original Research

A Model to Integrate Health Promotion and Wellness in Physical Therapist Practice: Development and Validation

Donald H. Lein Jr, Diane Clark, Cecilia Graham, Patricia Perez, David Morris

Background. Globally, physical therapy professional organizations have called for physical therapists to perform lifestyle behavior management during customary care, or health-focused care, due to increasing morbidity and mortality related to noncommunicable diseases. Given the potential for health-focused care to improve health outcomes, physical therapists should integrate health promotion into their daily clinical practice. A clinical model that illustrates necessary steps to deliver health-focused care would be helpful to educate present and future physical therapists.

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D. Clark, PT, DScPT, MBA, Department of Physical Therapy, University of Alabama at Birmingham.

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Knowledge that will change your world

Health Focused Care

Health focused care (HFC) is the integration of lifestyle practices into conventional medicine to lower the risk of chronic disease and, if disease is already present, to serve as an adjunct to therapy

Also referred to as ***Lifestyle Medicine***

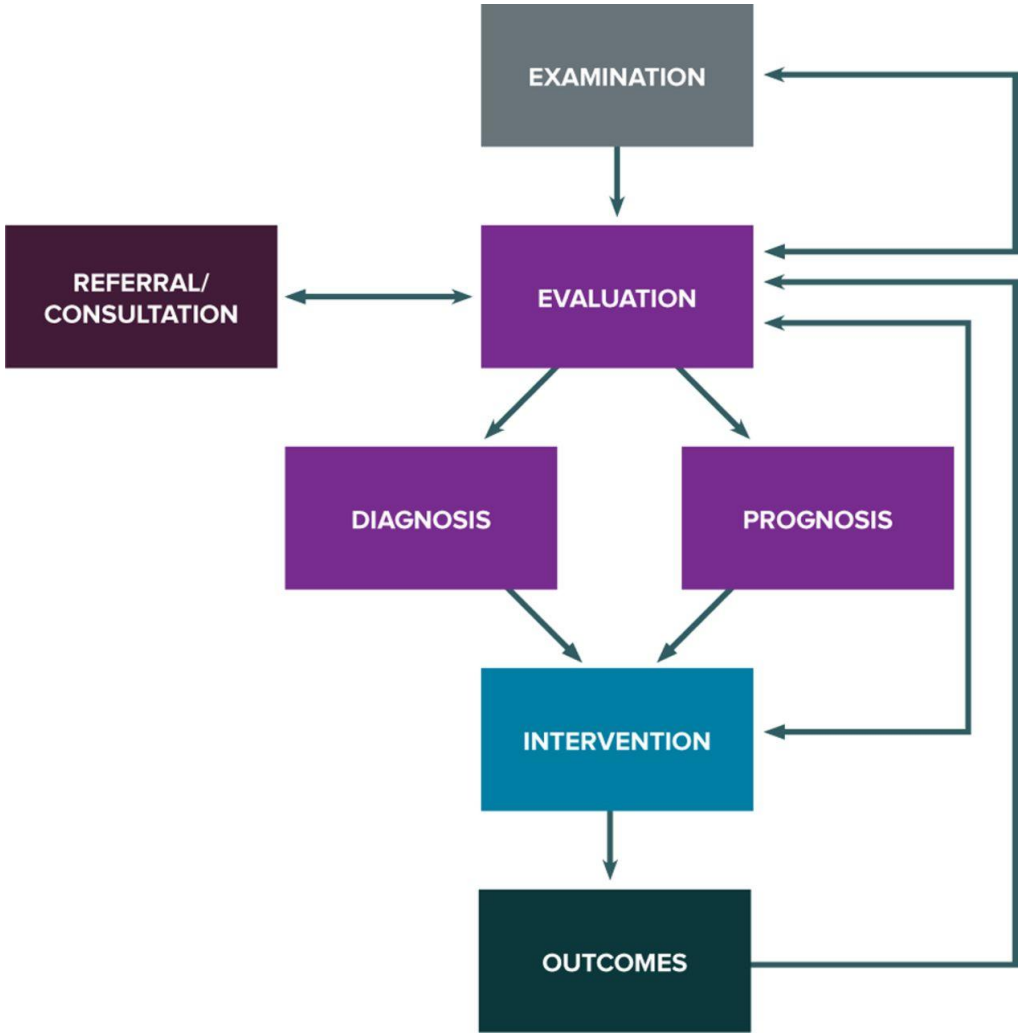
Model Assumptions

- HFC is the responsibility of ALL health care professionals
- Agreement in PT profession that we have a role – a model would be helpful
- The model pertains to **individual-level** wellness and prevention
- Done routinely and systematically with **ALL** patients/clients
- Must be efficient and consistent with the PT Patient/Client Management Model

Model emphasizes **lifestyle behavior change** (LBC):

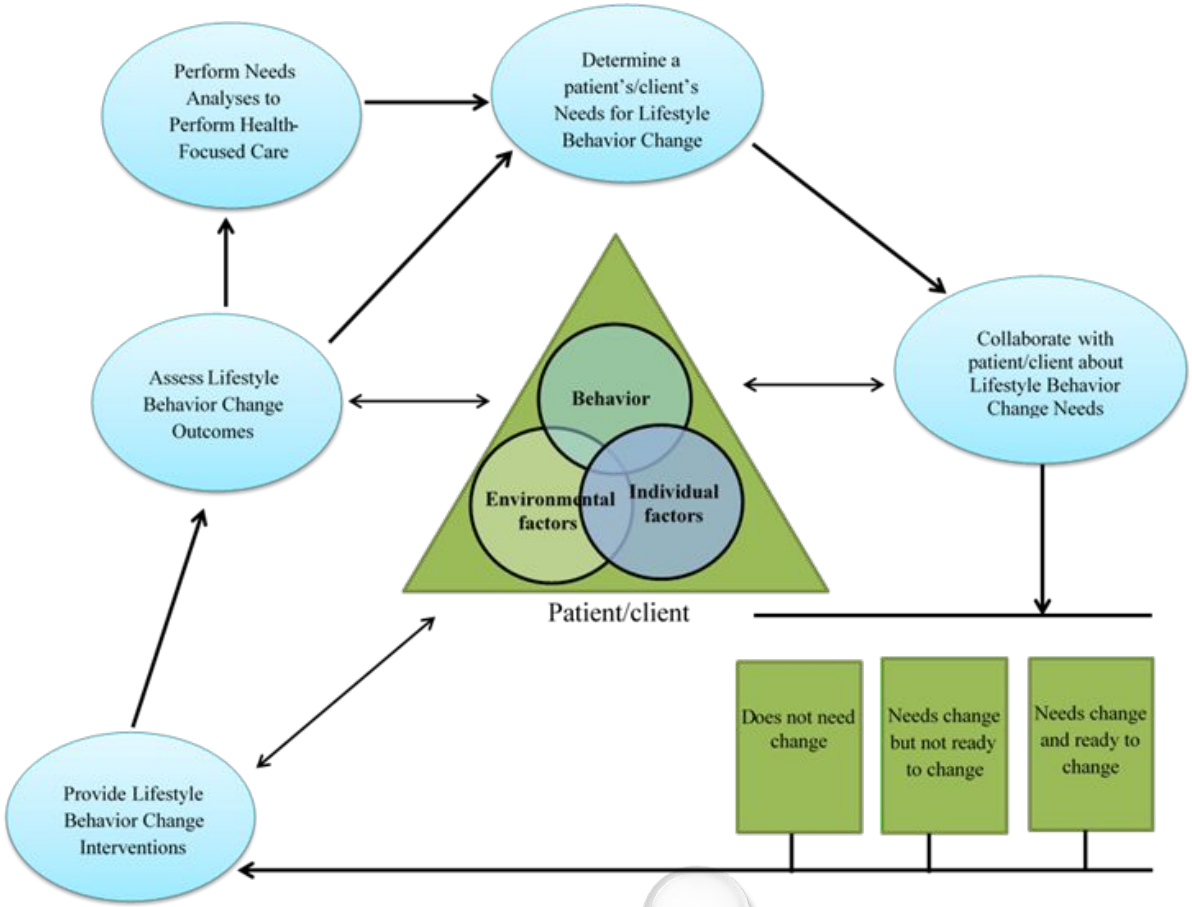
Physical activity	Alcohol moderation
Optimal nutrition	Smoking cessation
Weight management	Adequate sleep

The process of physical therapist patient and client management.



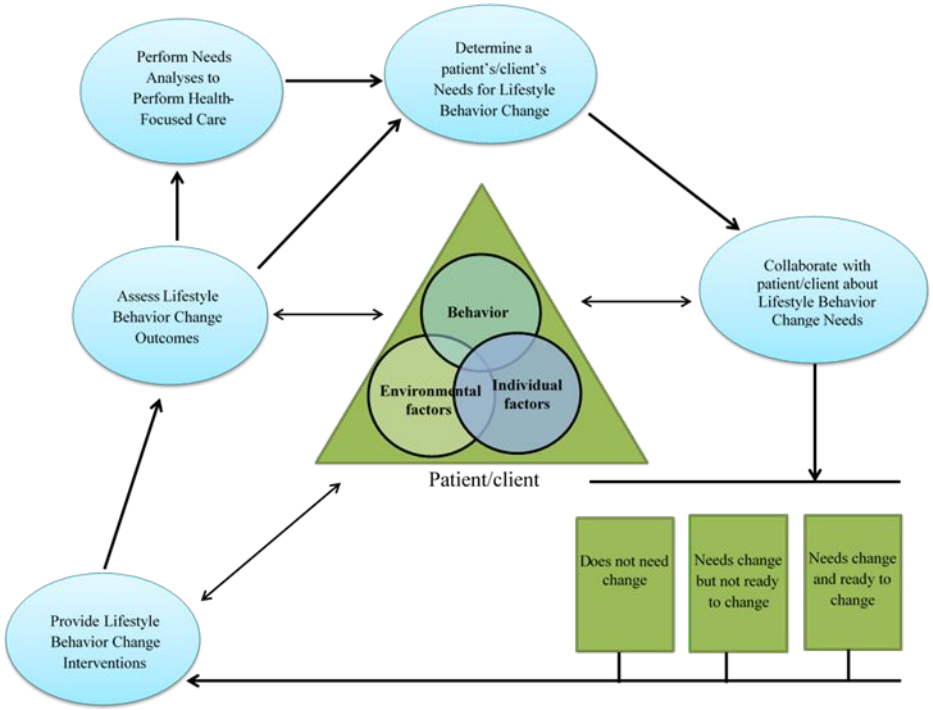
GUIDE TO
PHYSICAL THERAPIST PRACTICE

UAB Health Focused Physical Therapy Model



Methods

- 4 main steps used to develop and validate this model
  - Reviewing the literature and sharing expertise among the investigators to help inform the initial version of the model
  - Consensus building with experts who were both health behavior specialists and health care providers
  - Model revision from data collected from the consensus building experience
  - Delphi process to create content validity of the model



Phys Ther. 2017;97(12):1169-1181.
doi:10.1093/ptj/pzx090

Perform Needs Analyses for HFC

- Identify a practice settings' **most prevalent** population
  - Use **evidence-based approach** to explore health issues: Literature searches, surveillance systems and databases
  - **Survey** health conditions and behaviors in the practice setting
  - Identify and acquire **screening tools**
  - Identify and acquire **informational resources**
  - Develop a **consultancy network**
  - **Incorporate outcomes from previous health focused care experiences**
- Perform on an **ongoing basis**

Determine Patients/Clients Needs for LBC

Use any or all combinations of:

- **Self-report strategies** to obtain a personal health profile
- **Follow-up questions** in patient interview
- **Tests** and **measures**
- Assessment of **health beliefs** and **motivation** to change
- Assessment of **environmental factors**
- Review **medical records** if available
- Communicate with **previous health care providers**

Evaluate findings to determine:

- Presence and extent of **need** for LBC
- Patient's/client's **desire** and **capacity** to change
- Potential **strategies** and **resources** that could promote positive LBC

Collaborate with Patient/Client about LBC Needs

- Share findings, educate, and explore readiness to change to **enhance motivation** and **negotiate** a management plan with patient/client
- Management plan is influenced by the patient's/clients status related to needs and readiness to change
  - **Does not need** to change
  - **Needs to change** but is **not ready** to change
  - **Needs to change** and is **ready** to change

Provide LBC Interventions

- Does not Need LBC
  - Reinforce healthy behavior
  - Explore relapse management
  - Express availability follow-up

Provide LBC Interventions

- **Needs to Change; Not ready**
  - Acknowledge and respect patient/client decision
  - Offer materials regarding benefits of LBC
  - Express willingness to assist patient/client when ready to change

Provide LBC Interventions

- **Needs to Change and is Ready to Change**
  - **LBC Intervention Referral** (PT does not provide LBC services)
    - Complete referral informed by patient's/clients preferences, resources, and needs
    - Facilitate follow-through – overcoming barriers
    - Reinforce LBC on subsequent PT visits
    - Maintain open communication with referral sources and patient/client

Provide LBC Interventions

- **Needs to Change; Ready**
  - **LBC Collaboration** (PT may provide parts of the LBC services)
    - Consult, assist, or supervise other professionals or community programs to deliver LBC intervention
    - Maintain open communication with all parties
    - Provide a supportive environment for change
    - Support LBC strategies and provide relapse prevention/management
    - Set goals with patient and monitor progress
    - Use effective education and behavior management strategies

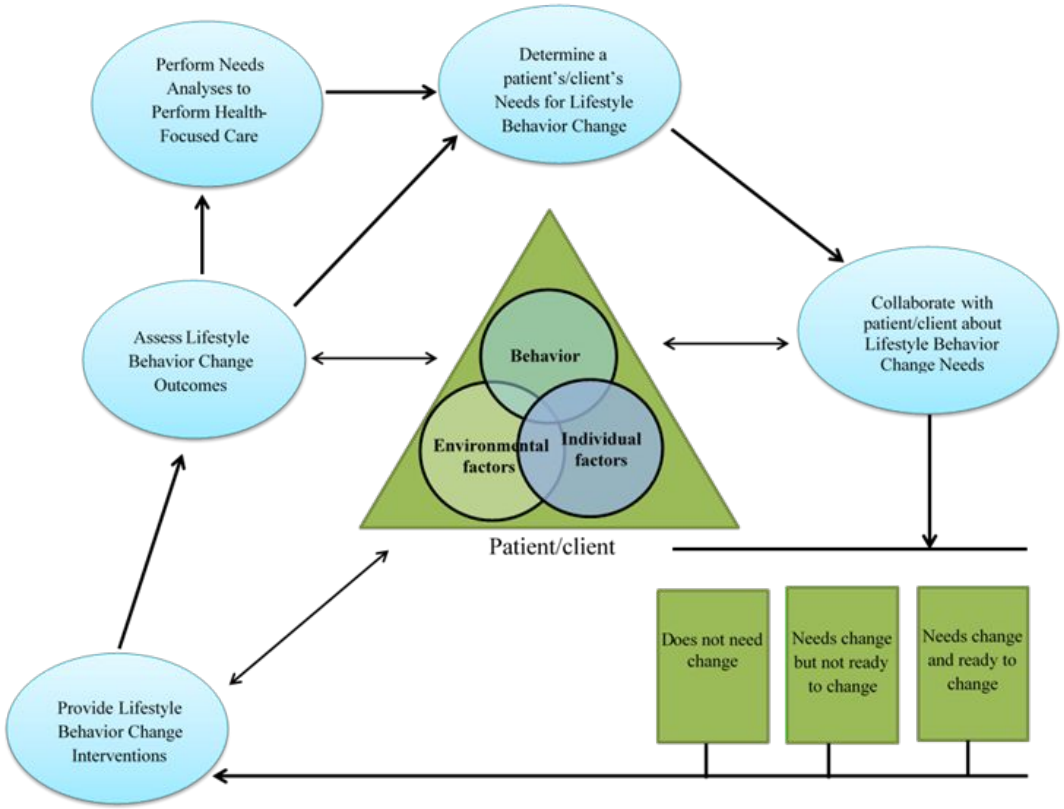
Provide LBC Interventions

- **Needs to Change; Ready**
  - **LBC Intervention Delivery** (PT provides all LBC interventions)
    - Provide a supportive environment for change
    - Support LBC strategies and provide relapse prevention/management
    - Set goals with patient and monitor progress
    - Use effective education and behavior management strategies

Assess LBC Outcomes

- **Related Activities**:
  - Create and maintain HFC database systems
  - Analyze clinical outcomes and patient/client satisfaction
  - Modify practice based on evidence

Health-Focused Physical Therapy Model



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Phys Ther. 2017;97(12):1169-1181. doi:10.1093/ptj/pzx090

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Health Behavior

David M. Morris, PT, PhD. FAPTA

Why do people change their behavior?

What we know and think influences our behavior.

But

Knowledge is not sufficient to produce behavior change.

- **People change when**:
  - ✔ **THEY** have a perceived need to change.
  - ✔ **THEY** are ready to change.
  - ✔ **THEY** have the necessary knowledge, skill and tools.
  - ✔ **THEY** have a supportive environment.

Particularly Important for Promoting Healthy Eating Behavior Change

- Increasing Self-efficacy
- Readiness to change
- Overcoming barriers

Self Efficacy

- The level of confidence individuals have in their ability to perform a certain behavior (Bandura, 1997)
- Influences:
  - ✔ Choice of behaviors
  - ✔ How much effort a person will expend
  - ✔ How long they will persevere
  - ✔ How resilient in the face of setbacks
  - ✔ How much stress and anxiety they will experience
  - ✔ Motivation

Questioning about Self Efficacy

Whether you are trying to change your eating habits or not, please rate how confident you are that you could really motivate yourself to do things like these consistently, for at least six months.

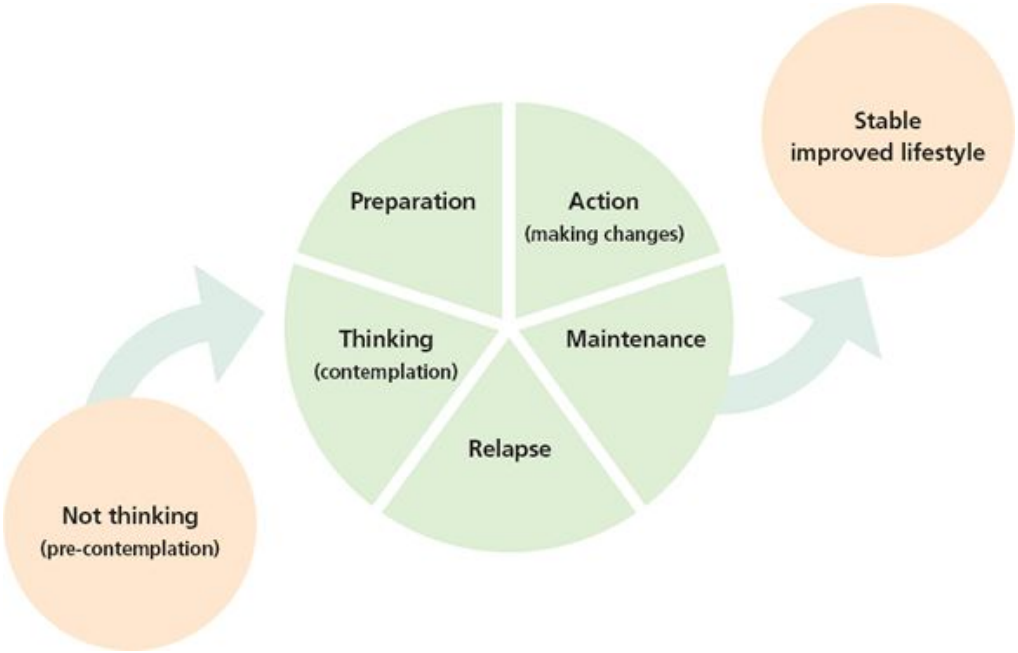
Eat smaller portions of food at a party.

I know I cannot		Maybe I can		I know I can
1	2	3	4	5

Improving Self Efficacy

Strategy	Example
Mastery experiences/performance accomplishments	Incremental mastery – start with low level difficulty activities and increase gradually
Modeling/vicarious experiences	Watching others like you eat healthier
Social persuasion/credible source	Enlisting a credible spokesperson; trusted health professional influencing decision
Internal feedback (psychological and physiological)	Facing barriers head on and learning that they can be managed

Stages of Change



Stage of Change Questions

1. How many servings of fruits and vegetables do you usually eat each day? (*zero, one, two, three, four, five, six or more*). If you answered between "zero" and "four" to question 1, go to question 3. If you answered "five" or "six or more" to question 1, go to question 2.
2. Have you been eating five or more servings of fruits and vegetables a day for more than 6 months? (*Yes, No*)
3. Do you intend to start eating five or more servings of fruits and vegetables a day in the next 6 months? (*Yes, No).* If you answered 'Yes' to question 3, go to question 4. If you answered 'No' to question 3, skip question 4
4. Do you intend to start eating five or more servings of fruits and vegetables a day in the next month? (*Yes, No*)

Algorithm for Assigning Stages

- **Precontemplation** = answer to question 1 < 5 and answer to question 3 is no
- **Contemplation** = answer to question 1 < 5, answer to question 3 is yes, and answer to question 4 is no
- **Preparation** = answer to question 1 < 5, answer to question 3 is yes, and answer to question 4 is yes
- **Action** = answer to question 1 ≥ 5 and answer to question 2 is no
- **Maintenance** = answer to question 1 ≥ 5 and answer to question 2 is yes

Stages of Change

Stage of Change	Patient Cognition and Behavior
Stage 1: Precontemplation	• Does not think about change • Resigned or fatalistic • Does not believe in or downplays personal susceptibility
Stage 2: Contemplation	Weighs benefits vs. costs of proposed behavior change
Stage 3: Preparation	Experiments with small changes
Stage 4: Action	Takes definitive action to change
Stage 5: Maintenance	Maintains new behavior over time

Process of Change

Cognitive strategies	Examples
Increasing knowledge	Encourage your client to read and think about healthy eating
Being aware of risks	Provide your client with the message that poor eating choices can be very unhealthy
Caring about consequences to others	Encourage your client to recognize how unhealthy eating affects his family, friends, and co-workers
Comprehending benefits	Help your client to understand the personal benefits of eating healthy
Increasing healthy opportunities	Help your client to increase her awareness of opportunities to eat healthy

Process of Change

Behavioral strategies	Encourage your client to…
Substituting alternatives	Eat fruits and vegetables instead of junk food
Enlisting social support	find a family member, friend, or co-worker who is willing and able to provide support for eating healthy
Rewarding yourself	praise himself and reward himself for eating healthy
Committing yourself	make promises, plans and commitments to eat healthy
Reminding yourself	set up reminders to eat healthy such as displaying healthy food (e.g., fruit) to remind oneself to eat it

Barriers to Healthy Eating for People with Disabilities

- Cost
- Choice and Independence
- Fatigue and/or chronic pain
- Food restrictions
- Social isolation
- Transportation
- Lack of healthy food options in geographic area

Overcoming Barriers

- Identify barriers early – may need to try several solutions before success is achieved
- Explore solutions with mentees, family, staff and/or friends (use Educational and Support Tools to start)
- Promote solutions
- Follow-up to identify and overcome barriers encountered

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Promoting Physical Activity

David M. Morris, PT, PhD. FAPTA

Health and Human Services: Physical Activity Guidelines

- ***Physical fitness*** includes a number of components consisting of cardiorespiratory endurance (**aerobic power**), skeletal **muscle endurance**, skeletal **muscle strength**, skeletal **muscle power**, **flexibility**, **balance**, **speed** of movement, **reaction** time, and **body composition**.

Physical Activity

- Any bodily movement produced by the contraction of skeletal muscle that increases energy expenditure above a basal level.
  - ✔ Occupational
  - ✔ Leisure
  - ✔ Transportation

Physical Activity Guidelines Advisory Committee Report. Washington, DC: US Department of Health and Human Services, 2008

Exercise

- A subcategory of physical activity that is “planned, structured, and repetitive and purposive in the sense that the improvement or maintenance of one of more components of physical fitness is the objective.”

Benefits: Moderate Evidence

- A lower risk of hip fracture
- Lung cancer
- Endometrial cancer
- Weight maintenance after weight loss
- Increased bone density
- Improved sleep quality

Benefits: Moderate to Strong Evidence

- Better functional health (for older adults)
- Reduced abdominal obesity

Benefits: Strong Evidence

- A lower risk of:
  - ✔ Early death
  - ✔ Coronary heart disease
  - ✔ Stroke
  - ✔ High blood pressure
  - ✔ Adverse blood lipid profile
  - ✔ Type II Diabetes
  - ✔ Metabolic syndrome

Benefits: Strong Evidence

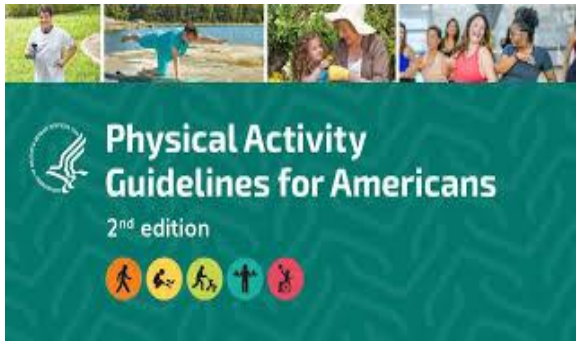
- A lower risk of:
  - ✔ Colon Cancer
  - ✔ Breast Cancer
- In addition to:
  - ✔ Weight loss, particularly when combined with reduced caloric intake
  - ✔ Improved cardiorespiratory fitness & muscular fitness
  - ✔ Prevention of falls
  - ✔ Reduced depression
  - ✔ Better cognitive function in older adults

Physical Activity Guidelines

- HHS Physical Activity Guidelines
- American College of Sports Medicine (ACSM)/ American Heart Association (AHA)
- Australian Guidelines
- World Confederation for Physical Therapy (WCPT)
- World Health Organization (WHO)
- APTA Physical Fitness for Special Populations (PFSP) Pocket Guides

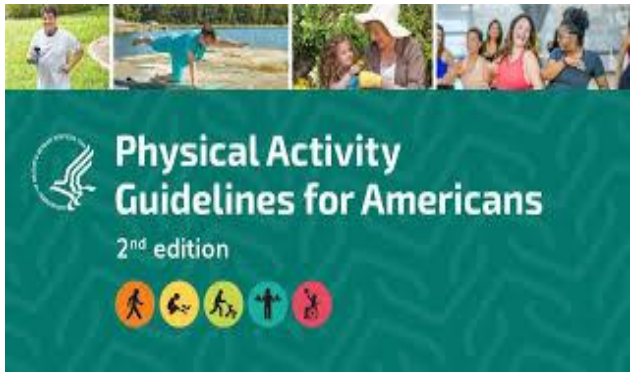
Physical Activity Guidelines for Americans (HHS)

- Updated in November 2018
- Methodology established first
- All research rated based on pre-established methodology
- All recommendations rated based on pre-established methodology



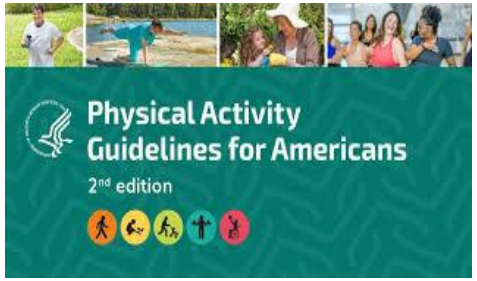
Physical Activity Guidelines for Americans (HHS)

- Preschool-aged children (3-5 years old):
  - ✔ Should be physically active throughout the day to enhance growth and development
  - ✔ Adult caregivers should encourage active play that includes a variety of activities



Physical Activity Guidelines for Americans (HHS)

- Children and Adolescents (6-17 years old)
  - ✔ Aerobic – 60 minutes or more per day of moderate-or vigorous-intensity aerobic physical activity; 3 days a week at vigorous intensity
  - ✔ Muscle strengthening – as part of 60 minutes – should include muscle strengthening on at least 3 days a week.
  - ✔ Bone strengthening - as part of 60 minutes – should include bone strengthening on at least 3 days a week.



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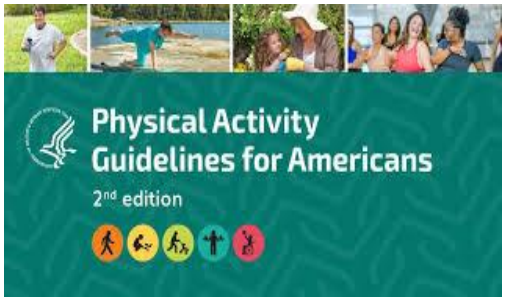
Knowledge that will change your world

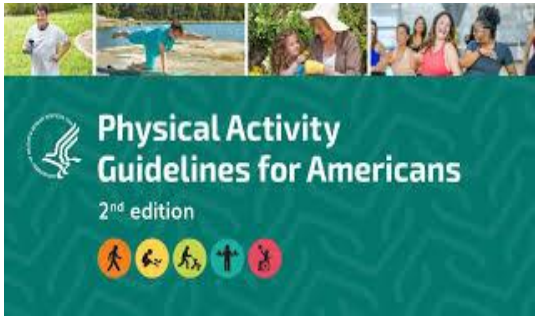
Physical Activity Guidelines for Americans (HHS)

- Adults
  - ✔ Move more and sit less throughout the day – some physical activity is better than none
  - ✔ At least 150 minutes to 300 minutes a week at moderate-intensity, or 75 minutes to 150 minutes a week at vigorous-intensity, or an equivalent combination. Preferable to spread throughout the week.
  - ✔ Additional benefits are gained by engaging in physical activity beyond 300 minutes at moderate-intensity.
  - ✔ Muscle strengthening – at moderate or greater intensity 2 or more days/week that work all major muscle groups



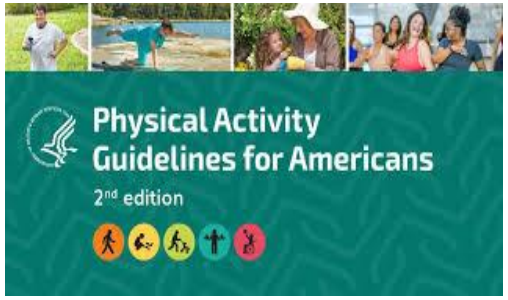
Physical Activity Guidelines for Americans (HHS)

- Older Adults
  - ✔ Multicomponent physical activity that includes balance training as well as aerobic and muscle strengthening
  - ✔ Should determine their level of physical activity relative to their fitness level.
  - ✔ Older adults with chronic conditions should understand whether and how their conditions affect their ability to do regular physical activity safely.
  - ✔ When unable to do 150 minutes of moderate activity a week because of chronic conditions; should be as physical active as their abilities and conditions allow



Physical Activity Guidelines for Americans (HHS)

- Women During Pregnancy and the Postpartum Period
  - ✔ At least 150 minutes a week at moderate-intensity. Preferable to spread throughout the week.
  - ✔ Women who habitually engaged in vigorous-intensity aerobic activity or who were physically active before pregnancy can continue these activities during pregnancy and the postpartum period.
  - ✔ Women who are pregnant should be under the care of a health care provider who can monitor the progress of their pregnancy…can consult their health care provider about how to adjust their physical activity.



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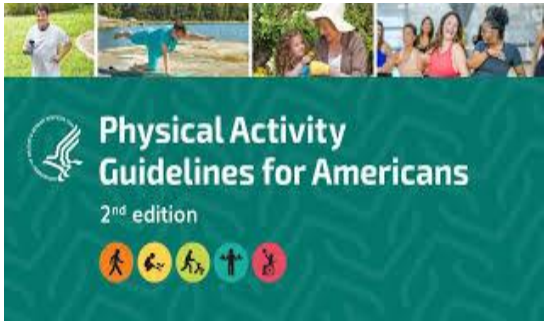
Knowledge that will change your world

Physical Activity Guidelines for Americans (HHS)

- Adults with Chronic Health Conditions and Adults with Disabilities
  - ✔ At least 150 minutes to 300 minutes a week at moderate-intensity, or 75 minutes to 150 minutes a week at vigorous-intensity, or an equivalent combination. Preferable to spread throughout the week.
  - ✔ Muscle strengthening – at moderate or greater intensity 2 or more days/week that work all major muscle groups
  - ✔ When adults with chronic conditions or disabilities are not able to meet the key guidelines, they should engage according to their abilities and should avoid inactivity.
  - ✔ should be under the care of a health care provider …can consult their health care provider or physical activity specialist about the types and amounts of physical activity appropriate for their abilities and chronic conditions.



Physical Activity Guidelines for Americans (HHS)

- Intensity - How hard* is your body working?
  - ✔ Moderate activity = 5 or 6
  - ✔ Vigorous activity = 7 or 8

* On a **10-point scale** – "0" is sitting AND "10" is working as hard as you can.

World Health Organization

Moderate-intensity Physical Activity (Approximately 3-6 METs) Requires a moderate amount of effort and noticeably accelerates the heart rate.	Vigorous-intensity Physical Activity (Approximately >6 METs) Requires a large amount of effort and causes rapid breathing and a substantial increase in heart rate.
Examples of moderate-intensity exercise include:	Examples of vigorous-intensity exercise include:
• Brisk walking	• Running
• Dancing	• Walking / climbing briskly up a hill
• Gardening	• Fast cycling
• Housework and domestic chores	• Aerobics
• Traditional hunting and gathering	• Fast swimming
• Active involvement in games and sports with children / walking domestic animals	• Competitive sports and games (e.g. Traditional Games, Football, Volleyball, Hockey, Basketball)
• General building tasks (e.g. roofing, thatching, painting)	• Heavy shovelling or digging ditches
• Carrying / moving moderate loads (<20kg)	• Carrying / moving heavy loads (>20kg)

WHO and WCPT

- Adults (18-65 years old)
  - ✔ 30 minutes of moderate-intensity physical activity 5 days per week; OR
  - ✔ 20 minutes of vigorous-intensity physical activity 3 days per week; OR
  - ✔ An equivalent combination of moderate- vigorous intensity physical activity; AND
  - ✔ 8-10 muscular strengthening exercises (8-12 repetitions) at least 2 days per week.

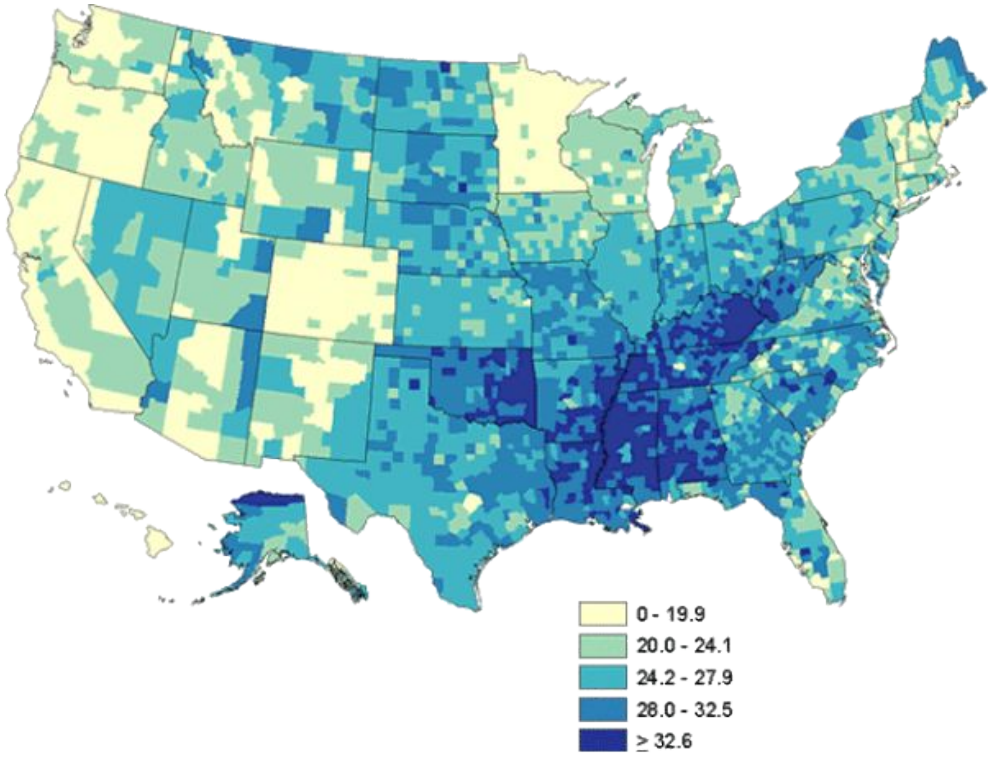
WHO and WCPT

- Adults (65 years and older)
  - ✔ same recommendations as described for adults (outlined previously) with due consideration for the intensity and type of physical activity appropriate for older people; **AND**
  - ✔ exercises to maintain flexibility; **AND**
  - ✔ balance exercises

How are we Doing?

- Less than half (48%) of US adults meet the PA guidelines
- Racial disparities
  - ✔ Non-Hispanic white adults (22.8%)
  - ✔ Non-Hispanic black adults (17.3%)
  - ✔ Hispanic adults (14.4%)
- Men (52.1%) more likely than women (42.6%) to meet the 2008 PAG for aerobic activity
- Younger adults are more likely than **older adults**
- Income level above poverty level more likely than below

How are we doing?: 2008 Age-Adjusted Estimates of the Percentage of Adults Who Are Physically Inactive



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Promoting Healthy Eating

David M. Morris, PT, PhD. FAPTA

Healthy Lifestyles and Disability

- More than 30% of US adults and 20% of US children and are obese.
- These rates are significantly higher in adults and children with disabilities.
- People with disabilities are also more unlikely to follow daily nutrition recommendations.
- Less likely to follow guidelines for:
  - Saturated fats
  - Fiber
  - Vitamins A and C
  - Calcium
  - Potassium

Challenges Faced

- Limited choices on the food they eat…don't often have healthy food options
- Difficulty with chewing or swallowing food
- Medications can contribute to weight gain/loss and changes in appetite
- Physical limitations can reduce one's options for exercise
- Pain
- Lack of energy
- Lack of accessible environments for exercise
- Lack of resources

Personal Determinants of healthy Eating (Berner et.al., 2021)

- Cognitive-affective factors (attitudes, beliefs, habits, morals, self-perceived health status, and stress)*
- Culture, religion and family tradition
- Knowledge, cooking skills and confidence, and time constraints*
- Physiological effects (appetite, food allergies or intolerances, hunger satiety, thirst)
- Sensory attributes (taste, texture, and smell of foods)
- Oral health (dentition, chewing, and swallowing)*
- Functional mobility status (ability to shop and prepare meals)*

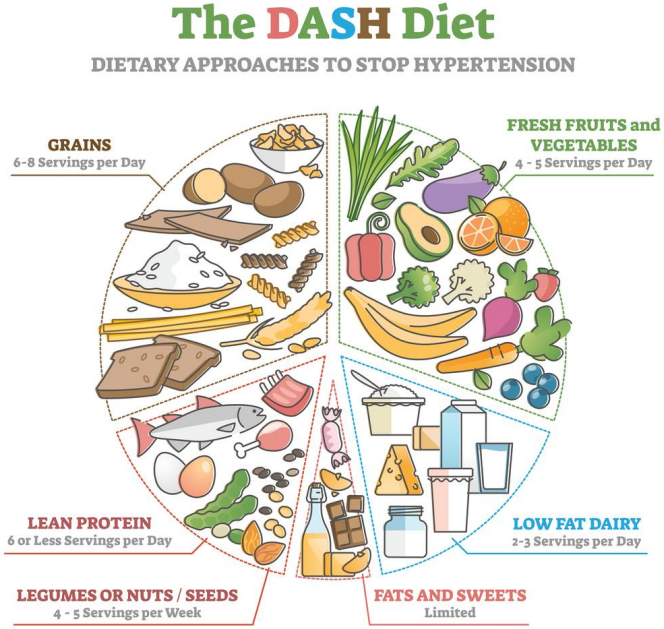
* *Potentially modifiable with PT intervention*

Environmental Determinants of healthy Eating (Berner et.al., 2021)

- Availability and geographic location
- Cost and food security
- Accessibility (food deserts and food swamps)
- Food policies (e.g., sugar-sweetened beverage tax and state or federal nutrition programs)*
- Advertising, marketing, and media messaging
- Community resources (e.g., farmers markets, Meals on Wheels, and community gardens)*
- Social interactions

* *Factor for which PTs can advocate*


Mediterranean
Diet


The DASH Diet
DIETARY APPROACHES TO STOP HYPERTENSION
GRAINS
6-8 Servings per Day
FRESH FRUITS and VEGETABLES
4 - 5 Servings per Day
LEAN PROTEIN
6 or Less Servings per Day
LOW FAT DAIRY
2-3 Servings per Day
LEGUMES OR NUTS / SEEDS
4 - 5 Servings per Week
FATS AND SWEETS
Limited

Evidence-Based Nutritional Resources

- Dietary Guidelines for Americans
- Dietary Supplement Fact Sheets
- DRI Calculator for Healthcare Professionals
- ESPEN Guideline on Clinical Nutrition and Hydration in Geriatrics
- Harvard Healthy Eating Plan
- Nutrition Therapy for Adults with Diabetes or Prediabetes: A Consensus Report
- Position on the Academy of Nutrition and Dietetics: The Role of Nutrition in Health Promotion and Chronic Disease Prevention
- Position on the Academy of Nutrition and Dietetics: Nutrition and Lifestyle for a Healthy Pregnancy Outcome

Evidence-Based Nutritional Resources continued

- Position on the Academy of Nutrition and Dietetics and the Society for Nutrition Education and Behavior: Food and Nutrition Programs for Community-Residing Older Adults
- Position on the Academy of Nutrition and Dietetics: Food and Nutrition for Older Adults: Promoting Health and Wellness
- Position on the Academy of Nutrition and Dietetics, Dietitians of Canada, and the American College of Sports Medicine: Nutrition and Athletic Performance
- Position on the Academy of Nutrition and Dietetics: Interventions for the Treatment of Overweight and Obesity in Adults
- Recommended Dietary Pattern to Achieve Adherence to the American Heart Association/American College of Cardiology (AHA/ACC) Guidelines

Nutrition and Malnutrition Screening Tools

Screening Tool	Length (Time to complete)	Description
Nutrition Screening Protocol	2 items (< 1 min)	Identifies frequency of consuming fruits/vegetables and sugary foods/drinks and determines whether intervention is warranted
Start the Conversation	8 items (2-3 min)	Identifies frequency of various food groups/items (e.g., fruits, vegetables, sugar-sweetened beverages, snacks, fast foods, use of fats for seasoning) over the past few months. Screening tool scores reported frequency to determine if improvements can be made
Rate your Plate	24 items (4-5 min)	Identifies frequency of usual eating pattern by asking about food groups/items (e.g., protein sources, dairy, whole grains, fruits, vegetables), cooking methods, eating out, and others. Screening tool scores reported frequency to determine if improvements can be made

Nutrition and Malnutrition Screening Tools

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Nutrition and Malnutrition Screening Tools

Screening Tool	Length (Time to complete)	Description
Weight, Activity, Variety, and Excess (WAVE)	4 categories (5-10 min)	Collectively looks at weight, activity, and eating habits. Identifies recommendations for education based on weight status (body mass index), amount of physical activity, and variety and excess of food groups/items (e.g., grains, fruits, vegetables, protein, dairy, saturated fat, salt sugar, and alcohol). Assessment suggests provider to conduct a 1-day dietary recall or provide a self-administered food frequency questionnaire, pending available time
Rapid Eating and Activity Assessment for Patients (REAP)	31 items (8-10 min)	Identifies frequency of various food groups/items (e.g., fruits, vegetables, dairy, processed foods, sugar-sweetened beverages, snacks, sodium and alcohol) in an average week. Also includes questions on physical activity, readiness to change eating habits, eating out, and ability to shop or cook. Screening tool scores reported frequency to determine if improvements can be made and identifies educational opportunities

Nutrition and Malnutrition Screening Tools

Screening Tool	Length (Time to complete)	Description
Malnutrition Screening Tool (MST)	2 items (1-2 min)	Identifies risk of malnutrition by asking about recent weight loss (categorizing for severity) and decrease in appetite
Mini Nutrition Assessment-Short Form	6 items (3 min)	Identifies older adults who are malnourished or at risk of malnutrition. Addresses risk factors such as decline in food intake, weight loss, mobility, acute disease, cognition, and body mass index
Nutrition Screening Initiative (NSI)	11 items (2-3 min)	Identifies nutritional risks for older adults. Addresses risk factors such as disease state, poor eating habits, oral deficits, financial difficulties, social interactions, weight status, and mobility

Berner et al., 2021

PTJ: Physical Therapy & Rehabilitation Journal | *Physical Therapy*, 2021;101:1–12
https://doi.org/10.1093/ptj/pzab062
Advance access publication date February 15, 2021
Perspective

Nutrition in Physical Therapist Practice: Setting the Stage for Taking Action

Patrick Berner, PT, DPT, RDN[1,*], Janet R. Bezner, PT, DPT, PhD, FAPTA[2], David Morris, PT, PhD, FAPTA[3], Donald H. Lein Jr, PT, PhD[3]

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*Address all correspondence to Dr Berner at: FuelPhysio@gmail.com

Abstract

Diet and nutrition are critical components of health, recovery from disease and illness, performance, and normal growth across the lifespan. Thus, it is important for physical therapists to be knowledgeable about nutrition and to have competency in providing information and guidance to patients/clients. Yet, there is an overwhelming amount of diet and nutrition information available from numerous sources, which makes it difficult to reach conclusions and determine the importance and relevance to patient care. The purpose of this perspective paper is to increase the knowledge and skills of physical therapists by providing guidelines for healthy eating and outlining diet and nutrition information most relevant for physical therapist practice and to clarify professional scope of practice related to diet and nutrition, including boundaries created by law, and the connection between healthy eating and health outcomes, muscle strength, bone health, and wound healing.

Keywords: Bone Health, Diet, Eating Pattern, Healthy Eating, Muscle Strength, Nutrition, Wounds and Injuries

PTJ: Physical Therapy & Rehabilitation Journal | *Physical Therapy*, 2021;101:1–9
DOI: 10.1093/ptj/pzab061
Advance access publication date February 15, 2021
Perspective

Nutrition in Physical Therapist Practice: Tools and Strategies to Act Now

Patrick Berner, PT, DPT, RDN[1], Janet R. Bezner, PT, DPT, PhD, FAPTA[2], David Morris, PT, PhD, FAPTA[3], Donald H. Lein Jr, PT, PhD[3]

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Abstract

It has been established that physical therapist practice includes screening for and providing information on diet and nutrition to patients, clients, and the community. Yet, an overwhelming amount of often contradictory diet and nutrition information poses a challenge for physical therapists to identify and maintain knowledge that they can rely on to screen for and discuss these topics with their patients, clients, and community members. The purposes of this perspective paper are to summarize the best known screening tools for general health, diet, and nutrition; provide intervention strategies that can be used to support behavior change related to diet and nutrition; and identify the most relevant resources and approaches from which physical therapist clinicians can build skill in addressing the nutritional needs of patients, clients, and the community.

Keywords: Behavior Change, Diet, Eating Pattern, Healthy Eating, Malnutrition, Nutrition

Nutrition Counseling vs. Promoting Healthy Eating Behavior

- Nutrition Counseling
  - Focus on specific diet; highly individualized for that individual's specific nutrition needs
  - Done after a detailed evaluation of the clients' nutrient needs and eating patterns
  - Focus is on specific amounts of nutrients to include and avoid
  - Done by a nutrition practitioner (e.g., registered dietitian nutritionist or nutritionist)

Nutrition Counseling vs. Promoting Healthy Eating Behavior

- Promoting Healthy Eating Behavior
  - Focus is on developing healthier eating behaviors in a more general manner
  - Consult a nutrition practitioner as indicated
  - Focus is on general axioms or commonly accepted principles about healthy eating; use trusted resources only
  - Done after assessment of clients' general eating behaviors and food preferences

Examples

- Promoting healthy eating behavior

Encourage a participant to eat 5 servings of fruits and vegetables daily

- Nutrition counseling

Adjusting a patient's diet to include/avoid specific nutrients (e.g., potassium, protein)

Commonly Accepted Principles
(choosemyplate.gov)

- Choose foods and beverages from all five food groups: fruits, vegetables, grains, protein foods, and dairy
- Eat the right amount of calories for you – based on your age, gender, height, weight and physical activity level
- Use nutrition labels to identify ingredients
- Avoid saturated fat, added sugars, and high sodium
- Make small changes to get big benefits

Small Changes = Big Benefits

- Eat a healthy breakfast everyday
- Make half your plate fruits and vegetables
  - Focus on whole fruits
  - Vary your veggies
- Make half your grains whole grains (e.g., oatmeal, whole wheat flour, popcorn)
- Move to low-fat and fat-free dairy
- Vary your protein routine (include seafood, beans, nuts, eggs, lean meats and poultry)
- Eat and drink the right amount for you

Importance of Healthy Eating Behavior Assessment

- Provides framework for exploring the eating behaviors
- Allows one to establish baseline behaviors
- Assists with setting goals
- Assessment can provide information on what healthy eating behavior looks like

Using Healthy Eating Behavior Assessment Tools

- Access the links and descriptions for the Healthy Eating Patterns Assessment Tools provided (See Healthy Eating Module on WCDI Canvas Platform)
- Explore each assessment thoroughly and identify the assessment(s) that will be helpful for your mentees
- Practice with other student team members and/or role play before using.
- Use the assessment to explore community participants' healthy eating patterns; Use with family and caretakers as needed
- Use other assessments you discover as needed…make sure they are credible/useful assessment tools

Qualities of Useful Healthy Eating Assessments

- Layperson accessible
- Easy to use
- Easy to interpret
- Culturally acceptable, contextually appropriate (age, interests, cognitive abilities)
- Information gathered can be immediately used to establish baseline behaviors and set goals for improvements

Using the Educational and Support Tools

- Access the links and descriptions for the three websites provided as resources (See Healthy Eating Module on WCDI Canvas Platform)
- Explore each website thoroughly and identify tools that will be helpful for your community partner
- Use the tools to facilitate mentees' healthy eating behaviors and/or educate your community partner
- Use other resources you discover…make sure they are credible resources.

Characteristics of Credible Healthy Eating Resources

- Who sponsors/hosts the informational source?
- Where did the information come from?
- How current is the information?
- Does the informational source offer quick and easy solutions to health issues?
- Who reviews/edits the information?
- Does the information appear to be mostly opinion or evidence supported?

Project EAT recommendations

- **DISCOURAGE UNHEALTHY DIETING; INSTEAD ENCOURAGE AND SUPPORT THE USE OF POSITIVE EATING AND PHYSICAL ACTIVITY BEHAVIORS THAT CAN BE MAINTAINED ON AN ONGOING BASIS**
  - NOT RECOMMENDED→ CALORIE OR FAT GRAM COUNTING
    - ENCOURAGES “GOOD AND BAD FOOD” THINKING - INCREASES RISK OF DEVELOPING DISORDERED EATING BEHAVIORS
  - RECOMMENDED:
    - REPLACING HIGH-FAT OR HIGH-SUGAR FOODS WITH HEALTHIER SUBSTITUTES
    - PORTION CONTROL
    - BALANCE INTAKE
    - INCREASE PA

Arch Pediatr Adolesc Med. 2008 Jan;162(1):17-22

Project EAT recommendations

- **Promote a positive body image**
  - Don’t use body dissatisfaction as a motivator for change
  - Help individuals develop a positive relationship with their bodies so they will want to nurture them through healthy eating, physical activity and positive self-talk

Project EAT recommendations

- **Encourage more frequent and more enjoyable family meals**
  - More frequent family meals is associated with better dietary intake in adolescents
    - Availability of healthier foods
    - Parental modeling of healthy eating patterns
- **Encourage families to talk less about weight and do more at home to facilitate healthy eating and physical activity**
  - Avoid weight talk – raises risk for eating disorders and obesity
  - Less talk, more action

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Smoking Cessation

David M. Morris, PT, PhD. FAPTA

Smoking

Smoking: Session Objectives

- ✔ Discuss Smoking trends in the US
- ✔ Describe selected screening tools for smoking
- ✔ Discuss guidelines and counseling strategies for healthcare providers: re: Smoking cessation
- ✔ Discuss educational resources available for health care professionals and their patients/clients

Smoking in the US

- Cigarette smoking alone kills more than 480,000 Americans each year.[1]
- 16 million Americans are living with at least one serious smoking-related disease.[1]
- For every person who dies because of smoking, at least 30 people live with a serious smoking-related illness.[1]
- Unfortunately, an estimated 28.3 million adults in the United States still smoke cigarettes.[2]
- Cigarette smoking cost the United States more than $600 billion in 2018, including more than $240 billion in healthcare spending and nearly $372 billion in lost productivity.[1,3,4,5]

Pignataro, 2012 PTJ (Click here)

The Role of Physical Therapists in Smoking Cessation: Opportunities for Improving Treatment Outcomes

Rose M. Pignataro, Patricia J. Ohtake, Anne Swisher, Geri Dino

Pignataro, 2012

- Effects of smoking
  - Integumentary system
  - Musculoskeletal system
  - Neuromuscular system
- Unique role of PT/PTA
- Tobacco use management strategies for PTs/PTAs

Bodner, 2011 PTJ

Research Report

Smoking Cessation and Counseling: Knowledge and Views of Canadian Physical Therapists

Michael E. Bodner, William C. Miller, Ryan E. Rhodes, Elizabeth Dean

Bodner et al., 2011

- Purpose: To assess Canadian PTs:
  - Knowledge about the health effects of smoking;
  - Views about addressing smoking cessation (SC) in practice; and
  - Their self-efficacy in enabling patients to quit smoking
- Surveyed 738 PTs (return rate of 78.1%)

Bodner et al., 2011

- 76% agreed that PTs should ask about smoking habits
- 65% agreed that PT should advise on quitting
- 51.9 % agreed that PTs should be more involved in helping people who smoke quit
- 43% agreed that PTs should receive more training in SC strategies (14.8% strongly disagreed)

Bodner et al., 2011

- Only 1.7% reported feeling **very well** prepared to provide SC counseling
- 26.7% reported feeling **somewhat** prepared
- 71.6% reported **not being at all** prepared

Bodner et al., 2011

- Biggest barriers (PT related)
  - Lack of resources for providing counseling
  - Lack of time
- Biggest barriers (patient related)
  - Patients' lack of adherence
  - Lack of long-term commitment
  - Emotional or psychological status

Bodner et al., 2011

- Biggest facilitators
  - Stand alone seminar or workshop (77% agreed)
  - Home demonstration DVDs (59.4%)
  - SC Counseling newsletter (58.9%)
  - Workshop at a national meeting (52.9%)
  - Comprehensive textbook (49.4%)

Ten Key Guideline Recommendations (US Dept of Health and Human Services)

1. Tobacco dependence is a chronic disease – but effective treatments exist
2. Clinicians MUST identify and document tobacco use AND treat every tobacco user
3. Treatments are effective across a broad range of populations – encourage all users to make a quit attempt
4. Even brief treatments are effective

Ten Key Guideline Recommendations (US Dept of Health and Human Services)

5. Effective medications are available to increase long-term smoking abstinence
6. Clinicians may choose a combination of medications
7. Counseling and medication are good alone…even better in combination
8. Telephone quit-line counseling is effective across diverse populations and have a broad reach

Ten Key Guideline Recommendations (US Dept of Health and Human Services)

9. If the user is unwilling to make a quit attempt…motivational treatments can be effective in increasing future quit attempts
10. Tobacco dependence treatments are both clinically effective and highly cost effective…many insurance plans cover smoking cessation interventions

Medications used to promote smoking cessation (click here)

- Seven first-line medications (5 nicotine and 2 non-nicotine)
  - Bupropion SR (Zyban)
  - Nicotine gum
  - Nicotine inhaler
  - Nicotine lozenge
  - Nicotine nasal spray
  - Nicotine patch
  - Varenicline (Chantix)

Smoking Screening Tools

- NIDA Quick Screen (click here)
- Fagerstrom Nicotine Dependence Test (click here)

Counseling Based on Stage of Change

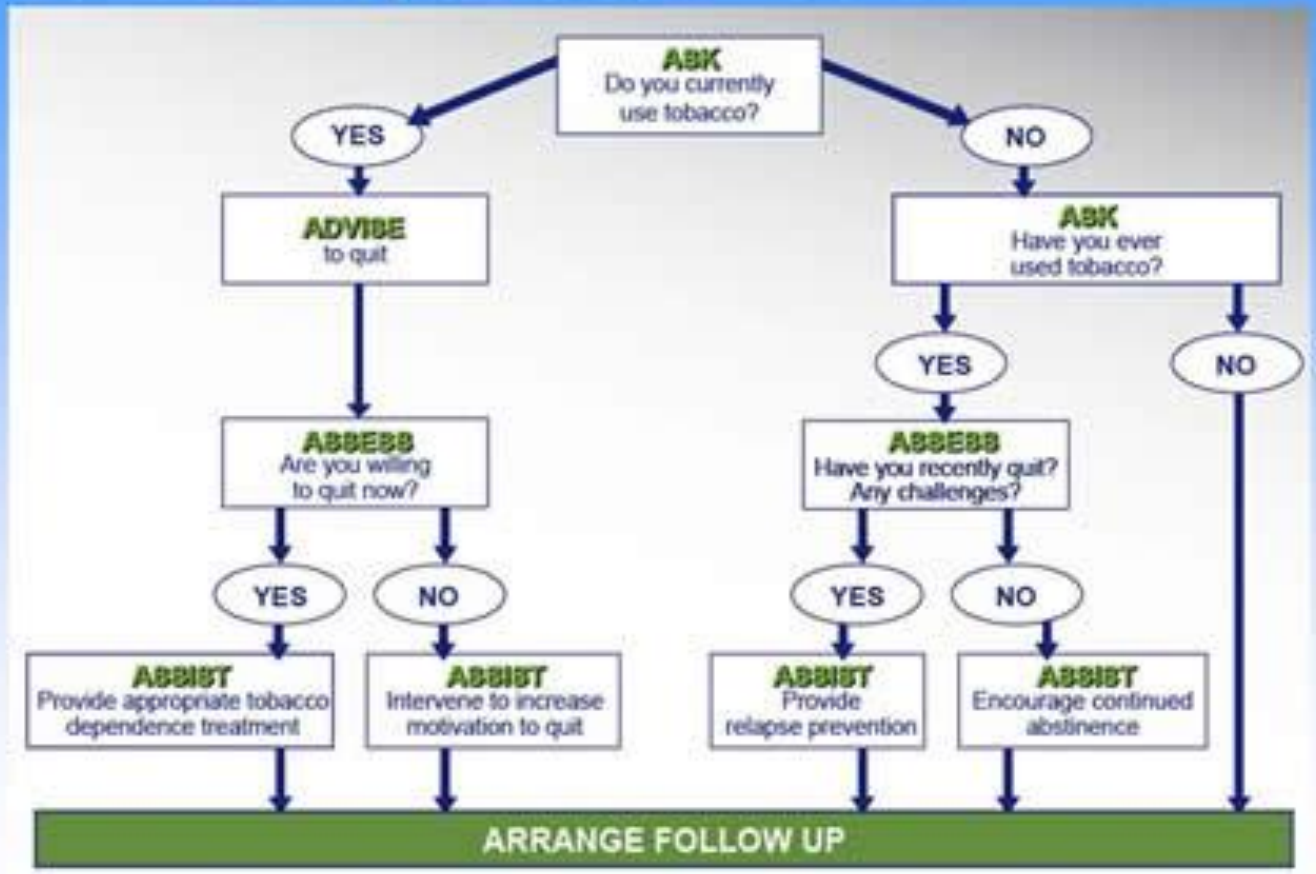
Stage of readiness	"What are your thoughts and feelings about quitting?"	Goal of Intervention	Typical Intervention
Precontemplation	"I like to smoke."	Introduce ambivalence	"Your emphysema will improve after you've quit smoking."
Contemplation	"I like to smoke, but I know I need to quit."	Resolve ambivalence	"How will your life be better after you've quit smoking?"
Preparation	"I'm ready to quit."	Identify successful strategies	"Choose a 'quit day' and let's make plans for it."
Action	"I'm not smoking, but I still think about it from time to time."	Provide solutions to specific relapse strategies	"How can you deal with your desire to smoke in those situations?"
Maintenance	"I used to smoke."	Solidify patient's commitment to a smoke free life	"This would be a good time to share your experience with other people."

Counseling strategies

- 5 As – when ready to quit
- 5Rs – when not ready or unsure

5As – when the patient wants to quit (click here)

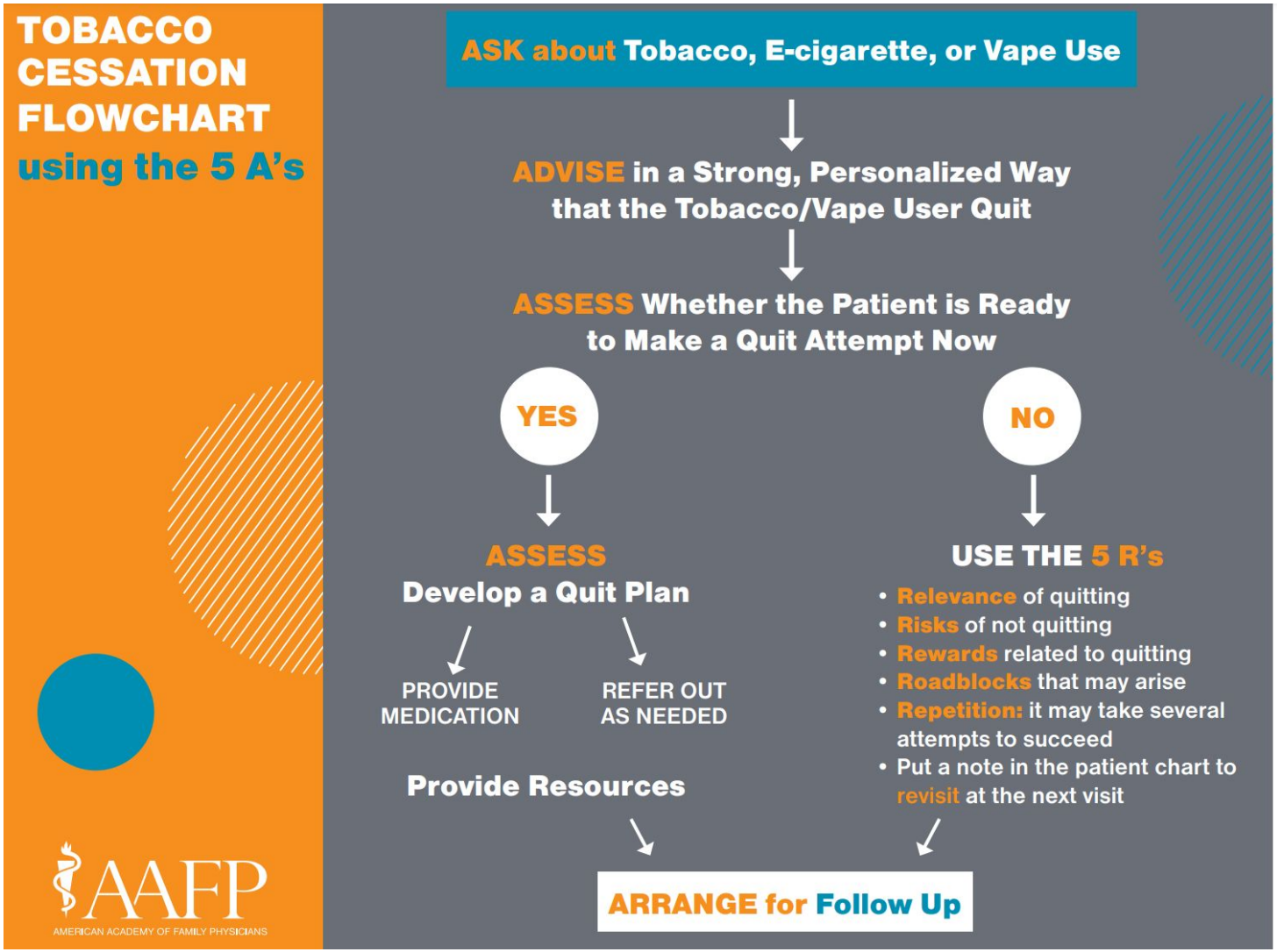
The "5 A's" Model for Treating Tobacco Use and Dependence - 2008



PHS

GHAM

5 Rs


TOBACCO CESSATION FLOWCHART using the 5 A's
ASK about Tobacco, E-cigarette, or Vape Use
ADVISE in a Strong, Personalized Way that the Tobacco/Vape User Quit
ASSESS Whether the Patient is Ready to Make a Quit Attempt Now
YES
NO
ASSESS
Develop a Quit Plan
PROVIDE MEDICATION
REFER OUT AS NEEDED
Provide Resources
USE THE 5 R's
Relevance of quitting
Risks of not quitting
Rewards related to quitting
Roadblocks that may arise
Repetition: it may take several attempts to succeed
Put a note in the patient chart to revisit at the next visit
ARRANGE for Follow Up
AAFP
AMERICAN ACADEMY OF FAMILY PHYSICIANS

Resources: AHRQ (Click here)

- *For clinicians*
- *US Dept Health and Human Services*
- *Treating Tobacco Use and Dependence: 2008 Update*, sponsored by the Public Health Service, includes new, effective clinical treatments for tobacco dependence that have become available since the 2000 Guideline was published.

Resources: Ask and Act (click here)

- For clinicians – especially physicians
- American Academy of Family Physicians
- Great counseling strategy resources

Resources: Smokefree.gov (click here)

- Created by the Tobacco Control Research Branch of the National Cancer Institute
- Intended to help **you** or **someone you care about** quit smoking
- Allows you to choose the help that best fits your needs

Resources: CDC

- Click here

Session Summary

- Smoking remains a significant and costly health problem
- Smoking is a chronic condition and most smokers have multiple quit attempts before they are successful
- All health professionals must ASK and ACT to assist their patients to stop smoking

THE UNIVERSITY OF ALABAMA AT BIRMINGHAM

Promoting Sleep Health

David M. Morris, PT, PhD. FAPTA

Perspective

Promoting Health and Wellness: Implications for Physical Therapist Practice

Janet R. Bezner

The leading cause of morbidity and mortality in the United States is chronic, or noncommunicable, diseases. The impact of chronic diseases on health and wellness can be significantly altered by individual health and behavior choices or modifications. Furthermore, the burden of chronic disease goes beyond health and the health care system and may influence an individual's wellness. The purposes of this article are: (1) to provide a basis for understanding the terms "health" and "wellness," (2) to identify the knowledge and skills physical therapists need to address behaviors that promote health and wellness and treat and protect against chronic disease, and (3) to discuss barriers and opportunities associated with integrating the promotion of health and wellness into physical therapist practice.

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Knowledge and Skills (Bezner, 2015)

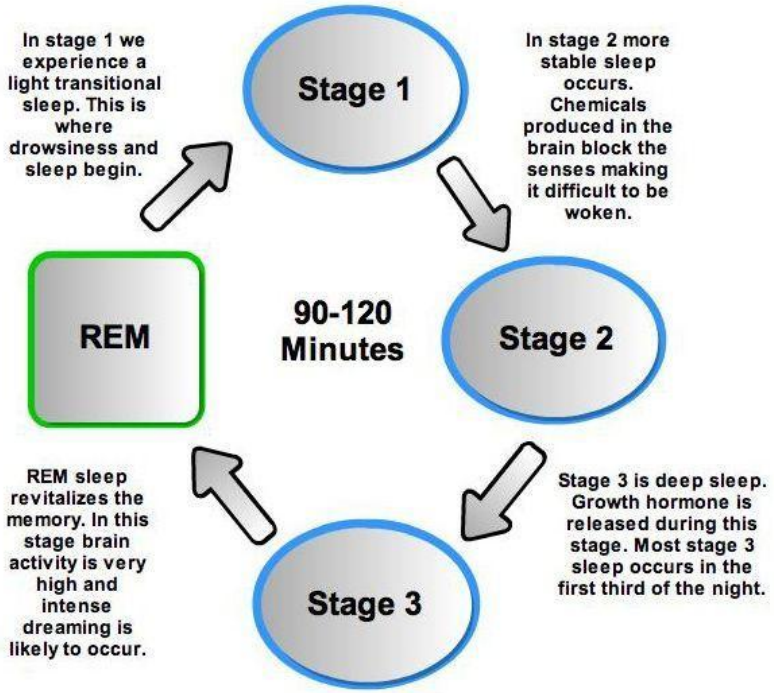
Sleep	Etiology, pathophysiology, diagnosis, treatment, prevention, and public health burden of sleep loss and disorders[47] Recommended sleep habits and conditions conducive to sleep	Ability to ask the questions "Do you get 7–8hours of sleep each night?" "Are you tired in the morning?" "Do you fall asleep quickly?" "Are you sleepy during the day?" "Do you wake up at night?" and provide guidance if the answers indicate poor sleep hygiene Role modeling healthy sleep habits Screening for sleep disorders Ability to provide instructions about optimal sleep habits[65] Ability to recognize need to refer to another provider Physical activity prescription to enhance sleep

What is sleep?

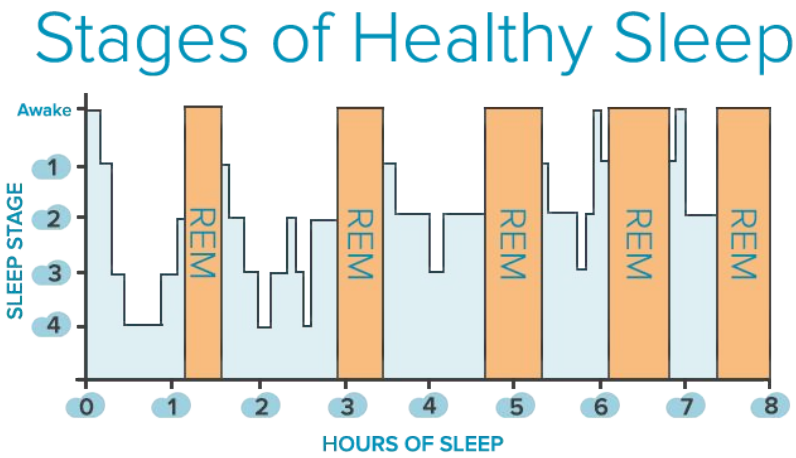
DHHS, 2011

- Defined as systematic changes in electrical activity of the brain
- Difficult to describe – CANNOT be described as simply “reduced activity”
- As you fall asleep – brain waves change from low amplitude, random variations to progressively larger, slower voltage changes

What is Sleep?



Cycle of Sleep Over an 8-hour Period



What Does Sleep Do for You?

- Improved Learning, Memory and Mood
- Hormonal regulation
  - Growth hormone
  - Cytokines
  - Leptin
  - Ghrelin

What is sleep?

DHHS, 2011

- An individual living under typical sleep patterns will take about 10-15 minutes to fall asleep
- Sleep is a **behavior** – is subject to learning, intentional, motivational, and habit-related factors

Sleep Insufficiency

- When sleep is insufficient to support adequate alertness, performance, and health because of ***reduced total sleep time*** (decreased quantity) or ***fragmentation of sleep*** by brief arousals (decreased quality). *(UptoDate)*

International Classification of Sleep Disorders (ICSD)

Seven major categories of sleep disorders:

(The International Classification of Sleep Disorders, 3rd ed.)

- Insomnia
- Sleep-related breathing disorders
- Central disorders of hypersomnolence
- Circadian rhythm sleep-wake disorders
- Parasomnias
- Sleep-related movement disorders
- Other sleep disorders

ICSD-3 includes 60 specific diagnoses within the seven major categories, as well as an appendix for classification of sleep disorders associated with medical and neurologic disorders.

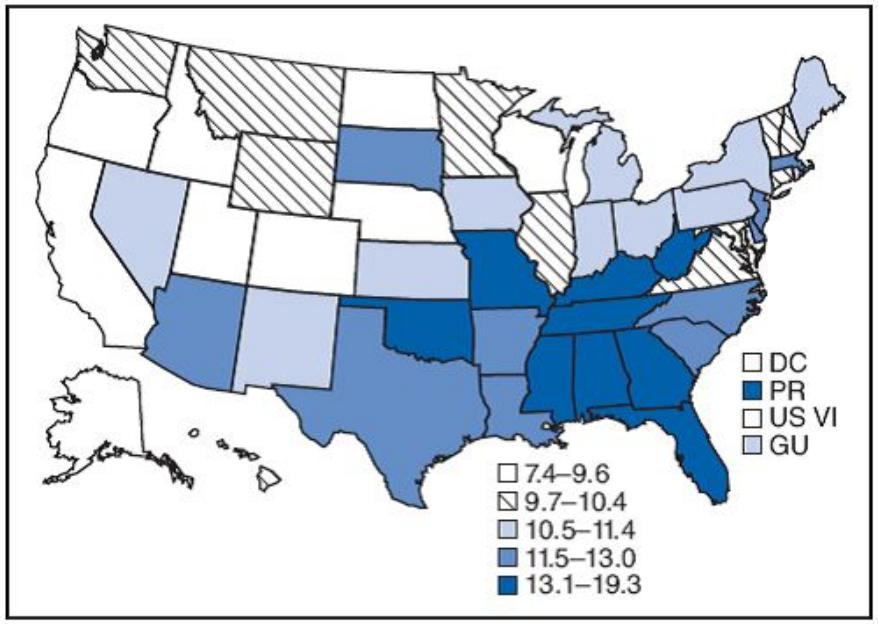
Facts about Sleep

CDC

- 34% of US respondents report getting less than 7 hours of sleep/night
- 25% of US adults report insufficient sleep/rest at least 15 out of every 30 days.
- 50-70 million US adults have sleep or wakefulness disorder.

Poor Sleep is a Public Health Problem!

Map of Sleep Insufficiency (BRFSS)



Common Causes of Sleep Disorders

UptoDate

- Stress
- Medical illness
- Pain
- Family discourse
- Loneliness
- Bereavement
- Financial worries
- Occupational worries

Physical Effects of Inadequate Sleep

UptoDate

- Impaired immunological functions
- Increased risk for chronic disease
- Increased cardiovascular mortality
- More likely to suffer form headaches, GI disorders, allergies, skin disorders, and respiratory difficulties
- Higher risk of diabetes
- Higher incidence of hypertension
- Higher incidence of obesity
- Impaired mental performance
- Significant increase in injury and accidents

The effects of slept debt is cumulative!

Top 3 – Sleep Disorders

1. Insomnia
2. Sleep Apnea
3. Restless Leg Syndrome

Sleep Insufficiency

- When sleep is insufficient to support adequate alertness, performance, and health because of ***reduced total sleep time*** (decreased quantity) or ***fragmentation of sleep*** by brief arousals (decreased quality). *(UptoDate)*
- Insufficient sleep syndrome is characterized by excessive daytime sleepiness caused by curtailed sleep almost every day for at least 3 months

(The International Classification of Sleep Disorders, 3rd ed.)

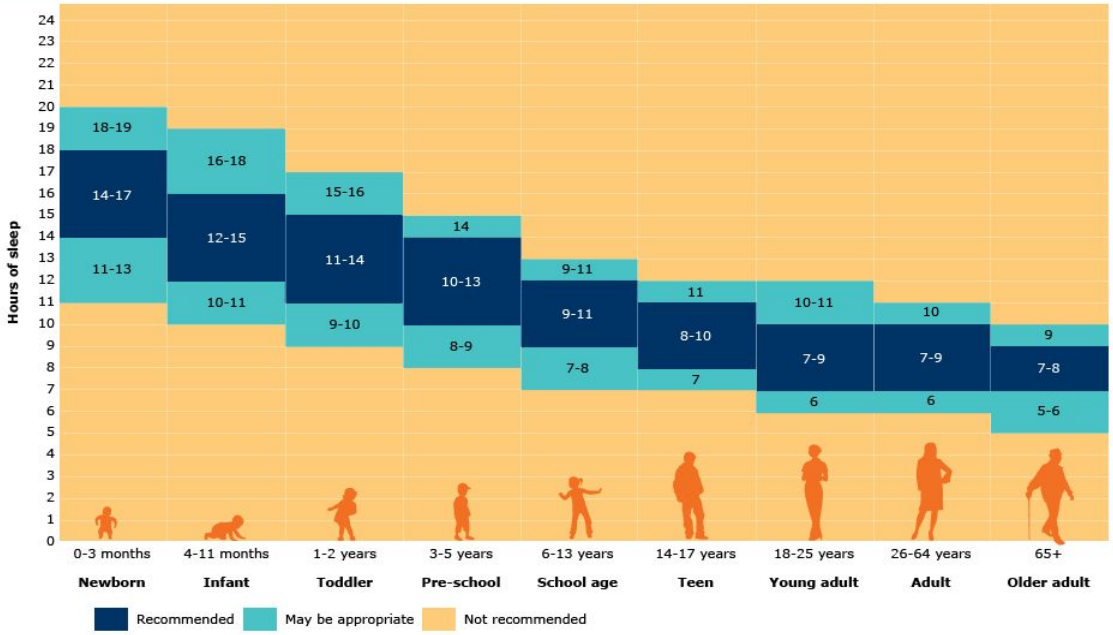
Definition - Quantity vs. Quality

- **Sleep Quantity**: Cumulative partial sleep deprivation vs. total sleep deprivation, e.g. how many hours of sleep
- **Sleep Quality**: Determined by the number of times you awake from sleep during the night, as well as the percentage, duration, and type of sleep stages, e.g. REM vs NREM time

Sleep Medicine, 2017

UptoDate

Sleep duration recommendations by age from the National Sleep Foundation*



* These recommendations are very similar, but not identical to those from the American Academy of Sleep Medicine (AASM).[1,2]

1. *Paruthi S, Brooks LJ, D'Ambrosio C, et al. Recommended amount of sleep for pediatric populations: A statement of the American Academy of Sleep Medicine. J Clin Sleep Med 2016; 12:785.*
2. *Consensus Conference Panel, Watson NF, Badr MS, et al. Recommended amount of sleep for a healthy adult: A Joint Consensus Statement of the American Academy of Sleep Medicine and Sleep Research Society. J Clin Sleep Med 2015; 11:591.*

OSA Definition

- **Respiratory disturbance index (RDI) ≥ 15 events per hour with or without symptoms,** or
- **Obstructive RDI between 5 and 14 events per hour that is accompanied by signs and symptoms**
- **Signs and symptoms**:
  - Sleepiness, nonrestorative sleep, fatigue, or insomnia symptoms;
  - Waking up with breath holding, gasping, or choking; habitual snoring and/or breathing interruptions;
  - Hypertension, mood disorder, cognitive dysfunction, coronary artery disease, stroke, congestive heart failure, atrial fibrillation, or type 2 diabetes

American Academy of Sleep Medicine

Sleep Apnea Risk Factors

- Male
- Overweight / obese
- Over age 40
- Large neck size (greater than 16–17 inches)
- Enlarged tonsils or tongue
- Small jaw bone
- Gastroesophageal reflux
- Allergies
- Sinus problems
- Family history
- Deviated septum[1]
- Alcohol, sedatives and tranquilizers promote sleep apnea by relaxing throat muscles.
- Smokers at three times the rate of people who have never smoked.

UptoDate

OSA Consequences

- Daytime function and cognition are impaired
- Cardiovascular morbidity that includes:
  - Systemic hypertension, pulmonary arterial hypertension, coronary artery disease, cardiac arrhythmias, heart failure and stroke
- Metabolic syndrome
- Type 2 diabetes
- Nonalcoholic fatty liver disease
- Perioperative complications
- Mortality

UptoDate

OSA Management

- **Long-term, multidisciplinary management**
- Cornerstones of therapy: Weight loss and positive airway pressure therapy
- Goals of therapy: reduce or eliminate apneas/hypopneas and oxygen desaturation
- Other strategies: oral appliances, upper airway surgery, hypoglossal nerve stimulation, other devices such as chin straps

CPAP

- **All with OSA should be offered continuous positive airway pressure (CPAP) as initial therapy**
- High quality evidence that CPAP reduces the number of respiratory events during sleep and improves next-day function
  - Pharynx remains open
  - Upper airway stabilized through increased end-expiratory lung volume
  - Results in prevention of respiratory events due to upper airway collapse (e.g., apneas, hypopneas)

UptoDate

CPAP Adherence

- 20-40% do not use their PAP and many others do not use it all night/every night
- Average nightly use is 4 hours
- Recognition of poor adherence can facilitate troubleshooting
  - Custom fitting masks
  - Newer, smaller, quieter devices that are portable

UptoDate

Restless Leg Syndrome (RLS)

- Also known as Willis-Ekbom Disease (WED)
- Unpleasant or uncomfortable sensations in the legs and an irresistible urge to move them during periods of inactivity especially in evening that is temporarily relieved by movement
- Periodic limb movements of sleep (PLMS) occurs in 80% of patients with RLS – do not necessarily awaken
- Periodic Limb Movement Disorder (PLMD) - PLMS that causes sleep disturbances – not RLS

https://www.ninds.nih.gov/Disorders/Patient-Caregiver-Education/Fact-Sheets/Restless-Legs-Syndrome-Fact-Shee

Determining a Patient's/Client's Needs for Lifestyle Behavior Change (LBC)

Siengsukon & Bezner, 2017

General Screening Questions	Condition?	Other screening
On most nights in a week , how much sleep do you get?	Insufficient Sleep	Epworth Sleepiness Scale Pittsburg Sleep Quality Index Sleep Hygiene Index
Do you feel rested or refreshed when you wake up?	Insufficient Sleep	
Do you have difficulty getting out of bed due to still being tired?	Insufficient Sleep	
Are you tired, sleepy, or fatigue during the day? If so, does it affect you functionally?	Insufficient Sleep	
Do you wake up often at night?	Insufficient sleep	
Does your current condition affect your sleep?	Insufficient Sleep	Need to assess positioning
Do you have difficulty falling asleep, returning to sleep if you wake up in the middle of night, or wake up too early?	Insomnia	Insomnia Severity Index
Has anyone ever state that you snore frequently or loudly? Do they report that you stop breathing when you sleep?	Obstructive Sleep Apnea	Stop-Bang Questionnaire
Do you have pain or uncomfortable sensations in your legs when you try to relax or sleep?	Restless leg Syndrome	"The Question"

Websites

- National Sleep Foundation (click here)
- American Academy of Sleep Medicine (click here)
- CDC – Sleep and Sleep Disorders (click here)
- DHHS – Sleep Health (click here)
- NINDS – Restless Leg Syndrome (click here and here)
- UpToDate – Sleep Health (click here)

Your Guide to Healthy Sleep (US DHHS, 2011) (click here)

- Latest science-based information…
  - Common sleep myths and practical tips
  - Coping with jet lag and nighttime shift work
  - Avoiding dangerous, drowsy driving

National Heart, Blood and Lung Institute
Click here

- Systematic reviews and clinical practice guidelines on Sleep Disorders

Questions/Discussion