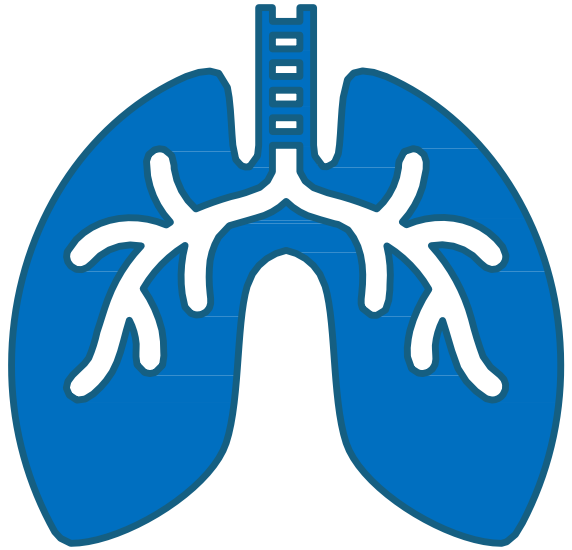
Pulmonary Rehab

A Breath of Fresh Air



Presented By:

Paul Hunt, MA, ACSM-CEP, CCRP, AARC/AACVPR Certificate in Pulmonary Rehab

Objectives

1. Knowledge/Remember – 'Identify'

- Opportunity to create a new PR program OR expand existing care?

2. Application/Apply – 'Implement'

- What changes can you make to provide best evidence-based practices? What can you streamline that is no longer relevant?

3. Evaluate/Synthesize – 'Produce'

- The goal is always the best results for our patients. That is individual, and as such each patient will progress as they tolerate and as you guide them.
- We cannot do it for them; they do the exercise and learn. But your guidance is invaluable. Without excellent guidance, they won't improve.

Definition of Health

- Constitution of the World Health Organization
    - "Health is a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity."
        - What does this have to do with Pulmonary Rehab?
        - Keep this in the back of your mind throughout the presentation.

What is Pulmonary Rehab & Who Qualifies?

Requirements for PR/ORT

It is tailored to meet the individual patient's specific needs based on a thorough evaluation.

It is at a level of complexity that requires a qualified clinician to perform.

It is medically reasonable and necessary for the treatment of an individual patient's acute/exacerbated pulmonary condition

CMS Criteria for PR & ORT

- Based on CMS Criteria:
  - Pulmonary Rehab (PR)
    - Chronic Obstructive Pulmonary Disease (including Emphysema & Bronchitis/Bronchiolitis)
    - Post-COVID
  - Outpatient Respiratory Therapy (ORT)
    - Asthma
    - Idiopathic Pulmonary Fibrosis
    - Interstitial Lung Disease
    - Pulmonary Hypertension
    - Shortness of Breath
    - Dyspnea on Exertion
    - Other Forms of Dyspnea
    - Chronic Hypoxemic Respiratory Failure
    - Bronchiectasis
    - Pulmonary Nodules
    - Lung Cancer
    - Lung Transplant
    - Cystic Fibrosis

Qualifying Criteria - COPD

COPD Criteria from CMS for PR

Pulmonary Function Test

GOLD Stages 2-4

Test Results - GOLD

- FEV_1/FVC <70% Predicted
  - **Confirmed with Post-Bronchodilation**
- FEV1 <80% Predicted
  - Moderate:
    - Stage 2 = FEV_1 <80% Predicted
  - Severe:
    - Stage 3 = FEV_1 <50% Predicted
  - Very Severe:
    - Stage 4 = FEV_1 <30% Predicted

Qualifying Criteria – Outpatient Respiratory Therapy (ORT)

No Tests specifically required by CMS

Best Practice:

- 6-Minute Walk Test and PFT
- Dx ORT condition(s) with worsening symptoms

Referral CPT Codes for PR & ORT

- PR:
  - Bulk Charge that incorporate all services into one charge
    - 94625 – Pulse Oximetry withOUT continuous monitoring
    - 94626 – Pulse Oximetry WITH continuous monitoring
- ORT:
  - Independent Charges
    - G0237 – Increase respiratory muscle strength/endurance, face-to-face, 1:1, per 15 min (Incentive Spirometry)
    - G0238 – Improve respiratory function, other than described by G0237, 1:1, per 15 min (Weights or Resistance Bands – Exhaling with Exertion, Pursed Lip Breathing, Box Breathing, Diaphragmatic Breathing, etc.)
    - G0239 – Increase respiratory muscle strength/endurance, face-to-face, 2 or more individuals (Group Aerobic Training)

PR Session Limitations vs ORT Sessions (Medicare)

- Medicare Part B – Outpatient Medicare Insurance Plan (pays 80% cost)
    - Lifetime Maximum of 72 Total Pulmonary Rehab sessions for patients who qualify for COPD/Post-COVID (Does not matter IF they have a Secondary Insurance that picks-up the remaining 20% cost)
- Technically, there is NO Lifetime limit on ORT diagnoses***
- VA/Tricare/Triwest also have NO LIMIT
    - However, Referral is completely at the discretion of the MD/DO submitting the Order. If they don't believe it is medically necessary at the time that a Patient needs Pulmonary Rehab/ORT after having completed past 72 sessions, then the Patient won't receive a Referral.

What About Mild COPD?

- Qualifying Patients with Mild COPD with an ORT Dx allows for Pulmonary Rehab intervention before COPD worsens

Certifying Organization for Pulmonary Rehab

- Guidelines are furnished by the **AACVPR** for Secondary Prevention

- Pulmonary Rehab required components:
  - Exercise Assessment and Training
  - Collaborative Self-Management and Patient Education
  - Psychosocial Assessment and Intervention
  - Nutritional Assessment and Intervention
  - Patient-Centered Evidence-Based Outcomes
  - Disease-Specific Approaches

ITP – Individualized Treatment Plans

Pulmonary Rehab is Secondary Prevention

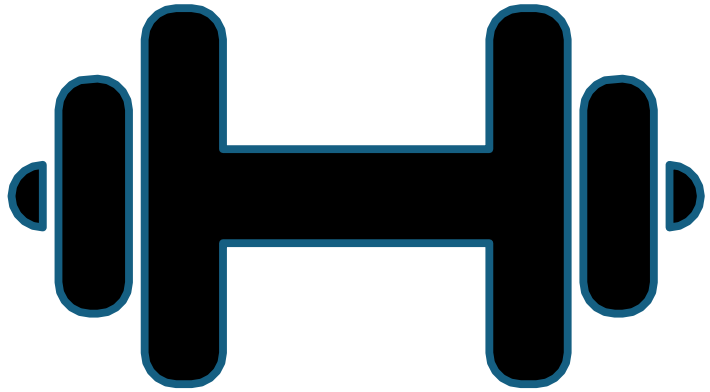
- Secondary Outpatient Rehab to Inpatient Hospitalization (Chronic/Acute Condition/Event)
- Prevention is becoming more widely recognized and utilized
    - The objective of Secondary Prevention is hopefully the patient does not need to be admitted again

Who Can Work in Pulmonary Rehab?

- Respiratory Care Practitioner/Registered Respiratory Therapist
- Clinical Exercise Physiologist
- Registered Nurse
- Physical Therapist/Physical Therapist Assistant
- Occupational Therapist/Occupational Therapist Assistant

** Technically, it is NOT REQUIRED by CMS that a Respiratory Therapist be present in Pulmonary Rehab

*** However, it is BEST PRACTICE to have an RRT working with patients in Pulmonary Rehab (Clear Roles and Responsibilities)



Structure of Pulmonary Rehab

- **5-10 min – Check-in:**
  - HR/SpO2/Manual BP
  - Cough
    - Color, if Productive?
    - New-onset, cause of irritation?
  - Pain and location
    - Assessing chronic limitations to exercise OR recent acute injury/exacerbation of chronic pain
  - Breath Sounds & RPD – Evaluate if Nebulized Albuterol Tx recommended
  - Temperature
  - Resting Incentive Spirometry
- **5-15 min – Weights (Dumbbells) and/or Thera-Bands** (Sarcopenia/Osteopenia/Muscular Power and Strength improvement)
- **30-45 min – Aerobic Exercise Modalities + Group Education** (Evaluation of Symptom-Limited Progression in Aerobic, Oxygen-dependent Exercise)
- **5 min – Cooldown with HR/SpO2 & BP** (BP in Cooldown if, determined necessary by Staff)

** Staff will measure Blood Glucose based on department policies for Diabetes Medications**

Preventive Medicine & Lifestyle Changes

Remember: Every Pulmonary Rehab session is constructed around Exercise & Education

- There are codes With & Without Continuous Pulse Oximetry
  - Some PR Programs utilize the With Continuous Monitoring only for Exercise & the Without Continuous Monitoring for Education wrapped into a complete session longer than 91 minutes.

At AHRO, we emphasize the Exercise for every single session Without Continuous Monitoring and perform Education simultaneously.

- Exercise is the main lifestyle change we wish to modify* because that is what they are actively doing while in the program

Risk Factor Modification – CVD/PD/MD

TABLE 2.2 • Cardiovascular Disease (CVD) Risk Factors and Defining Criteria

Positive Risk Factors[a]	Defining Criteria
Age	Men ≥45 yr; women ≥55 yr (35)
Family history	Myocardial infarction, coronary revascularization, or sudden death before 55 yr in father or other male first-degree relative or before 65 yr in mother or other female first-degree relative (36)
Cigarette smoking	Current cigarette smoker or those who quit within the previous 6 mo or exposure to environmental tobacco smoke (36,37)
Physical inactivity	Not meeting the minimum threshold of 500–1,000 MET-min of moderate-to-vigorous physical activity or 75–150 min · wk^{-1} of moderate- to vigorous-intensity physical activity (21)
Body mass index/waist circumference	Body mass index ≥30 kg · m^{-2} or waist girth >102 cm (40 in) for men and >88 cm (38 in) for women (38)
Blood pressure	Systolic blood pressure ≥130 mm Hg and/or diastolic ≥80 mm Hg, based on an average of ≥2 readings obtained on ≥2 occasions, or on antihypertensive medication (29)
Lipids	Low-density lipoprotein cholesterol (LDL-C) ≥ 130 mg · dL^{-1} (3.37 mmol · L^{-1}) or high-density lipoprotein cholesterol (HDL-C) < 40 mg · dL^{-1} (1.04 mmol · L^{-1}) in men and <50 mg · dL^{-1} (1.30 mmol · L^{-1}) in women or non-HDL-C < 130 (3.37 mmol · L^{-1}) or on lipid-lowering medication. If total serum cholesterol is all that is available, use ≥200 mg · dL^{-1} (5.18 mmol · L^{-1}) (30)
Blood glucose	Fasting plasma glucose ≥100 mg · dL^{-1} (5.5 mmol · L^{-1}); or 2 h plasma glucose values in oral glucose tolerance test (OGTT) ≥140 mg · dL^{-1} (7.77 mmol · L^{-1}); or HbA1C ≥5.7% (39)
Negative Risk Factors	**Defining Criteria**
HDL-C[b]	≥60 mg · dL^{-1} (1.55 mmol · L^{-1}) (30)

[a]If the presence or absence of a CVD risk factor is not disclosed or is not available, that CVD risk factor should be counted as a risk factor.
[b]High HDL-C is considered a negative risk factor. For individuals having high HDL ≥ 60 mg · dL^{-1} (1.55 mmol · L^{-1}), one positive risk factor is subtracted from the sum of positive risk factors.
HbA1C, glycated hemoglobin; MET, metabolic equivalent; non-HDL-C, total cholesterol minus HDL-C.

Staff Goals for Pulmonary Rehab/ORT Patients

- Exercise
  - METs – Metabolic Equivalent of Tasks
    - Oxidative Measure of Intensity on Aerobic Modality
      - Standardized measure of Relative VO2 (mL/kg/min O2)
      - 1 MET = 3.5 mL/kg/min O2
  - Watts – Resistance Measure of Intensity on Aerobic Modality
    - Unit of Power
      - 60 Watts lights a lightbulb – how many lights can you power and for how long?
  - Weights – Dumbbells/Thera-Bands Progressively Increase
- Dyspnea – Modified Borg RPD Scale (Rating of Perceived Dyspnea, 0-10)
- HR – Varies on Starting Point
- BP – Varies on Starting Point
- SpO2 – Oxygen Saturation >90-95%
- Supplemental Oxygen – Rx by Pulmonologist; Can we Titrate with Exercise Progression?

METs & Physical Activities

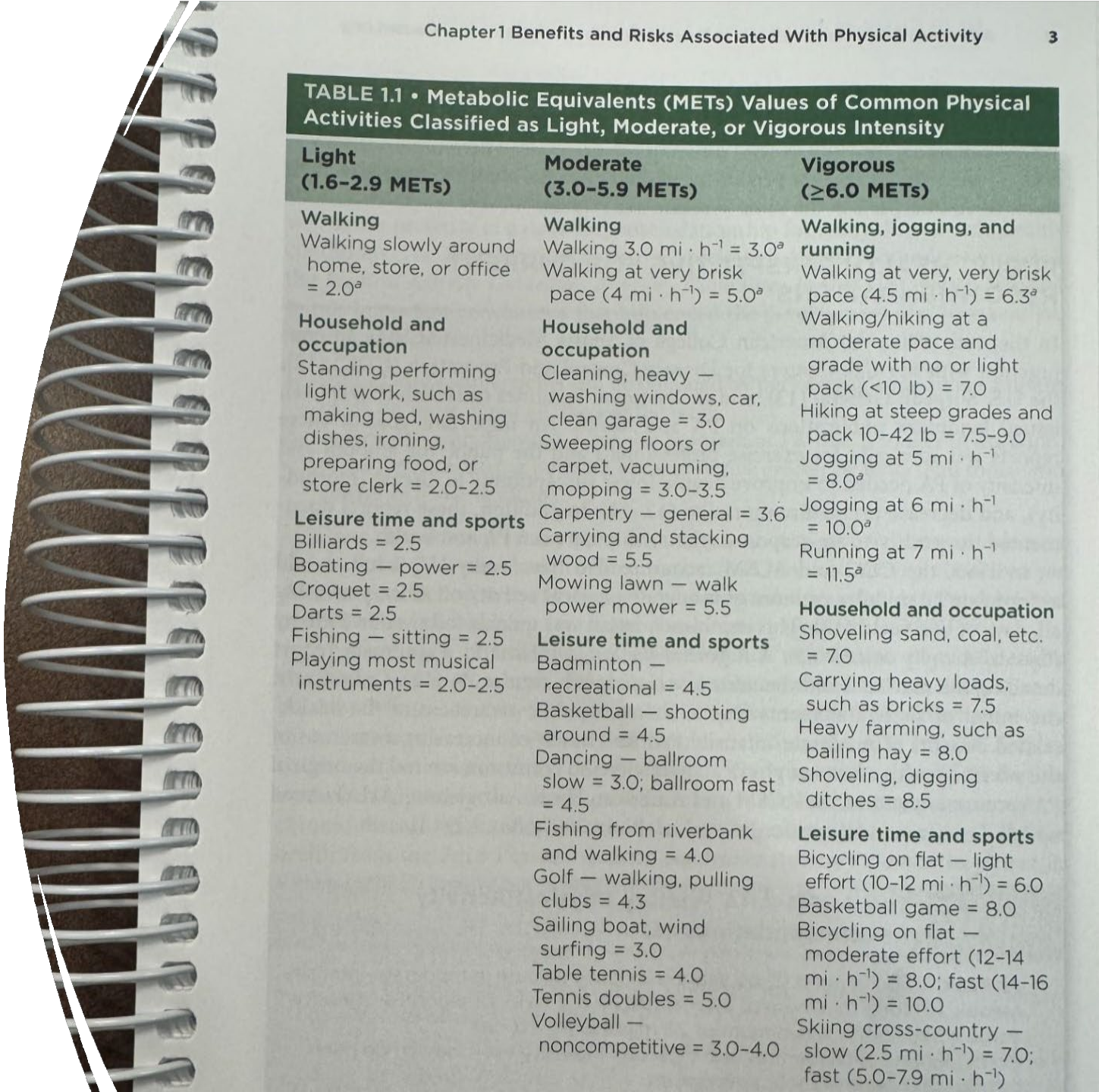


TABLE 1.1 • Metabolic Equivalents (METs) Values of Common Physical Activities Classified as Light, Moderate, or Vigorous Intensity

Light (1.6–2.9 METs)	Moderate (3.0–5.9 METs)	Vigorous (≥6.0 METs)
Walking Walking slowly around home, store, or office = 2.0[a]	**Walking** Walking 3.0 mi · h^{-1} = 3.0[a] Walking at very brisk pace (4 mi · h^{-1}) = 5.0[a]	**Walking, jogging, and running** Walking at very, very brisk pace (4.5 mi · h^{-1}) = 6.3[a] Walking/hiking at a moderate pace and grade with no or light pack (<10 lb) = 7.0 Hiking at steep grades and pack 10–42 lb = 7.5–9.0 Jogging at 5 mi · h^{-1} = 8.0[a] Jogging at 6 mi · h^{-1} = 10.0[a] Running at 7 mi · h^{-1} = 11.5[a]
Household and occupation Standing performing light work, such as making bed, washing dishes, ironing, preparing food, or store clerk = 2.0–2.5	**Household and occupation** Cleaning, heavy — washing windows, car, clean garage = 3.0 Sweeping floors or carpet, vacuuming, mopping = 3.0–3.5 Carpentry — general = 3.6 Carrying and stacking wood = 5.5 Mowing lawn — walk power mower = 5.5	**Household and occupation** Shoveling sand, coal, etc. = 7.0 Carrying heavy loads, such as bricks = 7.5 Heavy farming, such as bailing hay = 8.0 Shoveling, digging ditches = 8.5
Leisure time and sports Billiards = 2.5 Boating — power = 2.5 Croquet = 2.5 Darts = 2.5 Fishing — sitting = 2.5 Playing most musical instruments = 2.0–2.5	**Leisure time and sports** Badminton — recreational = 4.5 Basketball — shooting around = 4.5 Dancing — ballroom slow = 3.0; ballroom fast = 4.5 Fishing from riverbank and walking = 4.0 Golf — walking, pulling clubs = 4.3 Sailing boat, wind surfing = 3.0 Table tennis = 4.0 Tennis doubles = 5.0 Volleyball — noncompetitive = 3.0–4.0	**Leisure time and sports** Bicycling on flat — light effort (10–12 mi · h^{-1}) = 6.0 Basketball game = 8.0 Bicycling on flat — moderate effort (12–14 mi · h^{-1}) = 8.0; fast (14–16 mi · h^{-1}) = 10.0 Skiing cross-country — slow (2.5 mi · h^{-1}) = 7.0; fast (5.0–7.9 mi · h^{-1})

Need to Progress Intensity with Exercise, Unless Resting RPD is Elevated

Goal for All Patients is the RPD Training Zone
*2-4 RPD = most measurable progress

Start Slowing Down Intensity – 5-6 RPD

Patient Outcomes: Subjective

- What is your goal for your time in this program?
  - Starting Point; The WHY
- How do you feel? - Borg RPD quantifies this question
  - How do you want to achieve this goal?
  - Work with Staff to Plan Exercise Program
  - Work with Physicians to Modify Medications as changes occur
- Do you feel like you're making progress?
- Review Initial Goal:
  - Have you Achieved it?
  - Are you taking steps to work towards it?

Patient Outcomes: Objective

- MET Progression
  - If not, Watt Progression?
    - If not, Duration Progression?
    - ADD Weights?
      - If not (this is voluntary), how do we progress?
- SpO2 Maintenance/Increase?
  - If Hypoxic at Rest (no Supp O2), have we instituted PLB with Exercise and checked for proficiency with PLB to affect an SpO2 response so Patient can see the beneficial effect?
  - If O2 is normal at Rest (no Supp O2), are they desaturating into Hypoxia with Exercise?
    - IF YES, are we adding Supp O2? Are we advocating Rest Periods to re-oxygenate?
- IF on Supplemental O2, have we Titrated Yet? Is Titration tolerated?
- IF on Insulin, are we HOLDing Insulin on the days coming to PR due to Glut-4 Transport Protein Blood Glucose uptake into the muscle cells?

Rotating Education Topics - Respiratory

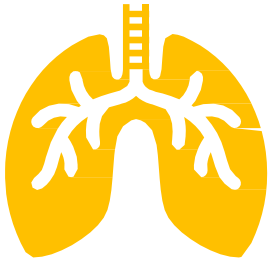
Main Topics

- Lung & Airway Anatomy & Physiology
- Energy Conservation
- Infection Prevention
- Medications
- COPD Management Plan
- Respiratory Equipment/Oxygen
- ILD & IPF
- What is COPD
- Airway Clearance Techniques

Subtopics

1. COPD Medications
    - Management & Treatment of COPD
2. ILD Medications
    - New Medications & Potential Side Effects
3. Supplemental Oxygen at Home & Breathing Retraining
4. Tips for CPAP/BIPAP
5. How to Use a Spacer Aerochamber with Rescue Inhalers & How to Clean

Smoking Cessation Program



American Lung Association is the Gold Standard - 'Freedom from Smoking'

8-session program

Thinking About Quitting (Precontemplation)

Wanting to Quit (Contemplation)

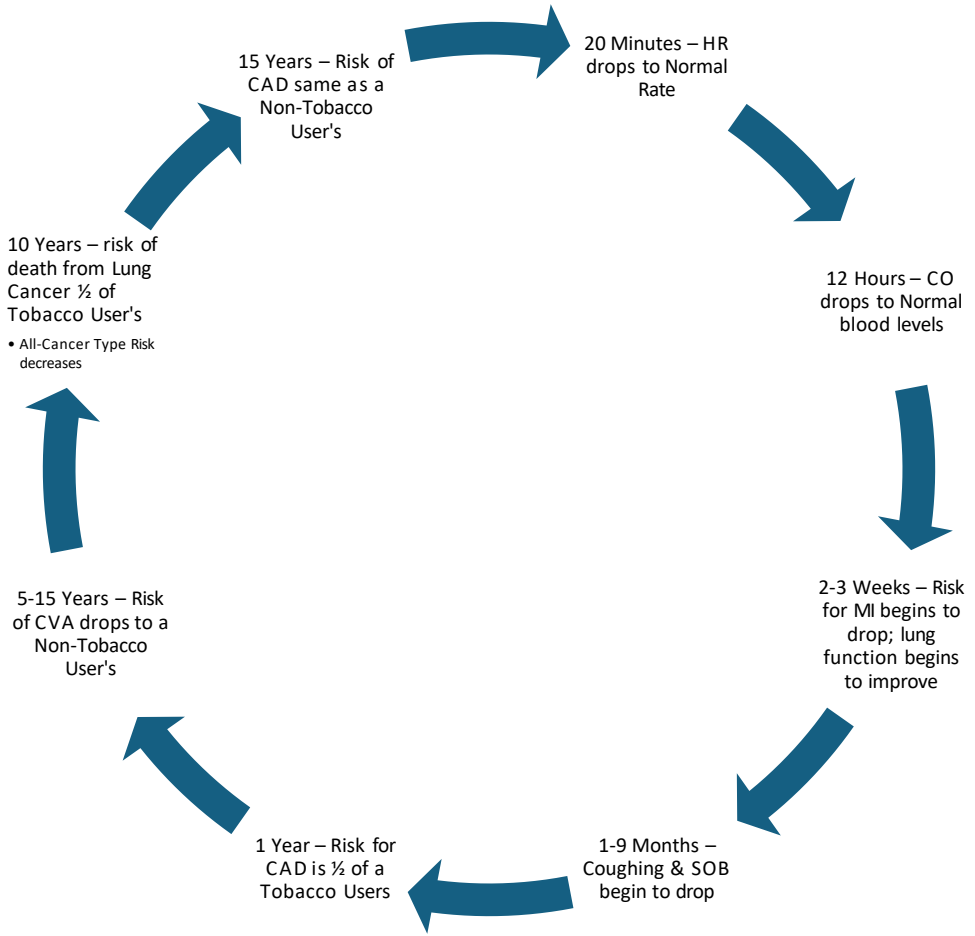
Set a Quit Date – Quit Day (Action)

Instructor Check-In

Plan & Strategies to Maintain Cessation

Managing Stress & Controlling Weight

Benefits of Quitting Smoking



Tobacco Cessation Resources

Kick-It California – www.kickitca.org

Self-Guided ALA Program "Guide to Help You Quit"

CDC – www.cdc.gov - Free Help to Quit Smoking

American Cancer Society – Empowered to Quit

Rotating Education Topics – Nutrition

1. Nutrition for COPD Patients
   - Low Insoluble Fiber Diets – Foods that cause bloating make it harder to breathe.
2. Healthy Grocery Shopping/Reading Nutrition Labels
   - Trans Fats were banned Effective 2018
   - Pay attention to Serving Sizes

Nutrition Facts

2 servings per container

Serving size **1 cup (255g)**

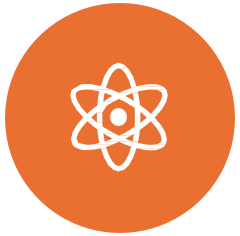
	Per serving		Per container	
Calories	**220**		**440**	
		% DV*		**% DV***
Total Fat	5g	**6%**	10g	**13%**
Saturated Fat	2g	**10%**	4g	**20%**
Trans Fat	0g		0g	
Cholesterol	15mg	**5%**	30mg	**10%**
Sodium	240mg	**10%**	480mg	**21%**
Total Carb.	35g	**13%**	70g	**25%**
Dietary Fiber	6g	**21%**	12g	**43%**
Total Sugars	7g		14g	
Incl. Added Sugars	4g	**8%**	8g	**16%**
Protein	9g		18g	
Vitamin D	5mcg	25%	10mcg	50%
Calcium	200mg	15%	400mg	30%
Iron	1mg	6%	2mg	10%
Potassium	470mg	10%	940mg	20%

* The % Daily Value (DV) tells you how much a nutrient in a serving of food contributes to a daily diet. 2,000 calories a day is used for general nutrition advice.

SOURCE: FDA

abc NEWS

Rotating Education Topics - Exercise



METS & WATTS

BENEFITS OF EXERCISE

HOME EXERCISE PLANNING

ENERGY CONSERVATION

STRESS & RELAXATION

Rotating Education Topics - Psychosocial

ANXIETY

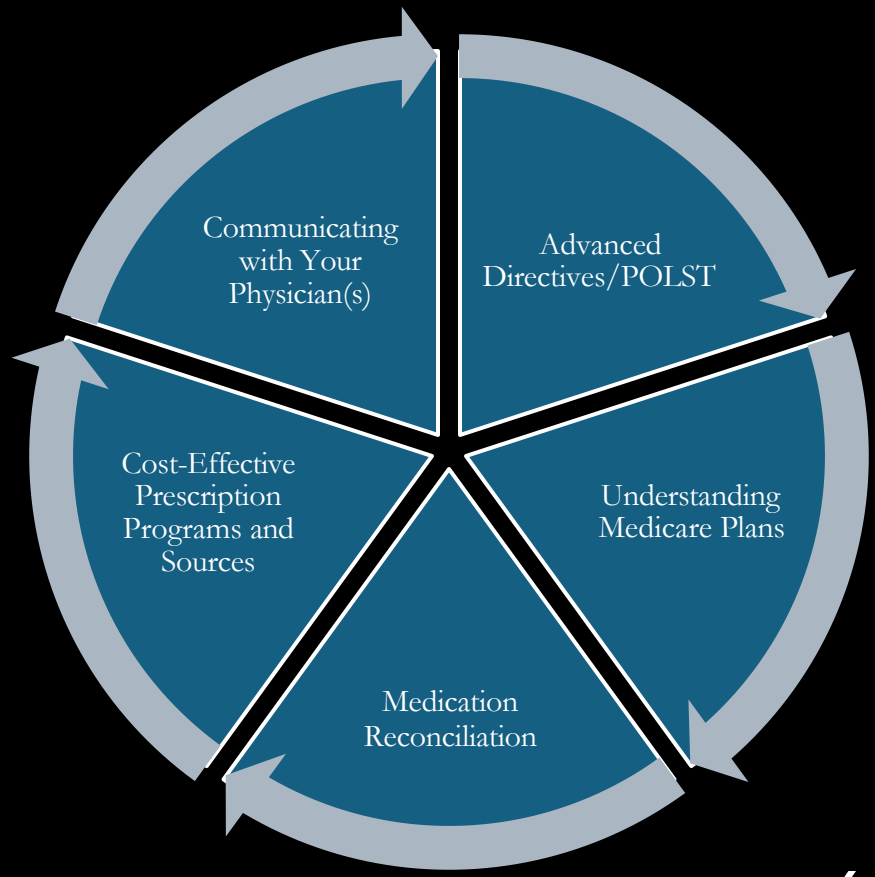
DEPRESSION

PANIC

STRESS & RELAXATION

BREATHING RETRAINING

Rotating Education Topics – Medical



Exercise Physiologists

- How the human body adapts, responds & acclimates to physical activity and exercise – analyzes metabolic responses (vitals & S/Sx)

- Gold Standard Organization:
  - American College of Sports Medicine
  - Clinical Exercise Physiologist (ACSM-CEP)

- Must know:
  - Cardiovascular Disease
  - Pulmonary Disease
  - Metabolic Disease
  - Known Diseases/Conditions/Events/Procedures/Risk Factors & S/Sx

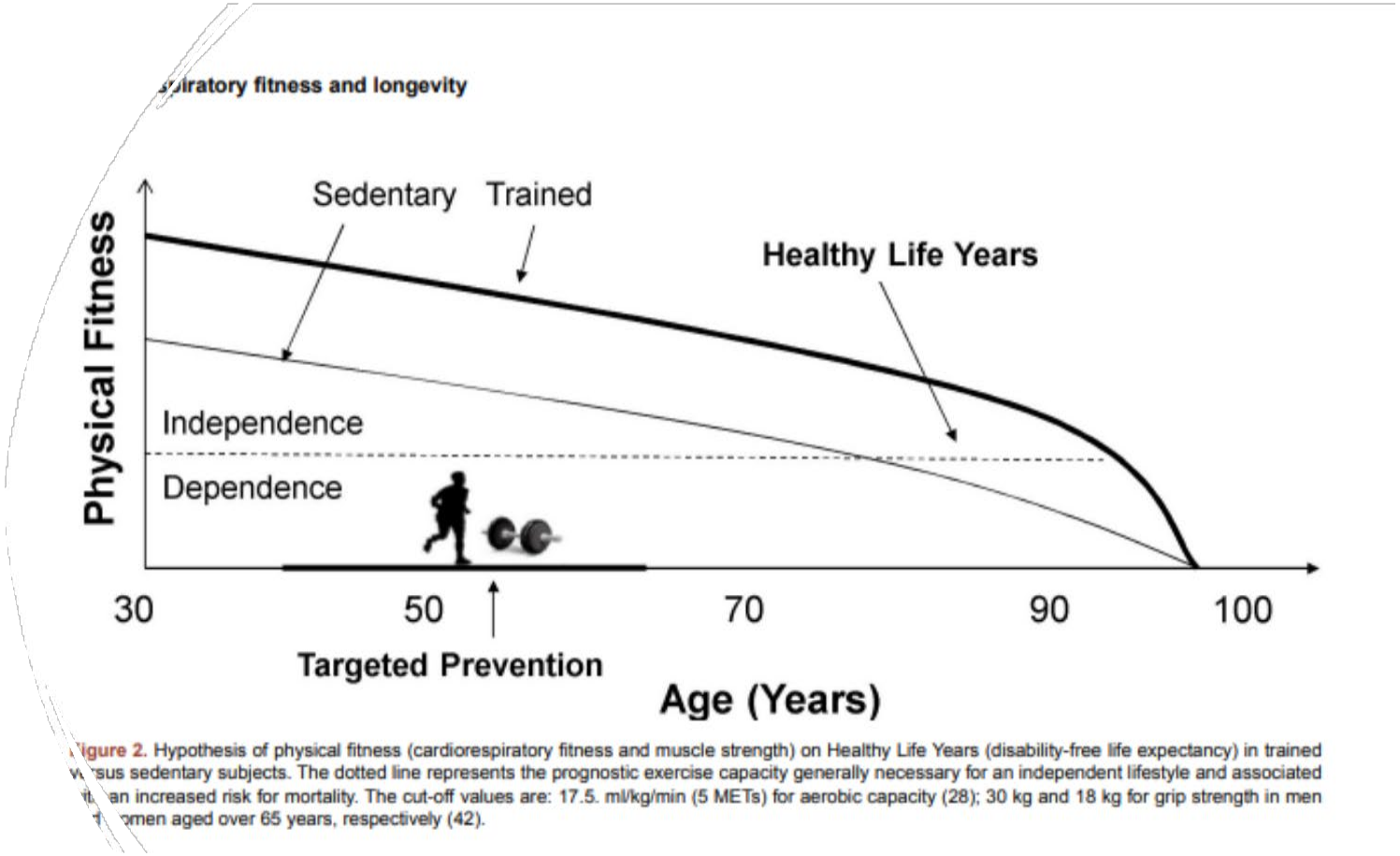
- Main responsibilities are to:
  - Clinical Stress Testing
  - Prescribe Exercise in Cardiac and Pulmonary Rehab

Muscular Physiology – Energy Pathways (Muscle is a Respiratory Organ!)

- ALL Energy in the Body is ATP Creation
  - Phospho-Creatine Donation (ATP-CP Cycle) ~ 10 – 30 seconds
    - Squats
  - Anaerobic Glycolysis ~ 30 seconds – 1 minute
    - Crunches
  - Kreb's Cycle (Tri-Carbocylic Acid Cycle) ~ 1 minute – 2.5 minutes
    - Brisk Walk Down the Street
  - **Oxidative Phosphorylation (Electron Transport Chain) ~ 3 minutes**
    - Steady State Aerobic Exercise = Sustained Duration *without Rest Periods*
    - Measuring VO_2

Why is VO_2 So Important?

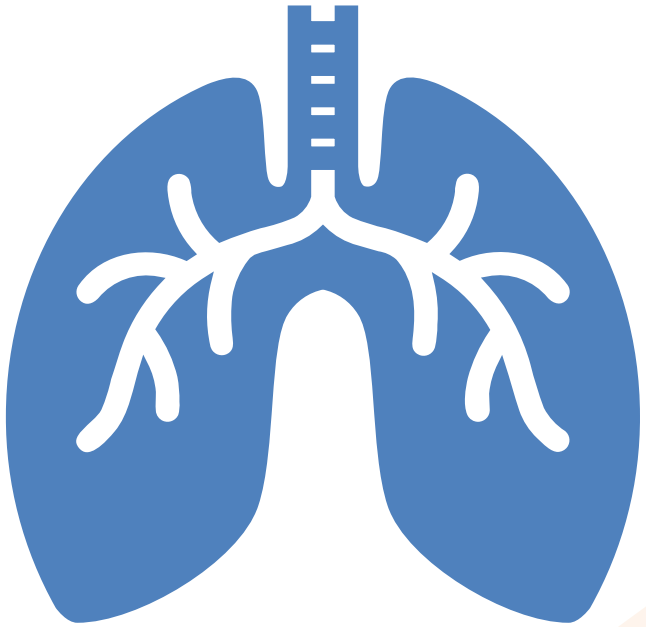
- 1 MET = 3.5 mL/**kg**/min **RELATIVE** VO_2
- Why is this presentation called Cultivating Life Extension?
- Not only Life Extension, but improvement of Health-Related Quality of Life Outcomes.
- Exercise in an independent factor to improve CRF & VO_2



igure 2. Hypothesis of physical fitness (cardiorespiratory fitness and muscle strength) on Healthy Life Years (disability-free life expectancy) in trained
sus sedentary subjects. The dotted line represents the prognostic exercise capacity generally necessary for an independent lifestyle and associated
an increased risk for mortality. The cut-off values are: 17.5. ml/kg/min (5 METs) for aerobic capacity (28); 30 kg and 18 kg for grip strength in men
omen aged over 65 years, respectively (42).

Pulmonary Rehab, Exercise, and Cultivating Life Extension

- Let's Re-State the Hypothesis:
    - The GOAL of Pulmonary Rehab is Secondary Prevention
        - We don't want patients to have to go back into the hospital. Why would we want that?
    - Collaborative Self-Management of chronic lung diseases/conditions/Sx is rooted in lifestyle change accepted between Practitioner/Therapist/Patient
    - Increasing exercise capacity, eating a healthier diet, reconciling medications, and communicating with Physicians are the actions we guide patients to modify
    - We are only guiding patients; they must do the work to take care of themselves.



A Note about ORT and CMS Decisions

Currently, CMS is evaluating incorporating these ORT Diagnoses into the Pulmonary Rehab qualifying criteria

The process is called NCD – National Coverage Determination

Local Coverage Determination is made by Billing and Coding agents throughout the U.S. - MACs - ours is Noridian.

An PR/ORT Side Note

The more data we gather at the clinical level, the more evidence we provide to CMS to include ORS Diagnoses into PR.

Currently, PR is reimbursed by CMS at almost double the rate of reimbursement for ORT.

IF more ORT Diagnoses are included, then there is more justification for reimbursement to be higher for PR services overall.

- Growing the list of conditions treatable through Pulmonary Rehabilitation services yields more recognition.
  - Cardiac Rehab is reimbursed more than double Pulmonary Rehab & there are quite a bit more Diagnoses allowed into Cardiac Rehab than Pulmonary Rehab.

Some of the Most Important Aspects of Pulmonary Rehab

- Medication Reconciliation
- Understanding Prescribed Medications
- Education of Adherence & Importance of taking them as Prescribed
- Medication Side Effects
- Communicating with Pulmonoligists/Cardiologists/Primary Care Physicians/etc. (Endocrinologists)
  - Highly personalizing health care for 36 Total sessions can be transformative

*How much time, detail, and attention do you expect from your providers for your own health care? How much do you expect from yourself?

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