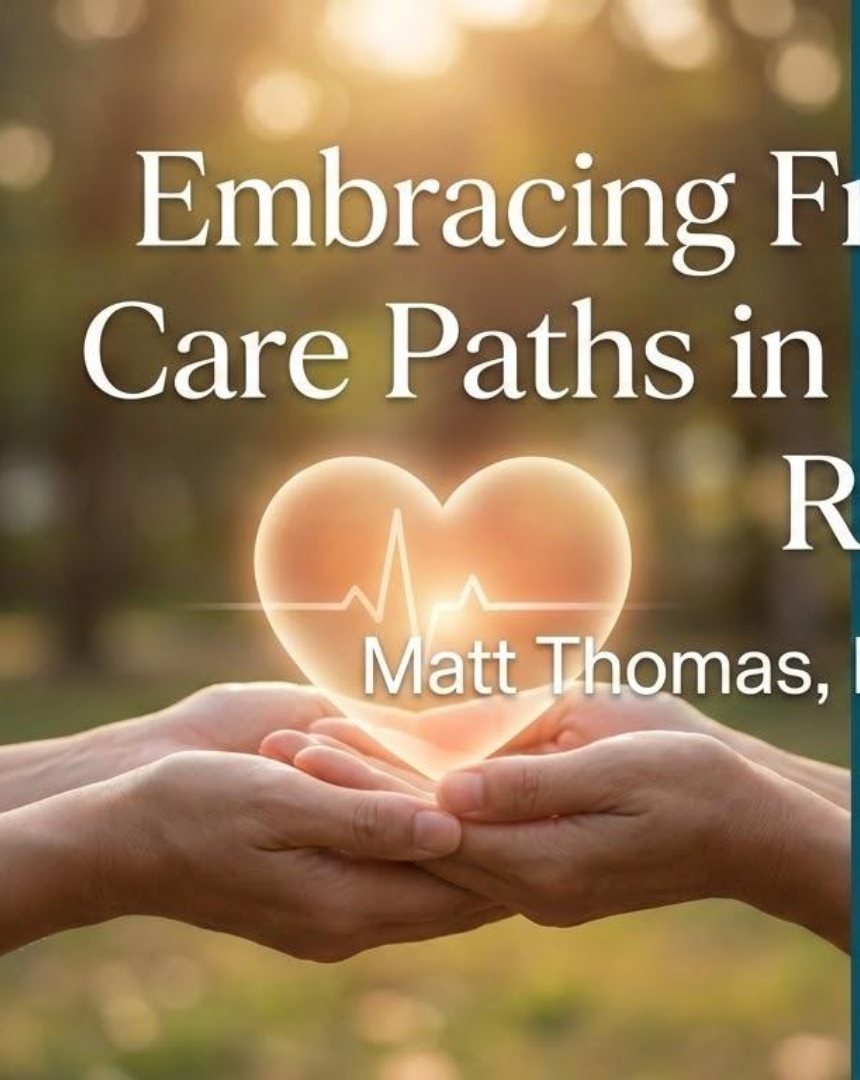

Embracing Frailty: Optimizing Care Paths in Cardiopulmonary Rehab

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No disclosures to report.

Understanding Frailty: A Shifting Paradigm

THE ‘F-WORD’ EPIDEMIC IN CARDIOPULMONARY REHAB

No, not that one. The other silent, pervasive challenge: **FRAILTY.**

- It’s on everyone’s lips (and charts).
- Pervasive in our patient population.
- We must address it, not suppress it.

Understanding Frailty: A Shifting Paradigm

Definition

- A multi-system physiological syndrome
- Decreased physiological reserve
- Increased vulnerability to stressors

Not just “old and weak”

Disability (functional loss)

Comorbidity (multiple diseases)

Sarcopenia (muscle mass loss)

(though often co-exist)

Dynamic and Potentially Reversible

- Emphasize the opportunity for intervention
- Shift from decline to improvement

Focusing on intervention and improved outcomes

What Frailty IS NOT: Dispelling Common Myths

✗ MYTH

- Just “Getting Old” / Normal Aging

- Solely about Physical Weakness

- A Permanent, Irreversible Condition

✓ REALITY

- A Distinct Physiological Syndrome, Not Inevitable

- Involves Multiple Domains (Cognitive, Social, Nutritional)

- Dynamic and Often Reversible with Intervention

Frailty is a state of increased vulnerability, distinct from disability and comorbidity.

5 METs: The Frailty Threshold

ROBUST (Above 5 METs)

Brisk Walking, Cycling, Stairs, Heavy Cleaning

5 METs
THRESHOLD

FRAIL / PRE-FRAIL (Below 5 METs)

Slow Walking, Light Housework, Dressing, Desk Work

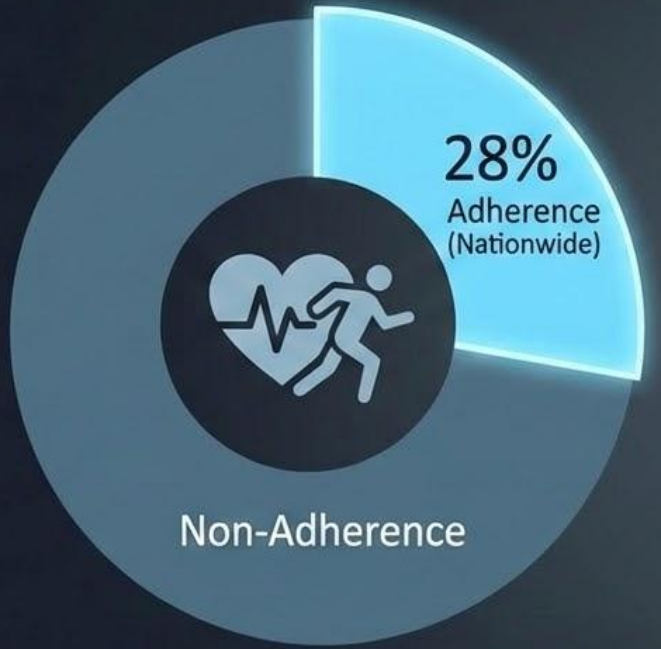
Functional capacity below 5 METs is often associated with increased frailty risk and reduced independence.

THE UNVEIILING CHALLENGE

Why is frailty so critical in CPRS patients?

- Increased morbidity
- Mortality
- Prolonged hospital stays
- Poorer quality of life
- Reduced rehab adherence

CARDIAC REHAB: A NATIONWIDE ADHERENCE CHALLENGE



The Role of Frailty & Business Impact

- Frailty is a significant barrier to enrollment and sustained adherence metrics.
- Improving frailty management is crucial for boosting program volumes.
- Addressing frailty is a strategic business priority for better long-term outcomes and patient engagement.

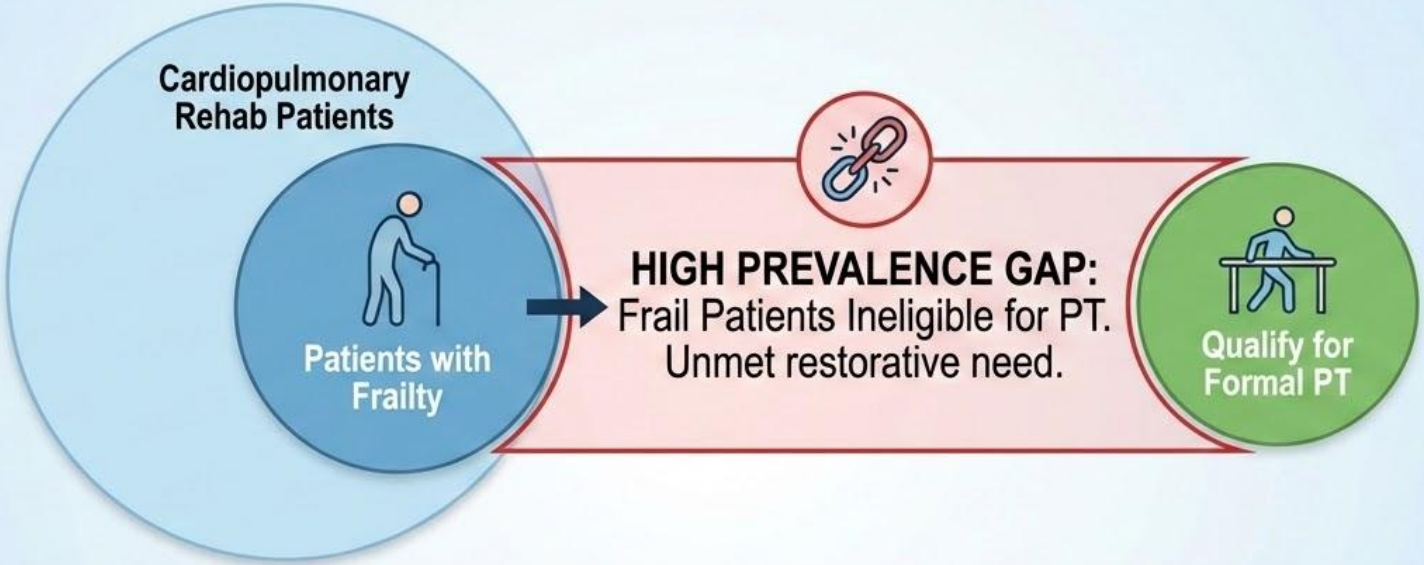
Why Frailty Matters in Cardiopulmonary Rehab

The Vicious Cycle

Impact on Rehab

- Reduced participation/adherence
- Higher risk of adverse events during exercise
- Slower progress, poorer functional gains
- Slower progress, poorer functional gains
- Increased readmissions post-rehab
- Diminished quality of life

The Frailty-PT Gap: A Critical SDOH & Opportunity in Cardiac Rehab



Social Determinant of Health (SDOH) Gap

- Limited access to specialized restorative care pathways.
- Exacerbates disparities in functional outcomes.
- Often linked to socioeconomic barriers affecting referral and resources.

Strategic Opportunity

- Integrate tailored, frailty-focused interventions within CR.
- Bridge the care gap to improve independence & quality of life.
- Enhance program value and patient engagement significantly.

Spotting Frailty

Evidence-Based Assessment Tools

The Imperative of Early Identification

Frailty cannot be treated if it is not identified.

Distinguishing True Frailty

- **Aging** (normal process) vs. **Frailty** (accelerated decline)
- **Deconditioning** (reversible with activity) vs. **Frailty** (multisystem impairment)
- **Sarcopenia** (loss of muscle mass) vs. **Frailty** (clinical syndrome including weakness, slow gait)

Benefits of Early ID

- **Potential Improvement** (proactive intervention)
- **Tailored Care** (personalized care plans)

Challenges to ID

- **Knowledge Gap** (awareness and understanding)
- **Time Constraints** (busy clinical settings)
- **Efficient Identification Techniques** (need for practical tools)

Gold Standard & Research Tools

Fried's Phenotype Model

- Weight loss
- Exhaustion
- Weakness
- Slow gait
- Low physical activity

Foundational concept for understanding frailty as a clinical syndrome.

Frailty Index (FI)

More comprehensive cumulative deficit model.

Less practical for routine rehab due to complexity.

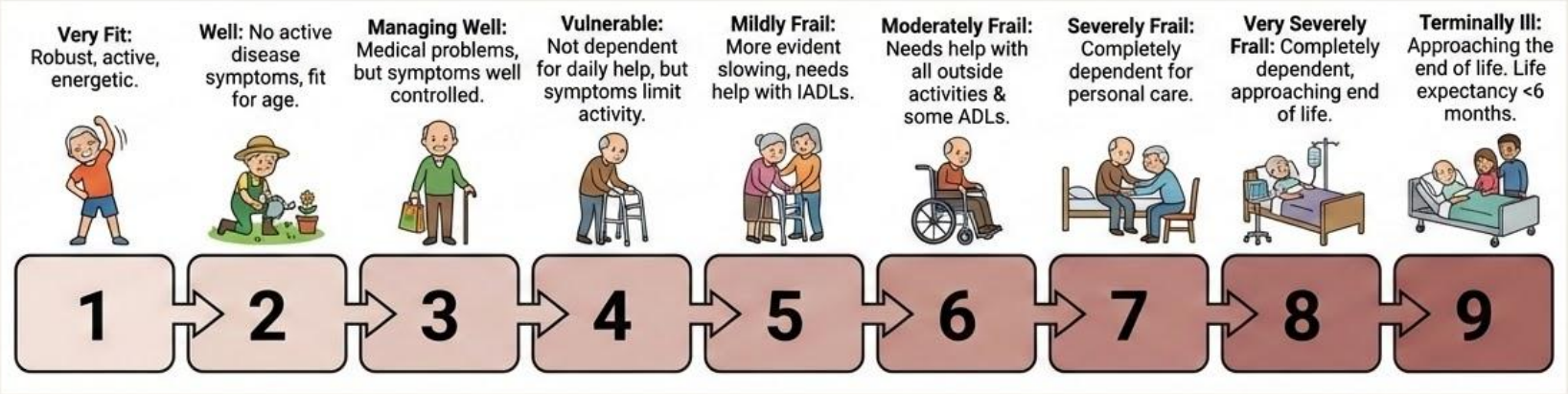
Guidance for Practical Application

While a depth of research exists for these models, the focus should shift towards using practical, validated tools for efficient assessment in clinical settings to avoid ambiguity.

THE CLINICAL FRAILTY SCALE (CFS)

Rockwood et al.

DESCRIPTION: 9-point scale based on clinical judgment and a simple algorithm.



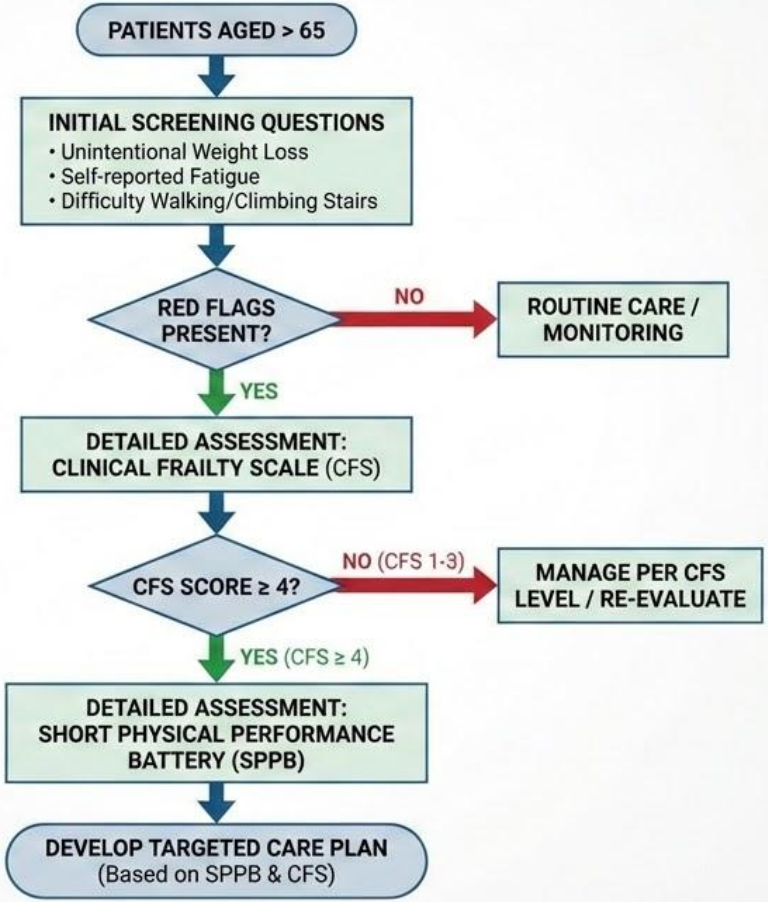
PROS

- Quick
- Easy to apply
- Good prognostic value

CONS

- Subjectivity can vary slightly
- Less detailed than others

Frailty Screening & Assessment Workflow



Supporting the Implementation of Short Physical Performance Battery (SPPB)

Balance Tests

Side-by-side, semi-tandem, Side-by-side, semi-tandem, tandem stands. Timed holding.

Gait Speed Test

Timed walk over a short distance (e.g., 4 meters).

Chair Stand Test

Time to complete 5 repeated chair stands.

Pros

- ✓ Objective measure.
- ✓ Strong predictor of adverse outcomes.
- ✓ Good for identifying pre-frailty.

Cons

- ✗ Requires dedicated space.
- ✗ Requires dedicated time.
- ✗ Some patients may be too frail to complete.

HOT TAKE: The "Streamlined" Trap in Cardiopulmonary Rehab

Exclusive reliance on 6-Minute Walk Test (6MWT) to save time widens the frailty detection gap.

The Driver: Workflow "Efficiency"

- Prioritizing rapid throughput by dropping multi-domain tests like SPPB.
- Relying solely on aerobic capacity measure (6MWT).

6MWT Only Path

Missed Frailty Indicators

The Consequence: Widening the Gap & Ineffective Rx

Missed Frailty: Fails to detect balance deficits, sarcopenia, and pre-frailty hidden by adequate walk distance.

Ineffective Prescriptions: Drafting generic exercise plans that ignore underlying functional limitations.

Result: Streamlined workflows yielding suboptimal, non-specific patient outcomes.

CASE STUDY SNIPPET 1: IDENTIFYING FRAILTY

Patient Profile

- 78 y/o male with COPD
- recent exacerbation, admitted to rehab.

Assessment Findings

- CFS=5
- SPPB score=6.

Conclusion

Franky frail.

Transition

What happens physiologically? ➔

SARCOPENIA & CACHEXIA: THE MUSCULAR CORE OF FRAILTY

SARCOPENIA

- Age-related loss of muscle mass, strength, and function.

CACHEXIA

- Complex metabolic syndrome associated with underlying illness, characterized by loss of muscle mass (with or without fat mass) that cannot be fully reversed by conventional nutritional support.

PREVALENCE & IMPACT

- Both are prevalent in CPF and directly impact frailty.

CASE STUDY SNIPPET 2: LINKING MECHANISM TO PROGRESSION

Mechanisms of Progression (Connecting COPD to Frailty)

- COPD-driven systemic inflammation.
- Leads to muscle atrophy (sarcopenia).
- Results in profound fatigue.
- Culminates in the frailty state.

Prognosis (Without Intervention)

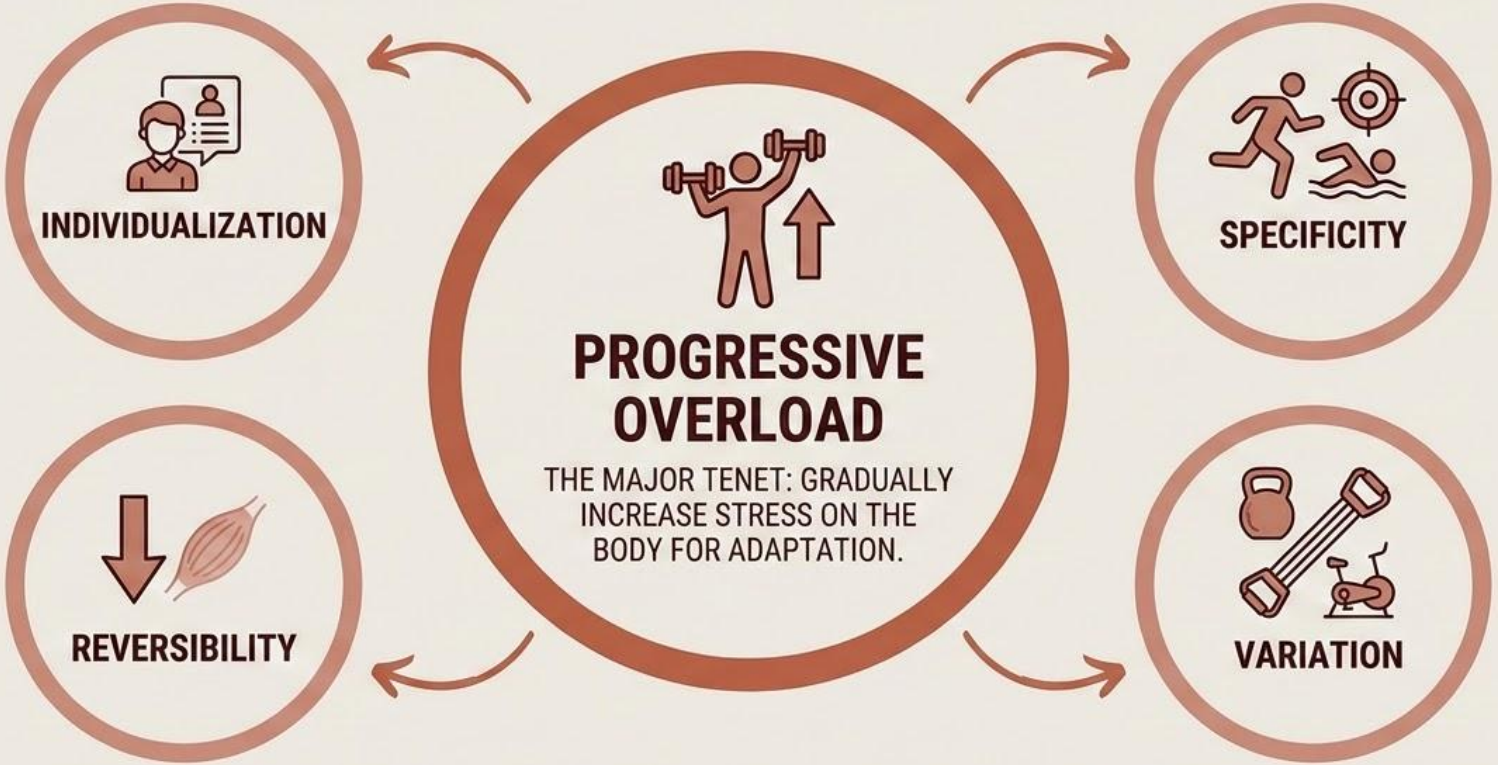
- Increased risk of hospital readmission.
- Accelerated functional decline.
- Poorer overall survival.

Transition

So, what do we do? ➔

FRAILTY-INFORMED EXERCISE PRESCRIPTION & CARE STRATEGIES

PRINCIPLES OF EXERCISE TRAINING



THE PRINCIPLE OF OVERLOAD:
Fueling Growth Through Challenge

CURRENT CAPACITY
(Comfort Zone)

Maintaining accustomed level.
Minimal adaptation.

OVERLOAD STIMULUS

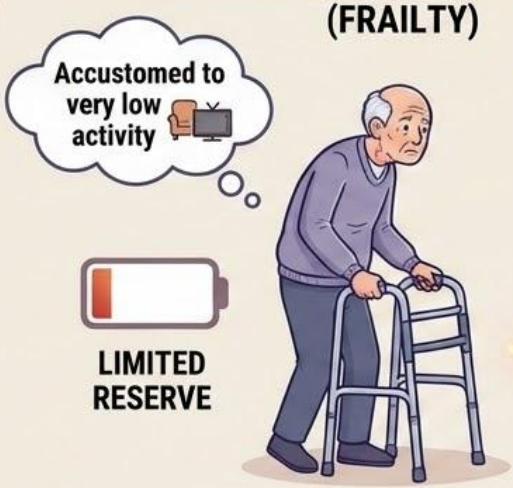
BEYOND ACCUSTOMED LEVEL
(Growth Zone)

Exceeding current limits.
Triggers physiological adaptation.

To enhance muscular fitness or cardiorespiratory endurance, the body MUST be exercised at a level beyond that to which it is presently accustomed.

THE PRINCIPLE OF OVERLOAD: CONTEXT IS KEY FOR FRAIL PATIENTS

CURRENT PATIENT BASELINE (FRAILTY)



MODEST EXERCISE AS OVERLOAD STIMULUS

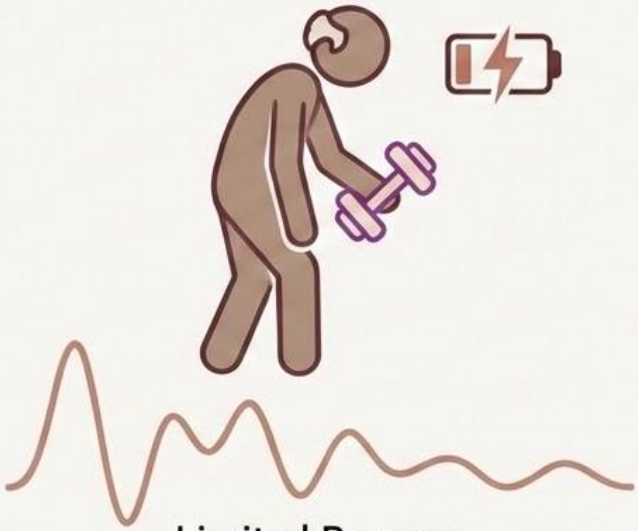
EFFECTIVE CHALLENGE (GROWTH ZONE)

Key Takeaway: Overload is a RELATIVE concept. For a **deconditioned or frail patient**, an activity that **appears "light"** by general standards can represent a significant and effective physiological overload, necessary to trigger positive adaptations in strength and endurance.

1. Overload is specific to the individual's current cappacity.
2. Even small increases in demand can be a potent stimulus.
3. Builds the foundation for progressive rehabilitation.

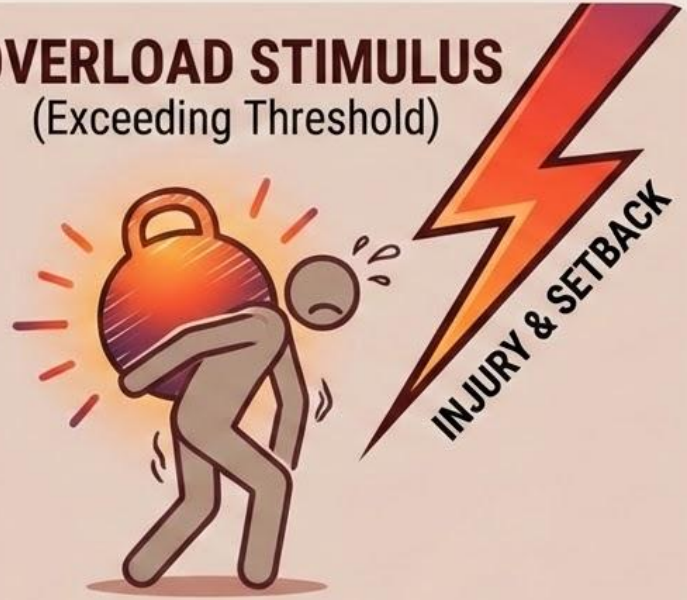
THE RISK OF OVERLOAD IN FRAILTY:
A Delicate Balance

FRAGILE STATE
(Deconditioned Capacity)



Limited Reserve

OVERLOAD STIMULUS
(Exceeding Threshold)



Excessive intensity or volume can overwhelm a deconditioned system, leading to adverse events and decline, rather than adaptation.

THE FOUNDATIONAL ROLE OF RESISTANCE TRAINING IN CR

> “Resistance training has value to all patients receiving CR but is often particularly important to **build requisite capacity** to tolerate aerobic exercise in patients who start CR relatively **encumbered** by **deconditioning**, **frailty**, or **sarcopenia**.”

DECONDITIONING & FRAILTY

SARCOPENIA

TOLERANCE FOR AEROBIC EXERCISE

Balance & Neuromotor Training

Importance

- Prevents falls
- Improves functional mobility
- Enhances confidence

Recommendations

- Tai Chi
- Tandem stance
- Single-leg stance (with support)
- Heel-to-toe walking
- Obstacle courses
- Reaching activities

Progression

- Reduce support
- Increase complexity
- Add dynamic movements

BUILDING A FOUNDATION FOR MOVEMENT: INITIAL EXERCISE PRESCRIPTION IN FRAILTY

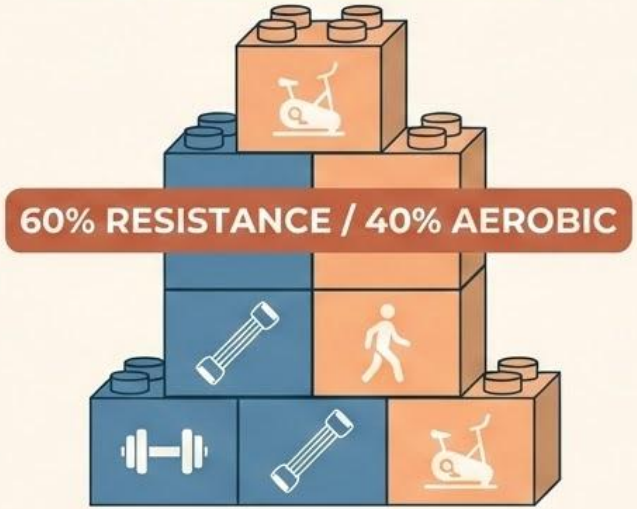
PROGRESSION OVER SEVERAL WEEKS

WEEKS 1-4 (FOUNDATION PHASE)

Focus: Build strength, balance, and confidence.

GRADUAL SHIFT & INTEGRATION

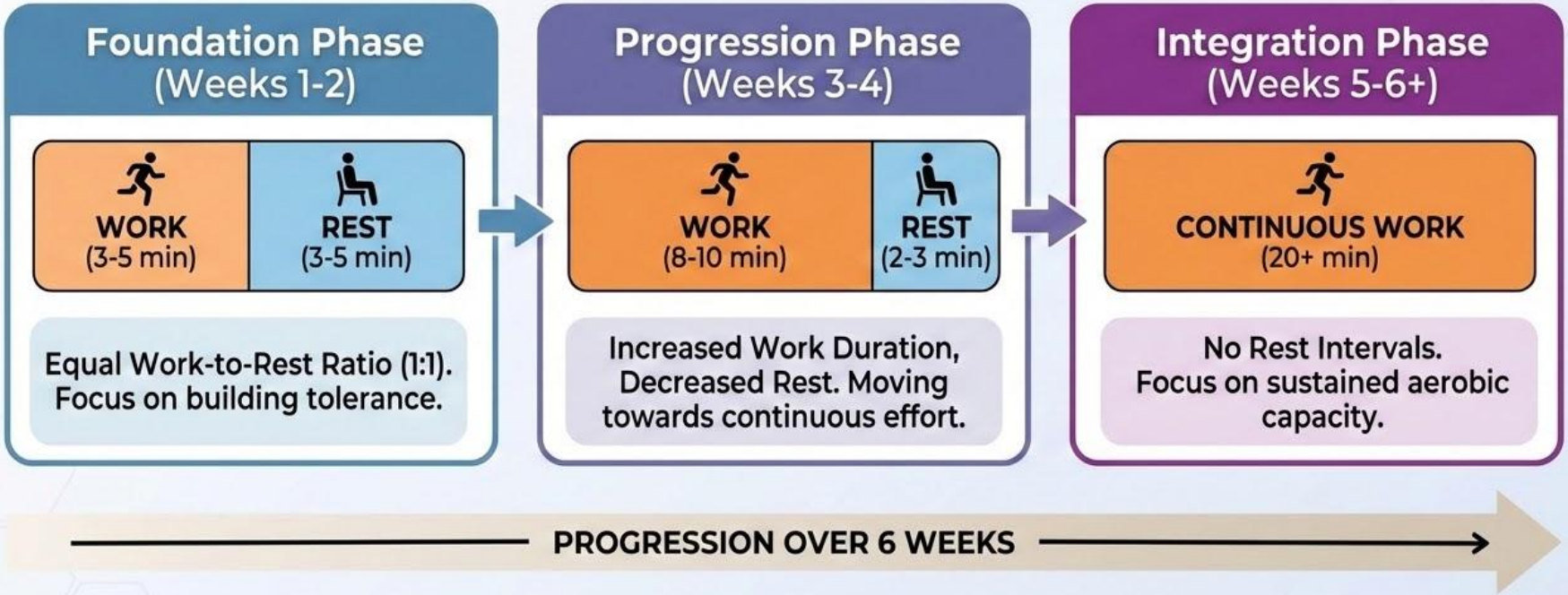
WEEKS 8+ (INTEGRATION PHASE)



Focus: Introduce aerobic capacity while maintaining strength.

SAFE. PROGRESSIVE. EVIDENCE-BASED APPROACH.

Aerobic Interval Training Progression: A 6-Week Plan



Goal: Gradually shift from interval-based training to continuous, steady-state aerobic exercise, improving cardiovascular endurance.

Integrating Nutritional Support (Collaborative Approach): A Journey to Strength

Frailty & Weakness
(Deconditioned State)

Cardiopulmonary Patients with Frailty/Cachexia

Dietitian Guidance:
Personalized Assessment & Counseling

PROTEIN BOOST:
Muscle Growth & Repair

MICRONUTRIENT RECHARGE:
Essential Sparks
Vitamin D & Calcium

COMPREHENSIVE NUTRITIONAL INTERVENTIONS

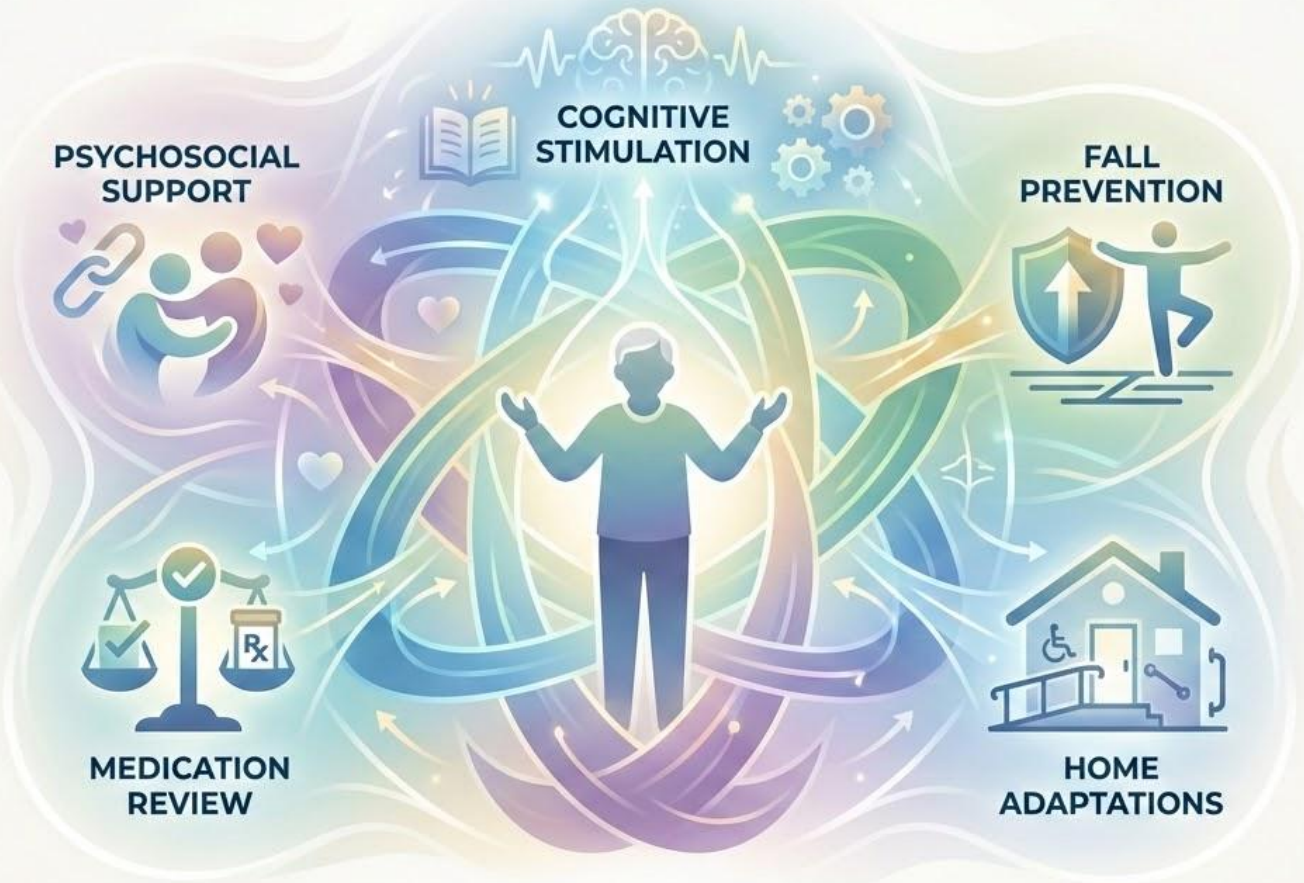
Target: 1.0-1.2g/kg/day
(Cachexia: Higher)

ONS SAFETY NET:
Filling the Gap when Diet Falls Short

Strength & Resilience
(Reversing Frailty)

Improved Function, Reduced Readmissions, Better Quality of Life

Beyond Exercise: Comprehensive Frailty Management



Measuring Success & Discharge Planning

Key Outcome Measures


FAI scores


SPPB


6-minute walk test


Grip strength


Quality of life
(e.g., SF-36, SGRQ)

Discharge & Long-Term Plan



Home Exercise Program: Tailored, sustainable, simple.


Community Resources: Referrals to senior centers, strength training classes, walking groups.


Long-term follow-up: Importance of ongoing monitoring.

Case Study Snippet 3: Frailty-Informed Rehab Plan

Patient: 78 y/o male, frail COPD

Strength Rx

- Chair stands (modified)
- Wall push-ups
- Light resistance band exercises

2 sets of 10, 3x/week

Aerobic Rx

- Walking at perceived exertion 11-12
- 3x5 min bouts with 2 min rest
- 4x/week

Progress to 2x15 min continuous

Balance Rx

- Sitting balance exercises
- Standing with support
- Tandem stance with hand on wall

Additional Interventions

Nutrition Referral

Home Fall Risk Assessment Completed

Outcome

- Improved strength
- Increased walking tolerance
- Reduced fear of falling

Embracing Frailty: Overcoming Apprehensions in CPR

Common Concerns & Challenges

Time Burden:
Demanding schedules & limited hours.

Feeling Underqualified:
Lack of specialized training & resources.

Lack of 1:1 Personnel:
High patient-to-staff ratio.

Risk of Adverse Events:
Fear of injury or complications.

Perceived Poor Outcomes:
Frustration with slow progress.

Actionable Solutions & Empowerment

Streamlined Assessment Tools:
Efficient CFS/SPPB integration.

Training & Peer Support:
Access to guidelines & collaborative learning.

Group Training Adaptation:
Staggered supervision & tech leverage.

Tailored Safety Principles:
Close monitoring & phased progression.

Realistic Goals & Wins:
Focus on function, falls, & QoL.

Call to Action: Be an Advocate for Frailty-Informed Care

Integrate Screening

Start with one tool (e.g., CFS).

Personalize Prescriptions

Adapt your current protocols.

Collaborate

Work with dietitians, OTs, MDs, social workers.

Educate

Your patients, your colleagues.

"Every single patient deserves the chance to feel robust again."

Questions

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