

Beyond the diagnosis: An Update on Geriatric Syndromes in LTC

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Disclosures

- Dr. Little has no relevant financial conflicts of interest to report.
- Dr. Little will not be discussing any off-label or unapproved medications, devices, or therapeutics

Objectives

1. Define geriatric syndrome
2. Distinguish syndrome-based from diagnosis-based approach to resident assessment
3. List and describe the 5Ms framework for resident-centered care
4. Apply short screening tools to assess for frailty, sarcopenia, falls, and incontinence
5. List the initial work-up and management of these geriatric syndromes

The Story of Mr. C

84 y/o cis-gender male, AL resident for the past 3 years, with PMH moderate stage Alzheimer's Disease, BPH, HTN, CAD, COPD, tobacco abuse, and CKD stage 3b. Moved into your secured memory care unit last week.

Will he fall?

How strict should I be on his chronic disease targets?

Will he die soon?



How can I keep him out of the hospital?

How quickly will he decline?

Should I get therapy involved?

The Occam's Razor In A Nutshell

Occam's Razor states that one should not increase (beyond reason) the number of entities required to explain anything. All things being equal, the simplest solution is often the best one. The principle is attributed to 14th-century English theologian William of Ockham.



Occam's Razor Example: You hear hoofbeats.



The answer that requires the fewest assumptions is generally the correct one.

CORE PRINCIPLES IN PALTC



OCCAM'S RAZOR

"WHEN FACED WITH TWO POSSIBLE EXPLANATIONS, THE SIMPLER OF THE TWO IS THE ONE MOST LIKELY TO BE TRUE."

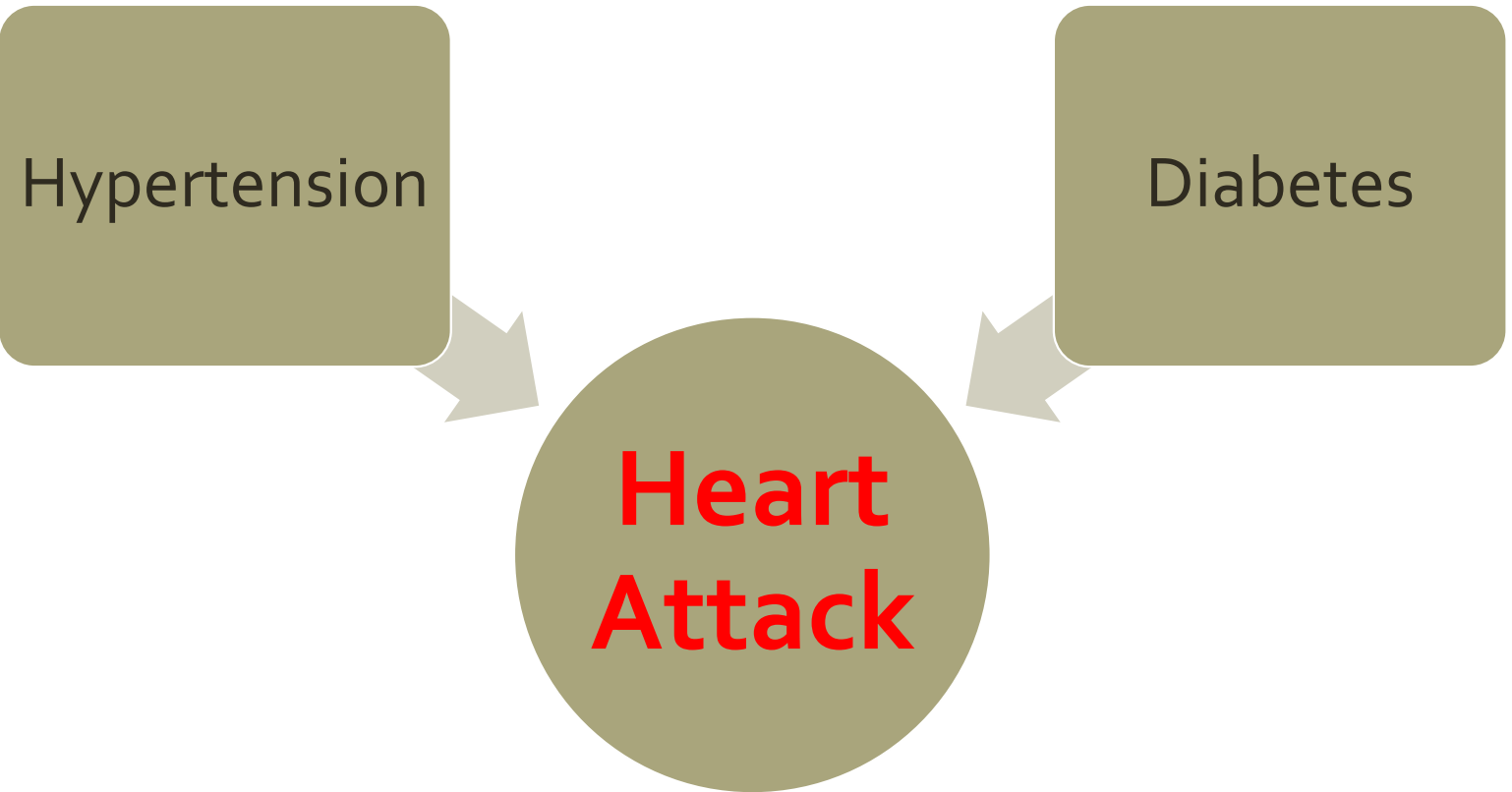


OCCAM'S Patient

"WHEN FACED WITH TWO POSSIBLE WAYS OF presenting THE MORE COMPLICATED ONE IS THE ONE YOUR patient WILL MOST LIKELY DO."

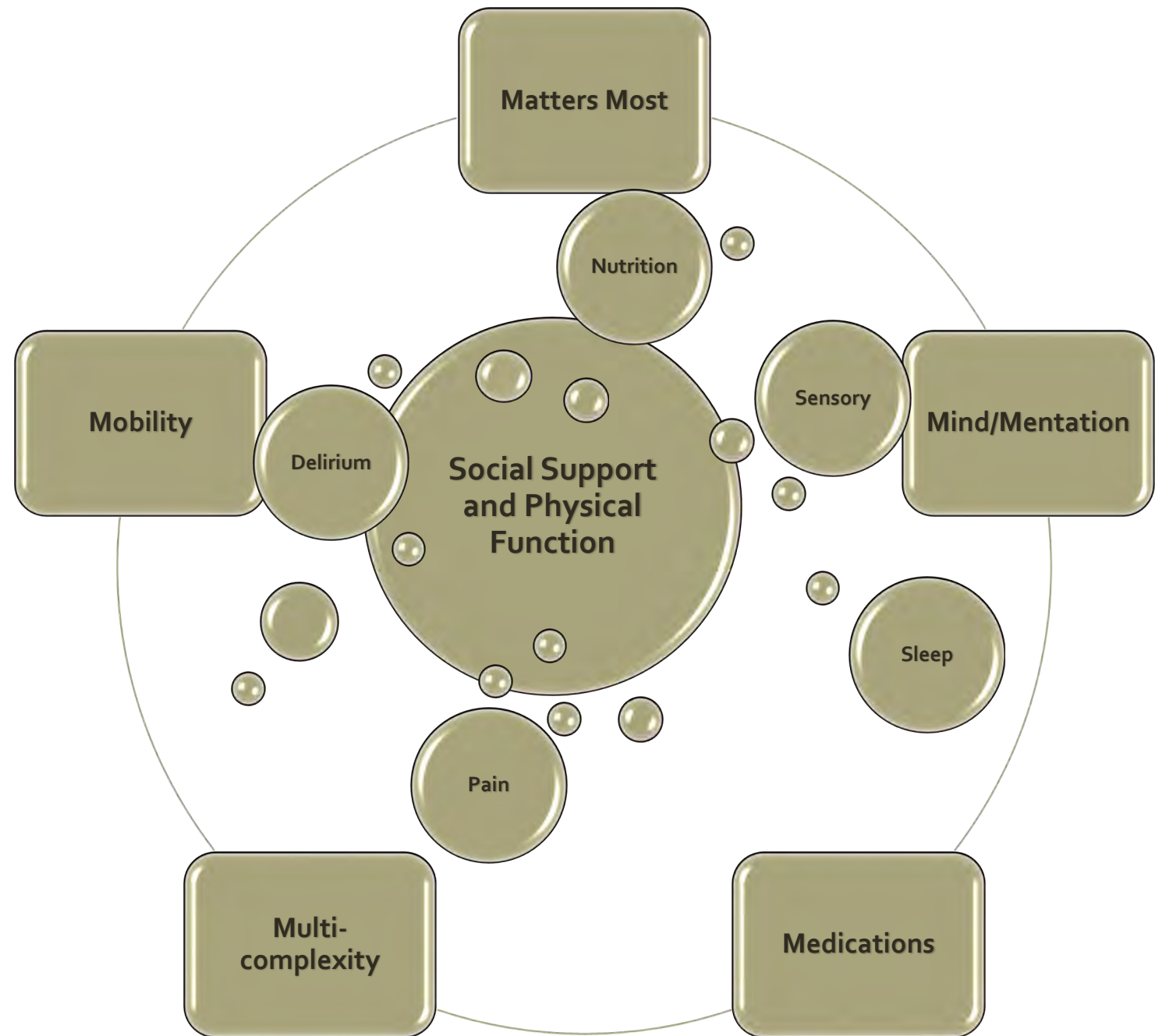
JORGE CHAM © 2009

Co-Morbidity –
How We Are
Taught to
Think



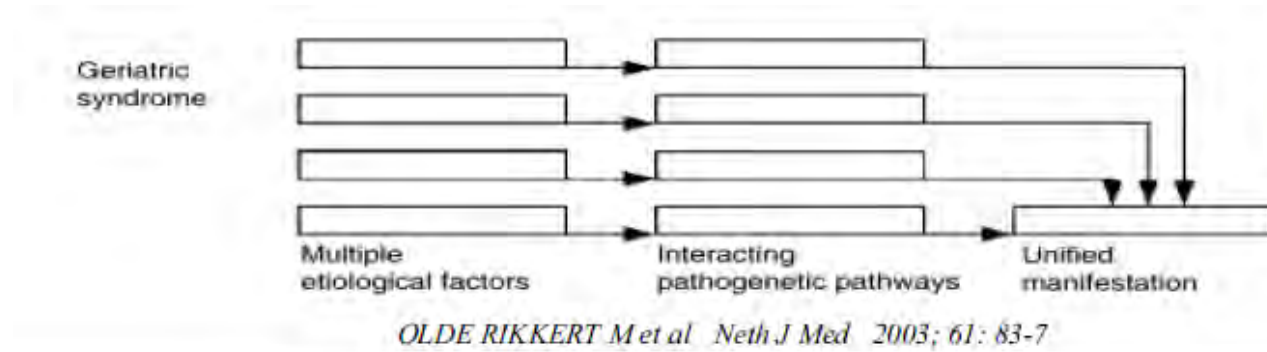
The Geriatric Reality: 5Ms Framework

Multimorbidity:
Many diseases of
similar severity
existing at the same
time and overlapping
in importance.



Geriatric Syndromes

- From the Greek:
 - Syn = together
 - Dromos = running



- Multifactorial health conditions that occur when the accumulated effects of impairments in multiple organ systems render an older person **vulnerable** to situational challenges.
- Syndromes are not underlying diagnoses (although they do have ICD-10 codes for billing)!

Geriatric Assessment

Geriatric Assessment is a systematic, interprofessional approach to the older patient

- Diagnose **geriatric syndromes**
- Develop targeted treatment plans
- Improve patient outcomes



Focus on function and quality of life

Not based on chronological age but functional impairment and risk of future decline



Mobility



Mind



Medications



Multicomplexity



Matters Most

Examples of Geriatric Syndromes

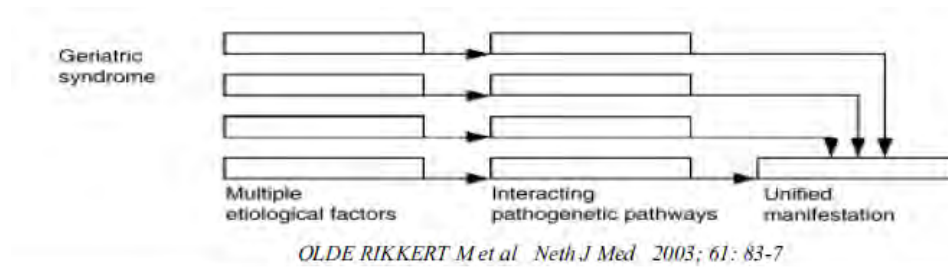
- **Frailty***
- **Sarcopenia***
- **Falls***
- **Incontinence***
- Weight loss/Anorexia of Aging
- Depression
- Delirium
- Dementia
- Polypharmacy

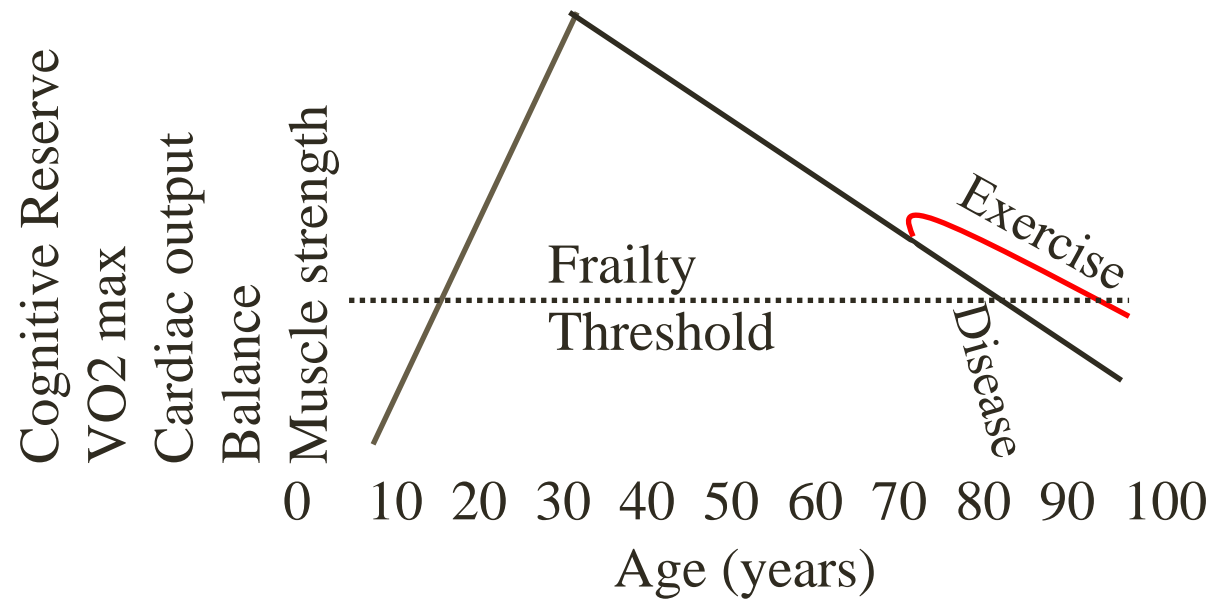


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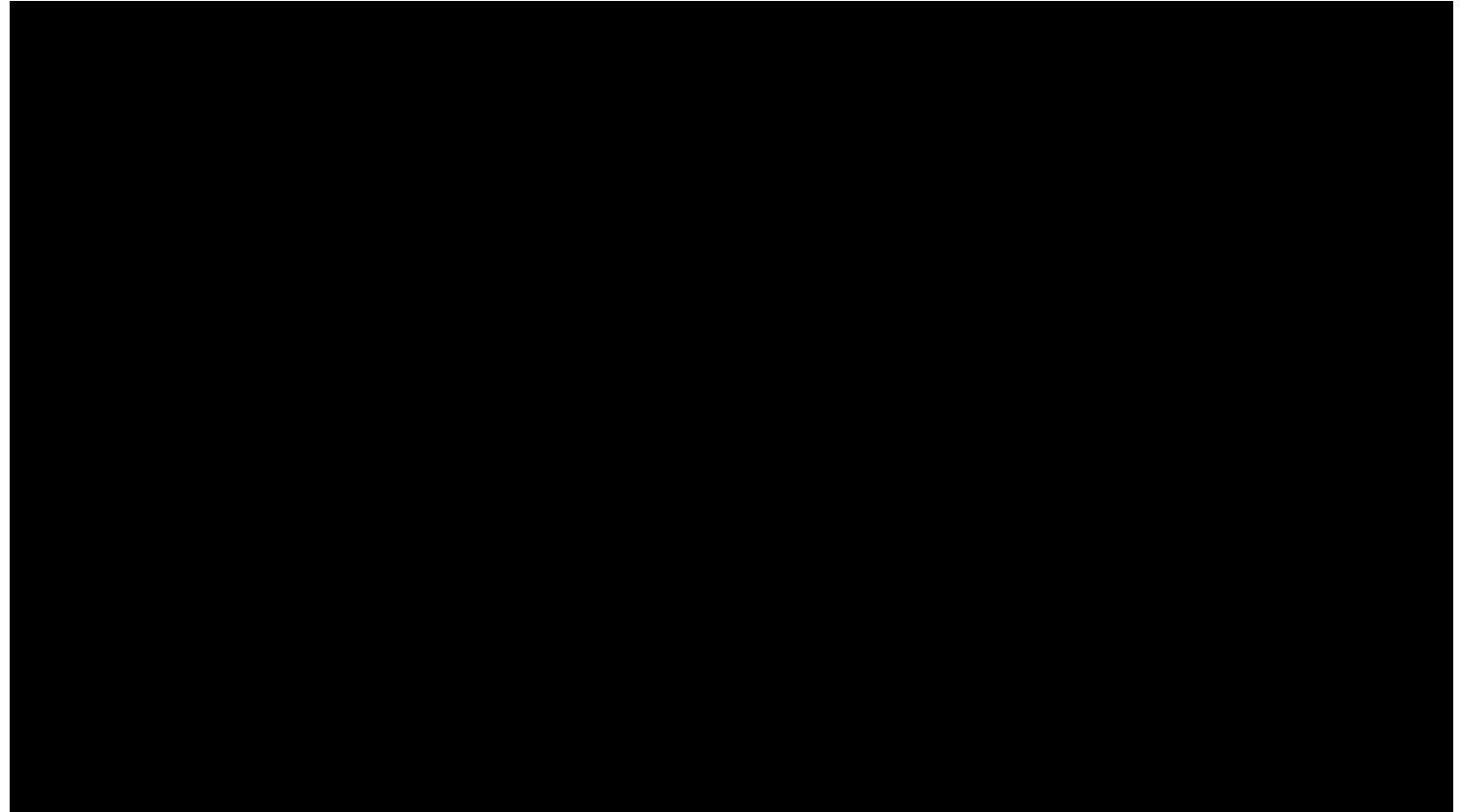
Frailty Defined

- Frailty is a **medical syndrome** marked by reduced endurance, strength, and physiologic reserve, leading to increased **vulnerability** to functional decline, dependency, and death
- Lack of resilience when a stressor is applied to the system
- **Dynamic state**, influenced by a range of variables and losses within physical, psychological, or social domains, that increases the risk of adverse outcomes





Frailty Defined



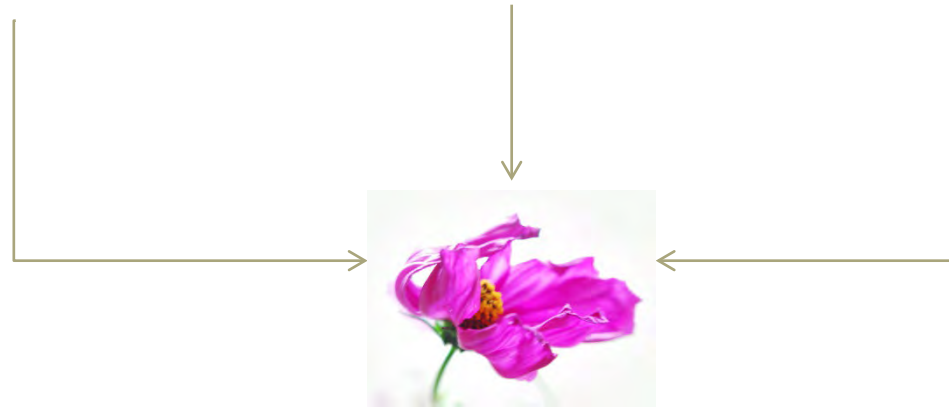
Frailty should be distinguished from disability

Diminished ability to carryout important ADL under stress.

Psychological

Social

Biological



FRAIL

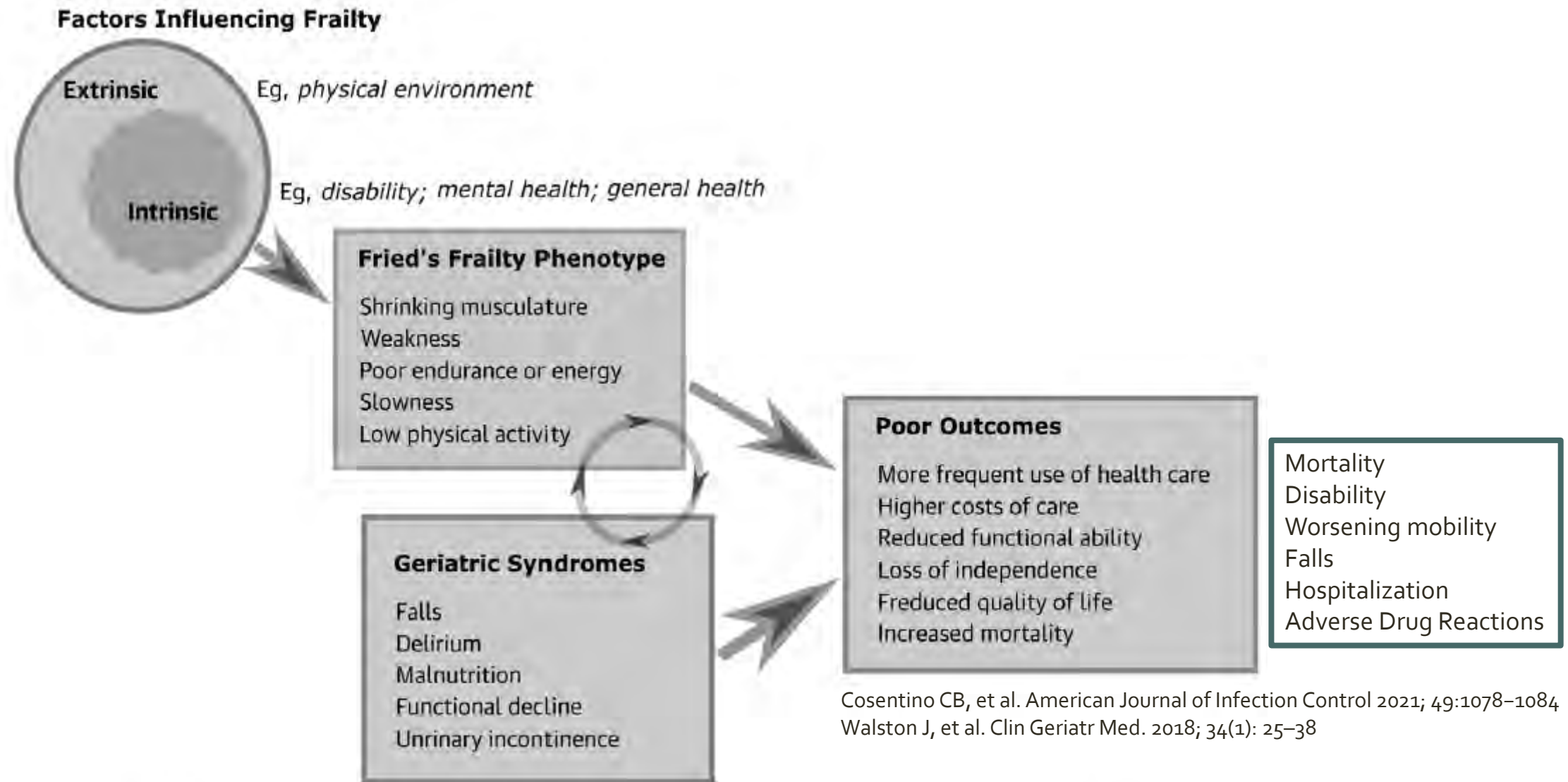


Fig. 1. Frailty and geriatric syndromes usually interact. Either alone or in tandem, the outcomes are poor.

Visvanathan R and Yu Solomon. Clinical Implications of Research on Frailty. JAMDA 2021; 22:524-526

Value Based Care: Frailty as a vital sign

- Just as temperature, blood pressure, heart rate, and other conventional vital signs, frailty is a vital indicator of health.
- Clinicians need to be aware when an individual's Frailty Risk Score changes, identify what is driving those changes and generate a care plan to address those changes.



Clinical Utility of Frailty Screening

- Chronic disease targets differ based on frailty status
 - Less stringent glycemic control (well-established)
 - Less stringent blood pressure target levels (ongoing research)
- Identify individuals at high risk for adverse outcomes (delirium, weight loss, PI)
 - Pre-operative
 - Cardiovascular interventions
 - Hemodialysis and/or transplant
 - Oncological treatments
- Optimize medication management
- Timely ACP and palliative care services to avoid unnecessary hospitalizations and futile interventions towards end of life
- Limitations to frailty screening
 - Variation in screening instruments and agreement between them to identify risks, e.g. Healthcare Associated Infections with CFS or FI but not Frailty Phenotype
 - Research to date on frailty screening has been less useful for informing clinical practice or the development of clinical interventions to prevent or treat frailty.



Frailty Assessments

Table 2
Domains included in highly-cited frailty instruments.

Highly-cited frailty instrument	Physical function? (includes disability?)	Physical activity?	Cognition?	Comorbidity?	Weight loss?	Other (social, sensory, demographic, etc) ?
Physical Frailty Phenotype	Yes (No)	Yes	No	No	Yes	No
Deficit Accumulation Index	Yes (Yes)	No	Yes	Yes	No	Yes
Gill Frailty Measure	Yes (No)	No	No	No	No	No
Frailty/Vigor Assessment	Yes (Yes)	Yes	Yes	No	No	Yes
Clinical Frailty Scale	Yes (Yes)	Yes	No	Yes	No	Yes
Brief Frailty Instrument	Yes (Yes)	No	Yes	Yes	No	No
Vulnerable Elders Survey	Yes (Yes)	No	No	No	No	Yes
FRAIL Scale	Yes (No)	No	No	Yes	Yes	No
Winograd Screening Instrument	Yes (Yes)	No	Yes	Yes	No	Yes
Total out of nine instruments	9 (6)	3	4	5	2	5

Buta BJ, Walston JD, Godino JG, et al. Ageing Res Rev. 2016; 26:53–61.

Selected instruments for frailty screening

Instrument	Components	Scoring
Clinical Frailty Scale ^{14,21}	Clinical judgment, ranging from very fit to severely frail: 1 = Very fit; 2 = Well; 3 = Well, with treated comorbid disease; 4 = Apparently vulnerable; 5 = Mildly frail (some dependence on others for instrumental activities of daily living); 6 = Moderately frail (help needed with instrumental and non-instrumental activities of daily living); 7 = Severely frail (total dependence on others for activities of daily living, or terminally ill)	Physician assigns score of 1 to 7 based on clinical judgment. Physicians making the initial assessment given access to diagnoses and assessments related to these variables and other measures of comorbidity, function and associated features that inform clinical judgments about the severity of frailty. A secondary review and scoring is performed by a multidisciplinary team.
FRAIL Scale ^{14,22}	Self-reported fatigue; resistance (ability to climb a single flight of stairs); ambulation (ability to walk one block); illnesses (more than five); loss of weight (more than 5%)	Score range 0 to 5. No frailty = 0 deficits. Intermediate frailty = 1 or 2 deficits. Frailty = 3 or more deficits.
Frailty Phenotype ^{11,14}	Five (5) criteria: weight loss; measured weakness; self-report exhaustion; measured slowness; low activity questionnaire	Score range 0 to 5. Frail: ≥ 3 criteria present; Intermediate or pre-frail: 1 or 2 criteria present. Robust or non-frail: 0 criteria present.
Gait Speed (as a single measure) ^{23,24}	Measured gait speed over 4 meters	Gait speed < 0.8 m/s is cut point for increased risk of adverse health outcomes. Gait speed < 0.2 m/s is cut point for extreme frailty.
Gérontopôle Frailty Screening Tool ^{13,14}	Six questions to be answered by the practitioner/clinician about: 1) whether the patient lives alone; 2) whether the patient has lost weight; 3) whether the patient has felt more tired; 4) whether the patient has memory problems; 5) whether the patient has found it difficult to get around; and 6) whether the patient has a slow gait (< 1 m/s)	If the practitioner/clinician answer yes to any one of the six questions, the screening questionnaire asks for their clinical judgment on whether the patient is frail. If yes, a follow-up question is to be completed as to whether the patient is willing to be fully evaluated for frailty.
PRISMA Questionnaire ^{24,56}	Seven yes or no self-reported questions about: 1) Age; 2) Sex; 3) Health problems that require a limit on activities; 4) Help needed from someone regularly; 5) Health problems that require one to stay at home; 6) Having someone to count on if needed; and 7) Regular use of an assistive device for walking.	Answering yes to three or more of the seven questions = potential disabilities/frailty
Timed-Up-and-Go Test ^{24,57}	Measures of functional mobility (chair stair, 10 foot walk, and return the chair)	Frail = taking greater than 10s to complete the test.

Frailty Assessments



Scoring frailty in people with dementia

The degree of frailty corresponds to the degree of dementia. Common **symptoms in mild dementia** include forgetting the details of a recent event, though still remembering the event itself, repeating the same question/story and social withdrawal. In **moderate dementia**, recent memory is very impaired, even though they seemingly can remember their past life events well. They can do personal care with prompting. In **severe dementia**, they cannot do personal care without help.

The Simple “FRAIL” Questionnaire Screening Tool

(3 or greater = frailty; 1 or 2 = prefrail)

Fatigue: Are you fatigued?

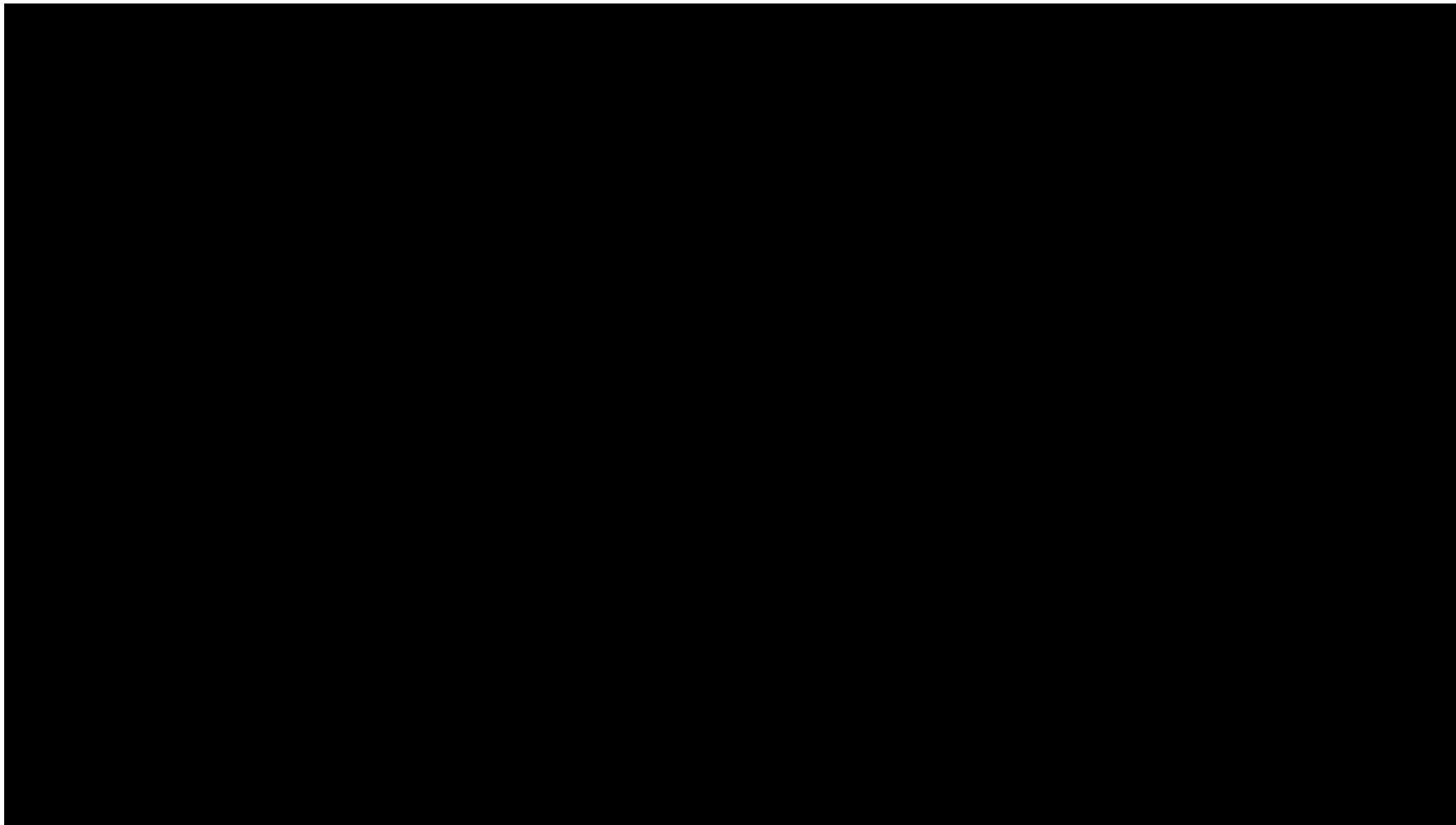
Resistance: Cannot walk up one flight of stairs?

Aerobic: Cannot walk one block?

Illnesses: Do you have more than 5 illnesses?

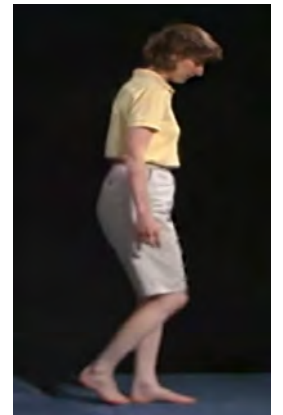
Loss of weight: Have you lost more than 5% of your weight
in the last 6 months?

From Morley JE, Vellas B, Abellan van Kan G, et al. J Am Med Dir Assoc
2013;14:392-397.



Physical Performance Thresholds for Frailty

Physical Performance Measure	Threshold	Functional Correlates
Habitual Gait Speed	<0.4-0.6 m/s	Falls, Fractures, ↓ADLs, incontinance
Timed Chair Stands	> 14 sec	Falls, Fractures, ↓ADLs, incontinance
Tandem Stand	<3 sec	↓ADLs
Grip Strength	<27 kg	↓ADLs



Guralnik, et al. J Geront:Med Sci 1994;49:M85-M94; Guralnik, et al. NEJM 1995; 332:556-561; Tinetti, et al. JAMA 1995;273:1348-1353; Judge, et al. J Am Geriatr Soc 1996;44:1332-1341.

NAME: _____
DATE: _____

Instructions: This scale is intended to assess your USUAL state in different categories using pictures ordered from best to worst.
For each category, choose ONE picture that is closest to your USUAL state. Mark ☒ below that picture. There is no right or wrong answer.

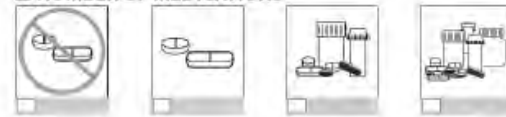
Example: If your USUAL vision is closest to the second picture mark ☒ as shown.



1 MOOD



2 NUMBER OF MEDICATIONS



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For each category, mark **ONE BOX** that is the closest to your **USUAL STATE**.



3 MOBILITY



4 FUNCTION



5 BALANCE



© Thompson Educational Services

For each category, mark **ONE BOX** that is the closest to your **USUAL STATE**.



6 SOCIAL CONNECTIONS



7 DAYTIME TIREDNESS



8 MEMORY AND THINKING

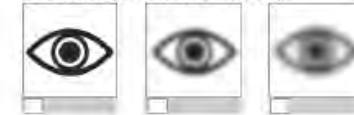


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For each category, mark **ONE BOX** that is the closest to your **USUAL STATE**.



9 VISION (WITH GLASSES IF NEEDED)



10 HEARING (WITH HEARING AID IF NEEDED)



11 PAIN



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12 UNINTENTIONAL WEIGHT-LOSS



13 AGGRESSION



14 BLADDER CONTROL



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FIGURE A1. Pictorial Fit-Frail Scale—final prototype.

Note: Permission to use the copyrighted Pictorial Fit-Frail Scale can be obtained by visiting the website: www.geriatricmedicineresearch.ca

FRAIL-NH

	0	1	2
Fatigue	No	Yes	PHQ-9 ≥ 10
Resistance	Independent Transfer	Set Up	Physical Help
Ambulation	Independent	Walker	Not Able/WC
Incontinence	None	Bladder	Bowel
Loss of Weight	None	yes	xxxx
Nutritional Approach	Regular Diet	Mechanically Altered	Feeding Tube
Help with Dressing	Independent	Set Up	Physical Help
Total			0-13

Nonfrail (0-5), Prefrail (6-7), Frail (≥ 8)

Kaehr E, Visvanathan R, Malmstrom TK, Morley JE. Frailty in Nursing Homes: The FRAIL-NH Scale.
J Am Med Dir Assoc 2015;16(2):87.

The most frequent cut-off for defining frail and most frail residents were ≥ 2 and ≥ 6 , respectively.

When applying these definitions, between 15.1% and 79.5% of residents were frail, while 28.5% to 75.0% of residents were most frail.

Liau SJ, et al. *J Nutr Health Aging* 2021; 25(10):1205-16

FRAIL-NH

J Nutr Health Aging. 2021;25(10):1205-1216

Published online October 27, 2021, <http://dx.doi.org/10.1007/s12603-021-1694-3>

Review

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The FRAIL-NH Scale: Systematic Review of the Use, Validity and Adaptations for Frailty Screening in Nursing Homes

S.J. Liaw^{1,2}, S. Lalic^{1,3}, R. Visvanathan^{2,4}, L.A. Dowd¹, J.S. Bell^{1,2}

Overall, the FRAIL-NH scale demonstrated good agreement with other well-established but more complex frailty scales.

- ✓ Does not require use of specific instruments (e.g. dynamometer to measure handgrip strength) or gait speed
- ✓ Utilizes routinely collected data in NHs.
- ✓ Specialist training is not required to administer FRAIL-NH.
- ✓ Can be retrospectively applied to existing datasets

The FRAIL-NH Scale: Systematic Review of the Use, Validity and Adaptations for Frailty Screening in Nursing Homes

S.J. Liaw^{1,2}, S. Lalic^{1,3}, R. Visvanathan^{2,4}, L.A. Dowd¹, J.S. Bell^{1,2}

Over a median follow-up of 12 months, FRAIL-NH scores were predictive of

- mortality
- falls
- hospitalization
- length of hospitalization
- functional or cognitive decline

Clinically-relevant medication associations

- Multiple antihypertensive use was associated with increased mortality among most frail residents
- Statin use was associated with fall-related hospitalizations in mild moderate and most frail residents.
- Among *non-users* of statins, fall-related hospitalizations were *lowest* in the frailest subset.

FRAIL-NH could guide development of individualized care plans to prevent falls, hospitalization and mortality

Using FRAIL-NH to detect pre-frail residents may help direct interventions to prevent functional dependence.



The Story of Mr. C

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What next?



Gait Speed with walker 0.3 m/s

Operationalizing Frailty Prevention and Treatment

- Education of residents and families – manage expectations, ACP
- Function and deficits focused, not disease focused
- Patient-focused care planning
- Manage and document unavoidable decline
- Frailty-based acuity scores to define facility case-mix

PHYSICIAN PROGRESS NOTE WHEN DECLINE OCCURS

Per state surveyor perspective

- **Keep it simple.**
- If decline is occurring, **and**, upon your review of current frailty status-score, your own clinical assessment, and current treatment plan, and, per your best clinical judgment, you determine current decline is unavoidable, state that in your progress note.
- Mention key potential reversible frailty deficits treating for, efficacy of current plan. Mention any new treatments for potentially reversible deficits.
- Discuss current frailty status, current decline, and treatment plan with resident-family and mention this discussion in your progress note. Indicate in note, resident-family's level of understanding of current status and acceptance of treatment plan.

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PHYSICIAN PROGRESS NOTE WHEN DECLINE OCCURS

Per state surveyor perspective

Example: This resident's most recent level of frailty has advanced with time, age. Most recent frailty score was 52 on the Frailty Index we have been using since her admission, up from 48. There is a decline in her mobility and transfer abilities. Current decline is unavoidable, per assessed frailty status. Will continue to try treatments to address those frailty deficits which are potentially reversible. The most pressing deficit is fatigue. Treating fatigue with new targeted PT program to increase muscle mass, adding additional calories to all meals, to enhance nutritional intake, and new C-PAP regimen for recently diagnosed sleep apnea. Discussed current frailty status with resident and family, discussed what deficits are potentially treatable. Resident and family, daughter, agreed to new plan of care.

Operationalizing Frailty: Risk Meetings, Best Practices

- At least weekly discussion of highest risk residents in the population.
- Current status, progress;
 - Any new stressors (medical, infection, environmental, possible procedures etc.)
 - Changes in usual patterns: (sleep, oral intake, functional changes, cognitive changes)
- Input from Direct care and licensed nursing staff, resident, family, Medical Director, Pharmacist, Social Services, Dietary, Activities, Therapy input, true IDT team.
- Based on assessment-discussion above, as appropriate new interventions identified
- Any barriers to providing existing treatment plan identified
- *IDT Risk Note* written immediately in progress notes summarizing above
- Care plan, physician orders, updated immediately
- Care plan changes communicated to floor staff via huddles alert messaging, updating electronic care plan, electronic kardexes, other communication methods.

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“...a logical path forward would embrace a “both-and” approach, rather than “either-or.”
Measured by phenotype or index, frailty is highly predictive of adverse outcomes for older adults, including hospitalizations, falls, disability, institutionalization, and mortality.

Even if face-to-face clinical assessments outperformed EHR-based and other automated measures, there remains the question of scalability: the modest number of geriatricians in the United States cannot possibly assess the frailty status of the millions of adults aged 65 and older or even 75 years.”

“I would propose nephrology as our metaphor. As a first-pass, automated tool, creatinine and estimated glomerular filtration rate (eGFR) guide much of our clinical decision-making, even without knowing the underlying nephropathology. Similarly, an EHR-based frailty index can identify which older adults merit a reapproach—consideration of our clinical even if the “cause” of frailty is not yet clear.”

Kathryn E. Callahan MD, MS

Department of Internal Medicine, Section on Gerontology and Geriatric Medicine

Wake Forest School of Medicine

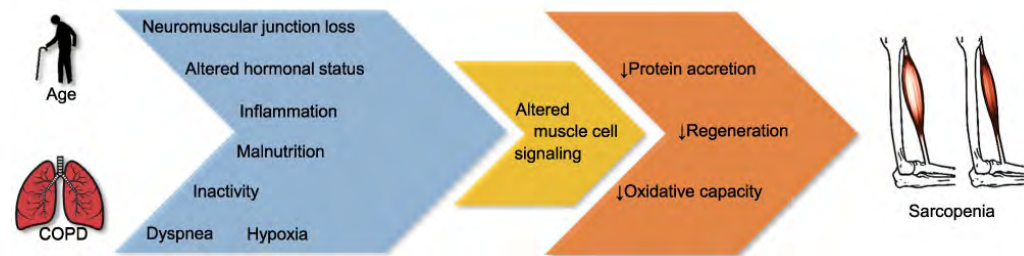
Winston-Salem, North Carolina

The future of frailty: Opportunity is knocking. J Am Geriatr Soc. 2022;70:78–80.

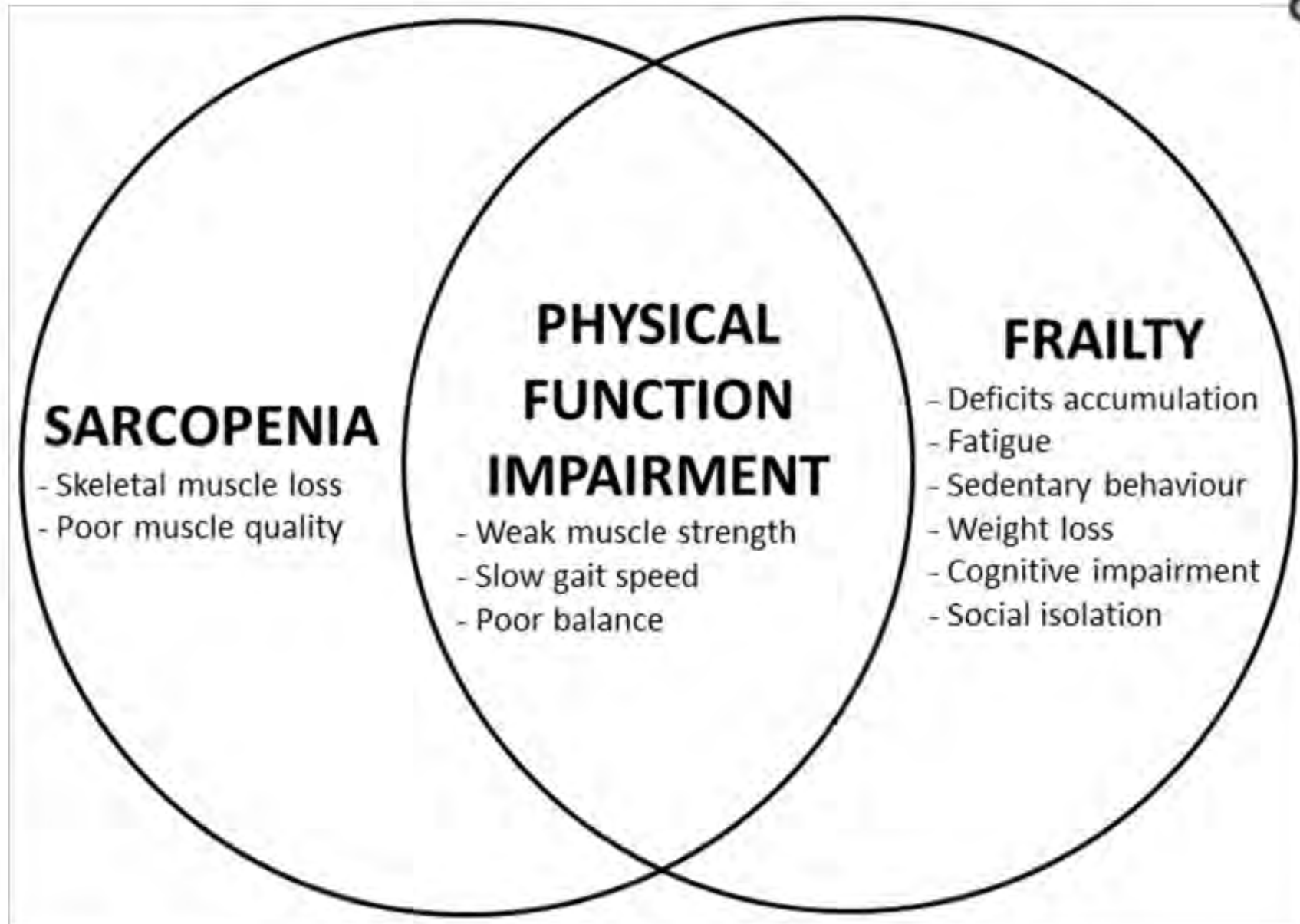
Falls and Sarcopenia

- Sarc = flesh
- Penia = poverty

Decrease in muscle structure AND function



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Relationship among sarcopenia, frailty, and physical function impairment.

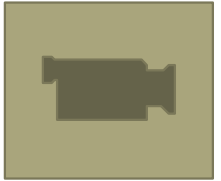
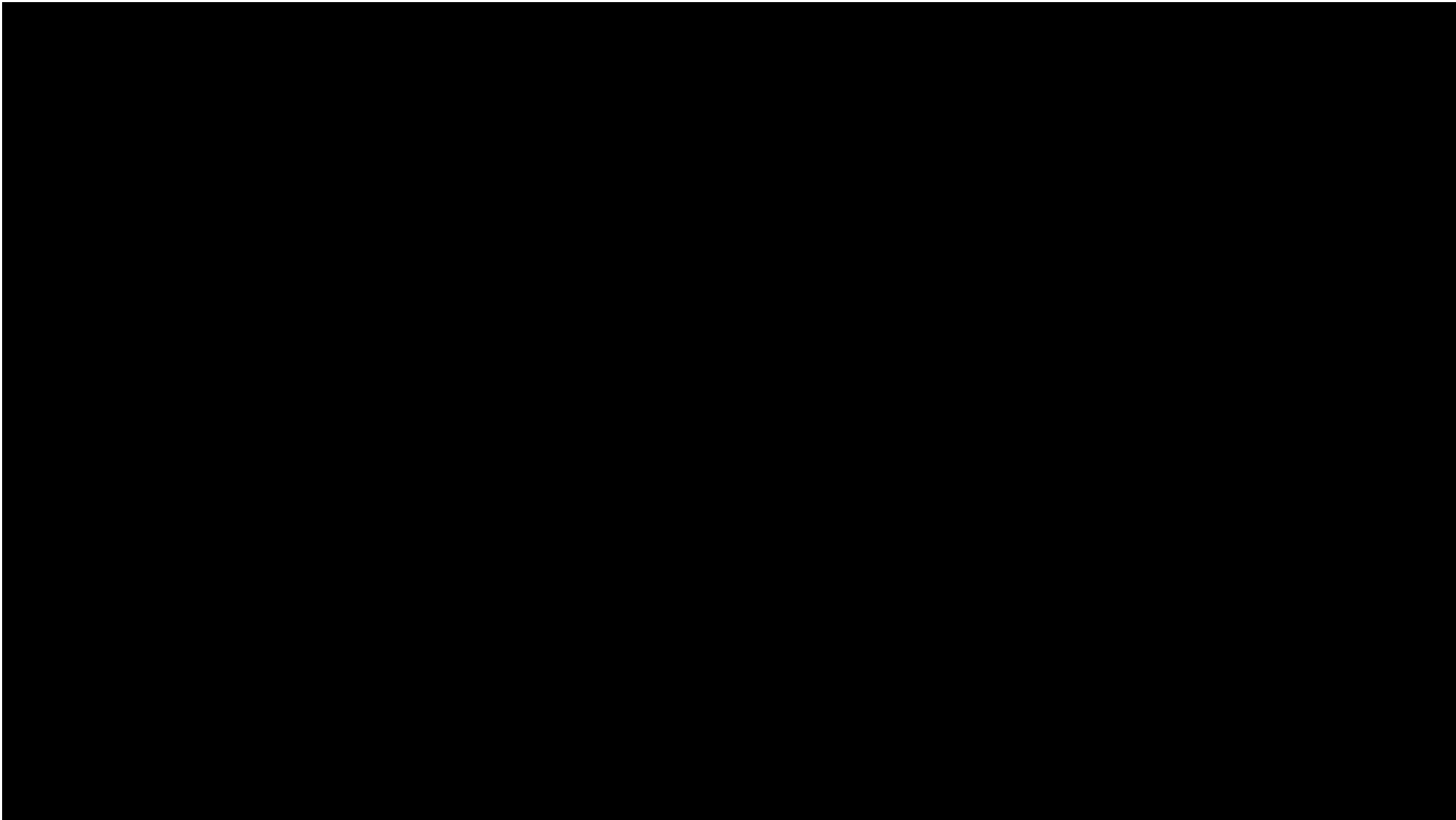
Falls and Sarcopenia

Table I: SARC-F Screen for Sarcopenia

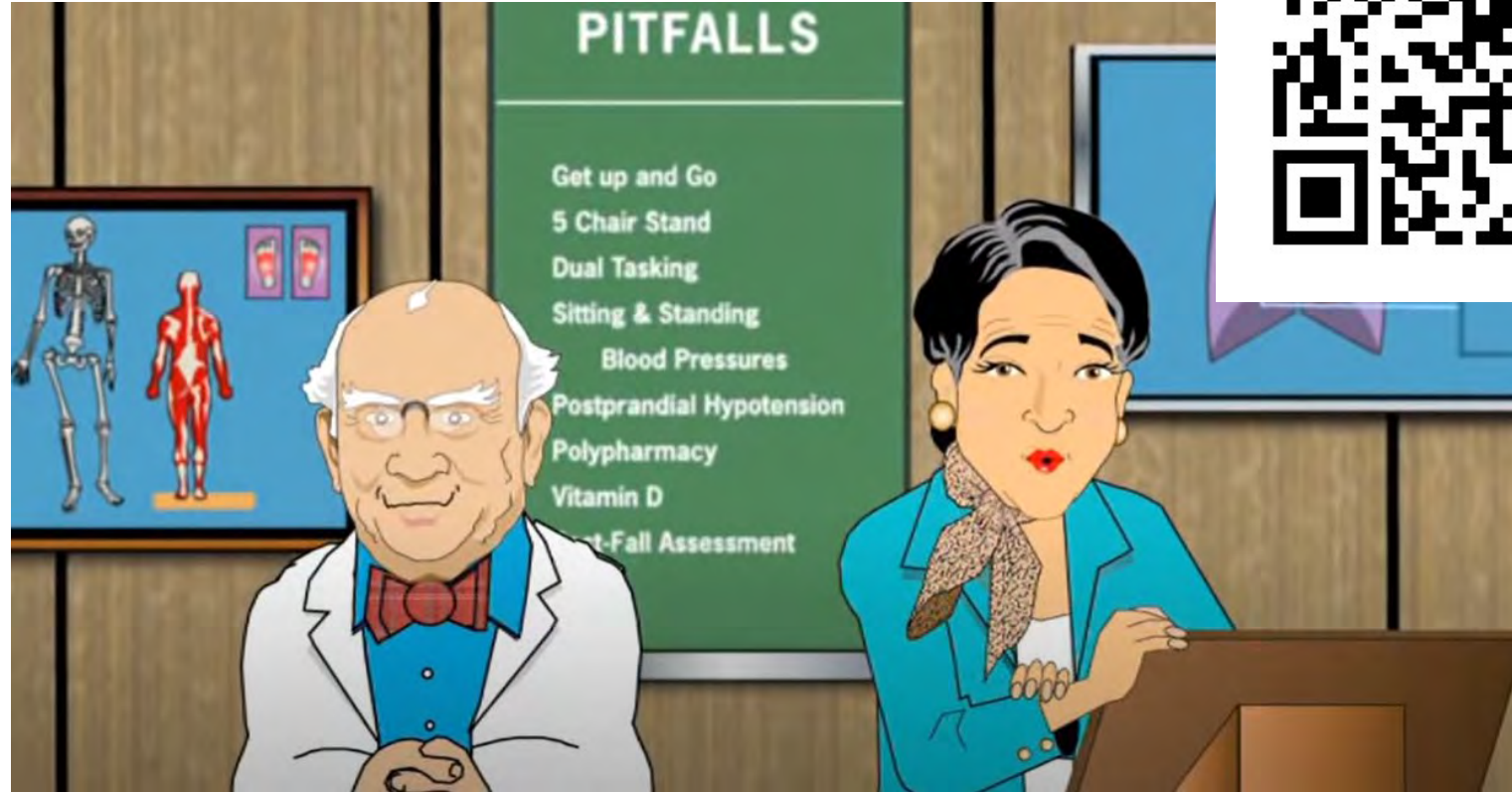
Component	Question	Scoring
<u>Strength</u>	How much difficulty do you have in lifting and carrying 10 pounds?	None = 0 Some = 1 A lot or unable = 2
<u>Assistance in walking</u>	How much difficulty do you have walking across a room?	None = 0 Some = 1 A lot, use aids, or unable = 2
<u>Rise from a chair</u>	How much difficulty do you have transferring from a chair or bed?	None = 0 Some = 1 A lot or unable without help = 2
<u>Climb stairs</u>	How much difficulty do you have climbing a flight of ten stairs?	None = 0 Some = 1 A lot or unable = 2
<u>Falls</u>	How many times have you fallen in the last year?	None = 0 1-3 falls = 1 4 or more falls = 2

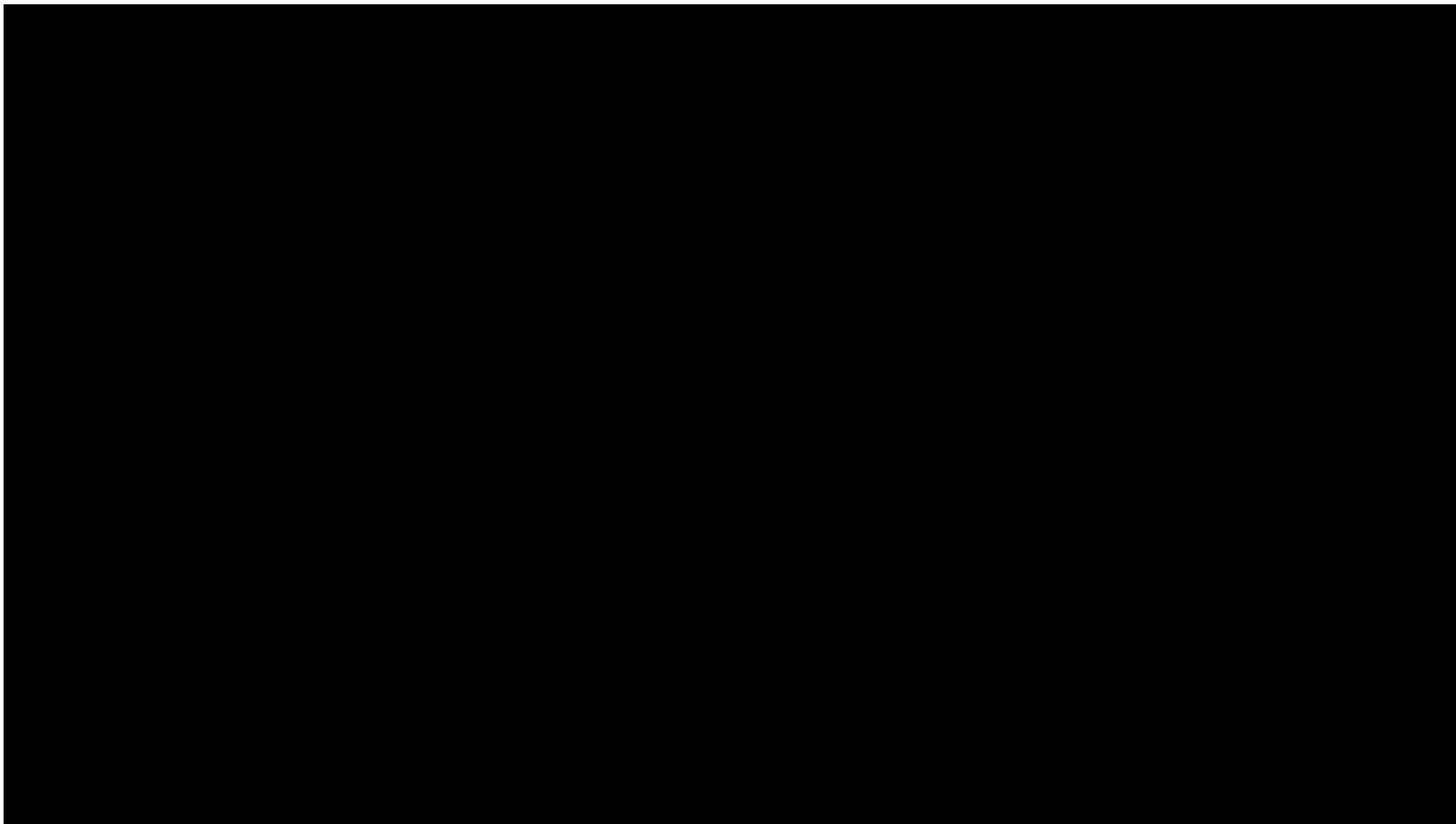
From Malmstrom TK, Morley JE. J Frailty and Aging 2013;2:55-6.

Score > 4 is positive



Falls Risk Assessment





The Story of Mr. C

84 y/o cis-gender male, AL resident for the past 3 years, with PMH moderate stage Alzheimer's Disease, BPH, HTN, CAD, COPD, tobacco abuse, and CKD stage 3b. Moved into your secured memory care unit last week.

Gait Speed with walker 0.3 m/s
FRAIL-NH 7 (Prefrail)

What next?

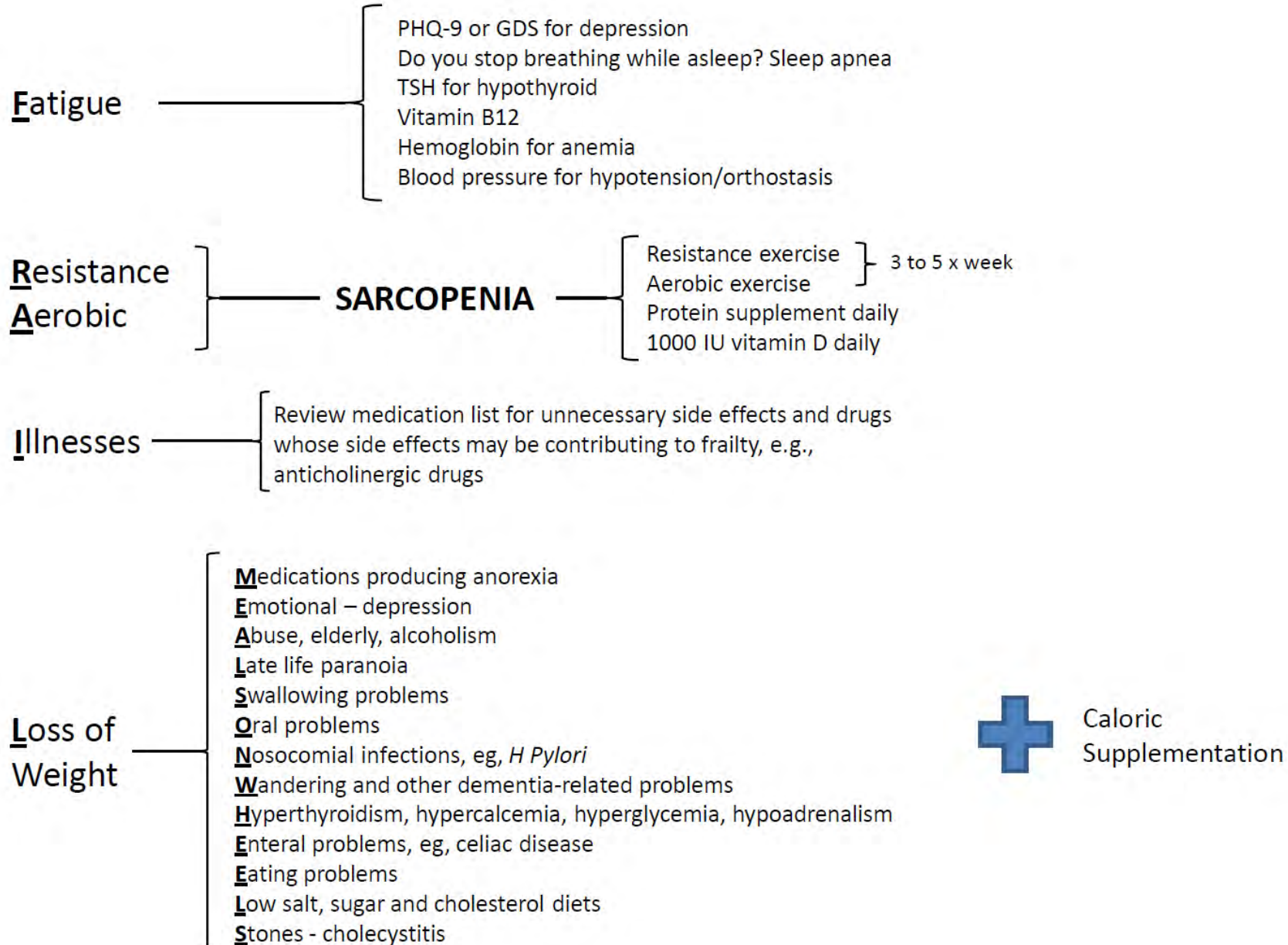
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Initial Work-up and Management of Frailty, Sarcopenia, and Weight Loss





Mobility



Mind



Medications



Multicomplexity



Matters Most

Group Exercise
PT evaluation
Restorative aides

Polypharmacy reduction
High-risk medication reduction
Consultant pharmacy review

Matching activities to interests
Providing choices
Advance car eplanning

The Story of Mr. C

In the first two weeks after admission, Mr. C had two non-injury falls in his room. One was in the middle of the night and one following lunch. Both times, he was found between his bed and the bathroom and had been incontinent of urine.

FRAIL-NH

	0	1	2
Fatigue	No	Yes	PHQ-9 ≥ 10
Resistance	Independent Transfer	Set Up	Physical Help
Ambulation	Independent	Walker	Not Able/WC
Incontinence	None	Bladder	Bowel
Loss of Weight	None	yes	xxxx
Nutritional Approach	Regular Diet	Mechanically Altered	Feeding Tube
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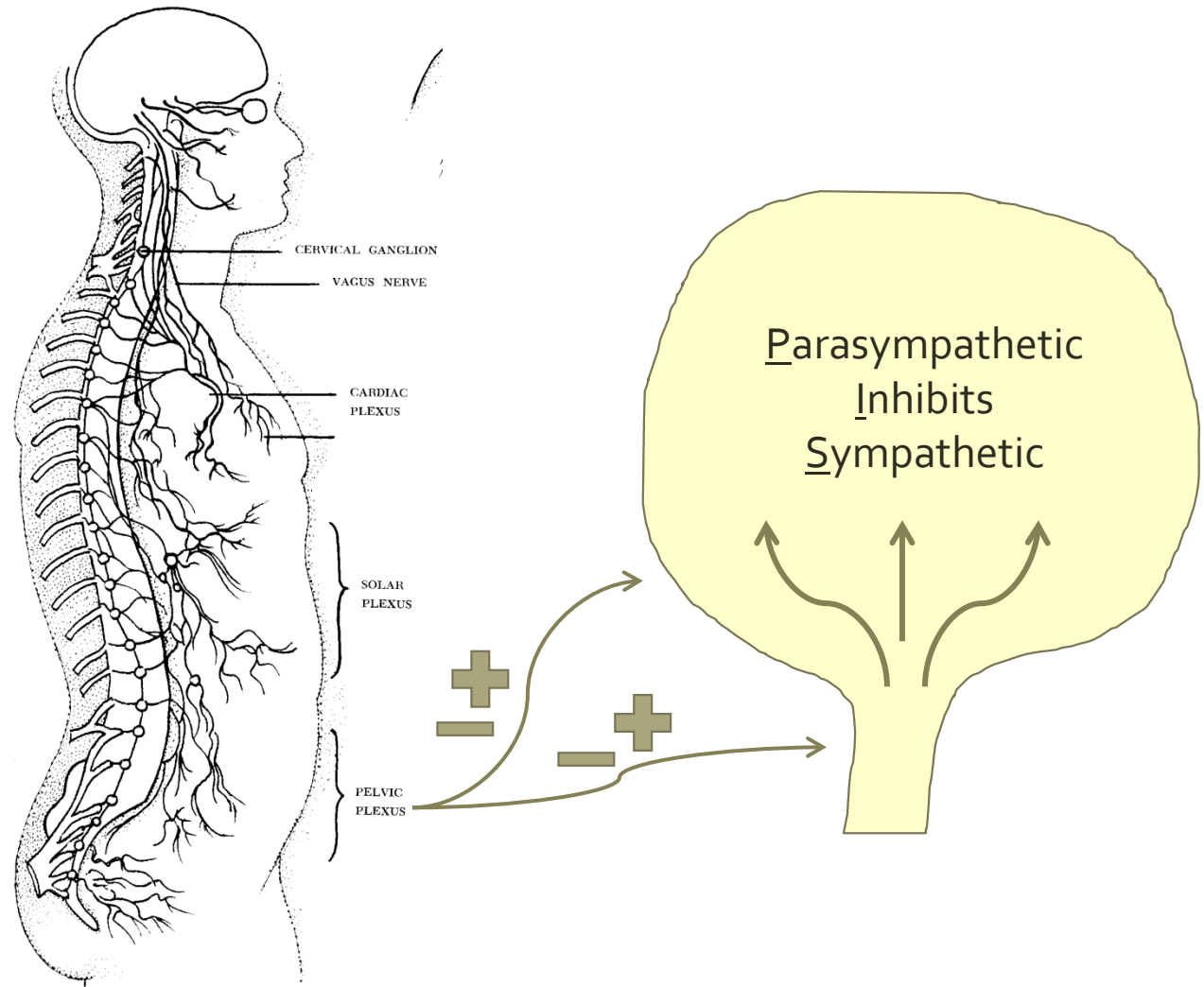
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What next?

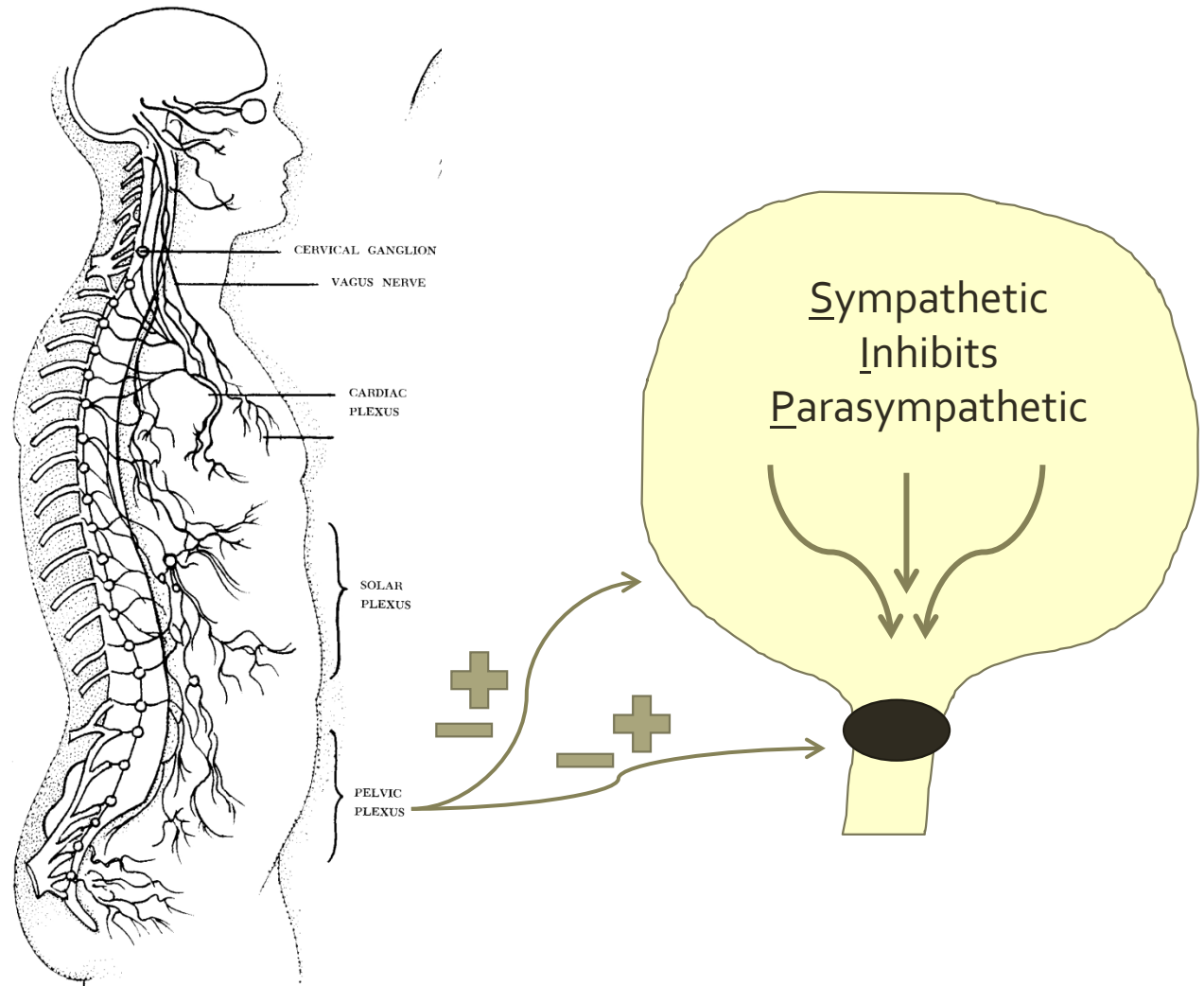


Gait Speed with walker 0.3 m/s

Incontinence



Incontinence



INCONTINENCE

Drugs that cause incontinence

- Sedatives
- Neuroleptics
- antidepressants (SSRI)
- cholinesterase inhibitors
- diuretics
- alpha blockers
- menopausal HRT

ACUTE INCONTINENCE	
D rugs	D elirium
R etention	R estricted Mobility
I nfection	I mpaction
P rostatitis	P olyuria

URGE INCONTINENCE

(Detrusor Hypercontractility)

1. Physical therapy
2. Biofeedback
3. Anticholinergic/antimuscarinic
 - oxybutinin (IR, ER, Patch)
 - tolterodine (IR, ER)
 - trospium (quaternanamine)
 - solifenacin (M₂, M₃)
 - darifenacin (M₃)
4. Sacral nerve stimulation
5. Intravesical therapy
6. Botulinum A
7. Augmentation cystoplasty

LOWER URINARY TRACT SYMPTOMATOLOGY (LUTS)

- Alpha blockers
- terazosin
 - doxazosin
 - tamsulosin
 - alfuzosin
- 5-Alpha Reductase Inhibitor (T → DHT)
- dutasteride (I + II)
 - finasteride (II)
- Phytotherapy
- Saw palmetto (*serenoa repens*)
- Prostate Surgery
- minimally invasive (microwave/radio frequency)
 - TURP
 - Artificial urinary sphincter

MIXED

DHIC (Detrusor Hypercontractility Impaired Contraction)
Stress/Urges

FUNCTIONAL

Frequent toileting

NEUROPATHIC

1. Bethanechol
2. Intermittent catheterization

Intermittent catheterization

1. Intermittent catheterization
2. Artificial urinary sphincter

PARASYMPATHETIC

Inhibits
SYMPATHETIC

PVR < 200cc



STRESS INCONTINENCE

1. Kegel exercises
2. Cone exercises
3. Alpha agonists
 - pseudoephedrine
4. Serotonin - NE uptake inhibitor
 - duloxetine
5. Pessaries
6. Injection of bulking agents (collagen)
7. Surgery
 - culpo suspension
 - slings: bladder neck/mid-urethral
 - artificial urinary sphincter
8. Estrogen



Anticholinergic

- oxybutinin (IR, ER, Patch)
- tolterodine (IR, ER)
- trospium (quaternanamine)
- solifenacin (M₂, M₃)
- darifenacin (M₃)

Kaplan's Pearls



- Screen for geriatric syndromes at least every 6 months in LTC
 - FRAIL-NH and SARC-F are quick screens
 - Anyone with high FRAIL-NH or SARC-F scores should have a fall reduction plan in place
 - Frailty status can help identify risk and guide decision-making
- Consider forming a high-risk Frailty interprofessional team meeting to prevent and address decline in high-risk residents
- Avoid antimuscarinics in urinary incontinence due to anticholinergic side effects. Instead...
 - Focus on deprescribing and non-pharmacologic management
 - Use Beta-3 adrenergic agonists as first line medications (Vibegron if risk of malignant hypertension)
- The 5Ms Framework belongs in PALTC too!

QUESTIONS?

