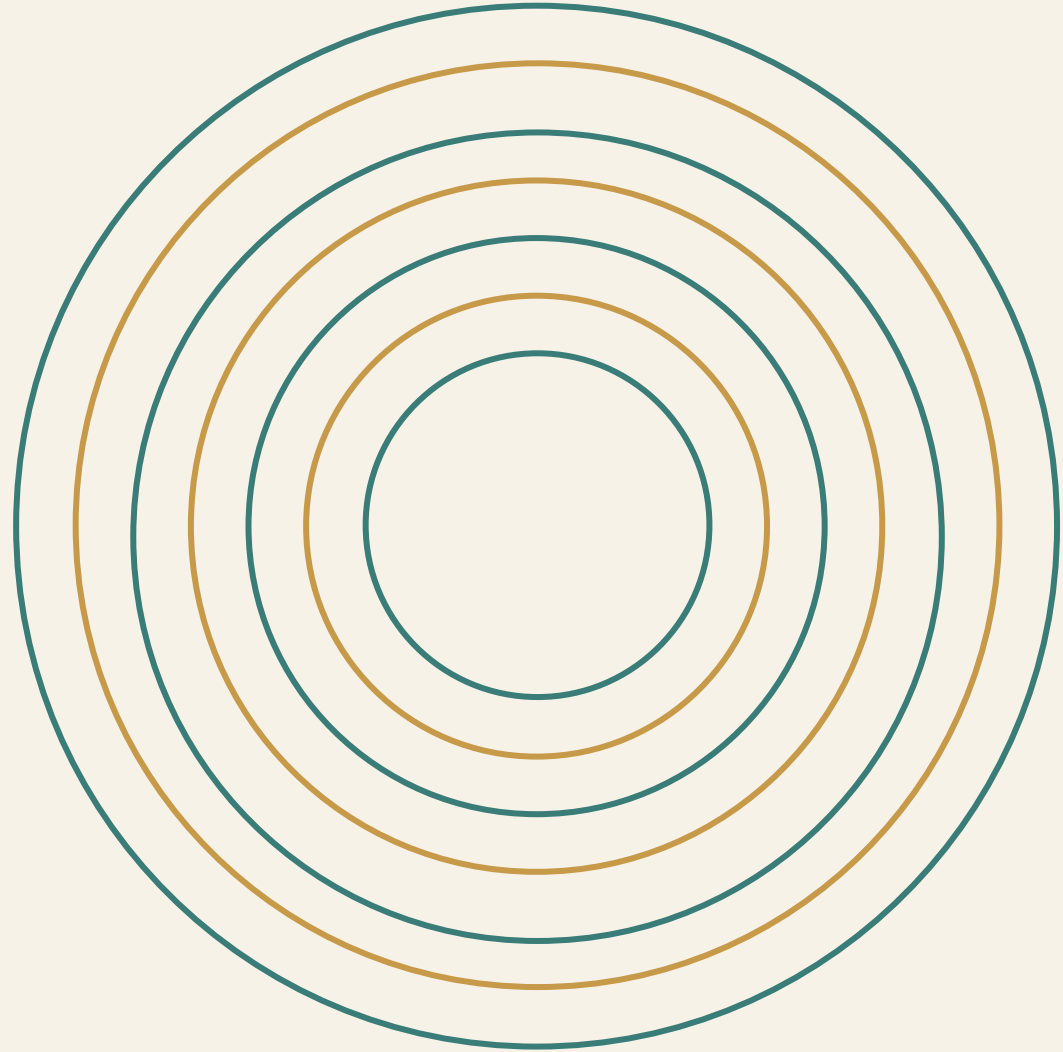


# How We Age

The biology of aging, physiologic reserve, and the 5Ms of geriatrics

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Week 1



# What this course is designed to do

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## Understand

Build a clear mental model of aging and healthspan.

## Apply

Connect science to the choices and trade-offs of daily life.

## Adapt

Create a personal approach that can change as life changes.

# Today's learning goals

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**Describe aging as a change in reserve, resilience, and recovery—not simply the passage of time**

Use the 5Ms to organize a whole-person view of health

Recognize how Mind, Mobility, Medications, Multi-Complexity, and What Matters Most interact

Identify one area for personal reflection after class

# The HEALTH Framework

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## H · How We Age

Biology, function, and the 5Ms

## E · Energy

Cellular and metabolic health

## A · Activity

Capacity, reserve, and movement

## L · Longevity

Lifestyle medicine foundations

## T · Transformation

Adaptation through change

## H · Habits

Sustainable routines and the Reset  
Technique

# Aging is a systems story

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Not one disease. Not one number. Not one organ.

“

**Two people can both be 75—and inhabit very different bodies.**

Chronological age is real. It is not the whole story.

# Three ways to think about age

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## Chronological age

Years since birth

## Biological age

How tissues and systems  
are functioning

## Functional age

What a person can actually  
do in daily life

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**Aging is not a disease.**

It is a continuous biological process that changes vulnerability,  
adaptation, and recovery.

# Aging starts long before retirement

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Cellular and system-level changes accumulate across adulthood

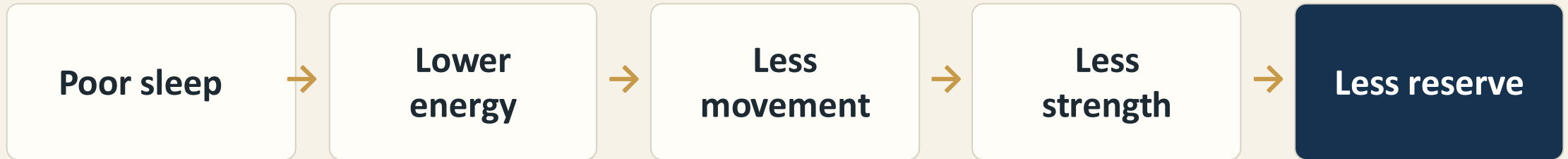
Sleep, movement, nutrition, stress, and exposures shape the trajectory

Symptoms often appear after reserve has already narrowed

Earlier awareness creates more opportunities to intervene

# The body is an interconnected system

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**Reserve is the margin between coping and crisis.**

Physiologic reserve is the ability to tolerate stress and recover.

# What draws on reserve?

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## Physical stress

Illness, injury, surgery, pain

## Emotional stress

Grief, caregiving, uncertainty

## Environmental stress

Heat, travel, disrupted routines

## Treatment burden

New medications, procedures,  
hospitalization

# Same stressor. Different recovery.

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## Higher reserve

Smaller functional drop; faster return toward baseline

## Lower reserve

Larger drop; slower or incomplete recovery

# Aging changes every system

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**Cardiovascular and pulmonary**

Brain, mood, and sensory function

Metabolism, digestion, and endocrine regulation

Muscle, bone, joints, skin, and healing

# Heart and circulation

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## Stiffer vessels

Blood pressure often rises and the heart works against greater resistance

## Less cardiovascular reserve

Exertion, illness, or dehydration may be tolerated less easily

## The practical signal

A smaller margin for rapid physiologic adjustment

# Lungs and oxygen delivery

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## Reduced recoil

Lungs may empty less efficiently

## Weaker breathing muscles

Respiratory work may rise during illness or exertion

## Lower exercise tolerance

Deconditioning can compound normal physiologic change

# Brain and senses

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## Processing

Speed can slow without implying dementia

## Vision and hearing

Changes increase cognitive load and alter safety

## Mood and attention

Sleep, stress, illness, and medications can change performance

# Metabolism and digestion

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## Glucose regulation

Insulin signaling may become less efficient

## Medication handling

Liver and kidney changes can alter exposure

## Nutrition

Appetite and absorption may become less reliable

# Muscle, bone, joints, and skin

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## Muscle

Mass and power decline  
without adequate stimulus

## Bone and joints

Fragility and degenerative  
change alter movement

## Skin and healing

Thinner tissue and slower  
repair increase  
vulnerability

“

**Biology sets constraints. Behavior still shapes the trajectory.**

The goal is influence—not control.

# The 5Ms of geriatrics

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Five questions that keep the whole person in view

# The 5Ms

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## What Matters Most

Goals, values, quality of life

## Mind

Cognition, mood, attention, resilience

## Multi-Complexity

Interacting conditions and context

## Medications

Benefit, burden, interactions, harm

## Mobility

Strength, balance, gait, independence

M 1

# What Matters Most

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The goal comes before the plan

“

**What matters most to you—right now?**

The answer may change as your life changes.

# Different definitions of success

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## Longevity

Maximize time, even when treatment burden is high

## Independence

Protect mobility, cognition, and self-direction

## Comfort

Minimize suffering and burdensome intervention

## Balance

Priorities shift with circumstance and illness

# The diagnosis is only half the question

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## Disease-centered

What is the diagnosis? What does the guideline recommend?

## Person-centered

What is the goal? Will this treatment help this person reach it?

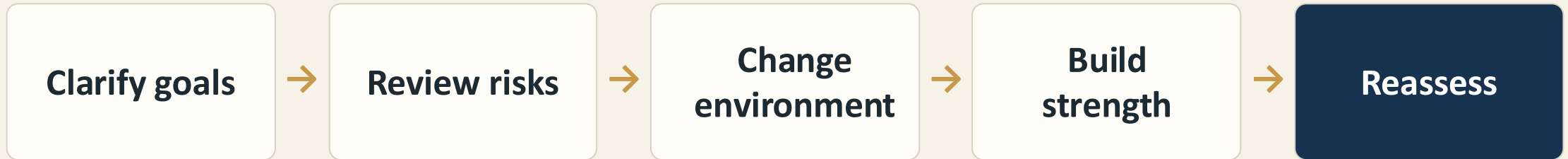
# Debbie wanted to age in place

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Falls were the presenting problem. Independence was the real goal.

# Align the plan with the goal

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“

**Two years later: box jumps and a weighted sled.**

Function changed because the plan reflected what mattered to her.

# Advance care planning protects autonomy

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**Name a healthcare agent**

Choose someone able to speak for you

**Describe quality of life**

Explain what outcomes feel acceptable or unacceptable

**Talk before a crisis**

Written forms matter; conversation gives them meaning

“

**Clear communication transforms impossible decisions into acts of love.**

Your agent should know your voice before they ever need to use it.

M 2

# Mind

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Cognition, mood, attention, and the inner landscape

# Mind is larger than memory

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## Cognition

Memory, language, reasoning, executive function

## Attention

Focus, processing, and mental workload

## Mood

Depression, anxiety, grief, trauma

## Resilience

Coping, adaptation, and emotional recovery

# A useful cognitive continuum

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## Normal aging

Mild, predictable changes without loss of independence

## Mild cognitive impairment

Greater-than-expected decline; independence mostly retained

## Dementia

Cognitive change interferes with everyday function

# Three conditions that can look alike

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## Delirium

Acute, fluctuating  
attention and thinking;  
seek the cause

## Depression

May slow thinking,  
motivation, sleep, and  
memory

## Dementia

Usually  
progressive  
decline affecting  
function

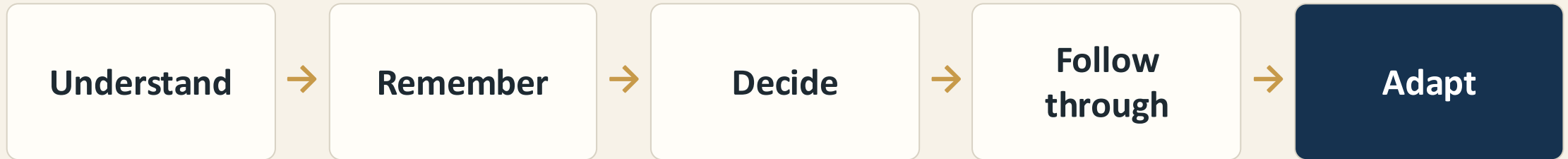
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**Autonomy requires more than offering a choice.**

The person needs the clarity, support, and space to express an authentic preference.

# Mind influences the entire care plan

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# How clinicians evaluate Mind

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## Conversation

Memory, mood, sleep, trauma, coping

## Function

Medication use, finances, driving, appointments

## Screening

Brief cognitive and mood tools

## Context

Hearing, vision, education, language, supports

# Protect the conditions that help the mind work

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**Treat hearing and vision as health issues—not inconveniences**

Address sleep, depression, anxiety, pain, and isolation

Review medications that impair alertness or cognition

Keep movement, learning, purpose, and connection in the plan

“

**What helps your mind feel most clear, steady, and connected?**

A brief reflection—not a test.

# Pause and reset

Stand, hydrate, or step out as needed

# Multi-Complexity

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Conditions do not live in separate compartments

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**Multi-complexity is not diagnoses stacked on a problem list.**

It is what happens when conditions, treatments, and daily life change one another.

# Frailty is a reserve problem

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## Not simply age

A person can be old  
without being frail

## Across systems

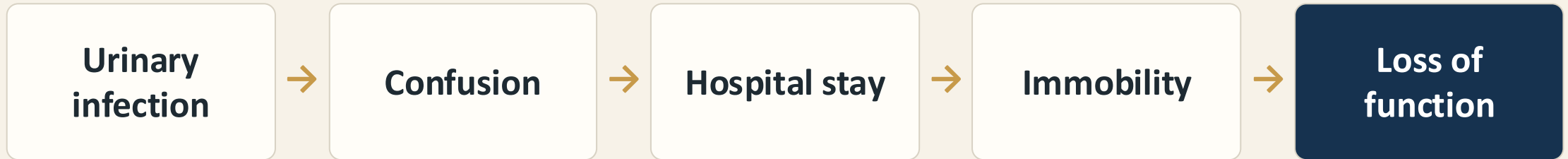
Strength, cognition,  
nutrition, and endurance  
may all contribute

## Visible under stress

A small event produces a  
disproportionate setback

# A common cascade

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# The whole-person assessment

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## Medical

Conditions, symptoms, prognosis

## Functional

Daily activities, gait, falls, cognition

## Social

Caregiving, finances, transportation, isolation

## Environmental

Home design, access, neighborhood

## Personal

Goals, identity, tolerance for burden

“

**Preventing complexity starts before old age.**

Blood pressure, sleep, movement, mental health, nutrition, and connection  
accumulate over time.

# The Ms constantly interact

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## Mind ↔ Medications

Sedation, confusion,  
adherence

## Mobility ↔ Multi-Complexity

Pain, neuropathy,  
cardiopulmonary limits

## What Matters ↔ Everything

Goals determine which  
burdens and risks make  
sense

# Medications

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The right drug, for the right person, at the right time

# The same dose can behave differently with age

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## Distribution

Changes in body water, fat, and protein alter where drugs go

## Metabolism

Liver changes may slow processing

## Elimination

Kidney function may reduce clearance

## Sensitivity

Brain and blood-pressure effects may become stronger

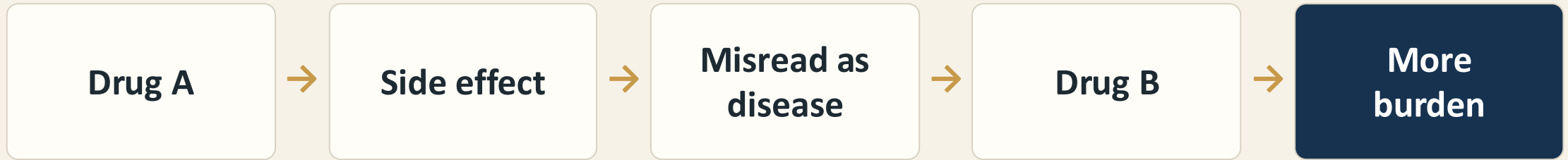
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**Medication burden is more than a pill count.**

Complex schedules, side effects, cost, monitoring, and interactions all matter.

# The prescribing cascade

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# Medication effects that can threaten function

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## Balance

Dizziness, low blood pressure, sedation

## Mind

Confusion, slowed thinking, daytime sleepiness

## Body

Constipation, dry mouth, urinary symptoms

## Daily life

Complex timing, cost, refill burden

# A better medication review

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**What is each medication for?**

Is it helping the outcome that matters?

Could it be causing a symptom or interaction?

Is the dose still appropriate for kidney, liver, weight, and function?

Can the regimen be simplified safely?

# Mobility

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The physical expression of independence

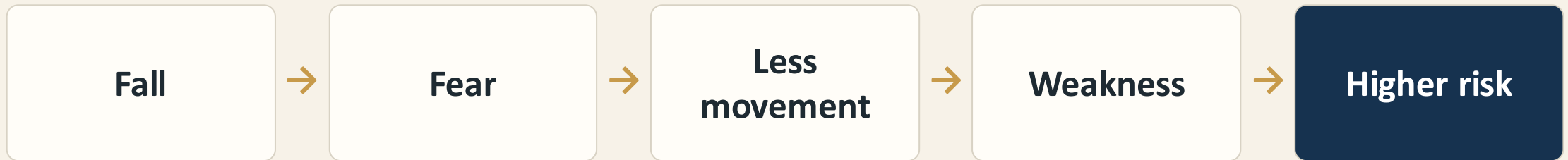
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**Before a patient says a word, I watch how they move.**

Standing, first steps, stride, turning, arm swing, and confidence all tell a story.

## The fall–fear cycle

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“

## Conditioning buys resilience.

Strength, reaction time, balance, and bone health can change the outcome of the same stumble.

# Why mobility changes

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## Muscle and power

Sarcopenia, inactivity, illness

## Balance and sensation

Vision, vestibular function, neuropathy, proprioception

## Joints and feet

Pain, deformity, reduced range of motion

## Brain and nerves

Stroke, Parkinsonism, cognitive change

## Environment

Lighting, stairs, rugs, footwear

## Confidence

Fear can narrow activity and accelerate decline

# Movement and cognition support each other

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## Movement → Brain

Blood flow, learning, mood, and neuroplasticity

## Brain → Movement

Judgment, attention, spatial awareness, motor planning

“

**Aging changes the speed of adaptation. It does not erase  
the ability to adapt.**

Mobility can be rebuilt at nearly any age.

# One person, all five Ms

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## What Matters

Stay home and remain connected

## Mind

Mild cognitive change and fear after a fall

## Multi-Complexity

Arthritis, diabetes, and vision loss

## Medications

Sedating sleep aid and low blood pressure

## Mobility

Weakness, slow gait, unsafe stairs

**Now, what does this mean for you?**

Use the prompts that feel useful. Skip anything you do not want to answer.

## Your Week 1 reflection

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### What matters

What ability or activity do you most want to protect?

### Notice change

Compared with 5–10 years ago, what has changed in energy, recovery, strength, balance, or focus?

### Review burden

Is there a medication, condition, or routine that may be affecting function?

### Choose one step

What is one small action or conversation worth beginning?

# What to carry forward

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**Aging is a systems process—not a single disease**

Reserve helps explain why people respond differently to the same stressor

The 5Ms keep health care centered on function, goals, and lived experience

Small, aligned actions can influence the trajectory

Next: Energy—how cells and metabolic systems sustain function

# Health Is a Journey, Not a Destination

After completing this workbook,  
return to this page and reassess how you feel over time.

Health changes. Life changes. Our environment changes.  
We may not always be in good health, and disease can occur.  
**That is part of life.**



**This is not about anti-aging.  
This is about embracing life at every stage.**

*Be patient with yourself.  
Stay curious. Keep coming back.  
Your health is always evolving.*

# Healthspan Self-Reflection

| Area              | Strong                   | Doing Well               | Needs Attention          |
|-------------------|--------------------------|--------------------------|--------------------------|
| Energy            | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Sleep             | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Strength          | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Mobility          | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Balance           | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Nutrition         | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Stress Management | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Social Connection | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Memory & Focus    | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Sense of Purpose  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

|                                                                                        |  |
|----------------------------------------------------------------------------------------|--|
| <b>What does aging well mean to you?</b>                                               |  |
| <b>What abilities or activities are most important for you to preserve as you age?</b> |  |
| <b>What areas of your health currently feel strongest?</b>                             |  |
| <b>What areas of your health feel most difficult or concerning right now?</b>          |  |
| <b>What are you hoping to gain from this workbook?</b>                                 |  |

## Reflection: How Has My Body Changed Over Time?



Compared to 5–10 years ago, how has your energy changed?

Has your recovery from illness, stress, travel, or poor sleep changed over time?

Have you noticed changes in your strength, balance, or endurance?

Are there activities you now avoid because they feel more difficult?

What physical or emotional changes concern you most as you age?

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# Functional Awareness Checklist

Check any areas that apply to you.

## Mobility & Strength

- ☐ I feel less steady walking than I used to
- ☐ Stairs feel more difficult
- ☐ I avoid certain activities because of weakness or pain
- ☐ Getting up from chairs or the floor is harder
- ☐ I feel more physically fatigued than I used to

## Energy & Recovery

- ☐ I recover more slowly after busy days
- ☐ My sleep no longer feels restorative
- ☐ Stress affects me more physically than before
- ☐ I feel “wired but tired” frequently
- ☐ My energy fluctuates significantly during the day

## Cognition & Focus

- ☐ I feel mentally overloaded more easily
- ☐ I struggle more with focus or multitasking
- ☐ Stress or poor sleep noticeably affects my thinking
- ☐ I feel more forgetful than I used to

## Resilience & Adaptation

- ☐ Illness or setbacks affect me longer than before
- ☐ I feel overwhelmed trying to change my habits
- ☐ I have difficulty maintaining routines consistently
- ☐ I often put my own health last

# Medication & Health Awareness

As we age, the body changes the way medications are absorbed, distributed, metabolized, and eliminated. Some medications may affect balance, energy, memory, sleep, blood pressure, or overall function.

This section is simply designed to increase awareness and encourage discussion with your doctor and medical team.

**How many prescription medications do you currently take?**

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**How many supplements or over-the-counter medications do you take regularly?**

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**Have you experienced any of the following?**

- ☐ Dizziness
- ☐ Fatigue
- ☐ Brain fog
- ☐ Dry mouth
- ☐ Constipation
- ☐ Falls or balance concerns
- ☐ Daytime sleepiness
- ☐ Memory concerns

**When was the last time your medications were fully reviewed with your doctor?**

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**What other concerns do you have about your prescription medications, or your supplements and vitamins that you may want to discuss with your doctor?**

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# What Matters Most?

One of the most important principles in geriatrics is recognizing that healthy aging is not only about medical conditions. It is also about preserving the things that make life meaningful.

**What activities or abilities are most important for you to maintain as you age?**

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**What gives your life meaning, connection, or purpose?**

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**What would “aging well” look like for you personally?**

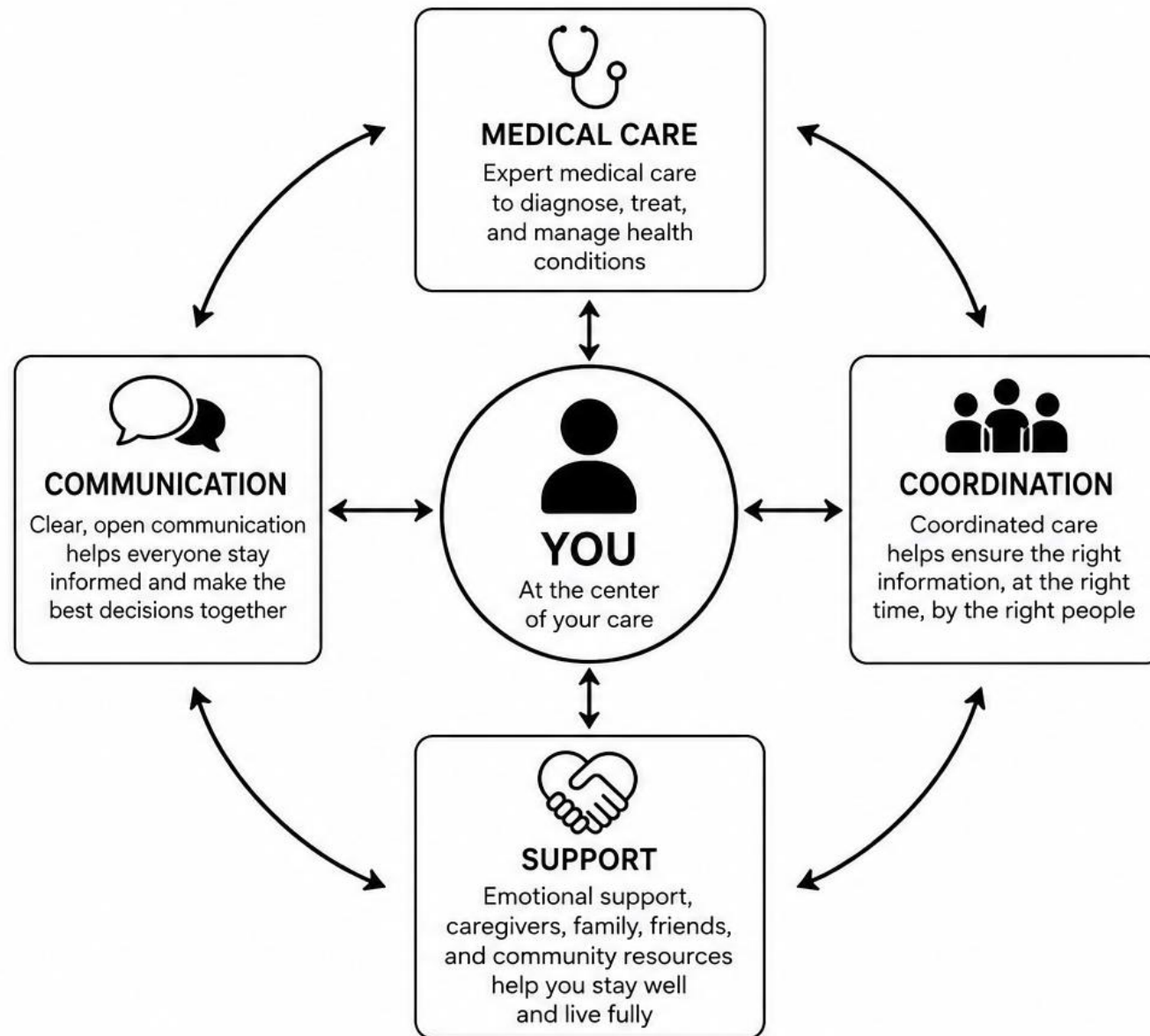
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**When medical care, communication, coordination, and support work together,**  
you are stronger, healthier, and better prepared for the changes that come with aging.

# Reflection: My Health Advocacy

**Do you feel comfortable asking questions during medical appointments?**

- ☐ Usually
- ☐ Sometimes
- ☐ Rarely

**Do you understand why you take each of your medications?**

- ☐ Yes
- ☐ Somewhat
- ☐ Not completely

**Do you feel heard and understood by your medical team? Consider what is working well, and what may need attention?**

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**Is there someone who could help support or advocate for you if needed?**

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**What health concerns or questions do you want to better understand right now?**

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# Reflection: Looking Ahead

Which area has the greatest impact on your overall health right now?

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Which area would you most like to strengthen over the next year?

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What is one small step you could take to support your future healthspan?

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