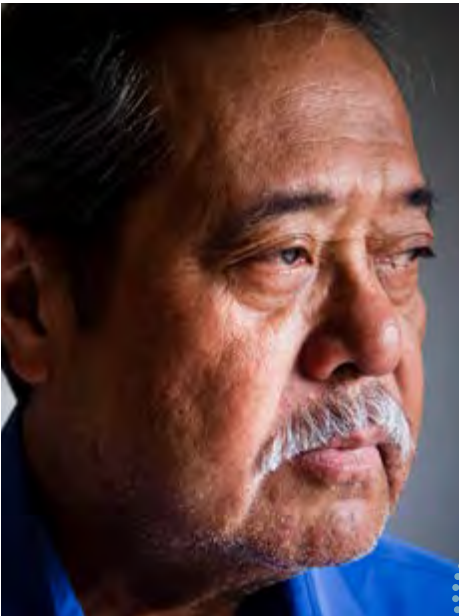


AGING

IMPORTANT
THINGS
TO KNOW



WHAT IS FRAILITY?

DETERMINING OUTCOMES
FOLLOWING AN INJURY

ENERGY ENGINES

HOW TO INCREASE ENERGY THROUGH
PHYSICAL ACTIVITY AND MOVEMENT

8 AREAS OF PLANNING

AND ANTICIPATORY CARE

A CLOSER LOOK
AT WHAT TO EXPECT







Have you ever wondered about the aging process and what to expect as you get older? More importantly, have you thought about actions you would like to take as you age so that you can plan ahead?

You are likely reading this booklet because you're an older person, or after an injury from a fall or other cause.

In this booklet, you will read about the term **frailty**, a word that describes a process that older people often experience as they age.

You will read about the connection between frailty and falls, as well as what happens after that injury.

You will also read about how the body creates energy for strength, endurance and balance.

Finally, you will read about areas that adults should think about as they age to ensure well-being and quality of life in the future.



DID YOU KNOW THAT IN THE U.S.,

27,000**PEOPLE DIE
FROM A FALL
EVERY YEAR?**

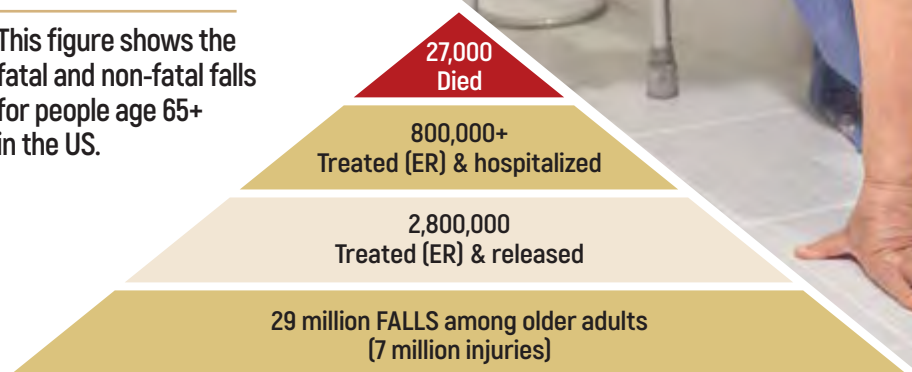
Over 800,000 people are admitted to a hospital for injury caused by a fall.

Almost 3 million people are treated in an emergency room, but released to return home.

And finally, 29 million older adults fall and never go to an emergency department.

7 million of those older adults actually experience an injury during their fall.

This figure shows the fatal and non-fatal falls for people age 65+ in the US.



Why are there so many falls in older adults?

You may know an older person who had a fall and had to be hospitalized. What is causing people to fall? Why is this important to talk about?

FRAILITY

The condition that is often causing this increase in falls is known as **FRAILITY**. Frailty is the slow loss of strength and energy over time that leads to weakness, tiredness, slowness and loss of balance.

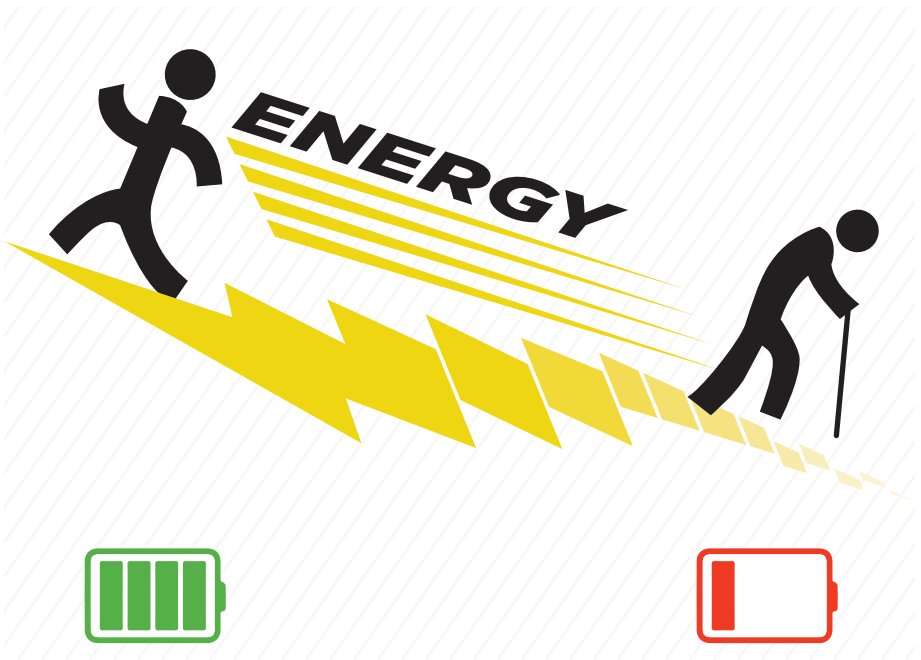
From birth, our bodies gradually increase in strength, endurance, and flexibility. Think about a young child that seems to have boundless energy, who can run and jump and play for hours. In humans, our functional ability peaks in our late 20s

or early 30s. After that peak, we slowly begin to lose function. The change is slow and gradual and we often do not notice it in our 30s, 40s, and 50s. By our 60s, we've probably begun to notice that we can't do the things we did in younger years with the

same level of strength or endurance. By age 80, the decline has become much more noticeable and we may begin to lose the ability to carry out activities that were quite easy at one time. We may even begin to need devices, like a cane, to help us balance.



Frailty is the slow and gradual loss of strength and energy over time that leads to inability to carry out activities that were once easy.



It occurs in most aging adults and begins to affect daily life at different time points for each person. It makes us at risk for falls, injury and other problems over time. Having a better understanding of frailty can help us make better decisions.

One way to think of frailty is the human body's slow and gradual loss of the ability to make energy.

Energy is needed for everything that the body does!

First, we want to show you how an injury affects a person depending on their frailty status.

Then we will explain how the body makes energy.



Frailty and Injury

A Vanderbilt Study of Injured Older Adults

Research conducted at Vanderbilt University shows how important it is to know about frailty. It has also showed us why it is so important to delay frailty and to prevent falls if someone is becoming frail.

In 2013, researchers enrolled almost 200 adults with a recent injury, age 65 and older in a study.

The researchers asked them questions about their functional abilities BEFORE their injury. We called each person four times over one year.

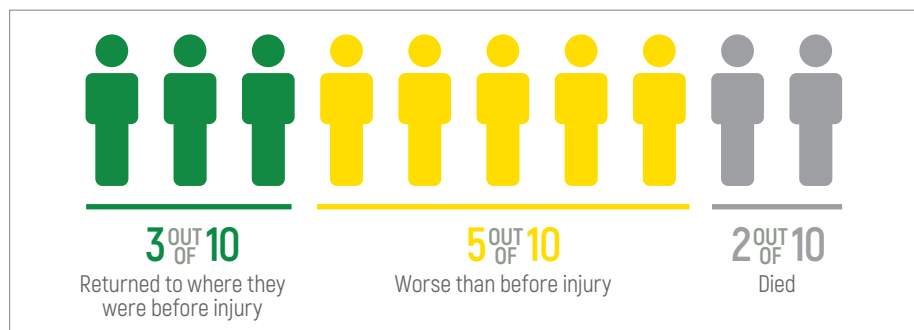
Finally, the patients were asked about how they were doing and about their abilities as they recovered from their injury. The results of the study are similar to other studies of hospitalized older adults. They show how much an injury can impact older adults.





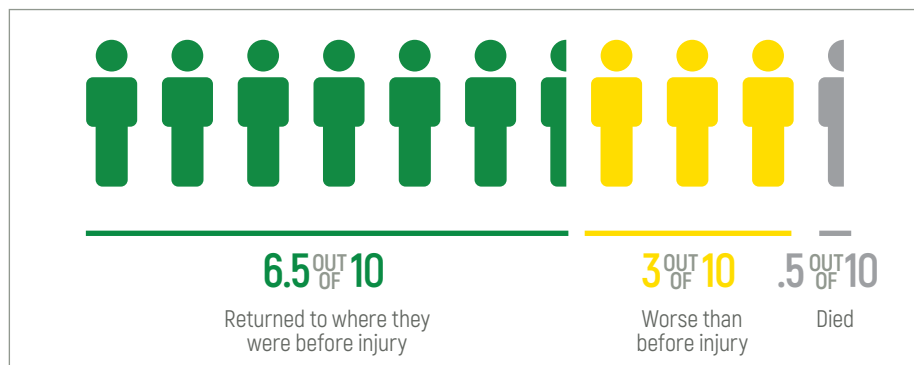
Study results for older adults after injury

One Year Outcomes: ALL Patients



By the end of one year, two out of 10 patients had died. Five out of 10 were worse in terms of physical function than they were before their injury, and only three out of 10 made it back to where they were before the injury.

One Year Outcomes: Non-frail Patients



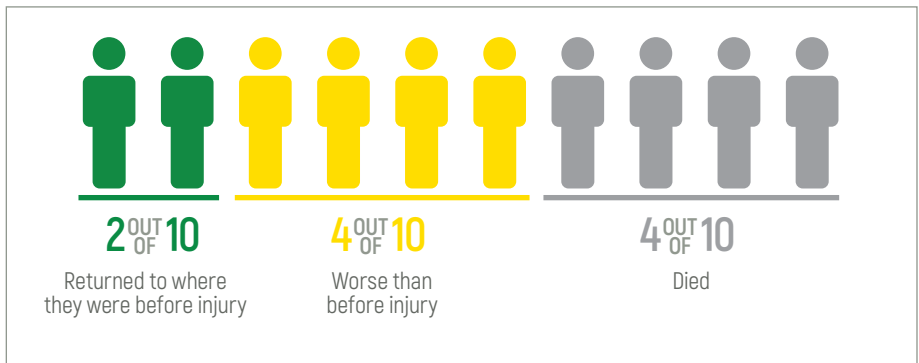
In the patients who had no physical problems before their injury, over 6 out of 10 made it back to their pre-injury status. Three out of ten developed problems like inability to walk up stairs or to stoop or kneel.

One Year Outcomes: Pre-frail Patients



In the pre-frail patients, or the ones who had begun to have physical problems, one out of 10 died, five out of 10 lost some of the abilities they had before the injury, and four out of 10 made it back to their pre-injury status.

One Year Outcomes: Frail Patients



In the frail patients who had the most functional problems before their injury, four out of 10 died by the end of one year, four out of 10 declined, and only two out of 10 made it back to their pre-injury status.

The results of the study show that frailty determines outcomes after injury.

Frailty and Energy



Frailty and Energy



Let's go a little deeper into why humans become frail over time. Energy is needed to make things happen. Energy is a bit of a mystery. We can't see it, but it is all around us and in us, even when we're sleeping. Energy is the magical substance that makes things happen.



**Energy is
the magical
substance
that makes
things
happen.**

Energy Engines (Mitochondria)

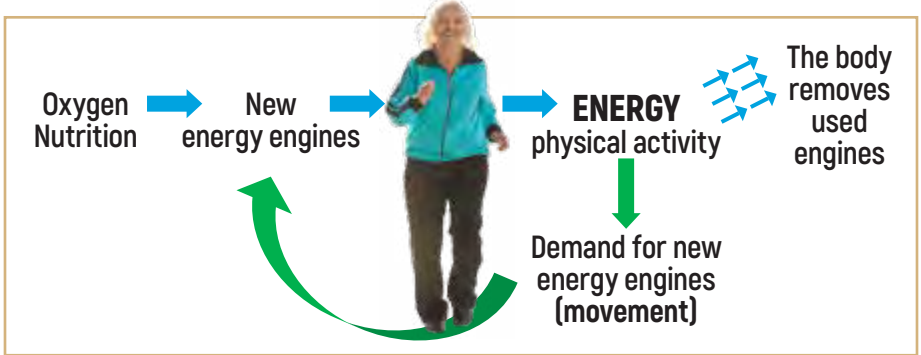
The age that our bodies can make the most amount of energy for strength and endurance is when we are in our late 20's and early 30's. This energy comes from each of the cells in our body.

As we age, we gradually lose the ability to make energy, and when our bodies can no longer make energy that we need to survive, we die.

The human body has trillions of cells and the part of the cell that actually makes energy is called the mitochondria.

You can think of mitochondria as “cell engines” or better yet, “energy engines.” We can picture it this way because this is where all body energy comes from.





Energy Engines (Mitochondria)

Thinking about energy engines in our body cells can help us to understand why this is so important.

As humans, we take in nutrients and oxygen into our bodies that travel through our blood to all of the cells of our body. Our cells make energy to do the things that we want to do... work, play, function and think.

The used energy engines (mitochondria) are removed from the body over time. The way that we create new energy engines is to create the demand for them, and that happens through physical activity and movement.

The more that we move and the more demand that we create, the more new energy engines our bodies make.



Cells found in all tissues of the body contain energy engines.

Physical Activity: Muscles and Brain

Did you know that some of our energy is stored in our muscles and brain?



Psoas Muscles

The psoas muscles connect our lower spine with our hip joints. They are needed for balance and posture.



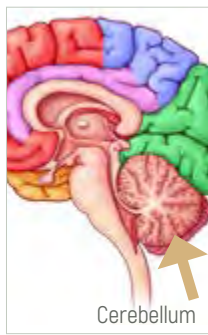
Leg Muscles

The muscles of the legs are needed for walking, standing up and kneeling.



Heart

People often do not realize that our hearts are actually muscles that pump blood to different parts of our bodies. Replenishing the energy engines in the heart is just as important as with other muscles.



Balance and Posture

The back part of the brain, the cerebellum, is responsible for movement and balance. This means that we need to have a large amount of energy delivered to this area of the brain to maintain balance.

Illustrations: Science Photo Library

Using energy creates a need for new energy.

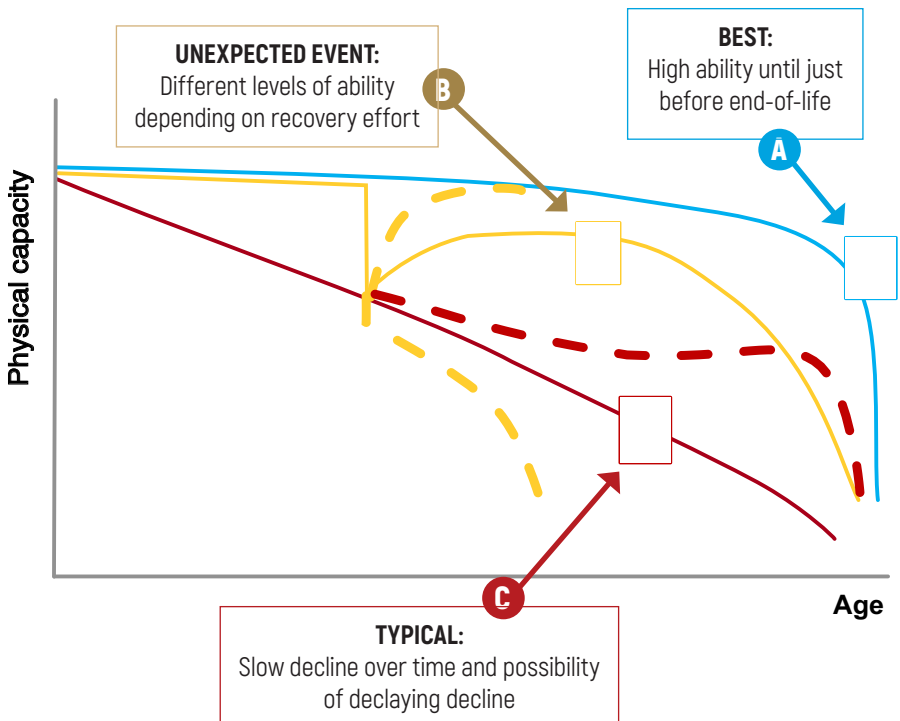
Possible Aging Paths

Humans take differing paths as they age, as shown in the illustration below. The blue line is the best path. This person is able to carry out physical activities at a high level all the way up to the end of his/her life. We see this in lifelong athletes.

In the yellow line, the person experiences a sudden event like a car accident, serious injury, cancer, or surgery. He/she experiences a sudden decline, but through work

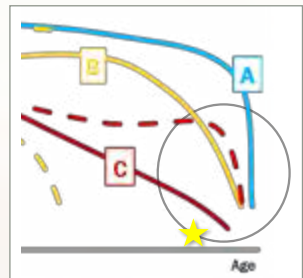
and recovery, the person can return to where they were before the event (the solid yellow line). The person could also experience a rapid decline (the dotted yellow line).

The red line is the typical line for older adults who become frail. The person experiences slow and steady decline, but has the potential or possibility to delay the loss of abilities through physical activity and attention to good health (the dotted red line).



A Closer Look Towards the End

Most of us do not like to think about the end of our life, but understanding how others have described it can help us to plan ahead. Each person is unique. Each life is of great value and deserves respect, dignity and compassion. The information that we share is based on real interviews with older adults who were frail and at the end of their lives.





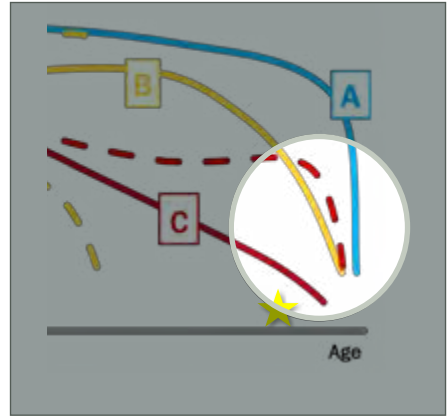
AC

ANTICIPATORY CARE

ANTICIPATORY CARE IS PROVIDED DURING THE LAST PHASE OF LIFE WHEN (SOME) PEOPLE LOSE ABILITIES, EXPERIENCE SYMPTOMS AND DEAL WITH MANY EMOTIONS. IF WE HAVE AN IDEA ABOUT WHAT TO EXPECT, PERHAPS WE WILL BE ABLE TO FACE THIS PHASE WITH PEACE AND READINESS.

A Closer Look and What to Expect

Frail adults tell us that coping well includes accepting the loss of physical abilities and defining a new normal while maintaining social connections. During this phase, frail adults accept a new normal for themselves while they try to maintain their social connections. They live day-to-day but may see death in the distant future. As they continued to decline, they may struggle emotionally and become frustrated. They often search for a cause for their decline and they might begin to have feelings of loneliness and fear. They may worry that they are a burden to others. Finally, as the end of life gets very close, they are often confined to a location, room, chair or bed. They may struggle to



hold on to something important like control of one particular thing (placement of nearby items, room lighting). At this final stage, the future becomes a reality, and along with it, the acceptance that death is close. Not everyone will experience these stages, but many will.



Anticipatory Care

Many people experience many emotions and symptoms as they near end of life. If you experience any of the emotions noted below, talk to trusted friends, family and professionals.

COPING - STRUGGLING - FEELING OVERWHELMED		SYMPTOMS
<i>"but I can't do anything like the cooking I used to do and the baking, no I can't. So, so much of my life's changed."</i>	<i>"She's waiting for the next stage all the time when things are going to get better. I think she's harping back to the past when she was much more able to manage." (caregiver)</i>	<ul style="list-style-type: none">▶ No Appetite▶ Severe Fatigue▶ Pain▶ Depression▶ Trouble Breathing
<i>"Well, if it wasn't for reading I don't know what I would do – and television but I'm not all that interested. I mean, I like things like tennis on the television."</i>	<i>"No I don't see many friends nowadays. I used to go regular to church, I used to travel all over but I don't see anybody now."</i>	<ul style="list-style-type: none">▶ Confusion▶ Leaking Urine or Stool

Making a Plan and Anticipatory Care

Knowing that frailty happens when we lose the ability to make energy AND knowing that it can eventually happen to anyone, what are some areas that we need to think about as we age?

Thinking about these areas **NOW**, instead of later, helps us to make better decisions.

This section discusses eight areas that older adults need to think about. Each area briefly describes two phases to think about:



- 1 Early planning
- 2 Late planning, when we begin to lose physical abilities. AC

Making a Plan and Anticipatory Care

AREA 1

Safety



The first area is SAFETY. As we age, we need to ensure that our homes are as safe as possible. It is important to think about all of these things to make sure your home is safe.

- 1 Do we have safe walking pathways, without clutter or items that we could trip over?
- 2 Do we need ramps, hand rails or wider doorways?
- 3 As we age and experience loss of vision or reaction time, do we need to make changes in where we drive, how we drive, or even if we need to stop driving.
- 4 Do we have a fall prevention plan?
- 5 Should we use a cane or walker for better balance?
- 6 Are we careful when we go for walks?
- 7 Do the rooms of our homes have proper lighting?
- 8 Do we try to minimize slippery floors?

AC

ANTICIPATORY CARE:

When we can no longer care for ourselves, what will ensure our safety? Can we recognize when we can no longer safely care for ourselves?

Making a Plan and Anticipatory Care

AREA 2

Food and nutrition

A vital component of overall well-being and health. Are there ways that we can make food and nutrition more of a priority? How can we ensure that the things that we eat and drink are good for us?

Water is a primary need of the body, but most of us do not drink enough water. Being hydrated can improve kidney and bowel function, skin hydration, joint lubrication and even mental clarity.

Regularly eating different types of fruits and vegetables helps to ensure that your body has the nutrients it needs to function at its best. Eating fruits



and vegetables that are green, red, orange, yellow, and purple will provide the most nutrients. We should try for at least 2 colors per meal.

Fiber helps us to feel fuller faster, promotes bowel regularity, and helps to support healthy cholesterol and blood sugar levels. Foods high in fiber include whole grains, fresh fruits,

vegetables, legumes (beans), nuts, and seeds.

As we age, protein is an important nutrient to prevent muscle loss. High protein foods include meat, poultry, seafood and eggs.

If you do not eat enough protein you can experience energy loss, skin fragility, susceptibility to infection and poor wound healing.

AC

ANTICIPATORY CARE:

Towards the end of life, appetite often decreases dramatically and some people lose weight.

Making a Plan and Anticipatory Care

AREA 3

Physical activity and movement

Knowing that physical activity and movement cause our bodies to create more energy, this area is of utmost importance. In general how much time do we spend sitting, standing and moving?

Many adults spend over 70% of their waking hours sitting. Regular exercise helps to reduce our chances of getting certain chronic diseases and cancers.

Exercise is energizing and improves sleep. Exercise also lessens depression, anxiety, and tension. For every hour of regular exercise that you engage in, you will get back two hours in additional life expectancy.

The World Health Organization recommends that adults get 150 minutes of moderate activity per week or 75 minutes of vigorous activity per week.

The most important factor for physical activity is that we develop a habit and continue these activities on a regular basis as we age.



AC

ANTICIPATORY CARE:

When we can no longer be physically active every day, what can we do within our limitations? Are there new activities and hobbies that we can focus on?

Making a Plan and Anticipatory Care

AREA 4

Relationships and community

Studies demonstrate the importance of solid relationships and supportive communities in terms of health. People with lower levels of social connection are 3 to 5 times more likely to die early. Lack of social support results in loneliness, which can contribute to poor health.

We often engage in better health behaviors when we have social connections. We cope with stress better when we have others to support us. What kind of social networks do you have? How can you develop new social connections? What kind of options are available in our communities? Can we make that first step to reach out?

**AC**

ANTICIPATORY CARE:

When we can no longer go out and do things away from home as we used to, how can we maintain social connections?

Making a Plan and Anticipatory Care

AREA 5

Sleep and Rest

How much sleep do we get at night? How much is enough? Experts recommend 7.5 to 9 hours per night. Do we have time for relaxation and rest during the day as well?

Benefits of sleep and rest include: clearer thinking, better immune system function, improved memory, and even weight control.

How can we improve sleep? Tips might include:

- 1 Regular exercise
- 2 Avoiding food high in sugar
- 3 Avoiding eating 2-3 hours before bedtime
- 4 Limiting caffeine and avoiding alcohol

The environment around us is an important consideration for better sleep and there are things that we can do to make the environment better for sleep.

The way that we prepare for sleep can improve our ability to fall asleep, and keeping the bedroom at a cool temperature often helps.

AC

ANTICIPATORY CARE:

Older persons with advanced frailty may sleep more than usual and fall asleep easily during the day. This is not unusual and is often an early indicator that end-of-life is approaching.



Making a Plan and Anticipatory Care

AREA 6

Health Care Decisions

Health care decisions include many areas that will impact our health care that we need to think about now and later on.

As we age and lose abilities, we may become unable to carry out activities of daily living like shopping, housekeeping and cooking.

We may get to where we can no longer walk without assistance or dress ourselves.

Have we thought about what we want to happen IF we get to that point? Is there someone who can help us make good decisions? Do we have a plan in place for living arrangements, meals and the help we may need. More importantly as we age, have we thought about what kind of health care we want to receive?



AC

ANTICIPATORY CARE:

If we begin to decline, do we want aggressive medical care? Do we want to remain at home if possible? What if we developed a condition in which we needed life-sustaining measures like respirators or resuscitation? It is important to think about these areas before they begin to happen in our lives. Thinking about end of life is scary, but addressing our fears now, before we're at the end will help when we do get there. Also, the end can be uncomfortable. Have we talked to our health care providers about our needs and wishes as we age?



Making a Plan and Anticipatory Care

AREA 7

Finances and Aging

We often hear statements like, “if only Mr. Smith had a will” or “if only they had planned ahead.” We hear sad stories of homes being lost, estates being taxed or assets going to the state. Thinking ahead about finances is important. Who could help you plan? Have you talked to an attorney or financial planner? What about insurance? Do you have a Medicare supplement? Where do you want your assets (property, money) to go? What are your debts? Will someone else have to assume them? Finally, does someone that you know well and trust know about your bank account, tax returns or passwords to accounts?

**AC****ANTICIPATORY CARE:**

Are all of the questions (above) settled?
Do we feel secure and at peace?



Making a Plan and Anticipatory Care

AREA 8

Holistic Health: Mind/Body

A final area to think about is how the mind and body work together?

When we're calm and relaxed, our bodies function better. Do we make time for pleasure and enjoyment? Do we seek leisure and fulfilling

experiences? Do we care for ourselves in small ways like taking a walk in the park or taking a nap if needed? Do we take time to meditate, breathe deeply or pray?



ANTICIPATORY CARE:

As we move towards the end, do we have opportunities to share good memories, tell stories and share values with others? Have we written any of these things down so that we can leave our own unique legacy?

This section provides an overview of 8 areas to think about as we make a plan for aging well.

32

What's Important to You?



Making a Plan for Aging

How satisfied are you in each area?

1 = Low 10 = Very High

Area 1: Safety

1 — 2 — 3 — 4 — 5 — 6 — 7 — 8 — 9 — 10

Area 2: Food and Nutrition

1 — 2 — 3 — 4 — 5 — 6 — 7 — 8 — 9 — 10

Area 3: Physical Activity

1 — 2 — 3 — 4 — 5 — 6 — 7 — 8 — 9 — 10

Area 4: Relationships and Community

1 — 2 — 3 — 4 — 5 — 6 — 7 — 8 — 9 — 10

Area 5: Sleep and Rest

1 — 2 — 3 — 4 — 5 — 6 — 7 — 8 — 9 — 10

Area 6: Health Care Decisions

1 — 2 — 3 — 4 — 5 — 6 — 7 — 8 — 9 — 10

Area 7: Finances and Aging

1 — 2 — 3 — 4 — 5 — 6 — 7 — 8 — 9 — 10

Area 8: Mind/Body

1 — 2 — 3 — 4 — 5 — 6 — 7 — 8 — 9 — 10

Closing

This booklet has briefly covered areas that are important for older adults to think about as they age. All of these areas are vital for well-being and we encourage you to consider each area and to make a plan that reflects your unique needs. For more information on aging and planning ahead:

Aging:

National Institute on Aging
Information Center:

niaic@nia.nih.gov

1-800-222-2225

Administration on Aging:

www.aoa.gov

(202) 401-4634

Sleep:

National Sleep Foundation:

nsf@sleepfoundation.org

(703) 243-1697

Housing:

Dept. of Housing and Urban

Development: www.hud.gov

1-800-225-5342

National Resource Center
on Supportive Housing and
Home Modification:

www.homemods.org

(213) 740-1364

Nutrition:

U.S. Center for Nutrition

Policy and Promotion:

www.ChooseMyPlate.gov

(202) 720-2791

Safety:

Centers for Disease Control
and Prevention:

www.cdc.gov/steady

1-800-232-4636

National Council on Aging:

www.ncoa.org/

[FallsPrevention](http://www.ncoa.org/fallsprevention)

(571) 527-3900

Financial and Legal:

AARP: www.aarp.org

1-888-687-2277

CaringInfo:

www.caringinfo.org

1-800-658-8898

National Elder Law

Foundation: www.nelf.org

(520) 881-1076

National Institute on Aging
Information Center:

www.nia.nih.gov

1-800-222-2225

National Legal Resource
Center:

<https://nlrc.acl.gov>

Health Care Decisions:

Caring Connections:

www.caringinfo.org

1-800-658-8898

Caring Conversations Center
for Practical Bioethics:

www.practicalbioethics.org

(816) 221-1100

American Bar Association:

www.americanbar.org

1-800-285-2221

Put It In Writing-

American Hospital

Association:

[www.aha.org/2017-12-11-put-](http://www.aha.org/2017-12-11-put-it-writing)

[it-writing](http://www.aha.org/2017-12-11-put-it-writing)

1-800-424-4301

Physical Activity:

National Institute on Aging:

www.nia.nih.gov

<https://go4life.nia.nih.gov/>

1-800-222-2225

American College
of Sports Medicine:

www.acsm.org

(317) 637-9200

President's Council
on Fitness, Sports, and
Nutrition: www.fitness.gov

(240) 276-9567

Social Connections:

Corporation for National
& Community Service:

www.nationalservice.gov

1-800-942-2677

Experience Corps AARP
Foundation:

[www.aarp.org/experience-](http://www.aarp.org/experience-corps/)
[corps/](http://www.aarp.org/experience-corps/)

1-800-775-6776

ABOUT THE RESEARCHER

Cathy Maxwell

Dr. Cathy Maxwell is an expert in geriatric trauma. Her research has shown how frailty in older adults influences outcomes.

Dr. Maxwell is interested in interventions with a nursing focus to help people understand what is happening to their bodies as they age so that they can make informed decisions that improve quality of life.





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