

A PERSONAL GUIDE TO

THE COMPRESSION THEORY™

A Simple Daily Plan for
Stronger Bones, Better Balance,
and Staying Independent



STRONGER BONES
THROUGH COMPRESSION



BETTER BALANCE
AND CONFIDENCE
EVERY DAY



SIMPLE EXERCISES
YOU CAN DO
ANYWHERE



NUTRITION THAT
BUILDS AND PROTECTS
BONE HEALTH



DR. JAMES A. BRIGGS, ND, DC

The Compression Theory™

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For My Parents

Jerry and Lani Briggs

You taught me that strength is not something you are given — it is something you build, one day at a time. Everything in these pages began with what you showed me.

With love and gratitude.

Who This Book Is For

This book is for adults over the age of 50 — especially those diagnosed with osteopenia or osteoporosis — who want to strengthen their bones, improve balance, and avoid the downward spiral of frailty and loss of independence.

It is also for health-conscious individuals who feel physically weaker than they did five years ago and sense that something more structured is needed.

THIS BOOK IS FOR:

- You've been told you have osteopenia or osteoporosis
- You feel unsteady on your feet
- You have had a fall — even a small one
- You now hold the railing on stairs
- Patients who were told their only option is medication
- Anyone who wants a structured, science-based plan for longevity
- Active agers who refuse to accept frailty as inevitable

THIS IS NOT FOR:

- Competitive athletes or advanced lifters
- People looking for quick hacks or overnight results
- Those unwilling to invest 20–30 minutes a day in their health

Beneath all of these concerns lives one central fear: ***“What if I become fragile?”*** This book answers that fear directly — with biology, structure, and a practical daily plan that puts you back in control of your own trajectory.

You do not need more generic advice. You need clarity about your structural resilience.

If you would like a focused review of your current bone health risk, visit:

compressiontheory.com

to schedule your 15-Minute Bone Health Strategy Session

FROM THE AUTHOR

Why I Wrote This for You



— Dr. James A. Briggs, ND, DC
compressiontheory.com

My name is Dr. James Briggs. I am a naturopathic physician and chiropractor, and I have been in clinical practice for over 25 years. I have built three practices, treated thousands of patients, and spent the better part of my adult life studying what the human body is actually capable of — especially when given the right inputs at the right time.

I did not write this book for a publisher. I wrote it because I kept having the same conversation — in exam rooms, at community events, with neighbors and old friends — and I got tired of not having something to hand people when it was over. Someone would describe how they had slowed down, how they were holding the railing now, how they had started avoiding the stairs. And when I asked how long it had been going on, the answer was almost always the same:

I figured it was just part of getting older. I thought there was nothing I could do.

There is something you can do. Quite a lot, actually. And it does not require a gym membership, a complicated protocol, or hours out of your day. What it requires is understanding one principle — the principle I call the Compression Theory™ — and then applying it consistently, day after day, in the smallest and most ordinary moments of your life.

Your bones are not passive structures. They are living tissue that responds — directly, measurably, and at any age — to the signals you give them. Every step you take is a signal. The question is not whether your bones are listening. They are. The question is what you are telling them.

I am proud of what is in these pages. I am sharing it freely because that matters more to me than keeping it proprietary. Read it. Use what helps. Pass it to someone you love. Reach out anytime. I mean that.

FOREWORD

A Note Before You Begin

This is not a textbook. It is not a clinical manual. It is not a program that requires a gym, a personal trainer, or a prescription. What you are holding is the distillation of 25 years of clinical observation, patient outcomes, and personal conviction — written in plain language, designed for real life.

The central idea of this book is simple: your bones are alive, they are responsive, and they are waiting for a signal. That signal is compression — the natural mechanical force generated by movement, weight-bearing activity, and daily physical engagement. When you provide that signal consistently, your body responds. When you do not, it quietly begins to withdraw its investment in your skeleton.

This is not speculation. It is the documented biological mechanism known as Wolff's Law, first described in 1892 and confirmed thousands of times since. The Compression Theory™ is my framework for applying that science to your daily life — in a way that is practical, sustainable, and powerful enough to genuinely change your trajectory.

You will find 23 chapters in this book. Each one stands on its own. You do not need to read them in order, though I recommend it the first time through. Dog-ear the pages that resonate. Return to the tracking calendar in Chapter 23. Share the home safety checklist with someone you love. Use this as a living reference, not a one-time read.

Most importantly: start. Not next Monday. Today. Even five minutes of walking after you put this book down is a signal. Your bones will receive it. That is how this works.

With great respect for your health journey,

Dr. James A. Briggs, ND, DC

TABLE OF CONTENTS

Chapter Guide

Introduction	Aging Is Not the Problem. Under-Loading Is.
Chapter 1	What Is Compression? The science of how movement signals bones to grow stronger.
Chapter 2	Gravity: The Original Compression Force How Earth's gravitational pull built your skeleton — and why losing it destroys bone.
Chapter 3	Why Bone Density Matters Understanding your silent, invisible risk — and why now is the time to act.
Chapter 4	Use It or Lose It Adaptive remodeling and why inactivity is a choice you cannot afford.
Chapter 5	The Power of Daily Routine Why consistency outperforms intensity — and how to build unbreakable habits.
Chapter 6	Your Daily Movement Plan A practical, time-blocked routine anyone can follow.
Chapter 7	Strength Exercises for Bone Density Five key movements that build bone density and prevent falls.
Chapter 8	Posture and Spinal Loading How you hold yourself determines how your bones age.
Chapter 9	Breathe Deeper The overlooked role of breath in bone health, stress reduction, and recovery.
Chapter 10	Feed Your Bones Nutrition that builds, protects, and repairs bone tissue.
Chapter 11	What Weakens Your Bones The lifestyle factors quietly working against everything you are building.
Chapter 12	Sleep Builds Bone Why your body does its best construction work while you rest.

Chapter 13	Medications and Bone Density Common drugs that affect bone health — and what to discuss with your doctor.
Chapter 14	The Science in Plain English Osteoblasts, osteoclasts, Wolff's Law, and how it all connects.
Chapter 15	Stress, Cortisol, and Bone Loss The hidden hormonal drain on your skeleton.
Chapter 16	Balance and Fall Prevention The practical skills that protect your independence.
—	The Fear-Avoidance Cycle When fear of falling becomes the reason you fall — and how to break the cycle.
Chapter 17	The Honest Check-In A self-assessment to identify where you need to focus most.
Chapter 18	What to Expect and When A realistic, honest timeline for change.
Chapter 19	Your 90-Day Structural Resilience Framework A progressive three-phase plan to restore bone health and reduce fall risk.
Chapter 20	Good Days and Bad Days How to keep going when life gets in the way.
Chapter 21	Home Safety Checklist A room-by-room guide to removing fall risks from your home.
Chapter 22	A Week of Bone-Healthy Eating Seven days of practical, enjoyable meals that support bone health.
Chapter 23	30-Day Tracking Calendar Your tool for building the chain — one day at a time.
—	Patient Case Studies Real outcomes from patients who applied the principles in this guide.
—	Frequently Asked Questions Answers to the 28 questions patients ask most — across six clinical categories.
—	Bone Strength & Fall Risk Self-Screen™ A 26-question self-assessment to identify your personal risk factors.
—	References 20 published research citations supporting the clinical content of this guide.

INTRODUCTION

Aging Is Not the Problem. Under-Loading Is.

Most people assume bone loss is inevitable.

It is not.

Bone is living tissue. It remodels continuously through a cycle driven by three types of specialized cells:

- ◆ Osteoclasts — which remove old, damaged bone tissue
- ◆ Osteoblasts — which build new bone in its place
- ◆ Osteocytes — which detect mechanical stress and direct the entire process

No movement = no signal = weaker bones
Daily movement = stronger signal = stronger, denser bones

Without mechanical loading, this cycle tips out of balance. Osteoclasts keep working. Osteoblasts go quiet. Bone mass gradually declines. With proper loading — the kind delivered by everyday movement and weight-bearing activity — bone adapts. It rebuilds. It strengthens.

The issue is not age. The issue is signal.

This is the biological foundation of The Compression Theory. Every chapter in this book is built on it. Every recommendation follows from it. And the good news — the genuinely good news — is that the signal can be restored at any age, in most conditions, when medically appropriate, starting with the smallest and most ordinary movements of daily life.

THE FRAMEWORK

THE 5 PILLARS OF THE COMPRESSION THEORY

The Compression Theory is not a collection of health tips. It is a structural framework.

Bone strength, balance, and long-term independence are not preserved by one habit alone. They are the result of five interdependent biological inputs. When these five pillars are present and consistent, the skeleton adapts. When one is absent, the system weakens.

Everything in this book fits into one or more of these pillars.

PILLAR 1

Daily Compression

Bone responds to load.

Standing, walking, climbing stairs, and weight-bearing movement generate the mechanical signal that activates osteoblasts and maintains skeletal density. Without daily compression, bone mass declines — regardless of age. Consistency matters more than intensity.

PILLAR 2

Strength Loading

Muscle contraction amplifies skeletal loading.

Resistance training — even simple body-weight movements — increases force transmission through the hips, spine, and legs, the most common fracture sites. Strength is not cosmetic. It is structural protection.

PILLAR 3

Balance & Neuromuscular Stability

Most fractures occur because of a fall.

Balance training improves proprioception, reaction speed, and joint stabilization. It reduces fall risk independently of bone density. Strong bones matter. Not falling matters more.

PILLAR 4

Nutritional Support

Mechanical loading creates demand. Nutrition supplies the material.

Calcium, vitamin D, magnesium, protein, vitamin K2, and adequate hydration provide the substrate for bone remodeling. Without raw materials, the signal cannot be fulfilled.

PILLAR 5

Recovery & Hormonal Environment

Bone is rebuilt during recovery.

Deep sleep, cortisol regulation, and stress control determine whether osteoblasts are permitted to function optimally. Exercise provides stimulus. Recovery permits adaptation.

THE SYSTEM, NOT THE PARTS

No single pillar is sufficient on its own. Movement without nutrition limits growth. Strength without balance leaves fall risk unchanged. Loading without recovery impairs remodeling.

Structural resilience is the result of all five, applied consistently. The chapters that follow expand each pillar in practical detail. You are not learning isolated strategies. You are building one integrated system designed to preserve independence over decades.

BY THE NUMBERS

Falls, Fractures, and Mortality After 50

***Every 11 seconds, an older adult is treated in an emergency room for a fall.
Every 19 minutes, one dies from one.***

SOURCE: NATIONAL COUNCIL ON AGING

These aren't distant statistics. They describe what happens when balance, strength, and bone density are left unaddressed — and they explain exactly why this book exists.

1 IN 4

Adults 65 and older fall at least once every year.

CDC

1 IN 2

Women over 50 will break a bone due to osteoporosis in their lifetime — up to 1 in 4 men.

BONE HEALTH & OSTEOPOROSIS FOUNDATION

300,000+

Hip fractures occur in the U.S. every year, the large majority caused by falls.

CDC

50%

Of hip fracture survivors never regain their prior level of independence.

INTERNATIONAL OSTEOPOROSIS FOUNDATION

1 IN 4

people who fracture a hip will die within one year of the injury.

And the trend is moving the wrong direction — fall deaths among older adults have risen 21% since 2018.

INTERNATIONAL OSTEOPOROSIS FOUNDATION · CDC

***So what determines who becomes one of these statistics — and who doesn't?
That is exactly what the rest of this book will show you.***

Sources: National Council on Aging; CDC National Center for Health Statistics, Older Adult Fall Prevention Data (2025–2026); International Osteoporosis Foundation; Bone Health & Osteoporosis Foundation.

CHAPTER 1

What Is Compression?

Every step you take sends your skeleton a signal. That signal is compression — the healthy mechanical pressure generated by movement, gravity, and weight-bearing activity. Your bones are not passive structures. They are living, metabolically active tissue that responds directly and predictably to the physical demands placed upon them.

When you walk, climb stairs, carry groceries, or simply stand up from a chair, you create compressive forces that travel through your skeletal system. Those forces trigger a cascade of cellular activity — one that results in stronger, denser, more resilient bone. When you do not move, that signal disappears, and the cells responsible for building bone essentially go dormant.

No movement = no signal = weaker bones. Daily movement = strong signal = stronger, denser bone.

This is one of the best-documented principles in musculoskeletal medicine, formalized as Wolff's Law over a century ago. Apply regular, appropriate stress to bone, and it remodels to become stronger. Remove that stress, and it atrophies.

Examples of Bone-Building Compression

- Walking on a firm surface - even at a moderate pace
- Climbing or descending stairs
- Standing at a counter rather than sitting
- Carrying groceries from the car
- Rising from a chair without using your hands
- Gentle resistance and body-weight exercises
- Dancing, gardening, and other incidental daily activity

CHAPTER 2

Gravity: The Original Compression Force

Before we talk about exercise, movement, or daily habit — we need to talk about something so constant, so ever-present in your life, that most people never think about it at all. Gravity. The gravitational pull of the Earth acts on every organism that has ever lived on this planet. It has shaped every skeleton, every joint, every upright posture that has existed in the history of life on land. It is not merely a background force. It is the original compression signal — and your bones were built specifically to receive it.

From the moment you stand up in the morning, gravity is loading your skeleton. It presses down through your skull, your cervical vertebrae, your thoracic spine, your lumbar vertebrae, your pelvis, your femurs, your tibias, and into the ground beneath your feet. That continuous, vertical load — the simple weight of your body bearing down through your bones — is the fundamental compression signal your skeleton has evolved to depend on. It is not stressful in the harmful sense. It is the signal that tells your bones they are needed, that they must remain strong, that the investment your body has made in building them must be maintained.

This is why the research on astronauts is so striking. In zero gravity — in the complete absence of that gravitational load — bones begin to lose density within days. Not because something is wrong with the astronaut. Because the signal is gone. The skeleton, receiving no compression, interprets the situation correctly: we are not being asked to bear weight, so there is no reason to maintain this bone mass. And it begins, quietly and efficiently, to dismantle it.

***Gravity is not your enemy. It is your oldest training partner.
Every moment you spend upright, it is building your bones.***

The profound implication — the one that the Compression Theory™ is built on — is that you do not need a gym or a complex program to send your skeleton a meaningful signal. You need to stand. You need to walk. You need to bear your own weight against the planet that has been pulling on you since the day you were born. That pull is not a burden. It is a gift. Every organism on Earth is built by it, shaped by it, and depends on it for structural integrity. The question is simply whether you are giving your body enough opportunity to receive it.

Sitting removes most of that signal. Lying down removes it entirely. Standing delivers it. Walking amplifies it. Climbing stairs intensifies it further. This is the entire logic of the daily movement plan in this guide: not to punish your body, not to achieve athletic performance, but to restore the gravitational conversation your skeleton has been waiting to have all day.

What This Means for Your Daily Life

You do not need to think about this in complicated terms. Gravity is already working for you every second you are upright. Your job is simply to give it something to work with. The more time you spend on your feet — walking, standing, climbing, moving — the stronger the compression signal your bones receive. The more time you spend seated or lying down, the weaker that signal becomes.

POSITION	GRAVITATIONAL SIGNAL	BONE RESPONSE
Lying down	None — gravity acts along the body, not through the skeleton	Osteoblast activity minimal; bone maintenance paused
Sitting	Partial — spine loaded, but legs and hips largely unloaded	Lower body bone signal significantly reduced
Standing	Full — entire skeletal column under gravitational load	Compression signal active through spine, hips, and legs
Walking	Amplified — each footfall multiplies the compression force	Strong osteoblast activation; bone remodeling stimulated

THE CORE PRINCIPLE

The skeleton responds to demand. Create the demand daily, and your bones will rise to meet it — at any age.

CHAPTER 3

Why Bone Density Matters

Bone density is a measure of how much mineral content — primarily calcium and phosphate — is packed into a given volume of bone tissue. Higher density means stronger, more fracture-resistant bone. Lower density means a skeleton that can fracture from forces that healthy bone would absorb without consequence.

The cruel reality of bone density loss is that it is almost entirely silent. You cannot feel it happening. There is no pain, no warning signal — until something breaks. A fall that would have been nothing at 40 becomes a hip fracture at 70. A minor stumble becomes a compression fracture of the spine.

The Density Timeline

Age 25–35	Peak Density	Your skeleton is at its strongest. Habits built now preserve what you have.
Age 35–50	Slow Decline	Loss begins — typically 0.5–1% per year. Often undetected.
Age 50–65	Accelerated Risk	Women lose up to 20% of bone density in the 5–7 years after menopause.
Age 65+	Critical Phase	Fracture risk rises sharply. Fall prevention becomes essential.
Any Age	Reversible	With the right daily inputs, bone remodeling can be stimulated at any age.

The Consequences of Low Bone Density

- Hip, spine, and wrist fractures from minor falls or even sudden movements
- Chronic, debilitating back and hip pain from vertebral compression fractures
- Measurable height loss over time as spinal vertebrae compress
- The stooped posture (kyphosis) many people assume is simply "getting old"
- Reduced mobility, growing dependence on others, loss of confidence
- Increased risk of further fractures, hospitalization, and long-term care

The good news is as important as the risk: your body can stimulate new bone formation at any age. Compression is the most powerful tool you have.

What a DEXA Scan Can Tell You

A DEXA scan is the gold standard for measuring bone density. It is fast, painless, and produces a T-score comparing your bone density to a healthy young adult at peak density.

T-SCORE	WHAT IT MEANS	RECOMMENDED ACTION
-1.0 and above	Normal bone density	Continue current habits; re-test in 2 to 5 years
-1.0 to -2.5	Osteopenia — below-normal density, elevated risk	Begin daily compression program; review nutrition and medications with your doctor
Below -2.5	Osteoporosis — significantly elevated fracture risk	Medical management plus daily movement plan; fall prevention is urgent

THE KEY INSIGHT

Osteopenia and even early osteoporosis are not sentences. They are data points. The daily habits in this guide are the exact inputs your body needs to push those numbers in a better direction — at any age, with any starting point.

THREE CONDITIONS, THREE DIFFERENT PROBLEMS

Osteopenia, Osteoporosis, and Osteoarthritis

These three words get confused constantly — partly because they sound alike, and partly because they can occur in the same person at the same time. But they are different problems, in different tissues, and they call for different action.

The simplest way to remember it: “-porosis” and “-penia” conditions are about bone density. “-arthritis” conditions are about joints.

CONDITION	WHAT IT AFFECTS	KEY FACTS
Osteopenia	Bone density — below normal, but not yet osteoporosis	Diagnosed by DEXA scan (T-score -1.0 to -2.5). No symptoms. Often reversible with consistent loading, nutrition, and sleep.
Osteoporosis	Bone density — significantly reduced bone mass	Diagnosed by DEXA scan (T-score below -2.5). Silent until a fracture occurs. Focus shifts to stabilization and fall prevention.
Osteoarthritis	Joint cartilage — not bone density at all	Diagnosed by X-ray and physical exam, not DEXA. Causes pain, stiffness, and swelling. Can occur alongside either bone condition, but is unrelated to it.

WHY THIS MATTERS FOR YOU

It is entirely possible to have osteoarthritis in your knees and osteoporosis in your spine at the same time — they don't cause each other, and treating one does not treat the other. If you have joint pain, ask your doctor whether it is joint-related, bone-related, or both, so your plan actually addresses the right problem.

Sources: CDC; Bone Health & Osteoporosis Foundation; Medical News Today, “Osteoporosis and Osteoarthritis: Definitions, Link, and Prevention.”

CHAPTER 4

Use It or Lose It

The human body is a masterwork of biological efficiency. It invests energy in what it uses and withdraws investment from what it does not. This principle — called adaptive remodeling — applies to every tissue in the body, and nowhere is it more consequential than in bone.

When you stop providing compression through movement, two things happen simultaneously. Osteoblasts — the cells that build new bone — receive fewer signals to activate. Osteoclasts — the cells that break down bone — continue their work unchecked. The result is a slow, invisible net loss of bone mass.

Nature's Experiments in Bone Loss

Astronauts in zero gravity	Without gravity, there is no compression. NASA has documented bone loss rates of 1–2% per month during spaceflight.
A limb in a cast	Remove a limb from weight-bearing for even a few weeks and both muscle and bone density decline measurably.
Prolonged bed rest	Healthy adults confined to bed lose significant bone mass in as little as two weeks.
The sedentary lifestyle	Sitting for the majority of the day produces the same slow, cumulative bone loss — just spread over years.

THE UPSIDE

Daily walkers consistently outperform non-walkers on bone density tests — even when the walkers are older. The body responds to what you ask of it. Start asking.

CHAPTER 5

The Power of Daily Routine

One outstanding workout means almost nothing to your bones. Thirty days of modest daily movement means everything. Consistency is not just better than intensity — it is the only thing that actually works for long-term bone health.

Your skeleton does not reward the single heroic effort. It rewards you for showing up, day after day, and providing a steady compression signal. Think of it like watering a plant. A flood once a month will not keep it alive. A small amount of water every day will.

Why Routine Works

- It removes decision fatigue. When the walk is scheduled, it becomes automatic — not a negotiation every morning.
- It stacks signals. Each day's compression builds on the last. The cumulative effect over weeks and months is transformative.
- It protects against setbacks. One missed day inside a strong routine barely matters. Two missed days begins to unravel the habit.
- It creates identity. People who "go on walks" think of themselves as someone who walks. That identity is self-sustaining in a way that willpower alone never is.

THE TWO-DAY RULE

Never skip two days in a row. One missed day is life — it means nothing. Two consecutive missed days is the beginning of a broken habit. Make this rule non-negotiable, and you will never lose your momentum.

Habit Stacking: Making the Routine Automatic

Attach new bone-building habits to things you already do every day. The existing habit becomes the automatic trigger for the new one — no willpower required.

- Morning coffee: stand while it brews, do 10 heel raises before you sit down.
- Phone calls: walk slowly for the entire duration of every call.
- Brushing teeth: balance on one foot, 30 seconds each side.
- After dinner: a 5 to 10 minute walk before sitting back down — non-negotiable.

CHAPTER 6

Your Daily Movement Plan

This plan is achievable by virtually anyone regardless of current fitness level, age, or mobility. It is structured in three short blocks throughout the day — which research shows is equally effective for bone health and significantly easier to sustain long-term.

MORNING 5–10 min	AFTERNOON 10–15 min	EVENING 5–10 min
• Easy, relaxed walk • - Gentle stretching • Stand tall, roll shoulders • Three slow deep breaths • Spend 2 min outside if possible	• Brisk walk • Choose stairs over elevator • Walk to check the mail • Stand while on phone calls • Gardening, housework, slow bike ride	• Slow walk after dinner • Heel raises at the counter • Single-leg balance: 10 sec each • Shoulder rolls and neck stretches • Light stretching before bed

DAILY GOAL

20 to 35 minutes of total movement. Three 10-minute walks produce the same bone health benefit as one 30-minute walk. Work with your schedule, not against it.

CHAPTER 7

Strength Exercises for Bone Density

Walking is the foundation. Resistance and body-weight exercises are the accelerator. These five movements require no equipment, can be done anywhere, and directly target the bones and muscle groups most at risk in an aging skeleton.

EXERCISE	SETS x REPS	DURATION	PRIMARY BENEFIT
Chair Squats	2–3 × 10	~90 sec	Leg power, hip bone density, fall prevention
Wall Push-Ups	2–3 × 10	~60 sec	Upper body bone density, shoulder strength
Heel Raises	2–3 × 12–15	~75 sec	Ankle stability, balance, lower-leg bone density
Standing March	2–3 × 30 sec	30 sec	Hip flexor strength, coordination, core activation
Sit-to-Stand	2–3 × 10	~90 sec	The single most effective exercise for fall prevention

How to Do Each Exercise

Chair Squats

Stand in front of a sturdy chair with feet shoulder-width apart. Slowly lower yourself until you just touch the seat — do not fully sit down. Press through your heels and stand back up.

Wall Push-Ups

Place both hands flat against a wall at shoulder height, slightly wider than your shoulders. Slowly bend your elbows to bring your chest toward the wall, then press back to start.

Heel Raises

Stand behind a chair and lightly rest your hands on the back for balance. Rise up onto the balls of your feet, pause for one second, then lower slowly. The slow lowering is where much of the bone benefit occurs.

Standing March

Stand tall behind your chair with hands lightly resting on the back. Lift one knee toward your hip, lower, and alternate sides. Keep your core engaged and posture upright.

Sit-to-Stand

Sit fully in a chair with feet flat on the floor. Cross your arms over your chest. Lean slightly forward from your hips and stand using only your legs — no pushing off with your hands. Sit back down slowly and with control.

Vibration Plate Therapy: A Bonus Compression Tool

Whole-body vibration (WBV) therapy is one of the most clinically interesting developments in bone health research over the past two decades. A vibration plate is a platform that oscillates rapidly — typically at 20 to 50 cycles per second — sending repeated compression signals upward through the feet, ankles, legs, hips, and spine. The body responds to these signals the same way it responds to walking and weight-bearing exercise: osteoblasts activate, bone remodeling accelerates, and muscle fibers engage throughout the lower body and core.



Patients using vibration platforms with resistance bands — a combined approach that engages upper-body strength while delivering full-body compression.

A 2025 systematic review and meta-analysis published in PeerJ examined the effects of whole-body vibration training on bone mineral density in older adults across multiple randomized controlled trials. The results showed significant improvements in bone density at the hip and spine — the two sites most commonly fractured in osteoporosis-related falls. A 2016 meta-analysis in PLOS ONE found that vibration plate treatment produced measurable BMD improvements at the hip and lumbar spine compared to no intervention, particularly in postmenopausal women.

What makes vibration plate therapy particularly valuable is who it helps most: people who cannot safely perform traditional weight-bearing exercise. If joint pain, arthritis, or limited mobility make conventional workouts difficult or impossible, standing on a vibration plate for 10 to 15 minutes delivers a meaningful compression signal without the impact stress of walking, stair climbing, or strength exercises.

How to Use a Vibration Plate Safely

Start with low frequency	Begin at 20–25 Hz and a low amplitude setting. Higher frequencies are not necessarily more effective and can be uncomfortable for beginners. Let your body adapt over 2 to 3 weeks before increasing.
Stand correctly	Feet shoulder-width apart, knees slightly bent (10–15 degrees), back tall, core lightly engaged. Do not lock your knees — the slight bend is what allows the vibration signal to travel efficiently through the hip and lumbar spine.
Keep sessions short initially	Start with 5 to 10 minutes per session. Build to 10 to 15 minutes over several weeks. Longer is not better — the bone response to vibration is well-established at moderate durations, and extended sessions add no additional benefit.
Use it 3 to 5 times per week	Consistency matters more than session length. Three 10-minute sessions per week produce measurable benefit. Five sessions is the upper end of most research protocols.
Combine with other movement	Vibration plate therapy is a complement to your daily walking and exercise routine, not a replacement. The most effective approach uses all three: daily walking, body-weight exercises, and vibration plate sessions 3 to 5 times per week.

Vibration Plate Quick Reference

SETTING	BEGINNER	INTERMEDIATE	ADVANCED
Frequency	20–25 Hz	25–35 Hz	35–50 Hz
Session length	5–8 min	10–12 min	12–15 min
Sessions/week	3×	4×	5×
Knee angle	10° bend	15° bend	15–20°
Ramp-up period	3–4 weeks	4–6 weeks	Ongoing

A vibration plate is a legitimate compression tool — especially for patients whose joints make traditional exercise painful or impossible.

MEDICAL DISCLAIMER — VIBRATION PLATE THERAPY

Do not use a vibration platform without physician clearance if you have:

Cardiac pacemaker or implanted defibrillator · Recent joint replacement (hip, knee, or spine) · Active fracture or acute bone injury · Osteoporosis with recent fracture or unstable spine (physician clearance required) · Vertigo or inner ear disorder · Pregnancy · Active DVT or blood clot.

This guide is for educational purposes only and does not constitute medical advice. Always obtain clearance from your physician before beginning any vibration therapy program.

At our clinic, vibration plate therapy has played a meaningful role in the care of patients with joint pain, limited mobility, and neuropathy-related balance challenges. For many, 10 minutes on a vibration plate three to five times per week provides a compression stimulus they cannot achieve any other way. If you are curious whether this is right for your situation, visit compressiontheory.com.

CHAPTER 8

Posture and Spinal Loading

Compression is only beneficial when it passes through your skeleton along its natural mechanical axis. Poor posture shifts compressive forces onto the front edges of vertebral bodies, weakening spinal joints and accelerating the stooped posture that many people accept as inevitable. It is not inevitable.

The average person spends 10 to 16 waking hours in relatively static postures. Those hours are either compounding bone health or eroding it, depending on how you carry yourself.

Three Corrections to Practice Daily

Chin Tuck

Gently pull your chin straight back — not down, but directly backward. This decompresses the upper cervical spine and corrects the forward-head posture that is epidemic among adults who use phones and computers.

Shoulder Roll

Roll your shoulders up toward your ears, back as far as they will go, and then down. This opens the chest and counteracts the rounded-forward posture that develops from prolonged sitting.

Tall Sit / Tall Stand

Imagine a string gently pulling the crown of your head toward the ceiling. Your chin levels, your chest lifts, and your spine lengthens. Over time this becomes your default posture.

POSTURE REMINDER

Stand tall. Walk tall. Sit tall. Your spine is loading every hour you are upright. Make sure it is loading the right way.

Posture Throughout Your Day

Posture correction is a practice that runs in the background of every waking hour. The following habits, stacked into your existing routines, will gradually shift your default posture without requiring willpower or dedicated time.

When you sit down anywhere	Before you settle in, do a shoulder roll. Over time, the chest-open, shoulder-back position becomes your new resting posture.
When you look at your phone	Raise the phone to eye level rather than dropping your chin. Forward-head posture places up to 60 pounds of effective load on the cervical spine at a 60-degree chin drop.
When you stand in line	Distribute your weight evenly across both feet, unlock your knees slightly, and gently engage your core. This trains the postural muscles that support your spine.
When you drive	Position the seat so your hips are at or above knee height. Rest your lower back against the seat rather than hunching forward over the wheel.
When you wake up	Before getting out of bed, lie flat for 30 seconds. Take three deep breaths. Then sit on the edge of the bed, pause, and stand slowly.

The Two-Minute Posture Check

Once a day — ideally when you first stand up — run through these five checks. They take under two minutes and will gradually recalibrate your baseline posture.

1. Wall Test	Stand with heels 2 inches from a wall. Your buttocks, shoulder blades, and back of head should all contact the wall. Head cannot reach? That is a forward-head posture to correct.
2. Shoulder Check	Roll shoulders back and down. Notice how your chest opens. That open position is where your shoulders belong. Most people live 2 to 3 inches forward of that.
3. Ear Over Shoulder	In a mirror from the side, your ear should be directly over your shoulder joint. If your ear is forward of your shoulder, that gap is the load your cervical spine carries all day.
4. Hip Level	Place hands on your hip bones. Are they level? A tilted pelvis shifts spinal loading unevenly over time.
5. Natural Curve	Place one hand behind your lower back while standing. You should feel a gentle inward curve — not flat, not excessively arched.

CHAPTER 9

Breathe Deeper

Most adults use approximately 20 to 30 percent of their available lung capacity during normal daily breathing. This chronic shallow breathing has consequences beyond the lungs: elevated stress hormones, reduced core muscle activation, impaired circulation, and heightened anxiety — all of which directly or indirectly affect bone health.

Intentional deep breathing activates the diaphragm, which engages the deep core muscles that stabilize and load the lumbar spine. It triggers the parasympathetic nervous system, reducing cortisol — a stress hormone that suppresses osteoblast activity and accelerates bone loss.

The 4-4-4 Breath Protocol

PHASE	DURATION	TECHNIQUE
Inhale	4 counts	Through your nose. Let your belly expand first, then your chest. Feel your lower ribs flare outward.
Hold	4 counts	Relax your shoulders. Do not strain. Simply pause and allow the breath to settle.
Exhale	4 counts	Through pursed lips, slowly and completely. Feel your belly draw gently inward as you empty.

DAILY PRACTICE

Perform 5 rounds of the 4-4-4 breath, twice daily — morning and evening. Total time: approximately 2 minutes. Over several weeks, deep breathing becomes automatic and your resting stress response measurably improves.

CHAPTER 10

Feed Your Bones

Movement sends the signal. Nutrition provides the raw materials. Without adequate dietary support, your body cannot act on the compression signals it receives. Bone is a living tissue that requires a continuous supply of specific nutrients to maintain, repair, and build its mineral matrix.

NUTRIENT	DAILY TARGET	BEST FOOD SOURCES	WHY IT MATTERS
Calcium	1,000–1,200 mg/day	Dairy, leafy greens, sardines, almonds, fortified plant milks	The primary mineral in bone — 99% of your body's calcium is stored in your skeleton.
Vitamin D	1,000–2,000 IU/day	Sunlight, fatty fish (salmon, mackerel), fortified milk	Essential for calcium absorption. Without it, calcium passes through without reaching bone.
Magnesium	320–420 mg/day	Nuts, seeds, whole grains, dark leafy greens, dark chocolate	Activates vitamin D. Deficiency is linked directly to reduced bone density.
Protein	0.6–0.8 g/lb	Eggs, fish, poultry, Greek yogurt, legumes, lean beef	Bone matrix is 30–35% protein. Inadequate intake impairs bone remodeling.
Vitamin K2	90–120 mcg/day	Fermented foods (natto), hard cheese, egg yolks	Directs calcium into bone rather than arteries. Often overlooked but critical.
Phosphorus	700 mg/day	Meat, fish, dairy, eggs, nuts, legumes	Partners with calcium to form hydroxyapatite — the mineral crystal in bone.

HYDRATION

Bone tissue is approximately 25% water. Chronic mild dehydration impairs nutrient delivery to bone. Aim for 8 full glasses of water per day.

CHAPTER 11

What Weakens Your Bones

Building bone density is a long game, and certain habits can quietly undermine everything you are working toward. Knowing which factors work against you allows you to make informed, intentional choices.

RISK FACTOR	IMPACT	WHAT IT DOES TO YOUR BONES
Smoking	SEVERE	Directly suppresses osteoblast function and doubles the rate of bone loss. Even light smoking accelerates density decline.
Excess alcohol	HIGH	More than 2 drinks per day interferes with calcium absorption, impairs vitamin D activation, and increases fall risk.
Prolonged sitting	HIGH	When seated for hours, the compression signal to bone essentially disappears. This is the most common driver of age-related bone loss.
Excess caffeine	MODERATE	More than 3 to 4 cups of coffee per day has been associated with increased calcium excretion through the kidneys.
High sodium	MODERATE	Processed foods high in sodium cause the kidneys to excrete calcium along with the excess salt.
Chronic stress	MODERATE	Sustained high cortisol suppresses osteoblast activity and accelerates bone resorption.
Low body weight	MODERATE	Very low body mass means less mechanical loading on the skeleton.

CHAPTER 12

Sleep Builds Bone

Exercise creates the stimulus for bone growth. Sleep is when the body actually does the building. During deep, slow-wave sleep, the pituitary gland releases human growth hormone — a powerful signal for bone remodeling and repair. Chronically poor sleep measurably impairs bone formation, elevates cortisol, and disrupts calcium metabolism.

Sleep Habits That Support Bone Health

- Maintain a consistent bedtime and wake time — including weekends. Irregular sleep schedules disrupt hormone cycles, including growth hormone.
- Keep your bedroom cool (65–68°F), dark, and quiet. These conditions support deeper, more restorative sleep.
- Avoid screens for 30 to 60 minutes before bed. Blue light suppresses melatonin and delays sleep onset.
- Avoid large meals within 2 hours of sleep. Digestion competes with the rest and repair processes that occur during sleep.
- A short, slow evening walk after dinner has been shown to improve both sleep quality and duration.
- Limit caffeine after 2:00 PM. Caffeine has a half-life of approximately 5 hours in most adults.

SLEEP TARGET

7 to 9 hours per night for most adults. This is the window during which your body acts on the compression signals you provided during the day. Protect it like the health investment it is.

Signs You Are Getting Restorative Sleep

Duration is only part of the picture. Quality matters as much as quantity. These are signs your sleep is genuinely doing its bone-building work:

- You fall asleep within 20 minutes of lying down — not fighting it.
- You wake feeling refreshed, not groggy, even after a full night.
- You wake no more than once per night — frequent waking interrupts deep repair phases.
- You can wake naturally at your usual time without relying on an alarm.

CHAPTER 13

Medications and Bone Density

This chapter is not medical advice. It is information — the kind you deserve to have so you can have an informed conversation with your own physician. Several commonly prescribed medications have documented effects on bone density. Do not stop or change any medication without your doctor's guidance.

MEDICATION CLASS	COMMON EXAMPLES	BONE HEALTH EFFECT
Corticosteroids	Prednisone, methylprednisolone, dexamethasone	Among the most potent accelerators of bone loss — even short courses reduce bone density measurably.
Proton pump inhibitors	Prilosec, Nexium	Long-term use reduces stomach acid needed to absorb calcium, leading to cumulative bone mineral deficit.
Certain antidepressants	SSRIs (fluoxetine, sertraline)	Studies link long-term SSRI use to increased fracture risk.
Some diuretics	Furosemide (Lasix)	Increase calcium excretion through the kidneys.
Anti-seizure medications	Phenytoin, phenobarbital, carbamazepine	Interfere with vitamin D metabolism, reducing ability to absorb and utilize calcium.
Aromatase inhibitors	Anastrozole, letrozole	Reduce estrogen levels significantly, accelerating bone loss in postmenopausal women.

CHAPTER 14

The Science in Plain English

The Compression Theory™ rests on a foundation of well-established bone biology. Understanding the mechanism helps you appreciate why the daily habits in this guide are not optional extras. They are the direct inputs to the cellular machinery that determines whether your bones get stronger or weaker over time.

The Two Cell Types That Govern Your Bones

Osteoclasts: The Demolition Crew

These specialized cells are always active. Their job is to identify and remove old, micro-damaged, or minerally depleted bone tissue — a necessary process that creates space for new, stronger bone to form.

Without a counterbalancing signal, osteoclasts gradually win. They keep working whether you move or not. The result, over years, is net bone loss.

Osteoblasts: The Construction Crew

These cells build new bone by secreting collagen and mineral matrix into the spaces created by osteoclast activity. They are activated specifically by mechanical loading — compression, tension, and the signals those forces generate within bone tissue.

Compression is the switch that turns on your osteoblasts. Every step you take, every stair you climb tips the balance in favor of bone formation.

Wolff's Law: The Scientific Foundation

In 1892, German anatomist Julius Wolff formalized what clinicians had observed empirically for decades: bone tissue adapts in response to the mechanical forces regularly placed upon it. Apply regular, appropriate stress, and bone grows stronger and denser. Remove that stress, and bone atrophies and weakens.

Wolff's Law means you are always either building or losing bone. Compression is the deciding vote.

CHAPTER 15

Stress, Cortisol, and Bone Loss

The connection between chronic psychological stress and bone density is one of the most underappreciated relationships in musculoskeletal health. When your body perceives sustained threat, it releases cortisol. In chronic elevation, cortisol is systemically destructive to bone.

How Cortisol Damages Bone

- Directly suppresses osteoblast activity — slowing or halting new bone formation
- Increases osteoclast activity — accelerating the breakdown of existing bone
- Impairs calcium absorption in the intestines and increases calcium excretion by the kidneys
- Reduces muscle mass, which in turn reduces the mechanical loading that signals bone to grow
- Disrupts sleep quality, reducing the nocturnal release of growth hormone needed for bone repair

Practical Stress Reduction for Bone Health

- The 4-4-4 breathing practice in Chapter 9 — measurably reduces cortisol within minutes
- Regular physical activity, including the daily walks in this guide, is one of the most well-documented cortisol regulators
- Social connection — isolation is a chronic stressor; community is protective
- Adequate, consistent sleep — the single fastest way to reduce baseline cortisol
- Sunlight exposure — even 10 to 15 minutes outdoors per day improves mood, vitamin D, and cortisol regulation simultaneously

STRESS TYPE	CORTISOL EFFECT	BONE CONSEQUENCE
Acute stress (hours)	Short spike, then normalizes	Minimal long-term impact if recovery is adequate
Chronic stress (weeks–months)	Sustained elevation suppresses endocrine function	Measurable reduction in osteoblast activity; accelerated bone loss
Sleep deprivation	Cortisol rises 15–20% after even one poor night	Reduced growth hormone; impaired overnight bone repair
Social isolation	Activates the same stress pathways as physical threat	Chronic low-grade cortisol elevation with cumulative bone impact

The simplest intervention: a 10-minute outdoor walk combines four proven stress reducers at once — movement, sunlight, forward motion, and rhythmic breathing. Measurable biology, not a metaphor.

CHAPTER 16

Balance and Fall Prevention

A fracture does not happen in isolation. In the vast majority of cases, a fracture happens because someone fell. And falls happen because balance, reaction speed, and lower-body strength have quietly declined to a point where the body can no longer recover from a simple misstep or slip.

Balance training is central to bone health. Building and maintaining balance is one of the highest-value investments you can make in your long-term independence.

Daily Balance Practice

- Single-leg stance: Stand on one foot for 10 seconds, holding a counter if needed. Build to 30 seconds without support. Do each side, twice daily.
- Heel-to-toe walking: Walk in a straight line placing the heel of each foot directly in front of the toes of the other. Perform 10 to 20 steps.
- Side-stepping: Take 10 slow steps to the right, then 10 to the left, keeping your feet from crossing. This trains lateral stability.
- Eyes-closed balance: Stand near a wall for safety. Close your eyes and stand still for 5 to 10 seconds. This dramatically improves proprioception.

IMPORTANT

Balance declines significantly with age, but it responds well to regular training at any age. Even small improvements in balance have been shown to dramatically reduce fall rates. Start today.

Progressive Balance Training: A 6-Week Arc

Balance responds to the same principle as bone: consistent, progressive challenge produces adaptation. Build through these three phases, spending 2 weeks on each.

- Weeks 1–2 — Hands on counter: Single-leg stance, 10 seconds each side, 3 rounds. Goal: hold without wobbling.
- Weeks 3–4 — Fingertips only: Same stance with minimal support. Add 10 heel-to-toe steps. Goal: 20 seconds unaided.
- Week 5+ — No support: Eyes-closed balance 5–10 seconds. Side-steps 10 each way. Progress to standing on a folded towel for an unstable surface challenge. Goal: 30+ seconds.

THE FEAR-AVOIDANCE CYCLE

When Fear of Falling Becomes the Reason You Fall

In clinical practice, I have watched a pattern repeat itself so many times that I can now recognize it in the first five minutes of a new patient visit. Someone describes a slip, a stumble, or a fall — often minor, sometimes months or years in the past — and then quietly describes everything they have stopped doing since. The outdoor walks. The stairs. The trips to see friends. The grandchildren's games on uneven grass. A slow, steady contraction of their world, each decision framed as sensible caution.

What they do not realize — what no one has told them — is that this caution is not protecting them. It is guaranteeing the outcome they are afraid of.

Fear of falling is not a personality trait. It is a physiological process — and it has a reversal.

The Biology of Avoidance

When a person experiences a fall — or comes close to one — the brain registers it as a threat event. This is a normal and appropriate response. The nervous system is designed to remember threats and generate caution around similar situations in the future. In the short term, this protective response is useful. It makes you more attentive on stairs. It slows you down on wet floors. It keeps you from taking unnecessary risks.

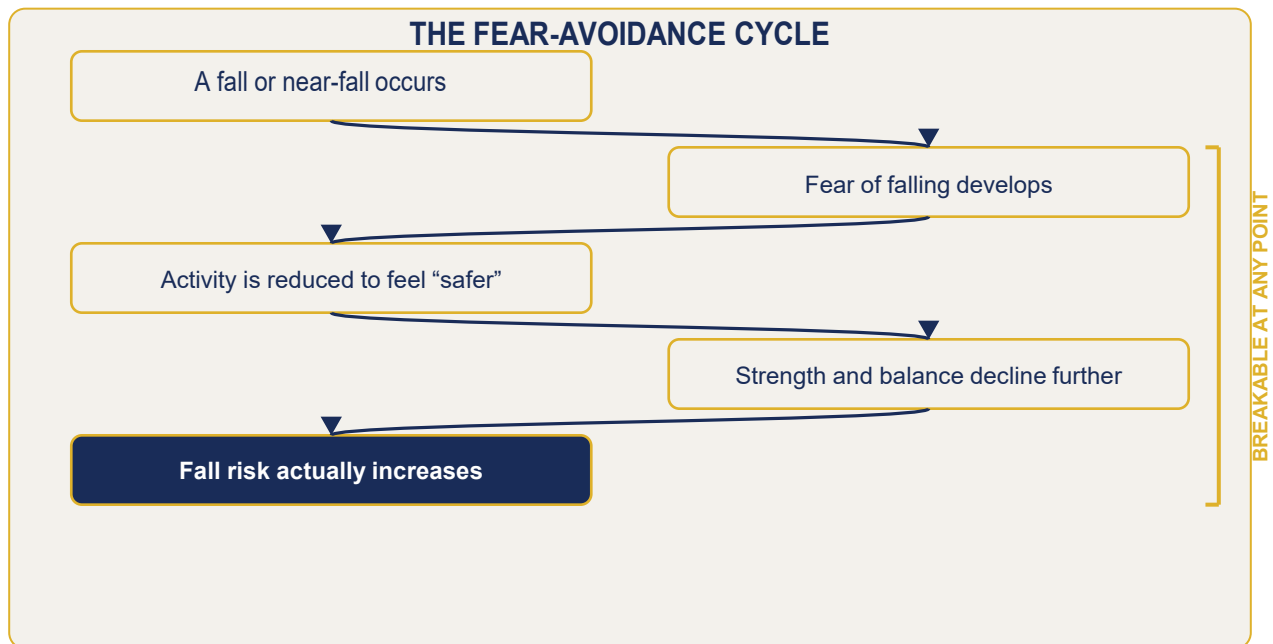
But in many older adults, this response does not resolve. It escalates. The threat signal generalizes from the specific situation where the fall occurred to movement itself. Walking becomes something to be managed carefully. Standing from a chair becomes a moment of bracing and breath-holding. Going outside on an overcast day becomes something to think twice about. The nervous system, trying to protect the body, begins treating ordinary daily movement as dangerous.

The medical literature calls this Fear of Falling — abbreviated FOF — and it is classified as a clinical condition in its own right, distinct from the physical impairments that may accompany it.

Studies consistently show that FOF is present in 20 to 39 percent of community-dwelling older adults, and in up to 85 percent of those who have had a prior fall. More troublingly, it is present in a significant proportion of older adults who have never fallen at all.

The Cycle That Creates Its Own Evidence

What makes the fear-avoidance cycle so clinically damaging is that it is self-confirming. The less you move, the more your balance and strength decline. The more your balance and strength decline, the more genuinely unstable you become. And the more unstable you become, the more the fear feels justified — because now it is.



This is the insidious nature of FOF: it generates its own evidence. Every week of reduced activity produces measurable declines in the muscle strength and proprioception that balance depends on. The person who stopped walking because they were afraid of falling is, six months later, genuinely more likely to fall — not because of what happened to them, but because of what they stopped doing in response to it.

The Cortisol Connection

Chapter 15 covers the relationship between chronic stress, cortisol, and bone loss in detail. It is worth revisiting that connection here through the specific lens of fear.

Fear is not a passive psychological state. It is an active physiological one. When fear of falling becomes a persistent background condition — a low-grade vigilance that accompanies every step, every threshold, every moment of standing up — it maintains a chronic elevation of cortisol. That cortisol does not stay in the brain. It circulates systemically, suppressing osteoblast activity, accelerating bone resorption, disrupting sleep, and reducing muscle mass. The person who is afraid of falling is, through the biochemistry of that fear, actively accelerating the skeletal decline they are trying to prevent.

This is not merely theoretical. Research links persistent fear of falling to reduced activity, elevated cortisol, and downstream declines in bone and muscle health — suggesting the fear itself, not just the movement it discourages, may contribute to skeletal decline.

THE CLINICAL REALITY

Fear of falling does not protect you from falling. It reduces the strength, balance, and bone density that would protect you from falling. Treating the fear is treating the fracture risk.

How Fear Rewrites Your Identity

There is a subtler dimension to FOF that deserves attention: the way it reshapes how a person sees themselves. This matters clinically because identity drives behavior more reliably than willpower.

A person who has organized their life around not falling begins to identify as someone who is fragile. They use language that confirms it: “I’m not steady on my feet.” “I can’t do stairs.” “I’m not safe on uneven ground.” These statements feel like accurate descriptions of reality. And in some cases they are. But in many cases they are self-assessments formed during a period of peak fear and then never updated — even as physical capacity might have remained stable or improved.

The Margaret case study in this guide is a direct illustration of this pattern. Her physical capacity — her leg strength, her core stability — was not as compromised as her fear suggested. What had declined was her trust in her own body. Rebuilding that trust was not a matter of convincing her. It was a matter of giving her repeated, graduated, successful experiences of movement that her nervous system could not argue with.

Breaking the Cycle

The evidence on how to treat fear of falling is consistent and encouraging. The most effective interventions share a common structure: graduated, progressive exposure to controlled movement, with sufficient support that the person does not fall, combined with cognitive reframing of what physical capacity actually is.

In practical terms, this means starting smaller than feels necessary. Much smaller. For someone in a well-established fear-avoidance pattern, the right starting point is not the program in Chapter 6. It is the distance from the bedroom to the kitchen, done deliberately, done safely, and done with the recognition that every successful repetition is data the nervous system is collecting. Every time the body moves and nothing bad happens, the threat signal becomes slightly less credible.

This is not a metaphor. Neurologically, this is exactly what is occurring. The amygdala — the brain structure most associated with fear responses — updates its threat models based on experience. It cannot be argued out of its assessments. But it can be walked out of them. Literally.

A Graduated Return: The Five-Stage Framework

If fear of falling has significantly curtailed your activity, use the following staged return rather than starting directly at Chapter 6's daily movement plan. Move to the next stage only when the current one feels genuinely unremarkable — not when you think you should.

Stage 1 — Controlled Indoor Movement

Walk familiar indoor routes with one hand available to a wall or furniture. Focus on floor surfaces, thresholds, and transitions between rooms. Duration: whatever feels manageable. Goal: zero apprehension.

Stage 2 — Supported Balance Practice

Heel raises and single-leg stance at the kitchen counter, both hands available. 10 repetitions, twice daily. No performance target — just presence and attention. Goal: awareness of where your body is in space.

Stage 3 — Short Outdoor Walking

A defined, familiar route on a predictable surface — driveway, flat sidewalk, calm parking lot — with a companion or phone available. 5 to 10 minutes. Goal: one successful outdoor movement experience per day.

Stage 4 — Progressive Distance and Surface

Gradually extend route length and introduce mild surface variation — a slight incline, a grass edge, stepping off a curb deliberately. Single-leg stance progressing from counter support to fingertip support. Goal: 15 minutes of outdoor walking without apprehension.

Stage 5 — Full Program Entry

You are ready to begin the Foundation Phase of Chapter 19. Bring everything you have built in Stages 1 through 4. The Two-Day Rule applies from this point forward.

The Role of Other People

Fear of falling is significantly amplified by isolation and significantly reduced by social engagement. This is not simply a matter of morale. It is a documented physiological effect: social connection suppresses the cortisol elevation that fear maintains, and the presence of another person during movement activities directly reduces the nervous system's threat assessment of those activities.

If someone in your life has been moving less, avoiding activities they used to enjoy, or expressing fear about falling — the most useful thing you can do is not to tell them they will be fine. It is to walk with them. Slowly, on a familiar route, without urgency or performance pressure. The nervous system registers safety in company in ways that reassurance alone cannot provide.

The fall you had, or the fall you are afraid of, does not have to define your next decade. The body that carried you here is still capable of adaptation. The nervous system that learned to be afraid can learn, with graduated, successful experience, to trust movement again. That process begins the moment you decide the cycle is worth breaking.

IF FEAR OF FALLING IS AFFECTING YOUR DAILY LIFE

Do not start at Chapter 6. Start at Stage 1 of this chapter. Work through the stages at your own pace. If fear has been significant or a fall has been serious, a supervised assessment is strongly recommended before beginning. Visit compressiontheory.com to schedule a Bone Health Strategy Session.

CHAPTER 17

The Honest Check-In

The questions below are honest self-observations that will help you identify which chapters of this book are most relevant to your situation right now.

- **Have you had a fall in the past year — even a minor one?**

Even a stumble caught yourself matters. A first fall is a significant predictor of a second.

- **Do you feel unsteady when walking on uneven ground or in low light?**

An early sign that balance and proprioception need focused attention.

- **Do you grab walls, furniture, or other surfaces to steady yourself without thinking?**

Automatic protective compensation — very fixable with balance training.

- **Have you started avoiding activities because of fear of falling?**

Fear of falling accelerates the physical decline that creates the risk.

- **Is it difficult to get up from a low chair without using your hands?**

Leg strength and sit-to-stand ability are among the strongest predictors of fall risk.

- **Have you lost noticeable height compared to your prime adult height?**

Height loss often reflects vertebral compression fractures — a sign of significant bone density loss.

- **Do you spend more than 6 to 8 hours per day seated?**

Prolonged sitting is the most common daily driver of reduced bone compression signaling.

THREE OR MORE YES ANSWERS

*Chapters 5, 15, and 19 are especially important for you.
Consider scheduling a Bone Health Strategy Session to review your specific risk profile.*

CHAPTER 18

What to Expect and When

One of the most important things I can do for you is give you an honest, realistic timeline. Change takes time. Knowing what to expect at each stage prevents the frustration and dropout that come from unrealistic expectations.

Days 1–7	Starting	Some muscle soreness is normal. Show up anyway. The first week is about beginning, not performing.
Weeks 2–3	Finding Rhythm	Soreness fades. Sleep begins to improve. Energy picks up slightly.
Week 4	Habit Formation	Movement starts to feel like part of your day rather than something added to it.
Month 2	Measurable Strength	Balance noticeably improves. Stairs become easier. Getting up from the floor feels different.
Month 3	Visible Change	Most people report feeling meaningfully different. Bone remodeling is well underway.
6 Months+	New Normal	The habits are established. The benefits compound. Keep going.

The single most important thing you can do in the first week is simply show up. Not perfectly. Not with maximum effort. Just show up.

Individual results vary based on age, activity level, nutritional status, medications, and underlying health conditions. The timeline above reflects typical clinical observations and should not be interpreted as a guarantee of specific outcomes.

CHAPTER 19

Your 90-Day Structural Resilience Framework

Information changes minds. Structure changes lives. The 23 chapters of this guide give you the knowledge — this chapter gives you the sequence. What follows is a practical 90-day framework designed specifically to restore structural resilience and reduce fall risk through progressive, consistent daily action.

The framework is built in three phases of 30 days each. Each phase builds on the last. Do not skip ahead. The sequence is deliberate — your nervous system, muscles, and bones all require time to adapt before the next layer of challenge is introduced.

PHASE 1: DAYS 1–30		FOCUS: Foundation
WEEK	DAILY FOCUS	
Days 1–7	Establish daily walking. Start with 10–15 minutes, flat ground, comfortable pace. No exceptions. Show up every day.	
Days 8–14	Add morning posture routine: chin tuck, shoulder roll, tall stand. 2 minutes daily, before your first step.	
Days 15–21	Introduce 3 strength exercises: Chair Squats, Heel Raises, Sit-to-Stand. 1 round each, alternate days.	
Days 22–30	Add single-leg balance: 10 seconds each side, twice daily. Track with the 30-day calendar in Chapter 22.	

Daily: Walk daily. Build the habit. Begin loading the skeleton.

Goal: By Day 30: Walking is automatic. Balance is noticeably more stable. You have not missed two consecutive days.

PHASE 2: DAYS 31–60		FOCUS: Loading
WEEK	DAILY FOCUS	
Days 31–37	Increase walking to 20–25 minutes. Add one incline or stair route per week minimum.	
Days 38–44	Progress strength exercises to 2 rounds. Add Wall Push-Ups and Standing March.	
Days 45–51	Introduce 4-4-4 breathing twice daily. Add heel-to-toe walking 10 steps each session.	
Days 52–60	Add vibration plate sessions if available: 10 minutes, 3× per week. Or add a second daily walk.	

Daily: Increase load. Build strength. Challenge balance progressively.

Goal: By Day 60: Stronger on stairs. 3 rounds of strength exercises completed. Single-leg balance reaching 20 seconds.

PHASE 3: DAYS 61–90		FOCUS: Resilience
WEEK	DAILY FOCUS	
Days 61–67	Walk 25–30 minutes. Add one outdoor or varied-terrain route per week.	
Days 68–74	Strength exercises: 3 full rounds. Add eyes-closed balance 5–10 seconds.	
Days 75–81	Review home safety checklist (Chapter 21). Make any outstanding corrections this week.	
Days 82–90	Full daily routine: walk + posture + strength + balance. Schedule your DEXA scan if not done. Book your free consultation.	

Daily: Consolidate all habits. Challenge your environment. Measure progress.

Goal: By Day 90: You have a system. Your bones have received 90 consecutive days of compression signals. Your fall risk is measurably lower.

The Full 90-Day Arc at a Glance

PHASE	DAYS	PRIMARY GOAL	KEY MILESTONE
1 — Foundation	1–30	Build daily habit, begin skeletal loading	Walk every day. Never miss two in a row.
2 — Loading	31–60	Increase load, build strength, challenge balance	5 exercises, 2 rounds. Balance 20 seconds.
3 — Resilience	61–90	Consolidate all habits, measure progress	Full routine daily. Book DEXA scan.

THE RULE OF 90 DAYS

Three months is long enough to build durable habits, stimulate measurable bone remodeling, and significantly reduce your fall risk. It is short enough to commit to completely. Start today. Track every day. Finish what you started.

CHAPTER 20

Good Days and Bad Days

Every plan that does not account for real life eventually fails. You will have days when you wake up stiff, when your schedule collapses, when the last thing you want to do is walk around the block. This chapter is for those days.

When You Wake Up Stiff or Achy

Do not skip. Modify. Start with just five minutes of very slow, easy walking. In clinical experience, 80 percent of morning stiffness improves meaningfully within 10 minutes of gentle movement. If you feel genuinely worse after 10 minutes — not just uncomfortable, but worse — rest that day and try again tomorrow.

When You Simply Do Not Feel Like It

Tell yourself: just five minutes. Put on your shoes. Walk to the end of the driveway and back. Almost every time, once you are moving, you will keep going. The hardest part is always starting.

When You Miss a Day

Do not make it mean anything. Do not compensate with double effort the next day. Simply start again tomorrow, exactly where you left off. One missed day inside a well-established routine is functionally irrelevant. Two missed days is the beginning of a pattern.

THE TWO-DAY RULE

One missed day is life. Two consecutive missed days is the start of a broken habit. Make this your single non-negotiable rule, and you will never lose your momentum for long.

CHAPTER 21

Home Safety Checklist

More than half of all falls among adults over 65 occur inside the home. Set aside one afternoon. Go room by room. Check every item on this list.

Throughout the House	
	Replace every burned-out or dim bulb — every room should be well lit, especially at night
	Remove all loose rugs, or secure them completely with non-slip backing and double-sided tape
	Clear all pathways between rooms — no shoes, power cords, or furniture in traffic areas
	Ensure that commonly used items (glasses, medications, phone) are within easy reach without climbing or stretching
Bathroom	
	Install a grab bar beside the toilet — not a towel bar, a rated grab bar
	Install a grab bar inside the shower or tub, positioned for entry and exit
	Place a non-slip mat both inside the tub or shower and on the floor immediately outside it
	Keep a nightlight on at all times — bathroom falls are the single most common nighttime fall location
Bedroom	
	Place a lamp within easy reach of the bed — accessible without getting up
	Ensure a clear, well-lit path from the bed to the bathroom
	Sit on the bed edge 10 seconds before standing — lets blood pressure stabilize and prevents dizziness falls
Kitchen and Stairs	
	Clean spills immediately — never leave wet floors unattended
	Use a step stool with a handle only — never a chair
	Confirm both stair handrails are solid and easy to grip the full staircase
	Use bright stair lighting — add a motion-activated light for nighttime trips

CHAPTER 22

A Week of Bone-Healthy Eating

You do not need a perfect diet. You need a consistent one that reliably delivers the nutrients your skeleton requires. The meal plan below is practical, enjoyable, and designed around real foods most people can find in any grocery store.

DAY	BREAKFAST	LUNCH	DINNER
Mon	Scrambled eggs + whole grain toast + glass of milk	Tuna salad on mixed greens + olive oil dressing	Baked salmon + roasted broccoli + brown rice
Tue	Greek yogurt + banana + walnuts + honey	Lentil soup + crusty bread + apple	Roast chicken thigh + sweet potato + kale
Wed	Oatmeal + whole milk + sliced almonds + cinnamon	Sardines + whole grain crackers + cucumber slices	Beef stir-fry + bok choy + quinoa
Thu	Smoothie: whole milk, spinach, banana, almond butter	Hard-boiled eggs + hummus + carrot sticks	Pork tenderloin + sauteed kale + roasted beets
Fri	Cottage cheese + fresh berries + flaxseed	Chicken wrap + mixed green salad + cheese	Baked cod + steamed broccoli + garlic mashed potato
Sat	Two eggs + glass of whole milk + fruit	Black bean tacos + avocado + shredded cabbage	Grilled steak + asparagus + glass of milk
Sun	Whole grain pancakes + eggs + orange juice	Leftover chicken + roasted vegetables + yogurt	Roast beef + green beans + mashed sweet potato

SNACK IDEAS

*Glass of whole milk · Handful of almonds · Hard-boiled egg · Greek yogurt with honey ·
Piece of hard cheese · Edamame · Sardines on crackers.*

My Bone Health Commitment

People who write down their goals are significantly more likely to follow through. Take two minutes right now. Fill this in before you begin.

Today's Date

My Current Weight

My Daily Walking Goal

My Balance Goal

My Why

The reason I am committed to my bone health and staying independent:

REMEMBER

You do not need to be perfect. You need to begin. Sign your name below and let this be your commitment to yourself.

Signature

Date

CHAPTER 23

30-Day Tracking Calendar

Print this page. Hang it somewhere visible. Every day you complete your movement routine, put an X through that box. The goal is simple: do not break the chain.

A dot (•) means you showed up but something got in the way. A blank means you missed. An X means you did it. Fill this page with X's.

1 Walk _____ Exercise _____ Water _____	2 Walk _____ Exercise _____ Water _____	3 Walk _____ Exercise _____ Water _____	4 Walk _____ Exercise _____ Water _____	5 Walk _____ Exercise _____ Water _____	6 Walk _____ Exercise _____ Water _____
7 Walk _____ Exercise _____ Water _____	8 Walk _____ Exercise _____ Water _____	9 Walk _____ Exercise _____ Water _____	10 Walk _____ Exercise _____ Water _____	11 Walk _____ Exercise _____ Water _____	12 Walk _____ Exercise _____ Water _____
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Day 7

You showed up every day this week. That is more than most people do.

Day 14

Two full weeks. The habit is taking root. Your bones have received 14 consecutive days of compression signals.

Day 21

Habit formation timelines vary widely — research suggests anywhere from a few weeks to several months. However long it takes, three consistent weeks is real, durable progress.

Day 30

30 days. You did it. Now make it 31. Then 60. Then just keep going.

What Readers Are Saying

These are real accounts from patients and readers who applied the principles in this guide. Individual results vary.

“ *I was afraid of falling every time I left the house. After following these principles for just a few weeks, my balance improved dramatically. I walk every morning now and I feel more confident than I have in years.*

— Mary S., Age 72

“ *Dr. Briggs explained my bone density results in a way no one ever had before. The gravity chapter alone changed how I think about staying active. I stopped sitting so much and started noticing a real difference within the first month.*

— Robert T., Age 68

“ *I read this book after my doctor told me I had osteopenia. Instead of feeling scared, I felt like I finally had a plan. Simple, practical, and something I could actually do at home. Highly recommend it to anyone over 60.*

— Patricia M., Age 64

“ *I had been told my only option was medication. This book gave me a completely different picture. I started the daily walks and the strength exercises and within six weeks my physical therapist commented on how much my stability had improved. I wish I had found this sooner.*

— Carol D., Age 71

“ *My husband and I both read it the same week. We started doing the morning routine together and it has become something we genuinely look forward to. The two-day rule alone kept us consistent when we would have otherwise quit. Three months in and we both feel stronger.*

— Sandra K., Age 67

PATIENT CASE STUDIES

Real Outcomes. Real People.

The four accounts that follow are representative composite cases drawn from clinical practice. Names and identifying details have been changed to protect patient privacy. The clinical presentations, timelines, and outcomes described reflect typical results observed in patients who committed consistently to the principles in this guide. Individual results vary.

These are not the best-case scenarios. They are not the outliers. They are the patients who showed up — imperfectly, some days reluctantly — and let the biology do what biology does when given a consistent signal.

CASE STUDY 1

The Woman Who Was Told to Just Take the Pill

PATIENT

Barbara, 67

DIAGNOSIS

Osteopenia — T-score -1.9 lumbar spine

STARTING POINT

Largely sedentary; 8+ hours seated daily

PRIMARY GOAL

Avoid medication; reduce fracture risk

TIMEFRAME

6 months

The Situation

Barbara came in six weeks after her DEXA scan results arrived in the mail. She was a retired school administrator, sharp and direct, and she had already spent an hour researching bisphosphonates before she sat down across from me. Her T-score of -1.9 at the lumbar spine put her firmly in osteopenia territory — not yet osteoporosis, but close enough that her primary care physician had handed her a prescription.

“I’m not ready to start a medication I’ll be on for the rest of my life,” she said. “I want to know if there’s anything I can actually do first.”

That is almost always the right question. The answer, in Barbara’s case, was yes.

What We Found

Barbara’s daily life was quietly working against her skeleton. She drove everywhere, sat for most of the morning on her computer, and described her exercise routine as “walking from the car to the store.” She slept well, ate reasonably, and had no significant joint problems — meaning there were no real barriers to loading her skeleton. Just a habit structure that had never asked it to do much.

Her sit-to-stand test was revealing: she used her hands to push off the chair every time without thinking about it. When I pointed it out, she was genuinely surprised. Her body had quietly compensated for years of reduced leg strength without her ever noticing.

The Approach

We started with the Foundation phase — nothing dramatic. A 15-minute morning walk, a 10-minute evening walk, and three strength exercises every other day. The only firm rule was the Two-Day Rule: never miss two consecutive days. Barbara was skeptical of the simplicity. She had expected something harder.

By week three she stopped using her hands on the chair. By week six she was walking 25 minutes in the morning without thinking about it. By month two she had added stairs back into her daily route after two years of taking the elevator.

Six Months Later

Barbara's follow-up DEXA at six months showed her lumbar T-score had moved from -1.9 to -1.6 — a measurable improvement at a site that typically shows continued decline in untreated osteopenia. Her hip scores held stable. Her physician, who had written the original prescription, noted the change and agreed to defer medication for another twelve months pending continued progress.

BARBARA'S OUTCOME AT 6 MONTHS

Lumbar T-score improved from -1.9 to -1.6 . Sit-to-stand performed without hands. Daily walking habit fully established. Medication deferred by physician pending continued progress.

"I keep waiting for it to feel like exercise," she told me at her six-month visit. "But it just feels like my day now." That is exactly the point.

CASE STUDY 2

Rebuilding Confidence After a Fall

PATIENT

Margaret, 74

DIAGNOSIS

Osteoporosis — T-score -2.7 hip; prior wrist fracture

STARTING POINT

Fearful of walking outdoors; activity severely curtailed

PRIMARY GOAL

Reduce fall risk; regain independence

TIMEFRAME

90 days

The Situation

Margaret fell in her kitchen fourteen months before she came to see me. She caught herself on the counter — no fracture, no hospital visit — but something shifted after that morning that never quite shifted back. She stopped walking to the mailbox. She started taking the longer route through the house to avoid the one step down into the garage. She quit her Thursday morning walking group after twenty years because she no longer trusted her legs on uneven ground.

Her daughter brought her in. Margaret sat quietly for most of the first visit and let her daughter do the talking. What emerged was a picture of someone whose fear of falling had become more disabling than the fall itself.

What We Found

Margaret's balance assessment told the story clearly. Single-leg stance: four seconds on the right, three on the left before she reached for the wall. Heel-to-toe walking: she stopped after six steps. Her grip on the exam table edge was white-knuckled the entire time.

What I also found was that her leg strength was not as compromised as her confidence suggested. Her sit-to-stand was slow, but she could do it without assistance. The issue was not primarily muscular. It was neurological and psychological — a nervous system that had learned to brace against movement rather than trust it.

The Approach

We started indoors. For the first two weeks, Margaret's entire program took place with one hand on the kitchen counter: heel raises, single-leg stance holds starting at five seconds, and slow deliberate walking the length of her hallway three times a day. Small distances. Controlled surfaces. The goal in week one was not fitness. It was proof — proof to Margaret's nervous system that her legs were still capable of supporting her.

By day eighteen she walked to the mailbox for the first time in over a year. She called her daughter from the driveway.

90 Days Later

At ninety days, Margaret's single-leg stance had extended to nineteen seconds on her stronger side. She had rejoined her walking group — two Thursdays out of four in the first month back, then every week since. Her daughter reported that her mother had stopped asking for help with tasks she was physically capable of doing independently.

Her bone density had not yet been retested at this point — ninety days is too short a window for meaningful DEXA change. But the physiology was moving in the right direction, and more importantly, Margaret was moving again.

MARGARET'S OUTCOME AT 90 DAYS

*Single-leg balance: 4 seconds to 19 seconds. Walking group rejoined after 14-month absence.
Independent mobility restored in daily activities. Fear-driven avoidance cycle broken.*

The fall had taken fourteen months from her. Ninety days of consistent, progressive, structured work gave them back.

CASE STUDY 3

From Sedentary to Structurally Stable

PATIENT

Gerald, 71

DIAGNOSIS

Osteopenia — T-score -1.4 ; metabolic syndrome

STARTING POINT

No exercise history; desk career; 30+ lbs overweight

PRIMARY GOAL

Avoid nursing home; stay in his home independently

TIMEFRAME

6 months

The Situation

Gerald was not a patient who came in voluntarily. His internist had flagged his bone density results during a routine check and referred him with a note that read, simply: “needs to move more.” Gerald had spent 34 years as a financial analyst — seated, stationary, and professionally sedentary. He retired two years prior and, by his own description, had moved even less since.

“I’ve never been an exercise person,” he told me in the first five minutes. “I don’t see myself becoming one at 71.”

I told him I wasn’t going to turn him into an exercise person. I was going to teach him to use his body the way it was designed to be used. That was a distinction that seemed to matter to him.

What We Found

Gerald’s musculoskeletal assessment revealed the predictable consequences of decades of minimal loading. His leg strength was significantly below age norms. His balance was marginal — twelve seconds single-leg on a good day. He had mild knee discomfort that had been quietly discouraging movement for years. He was not in crisis. But the trajectory, left unchanged, pointed clearly toward one.

The Approach

Gerald's program had to work within his psychology as much as his physiology. He responded to structure and metrics — a former analyst's instinct. So we gave him numbers to hit rather than feelings to chase. Ten minutes of walking after breakfast. Five sit-to-stands before his morning coffee. Three heel raises every time he stood at the kitchen counter. All logged. All tracked.

The knee discomfort improved within three weeks as the surrounding musculature strengthened. By month two he had extended his morning walk to twenty-two minutes without being asked to. He started parking at the far end of parking lots — “for the steps,” he explained, as though he had invented the idea.

Six Months Later

Gerald's six-month assessment showed meaningful functional gains across every benchmark. Sit-to-stand repetitions in thirty seconds had increased from eight to seventeen. Single-leg stance extended from twelve seconds to twenty-eight. His morning walks had become forty minutes, five days a week — a habit he had constructed entirely on his own in month four.

His follow-up DEXA showed stable bone density at both sites tested — no further loss in six months, which for a 71-year-old male with his history represented a genuine reversal of trajectory.

GERALD'S OUTCOME AT 6 MONTHS

*Sit-to-stand: 8 reps to 17 reps in 30 seconds. Single-leg balance: 12 seconds to 28 seconds.
Bone density stable — no further decline. Self-directed walking habit established at 40 min,
5x/week.*

“I still don't think of myself as an exercise person,” Gerald told me at his final visit. “But I think of myself as someone who moves now. That feels different.”

CASE STUDY 4

Improving Balance at 69 with Peripheral Neuropathy

PATIENT

Carol, 69

DIAGNOSIS

Peripheral neuropathy; osteopenia T-score -1.7

STARTING POINT

Significant balance impairment; two falls in prior year

PRIMARY GOAL

Stop falling; maintain ability to live alone

TIMEFRAME

90 days

The Situation

Carol's case was the most complex of the four. She had been living with peripheral neuropathy for six years — a condition that progressively impairs the nerve signals that communicate between the feet and the brain. In a healthy nervous system, thousands of sensory inputs from the feet and ankles constantly update the brain's picture of where the body is in space. That feedback loop — called proprioception — is the biological foundation of balance. In Carol's case, it was significantly degraded.

She had fallen twice in the previous twelve months. Neither fall resulted in fracture, but both had shaken her confidence severely. She came in using a cane she had purchased after the second fall and told me she was “getting used to the idea” of needing it permanently.

I did not think that was inevitable. Neither, by the end of our first conversation, did she.

What We Found

Carol's balance assessment confirmed what her history suggested: single-leg stance of two seconds before loss of balance, even with eyes open. Tandem walking was not possible without support. Her lower-leg strength was measurably reduced on the left side — the side that had been symptomatic longest.

What the assessment also revealed was that Carol's upper-body strength was relatively preserved, her cognitive engagement was high, and her motivation — once she understood the mechanism — was genuine. Neuropathy affects proprioception, but it does not eliminate the body's capacity to adapt. The goal was to retrain what remained and build every compensatory advantage available.

The Approach

Carol's program combined three elements not typically used together: the standard balance training progression from this guide, whole-body vibration therapy three times per week, and targeted visual compensation training — teaching her to use visual cues more deliberately to supplement the proprioceptive signals her nervous system could no longer reliably provide.

The vibration plate was particularly valuable here. Because Carol could not safely perform traditional weight-bearing impact exercise, the plate delivered a meaningful compression signal through her skeletal system without the fall risk that walking on varied terrain would have created in week one. Ten minutes, three times per week, standing with knees slightly bent and both hands available to the support rail.

She kept the cane for outdoor walks through week six. She set it by the door rather than carrying it inside from week three onward.

90 Days Later

At ninety days, Carol's single-leg stance had extended to eleven seconds on her stronger side — an improvement that, given her diagnosis, represented a significant neurological and muscular adaptation. Her tandem walking was functional for short distances without support. She had not fallen since beginning the program.

She still lives alone. She still walks to her mailbox, to her neighbor's house, and around the block on good weather days. The cane sits by the front door. She describes it as her "just-in-case," which is precisely the right relationship to have with it.

CAROL'S OUTCOME AT 90 DAYS

Single-leg balance: 2 seconds to 11 seconds. Zero falls during the 90-day program. Tandem walking functional without support. Cane transitioned from daily use to precautionary.

These four people — Barbara, Margaret, Gerald, and Carol — did not have extraordinary willpower or exceptional circumstances. They had a structure, a daily signal, and the understanding that their bodies were still capable of responding. That is the Compression Theory™ in practice.

The same biological principles apply to you.

The names and identifying details in these case studies have been changed to protect patient privacy. These accounts represent composite clinical observations. Individual results vary based on age, diagnosis, adherence, and health status.

This content is for educational purposes only and does not constitute medical advice.

FREQUENTLY ASKED QUESTIONS

Answers to the Questions Patients Ask Most

After more than 25 years in clinical practice, I have heard most questions about bone health, movement, and aging more times than I can count. The following 25 questions represent the ones that come up most consistently — in exam rooms, after talks, and from readers of this guide. The answers are direct and practical. Where a topic is covered in depth elsewhere in this guide, I will tell you exactly where to find it.

MOVEMENT & EXERCISE

Is walking enough on its own?

Walking is the essential foundation — and for someone who has been sedentary, starting there is exactly right. But walking alone loads the spine and hips primarily in one plane of movement. Over time, adding body-weight strength exercises and balance training produces meaningfully better outcomes than walking alone. Think of walking as the daily signal and strength work as the amplifier.

What about swimming or cycling? Are those good for bone health?

Both are excellent for cardiovascular health, joint mobility, and muscle conditioning — but neither is a primary bone-building activity. The reason is buoyancy and support: water removes gravitational load, and the bicycle seat bears much of your body weight. Bone responds to compression, and these activities reduce it. If swimming or cycling is what you enjoy, keep doing it — just add 15 to 20 minutes of weight-bearing movement daily to provide the compression signal your skeleton needs.

What about yoga or Pilates?

Both are genuinely valuable — particularly for flexibility, core strength, posture, and stress reduction, all of which support bone health indirectly. Standing yoga poses do provide some weight-bearing compression. However, yoga and Pilates are not sufficient as a primary bone-loading strategy on their own. Use them as a complement to your walking and strength program, not a replacement.

How heavy should weights be if I want to add resistance training?

Start lighter than you think you need to. For bone health, the research supports moderate loads — enough resistance that the last two repetitions of a set feel genuinely effortful, but never so heavy that form breaks down. Two to three sets of eight to twelve repetitions is a well-validated starting point. Progression matters more than starting weight: gradually increasing the challenge over weeks and months is what produces lasting bone adaptation.

I have bad knees. Can I still do the exercises in this guide?

In most cases, yes — with modifications. Knee discomfort often improves with strengthening the muscles around the joint, not by avoiding movement altogether. Chair squats can be made shallower. Heel raises place minimal stress on the knee. Walking on flat, predictable surfaces is generally well-tolerated even with significant knee arthritis. That said, always work within your pain tolerance and consult your physician or physical therapist before beginning if you have a specific knee diagnosis.

How many days per week do I actually need to exercise?

Daily walking — even in short segments — is the target because bone responds to consistent daily signaling. For strength exercises, three to four times per week is well-supported by the research and allows adequate recovery between sessions. The most important variable is not frequency per se — it is consistency. Four days a week for twelve weeks outperforms seven days a week for two weeks followed by stopping.

BONE DENSITY & TESTING

Can I actually reverse osteoporosis, or can I only slow it down?

The honest answer is: it depends on severity and how consistently you apply the right inputs. Osteopenia may improve significantly with consistent mechanical loading and proper nutrition.

Established osteoporosis (T-score below -2.5) is more typically a matter of stabilization and fracture prevention than full reversal, though meaningful improvement is possible and well-documented. The trajectory matters as much as the number: stopping decline is a real and significant achievement.

How often should I get a DEXA scan?

If you have been diagnosed with osteopenia, every one to two years is a reasonable interval to track progress meaningfully. If your density is normal and you are in a lower-risk group, every two to five years is typically sufficient. After beginning a structured program like this one, a follow-up DEXA at six to twelve months provides useful data on whether your regimen is producing the expected response. Discuss timing with your physician based on your specific T-scores and risk factors.

My doctor says my bone density is fine. Do I still need to do this?

Normal bone density today reflects the habits of the last decade. Bone density peaks around age 30 and begins declining gradually thereafter. The daily compression habits in this guide are not a treatment — they are maintenance of something you already have. The most effective time to build the habits that preserve bone density is before it becomes a clinical concern. Prevention is always easier than recovery.

What is the difference between a T-score and a Z-score on my DEXA results?

A T-score compares your bone density to a healthy young adult at peak density — this is the number used to diagnose osteopenia and osteoporosis. A Z-score compares your density to others of your same age and sex, which can be useful for identifying whether your rate of loss is unusually rapid. For most clinical purposes, the T-score is the number that drives treatment and prevention decisions.

Is bone density the only thing that matters for fracture risk?

No — and this is an important distinction. Bone quality, including the microarchitecture and flexibility of bone tissue, matters as much as density. A person with moderate bone density and excellent balance may have lower fracture risk than someone with better density but poor balance and slow reaction time. Fall prevention — the strength and balance work in this guide — directly reduces fracture risk independent of what your DEXA scan shows.

NUTRITION & SUPPLEMENTS**Should I take a calcium supplement?**

Food sources of calcium are preferable to supplements for most people. Dietary calcium — from dairy, leafy greens, sardines, almonds, and fortified foods — is absorbed more efficiently and does not carry the cardiovascular concerns that have been associated with high-dose calcium supplementation in some studies. If your dietary calcium is consistently below 1,000 mg per day, a modest supplement (500 mg or less) taken with food is a reasonable bridge. Discuss with your physician before starting.

How do I know if I am getting enough vitamin D?

A simple blood test — 25-hydroxyvitamin D — gives you a precise answer. Optimal levels for bone health are generally considered to be between 40 and 60 ng/mL. Many adults, particularly in northern climates or those with limited sun exposure, test below this range without knowing it. Supplementing with 1,000 to 2,000 IU of vitamin D3 daily is widely considered safe and appropriate for most adults, but a baseline blood test before supplementing gives you a clearer target.

Does dairy actually help bone health, or is that a myth?

Dairy is a genuinely useful source of calcium, vitamin D (in fortified products), protein, and phosphorus — four of the six key bone nutrients. Population studies consistently show better bone density outcomes in adults who consume adequate dairy. That said, dairy is not the only path. If you are lactose intolerant or prefer to avoid dairy, sardines, fortified plant milks, leafy greens, almonds, and tofu can collectively cover the same nutritional ground.

Does coffee hurt my bones?

Moderate coffee consumption — up to three to four cups per day — has not been shown to meaningfully impair bone density in adults who are otherwise meeting their calcium and vitamin D targets. Higher intake has been associated with slightly increased calcium excretion, which becomes relevant when dietary calcium is already marginal. If coffee is a fixture in your day, make sure your nutrition is covering the basics and you are not substituting coffee for calcium-containing foods or beverages.

MEDICATIONS & MEDICAL QUESTIONS

My doctor prescribed bisphosphonates. Should I take them or try this first?

This is a decision to make with your physician, not instead of your physician. What I can tell you is that the lifestyle approach in this guide and medication are not mutually exclusive — in fact, the evidence suggests that structured loading and nutrition enhance the effectiveness of bone-building medications rather than replacing them. If your T-score and fracture risk are significant, medication may be medically appropriate regardless of lifestyle changes. Bring this guide to your next appointment and have the conversation with your doctor directly.

I take a proton pump inhibitor (like Prilosec or Nexium) long-term. Should I be concerned?

Yes — this is worth a direct conversation with your prescribing physician. Long-term PPI use reduces stomach acid needed to absorb calcium efficiently, and studies have associated prolonged use with modestly increased fracture risk. This does not mean stopping the medication without guidance — it means being intentional about getting calcium from food sources with high natural absorption, considering calcium citrate (which absorbs without stomach acid) if supplementing, and having your bone density monitored regularly.

Can I do this program if I have already had a fracture?

In most cases, yes — but the starting point and progression must be adjusted for your specific situation, and physician clearance is essential before beginning. Following a fracture, structured progressive loading is actually part of the standard rehabilitation pathway in most clinical settings. The goal shifts from prevention to recovery and re-strengthening, with a particular emphasis on fall prevention to avoid a second fracture. Work with your care team to adapt the program to your current status.

Does hormone replacement therapy (HRT) affect bone density?

Yes, significantly. Estrogen plays a direct role in suppressing osteoclast activity — the cells that break down bone. The accelerated bone loss that occurs in the five to seven years following menopause is driven primarily by estrogen decline. HRT has been shown to slow or halt that loss in postmenopausal women. Whether HRT is appropriate for you involves a risk-benefit analysis that goes well beyond bone density — discuss it with your gynecologist or internist.

LIFESTYLE & PRACTICAL QUESTIONS**How long before I actually feel different?**

Most people notice functional changes — less stiffness in the morning, easier stair climbing, better energy — within three to four weeks of consistent daily movement. Balance improvements typically become noticeable by weeks six to eight. Measurable bone density changes require a minimum of six months of consistent loading and are best confirmed by DEXA. The subjective experience of feeling stronger and more stable arrives well before the lab numbers move.

I travel frequently. How do I keep the program going on the road?

The program was designed for this. Every exercise in Chapter 7 requires nothing except a wall and a chair — both universally available in hotels. Walking is location-independent. The morning posture routine takes two minutes at the foot of any bed. When traveling, simplify rather than stop: a 15-minute walk and two rounds of sit-to-stands maintains your habit chain until you are home. One week of reduced volume inside a well-established routine causes no meaningful bone loss.

My spouse or partner is also dealing with bone density issues. Can we do this together?

Absolutely — and the data on this is compelling. Shared exercise habits significantly improve long-term adherence for both partners. The case study section of this guide includes one couple who built their morning routine together and credited the mutual accountability with keeping them consistent through months three and four, which is typically the period when solo exercisers most commonly drop off. The program scales to any fitness level, so starting together from different baselines is entirely workable.

I have neuropathy in my feet. Is balance training safe for me?

Yes, with appropriate modifications and care. Peripheral neuropathy impairs the sensory feedback loop that balance depends on, which means you need more structure and more support during balance work — not less of it. Always begin balance exercises with one or both hands on a stable surface. Progress slowly. Never practice unsupported balance near fall hazards. Whole-body vibration therapy has shown particular promise for patients with neuropathy-related balance impairment, as discussed in Chapter 7. A supervised starting assessment is strongly recommended.

What if I miss a whole week due to illness or travel?

One week of interruption inside an established habit does not erase weeks of progress. Your muscles and your nervous system retain adaptation far longer than a week. What matters is how you return: start back at 80 percent of your previous volume, not 100, and build back over three to four days. Do not attempt to compensate for a lost week by doubling effort — that is the fastest path to an overuse injury that creates a much longer gap.

Is it too late to start at 80?

No. This question comes up often enough that it deserves a direct answer. The research on bone and muscle adaptation in adults in their eighties is unambiguous: the skeleton continues to respond to loading signals at any age. The rate of adaptation is slower, the starting point may be lower, and the need for fall prevention is more urgent — but the biological mechanism is identical. The oldest patient documented in peer-reviewed literature to show measurable bone density improvement from a structured exercise program was 91. Start now.

VIBRATION THERAPY & TECHNOLOGY**Is vibration plate therapy legitimate, or is it just a fitness trend?**

It is legitimate, with an important qualifier: the evidence supports specific protocols at specific frequencies, not every product on the market. Multiple randomized controlled trials and meta-analyses have demonstrated measurable bone mineral density improvements at the hip and lumbar spine in older adults following structured whole-body vibration programs. The 2025 systematic review cited in Chapter 7 represents the current state of the evidence. As with any tool, the quality of the equipment and the consistency of use determine the outcome.

What frequency setting should I use on a vibration plate?

The research consistently points to 20 to 35 Hz as the effective therapeutic range for bone density in older adults. Beginning at 20 to 25 Hz with a low amplitude setting allows your body to adapt over two to three weeks before increasing. Higher frequencies are not necessarily more effective and can be uncomfortable or destabilizing for beginners. The complete protocol — including knee angle, session duration, and weekly frequency — is covered in detail in Chapter 7.

Can I use a vibration plate if I have a joint replacement?

This requires physician clearance before use, and in most cases a waiting period following surgery. Recent joint replacement is listed as a contraindication in the medical disclaimer in Chapter 7. Once cleared by your orthopedic surgeon, vibration therapy can often be incorporated carefully — but the decision belongs to your surgical team, not a general guideline.

STILL HAVE QUESTIONS?

If your situation was not covered here, reach out directly. Every patient's picture is different, and a 15-minute conversation is often worth more than any amount of reading. Visit compressiontheory.com to schedule a Bone Health Strategy Session.

The answers in this section are for general educational purposes only and do not constitute medical advice. Always consult your physician before making changes to your health program, medications, or supplement regimen.

Thank You for Reading The Compression Theory™

I wrote this book because I kept having the same conversation — in exam rooms, at community events, with neighbors and old friends — and I got tired of not having something to hand people when it was over. If what is in these pages gave you a clearer picture of what your body is capable of, or helped someone you love feel less afraid of what lies ahead, then it has done exactly what I intended it to do.

I want to ask something of you before you set this down. Think for a moment about the people in your life who are moving less than they used to. A parent who has started holding the railing. A neighbor who avoids stairs. A friend who has quietly stopped doing the things they used to love. These people are not beyond help — they are simply waiting for someone to show them a different way forward.

Passing this book along is one of the most meaningful things you can do for someone you care about. Not because it will solve everything overnight, but because it will give them the same thing it gave you — a reason to believe that something can be done, and a place to start. That is how change actually happens. One person reads something that shifts their thinking. Then they share it. Then it shifts someone else.

Thank you for trusting me with your health. Thank you for reading to the end. And thank you, in advance, for passing this along.

— *Dr. James A. Briggs, ND, DC*

SHARE THIS BOOK

If this helped you, pass it to a parent, neighbor, or friend who has been moving less. The bones they build could be the ones that keep them standing, independent, and living fully for years to come.



BONE STRENGTH & FALL RISK SELF-SCREENING™

How Strong Are Your Bones, Balance, and Future Independence?

This self-assessment is designed to help you identify factors that may influence bone strength, balance, mobility, and fracture risk as you age. Work through each section honestly and record your total score at the end.

This screening tool was developed using commonly recognized risk factors associated with osteoporosis, sarcopenia, fall risk, and functional decline. It is not a diagnostic instrument — but it may help identify patterns that warrant further professional evaluation.

SECTION 1: BONE HEALTH RISK FACTORS

Check the line that applies: Yes = 4 Points | No = 0 Points

1. Are you age 50 or older?

- ☐ Yes (4 points)
☐ No (0 points)

2. Have you ever been diagnosed with osteopenia?

- ☐ Yes (2 points)
☐ No (0 points)

3. Have you ever been diagnosed with osteoporosis?

- ☐ Yes (4 points)
☐ No (0 points)

4. Have you lost more than one inch of height as an adult?

- ☐ Yes (4 points)
☐ No (0 points)

5. Have you experienced a low-trauma fracture after age 40? (e.g., from a standing-height fall)

- ☐ Yes (4 points)
☐ No (0 points)

6. Has either parent suffered a hip fracture or osteoporosis-related fracture?

___ Yes (4 points)

___ No (0 points)

7. Have you been diagnosed with Vitamin D deficiency within the past five years?

___ Yes (4 points)

___ No (0 points)

SECTION 2: BALANCE & FALL RISK

Never = 0 | Rarely = 1 | Sometimes = 2 | Often = 3 | Always = 4

8. Compared to five years ago, do you feel less steady while walking or standing?

___ Never (0)

___ Rarely (1)

___ Sometimes (2)

___ Often (3)

___ Always (4)

9. Have you experienced one or more falls within the last 12 months?

___ No (0 points)

___ Yes, once (2 points)

___ Yes, more than once (4 points)

10. Do you use furniture, walls, or railings for support while walking?

___ Never (0)

___ Rarely (1)

___ Sometimes (2)

___ Often (3)

___ Always (4)

11. Do you avoid stairs because of balance concerns?

___ Never (0)

___ Rarely (1)

___ Sometimes (2)

___ Often (3)

___ Always (4)

12. Do you feel unsteady when standing on one foot?

- ☐ Never (0)
- ☐ Rarely (1)
- ☐ Sometimes (2)
- ☐ Often (3)
- ☐ Always (4)

13. Do you worry about falling during normal daily activities?

- ☐ Never (0)
- ☐ Rarely (1)
- ☐ Sometimes (2)
- ☐ Often (3)
- ☐ Always (4)

SECTION 3: STRENGTH & MOBILITY

Never = 0 | Rarely = 1 | Sometimes = 2 | Often = 3 | Always = 4

14. Do you exercise fewer than three days per week?

- ☐ Never (0)
- ☐ Rarely (1)
- ☐ Sometimes (2)
- ☐ Often (3)
- ☐ Always (4)

15. Do you spend more than six hours per day sitting?

- ☐ Never (0)
- ☐ Rarely (1)
- ☐ Sometimes (2)
- ☐ Often (3)
- ☐ Always (4)

16. Have you noticed declining leg strength over the past five years?

- ☐ Never (0)
- ☐ Rarely (1)
- ☐ Sometimes (2)
- ☐ Often (3)
- ☐ Always (4)

17. Do you have difficulty rising from a chair without using your hands?

- ☐ Never (0)
- ☐ Rarely (1)
- ☐ Sometimes (2)
- ☐ Often (3)
- ☐ Always (4)

18. Do you avoid activities because you feel weak, unstable, or fragile?

- ☐ Never (0)
- ☐ Rarely (1)
- ☐ Sometimes (2)
- ☐ Often (3)
- ☐ Always (4)

19. Do you experience fatigue that limits your ability to remain physically active?

- ☐ Never (0)
- ☐ Rarely (1)
- ☐ Sometimes (2)
- ☐ Often (3)
- ☐ Always (4)

SECTION 4: LIFESTYLE & NUTRITION

Never = 0 | Rarely = 1 | Sometimes = 2 | Often = 3 | Always = 4

20. Do you consume fewer than two servings of calcium-rich foods daily?

- ☐ Never (0)
- ☐ Rarely (1)
- ☐ Sometimes (2)
- ☐ Often (3)
- ☐ Always (4)

21. Do you spend very little time outdoors in natural sunlight?

- ☐ Never (0)
- ☐ Rarely (1)
- ☐ Sometimes (2)
- ☐ Often (3)
- ☐ Always (4)

22. Smoking Status

- ☐ Never smoked (0 points)
- ☐ Former smoker (2 points)
- ☐ Current smoker (4 points)

23. On average, how many alcoholic beverages do you consume per day?

- ☐ Rarely or none (0 points)
- ☐ 1 per day (1 point)
- ☐ 2 per day (2 points)
- ☐ 3 or more per day (4 points)

24. Do you consistently perform structured strength or resistance training at least twice per week?

- ☐ Always (0 points)
- ☐ Often (1 point)
- ☐ Sometimes (2 points)
- ☐ Rarely (3 points)
- ☐ Never (4 points)

SECTION 5: CONFIDENCE & INDEPENDENCE — NOT INCLUDED IN SCORE**25. How confident are you that you will remain active and independent over the next 10 years?**

- ☐ Very Confident
- ☐ Somewhat Confident
- ☐ Unsure
- ☐ Concerned
- ☐ Very Concerned

26. How concerned are you about a future fall affecting your independence?

- ☐ Not Concerned
- ☐ Slightly Concerned
- ☐ Moderately Concerned
- ☐ Very Concerned
- ☐ Extremely Concerned

MY TOTAL SCORE (Questions 1–24):

points

Add all points from Sections 1–4 only. Do not include Section 5.

SCORING YOUR RESULTS

Add your points from Questions 1–24 only. Higher scores reflect a greater accumulation of recognized risk factors.

0 – 20 Points

LOW RISK

Your responses suggest a solid foundation for bone health, mobility, and independence. Continue your current habits and stay physically active.

21 – 40 Points

MILD RISK

This range often reflects early lifestyle or mobility changes that can gradually influence bone density, balance, and strength. Addressing these factors now may help preserve long-term independence.

41 – 60 Points

MODERATE RISK

Your score suggests several factors commonly associated with declining bone health, reduced stability, and increased fracture risk. Early intervention may help slow or reverse many of these trends.

61 – 80 Points

ELEVATED RISK

Individuals in this range frequently experience measurable declines in strength, balance, mobility, or bone quality. A comprehensive review of contributing factors is recommended.

81 – 94 Points

HIGH RISK

Your responses indicate multiple risk factors associated with falls, fractures, reduced mobility, and loss of independence. Comprehensive medical and functional evaluation is strongly recommended.

Strong bones are only part of the equation. Research shows that mobility, muscle strength, balance, physical activity, nutrition, and confidence all help you stay active and independent as you age. The good news is that many of these factors are modifiable — and you have already taken the first step by completing this screen.

COMPLIMENTARY BONE HEALTH & MOBILITY STRATEGY SESSION

If your score falls in the Moderate, Elevated, or High-Risk range, consider requesting a complimentary Strategy Session to review:

- Factors influencing your bone health
- Fall and fracture risk concerns
- Balance and mobility challenges
- Lifestyle strategies that support healthy aging
- Steps that may help preserve long-term independence

Ready to Build Real Structural Resilience?

If you're serious about improving your **strength, balance, and long-term stability** over the next 90 days, schedule a **Bone Health Strategy Session**.

In this focused 15-minute call, we will:

- Review your current stability
- Identify your biggest structural risks
- Clarify your next best steps
- Determine whether the Guided Compression Program is right for you

If you're ready to move from **information** to **implementation**, schedule your session here:



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— Dr. James A. Briggs, ND, DC · compressiontheory.com

FOR CLINICIANS

A Note to Physicians and Physical Therapists

If a patient has brought you this book, or you are reviewing it before recommending it, here is what you need to know in brief.

- **This book complements medical care.**

Every recommendation here is meant to work alongside your treatment plan, not instead of it. The daily movement, strength, and balance protocols are structural and behavioral — they are designed to support, not substitute for, the clinical management you are already providing.

- **It is not a replacement for medication.**

Nowhere in this guide is a patient told to stop, delay, or avoid a prescribed medication. Where bisphosphonates, hormone therapy, or other pharmacologic treatment is indicated, this book explicitly directs the reader back to that conversation with their physician.

- **It encourages collaborative care.**

Patients are repeatedly prompted to bring their questions, their DEXA results, and this book itself to their next appointment. The goal is a more informed patient walking into your office — not a patient attempting to self-manage a condition that requires medical oversight.

Why this approach benefits your practice

- Patients arrive better informed, with realistic expectations and fewer misconceptions to correct.
- A structured home program supports adherence between visits and reinforces what you are already recommending.
- Clear, written boundaries around medication and medical oversight reduce the likelihood of patients making unsupervised changes to their care.

If you have patients who could benefit from a structured, medically compatible bone health program, I welcome the conversation.

— Dr. James A. Briggs, ND, DC · compressiontheory.com

References

The following published research informed the clinical content of this guide. Readers who wish to explore the primary literature are encouraged to access these studies through PubMed, Google Scholar, or their local medical library.

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STRONGER BONES. BETTER BALANCE. STAY INDEPENDENT.

Most people believe weakness, falls, and loss of independence are inevitable parts of aging.

Dr. James A. Briggs, ND, DC presents a different perspective.

The Compression Theory™ introduces a simple framework designed to help readers understand the role movement, balance, nutrition, strength, and recovery play in maintaining lifelong independence.

INSIDE YOU'LL DISCOVER:



Why bone density matters



The Compression Deficit



Simple exercises anyone can perform



Nutrition strategies for stronger bones



A practical 30-day action plan



The 5 Pillars of Compression Theory™

*Whether you're 50, 60, 70 or beyond,
**it's never too late to start building
a stronger future.***

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compressiontheory.com



DR. JAMES A. BRIGGS, ND, DC

Dr. James A. Briggs is a Naturopathic Doctor and Chiropractic Physician, and the Founder & CEO of The Neuropathy Centers.

For more than 25 years, Dr. Briggs has been committed to helping people build stronger bones, improve balance, enhance mobility, and age with confidence.

His mission is to empower individuals to take control of their health naturally so they can stay active, avoid falls, and live independently for life.

“Your body has an incredible ability to adapt, strengthen, and heal—if you give it the right signals.”
— Dr. James A. Briggs

