



HOW TO MOVE WELL

AGE PROOF YOUR BODY



SO YOU CAN LIVE WELL



MOVEMENTX

This book is the property of:

By signing below, I am committing to **doing** my best to use movement and exercise to live a healthy and fulfilled life, in ways that are important to me.

By signing below, I am committing to **using** this book to move my best, so I can live my healthiest and best life.

By signing below, I am **promising** to do my best for my future self.

Signature

Date

Praise for the Ageproof Your Body™ Exercise Class Series

“Our grandchildren say our running skills have improved.”

“This year, I was able to squat to tighten the screws on my Christmas Tree stand. I would have never tried to squat down in the past...Now I do.”

“Everyone can do this!”

“With 6 joint replacements at 82 years old, these classes have really helped.”

“My messed up hip is so much improved by simple exercise.”

“This definitely helped my balance! What a great help.”

“You made me feel young again!”

“I feel stronger and more energetic!”

Praise was received from anonymous surveys after completion of the ageproof your body exercise class series.

This book is dedicated to my grandmother, who taught me what unconditional love looks and feels like.

May the movements and exercises in this book help mothers and grandmothers all over the world love their family as well as she loved ours.

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Foreword

Good doctoring helps people see **possibilities for health** that they can not yet see. Sometimes that comes through medications or clinical tests, but no matter what the condition, part of the answer comes through the strengthening of our physical bodies.

People who work to keep their muscles strong **maintain their independence**. They drive longer, stay in their own homes longer, make their own choices longer. Fitness profoundly helps to preserve memory, to calm anxiety, to reduce depression, to decrease heart disease and stroke, and to reduce chances of cancer, to strengthen bones, to reduce blood sugar. People know this in their gut. Exercise does the body good. So why in my medical practice did I see so many bewildered looks when recommending movement and strengthening? Many people felt so far removed from exercise that they did not know where to start.

In every decade of life, people at every age had become so far removed from strengthening or vigorous activity that they could not envision themselves as a part of the active world again. They felt out of place at the gym or in an exercise class. Some could exercise but needed to learn how to diversify their activity to support other parts of their bodies.

I had felt the same disconnection to regular movement myself. In my mid 40s, my hip stopped working well. Then after a long car ride, it seized up. I could not stand up straight. Why? I had been sitting too much! For 10 years **I had been out of shape**. Getting back to exercise, my discomfort navigating the gym surprised me. A former college athlete, I never imagined myself a stranger to exercise, but I could no longer perform the most basic fundamentals of movement. If I felt this way after being a former athlete, I knew anyone could feel overwhelmed starting from scratch.

We created **Ageproof Your Body** to teach a sense of **capacity through exercise**. We wanted to show people of every decade and every ability level that we can become physically stronger, no matter our starting point. Seventy of our patients at Northern Virginia Family Practice enrolled in the first classes. We experienced foundations of movement for all body parts. The **joyfulness** and engagement from all participants inspired us! A woman who couldn't get on or off the floor can now get to a mat to do floor

exercises. A man with chronic shoulder pain got better. A woman's foot pain went away when her hips got stronger. There were high-fives and success stories. People gathered afterward to get to know each other, some met for coffee. They asked for more classes. Through building strength, we built community!

We hope this class will be a roadmap to increased physical freedom for all people. Our goal is to help people at every age and at every level of initial capacity to feel a **renewed sense of hope for the future**. I hope that this class can help to renew a sense of possibility in your health. Improvement **IS** possible at every stage.

Warmly,

Natasha Lewry Beauvais, MD MPH
@NBeauvaisMD

Introduction

When my Grandmother was 92 years old, she was hospitalized with pneumonia. Prior to her stay in the hospital, she was relatively healthy and moved well, without the assistance of a cane or walker.

As she rested and recovered in the hospital, she unfortunately lost her strength and mobility. As she began walking again, she was forced to use a walker for safety. Strong willed and stubborn as ever, she absolutely refused-

“I will not use that *thing!*” my Grandmother would tell me.

“Grandma, you know what that means,” I would respond. “You’re going to have to start exercising.”

At 92 years young, my grandmother had *never* exercised a day in her life. After many conversations and explaining my rationale in a variety of ways, she finally committed to start exercising, albeit with one stipulation:

“If you teach me.”

Exercise forged a close bond between my grandmother and me- not only because we started spending more time together, but because of what it enabled her - and by extension us - to do together. She was able to walk in and out of our favorite restaurant so we could go together; she was able to climb the stairs to get in and out of my parent’s house; she was able to stand up tall to give great hugs and kisses, the way only a grandmother can; she was even able to travel across the country to my graduation as I received my Doctor of Physical Therapy degree! Living to be nearly 100 years old, she continued exercising and moving independently until the last day of her life.

Our team at MovementX has published this book with the hopes of creating close and meaningful relationships for others, as it did for my grandmother and me. Whether that means getting on and off the floor easily to play with your children or grandchildren, smoothly and safely squatting to pick something up from the ground, or lifting your baggage overhead to take your

dream vacation, we are confident these exercises will help you live a healthy and fulfilled life.

And perhaps if you start exercising before you are 92 years old, you can do even better than my grandmother did. She became the biggest advocate for exercise after seeing its power and impact- in fact, she even once recruited her cab driver to walk around the rec center track with her! I know that she would want you to start exercising soon, do it frequently, and ensure you can maximize your movement so you can maximize your life- and we do too.

Cheers to the pursuit of moving and live your best- and what it means for you, and those around you.

-Josh and the MovementX family



Josh and his grandmother at the local rec center, when she was 98 years old, after finishing her laps around the indoor track.

Why Movement?

Out of the many important causes one could dedicate their life to improving, we chose movement. Here's why:

Movement is Life. Our team believes that Movement is the most important commodity in our lives. It influences how we engage with the world- it's how we walk and hug, how we carry groceries and reach overhead, how we pick up our children/grandchildren and how we love on them. Movement is even critical to the most fundamental part of life: how we breathe.

Movement is the first thing we do in the morning, rolling out of bed, standing up, and walking to the shower; movement is the last thing we do at night, laying down in bed and finding a comfortable position to go to sleep. It influences every minute of every day- even how we feel, think, act, and portray ourselves.

Movement is Predictive of Health and Longevity. Recent research has also found that movement is predictive of your future. Utilizing movement, we can get a picture of one's overall health and create expectations for life. Simple movements, such as standing on one leg or being able to get down on the floor, are predictive of how long someone will live, correlated with their cognitive abilities, and are illustrative of their likelihood of developing adverse medical problems, such as cardiovascular disease.

Movement is in our Power. The good news is that we are in near total control of our ability to move and how long we will be able to move throughout our lives. With a little guidance, the right exercises, at the right time, for the right person can make a world of a difference in our ability to maintain our best movement and make further improvements. This book is designed to empower you to do exactly that- find the right level for you with high quality exercises and empower you to move your best.

Remember, with just a little effort in the appropriate direction, you can maximize your movement.

And **if you can maximize your movement, you can maximize your life.**

Why Exercise?

“A miracle cure.” “The closest thing to a wonder drug.”¹ “The wonder drug that’s free.”² If exercise was a pill, it would be the most commonly prescribed pill in the world. Everyone would be recommended to take it.

“...much of what we previously thought of as inevitable in aging is in fact preventable.”³

These are just a few of the quotes and statements we have come across in our experience and research on exercise.

Yet, we are still facing an uphill battle. In the not too distant past, most people believed that individuals over 40 years old should not exercise. While that seems antiquated, it is now estimated that only 10% of individuals older than 65 exercise regularly.³

There are good reasons why medical professionals are so adamant about exercise. Here are five of the top benefits:

- Improved brain health, including mood and cognition, and reduction in depression and fatigue^{1,4}
- Prevention of age-related decline of the immune system⁵
- Reduction in all-cause mortality and increased longevity⁶⁻⁷
- Decreased risk of cardiovascular disease and cancer⁸⁻⁹
- Reduced risk for stroke¹⁰

The above list doesn’t even begin to touch on the benefits for your muscles, joints, and function- movement factors that we addressed in the last section.

In fact, muscle mass itself is even a predictor of longevity!¹¹

We could keep going, but you get the picture- exercise is critical for a long, healthy, and fulfilling life, and your ability to move will help you exercise in ways that your body needs most.

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How to Use this Book

The exercises in this book are just as valuable for a 39-year-old as they are a 93-year-old. Collectively, the exercises are designed to help you maximize your life through movement and ensure you are moving well for as long as possible.

We split the exercises into 8 major categories. From upper body to lower body, balance to endurance, each exercise hits upon critical components of our ability to move well. Each category also has an evidence-based introduction, citing rationale and research about why the exercises we have chosen are important and effective.

Within each of the 8 categories, we specifically selected exercises that are well supported by research and expert opinion as highly beneficial. There are some overlap within the exercise categories, but after all- the body is connected (head bone is connected to neck bone, am I right?!).

Each exercise is also complete with detailed progressions from beginner to advanced, with tons of tips on how to make sure you are doing it correctly. You will see that they are split into different levels:

- Level 1 is good for beginners, such as those who are starting an exercise program for the first time (or first time in a long time). This is also a great place to start for those who have had a history of pain or surgery in this particular body area. Level 1 exercises form the foundation to do larger, more challenging movements successfully.
- Level 2 exercises are designed to be at the intermediate level. They are more demanding than Level 1 and start putting the pieces together to ensure you are doing each movement with good quality control as the demand increases.
- Level 3 exercises are the most difficult and typically involve a full controlled movement. Later progressions also begin to add more weight and resistance, though load can be added at any level.

In addition to Level 1, 2, and 3, we also provide tips for slightly increasing the difficulty or decreasing the difficulty for certain exercises, so that you can get as close to the right level as possible. There are near infinite variations, so let

us know if you are having trouble figuring out what is best for you and we will help provide guidance!

We recommend you start with the beginner exercises. As they become easier, add load. Once you complete the progression criteria (listed with each exercise), move on to the next level of challenge. There is no competition here, just the continued pursuit of moving and living better, which will be different for everyone.

You also might notice that there are a few major areas we don't cover:

First, we do not present a warm up and cool down for each exercise. If you work with us in the Ageproof Your Body Classes, we will select a warm up for you to prepare you for the day's movements, and a cool down to gradually return to your resting vital signs and minimize soreness. If you are working individually, we encourage you to do light activity relevant to the areas you are about to work on or just finished working on.

Second, you might notice that most of the exercises we chose involve strengthening rather than stretching or endurance training. That is because research has shown if you strengthen through your full range of motion, it is just as effective as stretching, plus you get the added strengthening benefit!¹ Strengthening is also the best protector against future injury, even much more so than stretching.² Endurance work is also very important, but resistance training has cardiovascular benefits as well. We encourage you to supplement this book with aerobic exercise as well to maximize your gains.³

Last, we don't provide prescription information. In other words, we don't say 'do 3 sets of 10 repetitions' or 'hold this position for 30 seconds.' The reality is that we want you to feel challenged (see the 'what should I feel during my exercise?' section). For some, the challenge will set in at repetition 5, while others it sets in at repetition 15; some may want to immediately bump up to level 2, while others will stay at level 1 for a couple months. As long as you are challenging yourself, you are putting yourself on a trajectory to improve. In the Ageproof Your Body Classes, we take 3 exercises and do a 9-minute circuit. Each of the 3 exercises are performed for 60 seconds, then it is repeated 3x, giving us 9 minutes total. Feel free to use that format or create your own!

As you dive into the book, find your 'level' of each exercise and stick to it until you are ready to progress. That might be the beginner exercise in some areas and the advanced exercise in others; the key is to challenge yourself appropriately and in line with your goals.

We also recommend you pick *a set* of exercises from the book to complete on a daily basis- no need to do the whole book every single day, though we would be impressed!

Last thing- we designed this as a workbook for a reason. We want you to keep it close, take notes in it, and make it a functional part of your exercise routine. This is not a book that should be kept on your bookshelf; it's one to engage with, write in, and revisit often. We will be working on updating the book frequently with new research, updated exercises, and even more important content, so don't worry about overusing this one- we are happy to get you an updated version when it arrives.

If you engage with this workbook and practice your selected exercises consistently, you will definitely get stronger. With consistent practice comes gains, with gains come better movement. Better movement will help you live your best. Its people living and moving their best, every day, that keeps our team fired up and pushing forward. We truly believe the more people moving better around the world will create a better world.

Cheers to your best movement and best life, which we know is just ahead!

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What we mean by ‘Ageproof Your Body’™

When our team first suggested the term ‘Ageproof Your Body,’ I’ll admit- I didn’t like it. It sounded too ‘sales-y,’ too gimmicky, like some sort of magical elixir to help you live forever.

Yet, over time, the phrase really grew on me. The more I thought about it, connected it to research, and saw the results of the clients and communities we worked with, the more I came to like it.

While we cannot promise the antidote to aging, we can promise you will be setting yourself up to do the activities you love for as long as humanly possible. We can also promise that we are pulling from the top of our knowledge, experience, and the most recent evidence and research to create this content. As you work on these exercises and set your intention on improving your overall movement capacity, we are confident you will see growth in many domains.

As we discussed and cited research for in the ‘Why Exercise’ section, benefits from exercise range in depth and breadth- so greatly that it has been called ‘the wonder drug.’ From reducing pain to improving function, lowering blood sugar to decreasing likelihood of death from heart disease, predicting your longevity to reducing risk of brain disease, to even improving your mood and focus, exercise is the closest prescription we have to truly ageproofing your body.

Ageproofing is also not a promise that you will never need any other medical procedures, interventions, or medications. There are certain circumstances in which medical procedures are absolutely necessary.

That being said, we promise that the exercises in this book will reduce the likelihood of you needing these procedures. In the event that a procedure does become necessary, being in better shape (such as having good flexibility and strength) will help you recover better, quicker, and more fully after the procedure.¹

Perhaps most importantly in our line of work, you will be setting yourself up not only to improve your longevity, but improve your quality adjusted life

expectancy, or in other words the length of time you live with a high quality of life.

Given all of the benefits, it's our hope that movement and exercise can become one of the most commonly prescribed medications in the world.

Sometimes all you need to get started or refresh your routine is a guide or a coach. Consider this book your coach as you get started. If you ever need us, please don't hesitate to reach out to us directly at info@movement-x.com.

We are always here for you, pursuing our mission of helping people move their best, so they can live their best, and we are so happy you are joining us for the journey ahead.

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What should I feel during my exercise?

We want you to challenge yourself with each exercise- that's where gains are made. **On a scale from very easy to very difficult, shoot for a range that is 'somewhat difficult.'** You should be able to complete 8-12 repetitions of that exercise with good, high quality form, and full range of motion. See the chart below for the Rating of Perceived Exertion scale that can guide you throughout the book.

One of the most common questions we receive is some variation of: "where/what should I be feeling this exercise?" Here are 3 quick things to consider:

First, think about *where* you are feeling it. In general, it's appropriate to feel exertion in muscles, but not in joints. For example, if you are squatting, you should feel a strain in the front of your thighs (quadriceps), back of your thighs (hamstrings), and/or buttocks (gluteals). If you start to feel it in your knees, you might be compensating or performing it incorrectly. The other consideration is how wide the area is - if you are feeling it across a whole muscle, that is good, but if you start to feel pinpointed pain, pause and reset.

Second, it's important to think about *what* you are feeling. If you are feeling a sharp/throbbing pain or an ache, it is likely one you do not want to push through. However, it's appropriate to feel broad spread muscle exertion and even burning.

Last, consider how you are responding. If you start feeling some pain and it is gradually reducing as you do the exercise, it's okay to keep going! However, if the pain persists or gets worse, decrease the intensity/level of the exercise you are completing.

After you complete a session of exercise, it's normal to feel soreness and fatigue for about 2-3 days, especially after trying new or challenging movements. If you are *not* sore, that is considered good and normal as well!

If you still feel soreness 3-4 days after completing the exercises, it's a sign that you might have done too much. When that's the case, we recommend doing slightly less intensity or repetitions next time you perform the exercise. As you

gain strength, increase your intensity OR repetitions the next time you complete the exercise. As that becomes easy, try a more advanced exercise!

If you have any questions, please don't hesitate to reach out to us at info@movement-x.com. Our team of trusted Doctors of Physical Therapy will get back to you as soon as possible. We are here to be your support and coach you through any questions you have!

The Rating of Perceived Exertion Scale

On a scale of 6-20, rate how hard the current exercise is that you are performing. We are looking for each exercise to be around a 13-14 as you get to the final repetitions!

6	No Exertion
7	Extremely Light
8	
9	Very Light
10	
11	Light
12	
13	Somewhat Hard
14	
15	Hard
16	
17	Very Hard
18	
19	Extremely Hard
20	Maximal Exertion

Loading

As we covered in the previous section, the exercises you perform should be 'somewhat difficult' as you get to the tenth or twelfth repetition. If it feels too easy, one solution is to add load!

Throughout the book, we provide a variety of examples in how you can add load to increase the difficulty level and maximize your benefits. There are, however, near an infinite number of variations to each exercise. We encourage you to experiment with different types of loading as your comfort level improves. Once you know the principles of load, it will be easy!

There are two ways you think of the benefits of load as they pertain to your exercise progressions in this book: (1) adding load will help you prepare for a progression to the next level exercise, and (2) once reaching level 3, adding load is a great way to continually challenge yourself to reach the 'somewhat difficult' level with each exercise.

Here are a few foundational principles to consider and simple ways to add load to any exercise:

Speed: One easy way to increase the challenge is modifying your speed. Let's take push-ups as an example. Try doing a push up *extremely slow*, with an 8 second count on the way down. It's more difficult than it sounds and is a great way to build strength!

You can also modify an exercise by increasing speed. Take the calf raises, for example, and try doing them rapidly! Make sure to maintain your full range of motion and the quality of the exercise, but the increased speed will create a higher intensity.

Weights/Resistance: Another way you can load nearly any exercise is by adding weights or resistance. Even adding resistance to Level 1 exercises, such as mini squats (one dumbbell in each hand) or bridges (rest a weight on your pelvis and hold it there) is easy and beneficial. Adding weights should also help to prepare for progression to the next degree of difficulty.

Resistance can also be utilized from other equipment, such as exercise bands. Whether it's utilizing more tension on the band or increasing the band level

(i.e. going from a medium resistance to high resistance), it should be simple and easy to challenge yourself more.

Range of Motion: As you increase the range of motion you are doing any exercise, it becomes more difficult as well. For example, when you are doing the 'dead bug exercise' (lying on your back, lifting legs up and alternating tapping each foot on the floor), it's easier to keep the knees bent and tap close to your body. The more you straighten your leg and reach away from your trunk, the harder the exercise becomes! This is why the 'modified dead bug' is level 2, while the 'full dead bug' is level 3!

You can also see this principle applied in the calf raises section. Standing on flat ground and doing a calf raise is not as difficult as standing on the edge of the step. When you are on a step, it enables you to drop your heels below horizontal, thus moving through your full ankle range of motion and making the exercise more difficult.

We also love practicing moving through a full range of motion, as it helps to maintain your mobility! Simply strengthening through an entire range is just as effective as stretching, plus you get the strengthening benefit.

Take Home Points. There are many more ways to potentially load exercises and we hope these tips presented in the book give you a few ways to start challenging yourself more. Load also creates variability challenges with exercises. Your strength gains typically plateau when doing the same exercise for more than 3 months. By adding load, you can create more challenges that lead to optimal strength, functional, and movement gains.

If you ever have any questions about how to appropriately increase the load for a particular exercise or what you should be feeling, please don't hesitate to reach out to our team!

Recommended Equipment



Exercise Mat



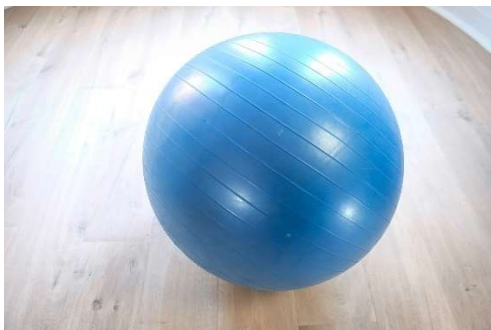
A cane/umbrella/barbell



Resistance Band

Not Pictured:

- A foam roll or towel rolled tightly
- A small area of wall space
- A chair that is easy to move around (most chairs will work!)



Nice to have, but not a need to have: a swiss ball and dumbbells!

Your Goals

Imagine yourself at 90 years old.

Whoa, you still look good! You must have been working with us for a while ;-)
In all seriousness, **what activities do you want to do at that age?** Use the space below to brainstorm your goals. Be creative- we want you living your best life at 95 years young! Remember, age is truly more of a mindset than a number- any healthcare professional can attest to that.

Based upon what you listed above, what type of movements will you need to reach your goal? A couple examples: if you listed 'do my own grocery shopping,' you will need endurance, balance, and leg strength; if you listed 'play with my grandchildren,' you will need to get up and down from the floor.

Finally, let's work our way backwards. What do you need to do in the next 3 months to train yourself for the above movements? List a few goals, like 'get up and down from the floor every day,' 'start riding the stationary bike 2x/week,' or 'increase the amount of leg strengthening I'm doing to 2x/week.' The more specific the better! We are always here to help guide as needed.

We encourage you to repeat this process for any age, whether it's one year away or 45 years from now. The purpose is setting yourself up to exercise with intention, so you can maximize your life through movement!

MOVE well

WALK further

RUN faster

SQUAT deeper

BALANCE better

REACH higher

PLAY more

LIVE well.



Movement Foundations

When we think of ‘movement foundations,’ we think of what it will take to complete most activities we do on a daily basis. In the most simplistic fashion, that can be split up into the upper body, lower body, and core.

Too often, people exercise without addressing all three of those body areas. Think of the individual who *only* runs- that is a predominantly lower body endurance exercise (though upper body training can be very helpful for running)! We might also think of the individual who has very large, well defined arms, but small skinny legs- the guy who ‘skips leg day.’

It’s important to be intentional with exercising the whole body to effectively ageproof, so we provide one foundational exercise for each body area here:

- *Squats* are one of the most functional activities we do on a day-to-day basis. It’s a great way to strengthen muscle groups throughout the lower extremities. The core also gets involved, especially as you add load! This is an important movement to learn with great quality, strength, endurance, and power, as it is so critical to our lives in the short and long term.
- *Push-ups* are one of the most valid and reliable indicators of upper extremity strength. It’s also great for your core, essentially putting you in and asking you to maintain a plank position. Not only that, it’s excellent (especially in combination with squatting) for bone density improvements. Bone responds the best to loading it directly, so this will help to optimize bone density in your upper body. Lastly, it’s a challenging exercise, one sure to help your cardiovascular system as well! We are excited for you to give it a shot!
- *The Abdominal Series* is an excellent foundational core strengthening exercise. It puts you in the same position as a squat and demands stability and endurance from the core. The ability to maintain this position is also the basis of much of the core strengthening throughout this book!

Give these a shot and let us know how it goes! We can’t wait to see the improvements you make and the impact they have on your life.

Squat Level 1: The Mini Squat

Setup: start by facing a countertop or something to place your hands on if you need it for support. Stand with your feet about shoulder width apart.

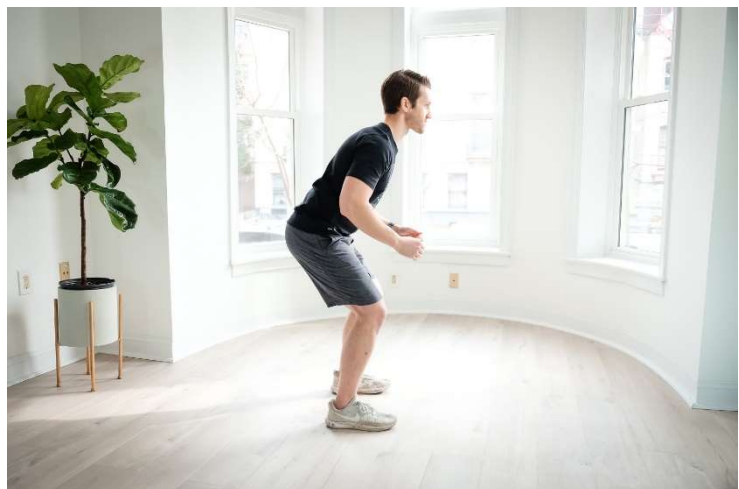
Movement: slowly bend your knees and sit your hips backwards, as if you're going to sit down in a chair. Straighten your legs and stand back up.

What you should feel: the muscles in your legs (quadriceps, gluteals, hamstrings) working.

What you should *not* feel: knee or lower back pain/discomfort.

Pro Tips: to start, keep the squats shallow, and as you get more comfortable work on increasing your depth. This is also a good one to add load, such as dumbbells.

Progression criteria to next level of difficulty: when you can complete 20 repetitions without pain or fatigue, add load or progress to the next level.



Squat Level 2: Sit to Stand

Setup: start by standing just in front of a stable chair of average height, feet about shoulder width apart.

Movement: lean your trunk forward by hinging at the hips to bring your nose over your toes, and slowly sit down into the chair. Make sure you are at the front edge of the chair, lean forward, and stand back up. Keep your knees in line with your feet.

What you should feel: the muscles in your legs (quadriceps, gluteals, hamstrings) working.

What you should *not feel*: knee or lower back pain/discomfort.

Pro Tips: if too difficult, start by using your arms to assist you in standing, and when 10 repetitions feel easy progress to one arm, then sit to stand with your legs only.

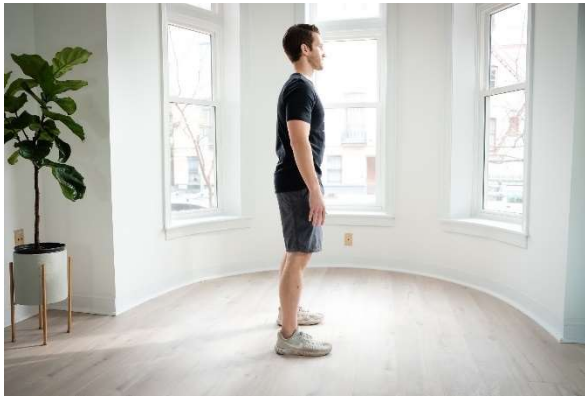
Progression criteria to next level of difficulty: when you can complete 20 repetitions, slowly, without pain or fatigue, add load or progress to the next level.



Squat Level 3: The Air Squat



Front View



Side View

Setup: find a stance with your feet just about shoulder width apart or slightly wider.

Movement: start to sit backwards as if a chair is behind you. Keep your chest high, head up, keeping your knees behind your toes. Have a strong core (pull belly button in) to protect your back, breathe in on the way down, force breath out on the way up! Hands out as a counter-balance if needed.

What you should feel: engagement of your glutes (buttocks), quads (front of thigh), hamstrings (back of thighs), and core!

What you should *not feel*: pain in your lower back, hips, knees, or ankles.

Pro Tips: we love to load this squat! The goblet squat is one of our favorites. Just grab a kettlebell or dumbbell and hold it at your chest! Pretend it's your child or grandchild ;-)

See pictures on the next page!

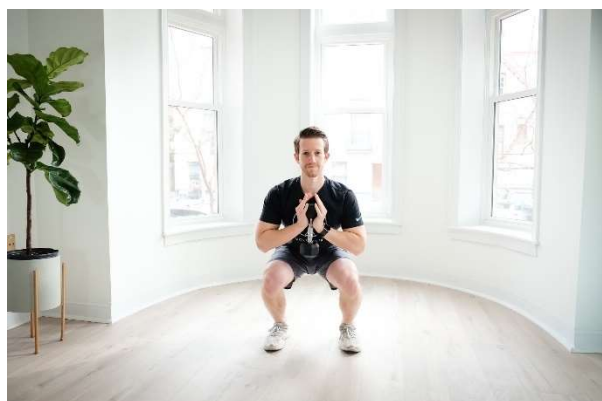
Special Squat Variations!



No dumbbells? No problem! Use a household item, like this purse, and hold it at your chest. This can be done for any of the levels!



Utilize the Supported Squat to work on controlling your full depth! Simply hold on to a stable object, like a countertop, and slowly go all the way down. Minimize the use of your hands to improve!



Dumbbells are an easy way to load the squat. Hold it at your chest (pictured here) to do the goblet squat or hold one in each hand. Again, loading can be done at any level!

“The ability to perform the sit-to-stand [squat] movement is important to maintain physical independence and may be one of the most important functional measures of physical capacity.”¹

“The ability to stand up and sit down in a chair 37 times in 60 seconds—or 35 times for women—makes it extremely likely that a 53-year-old will still be healthy 13 years later.”²



1 - Erick K. McCarthy, Michael A. Horvat, Philip A. Holtsberg, Joseph M. Wisenbaker, *Repeated Chair Stands as a Measure of Lower Limb Strength in Sexagenarian Women*, *The Journals of Gerontology: Series A*, Volume 59, Issue 11, November 2004, Pages 1207–1212, <https://doi.org/10.1093/gerona/59.11.1207>

2 - Springer, Barbara & Marin, Raul & Cyhan, Tamara & Roberts, Holly & Gill, Norman. (2007). Normative Values for the Unipedal Stance Test with Eyes Open and Closed. *Journal of geriatric physical therapy* (2001). 30. 8-15. 10.1519/00139143-200704000-00003.

Push-Ups Level 1: The Wall Push-Up



Setup and Movement: stand about 18-24 inches away from the wall. Lean into the wall and place hands on the wall just outside of your shoulder width. Bend your elbows to allow your body to come towards the wall. When your chest approaches the wall, push back to return to your start position! Breath in when moving towards the wall, big breath out when pushing away from the wall. Keep the whole body straight.

What you should feel: this is great work for both your chest and your shoulders, so you should feel exertion there. Also, this will activate your core, especially at a greater angle / bigger step away from the wall.

What you should *not feel*: elbow, wrist, or back pain.

Pro Tips: the placement of your feet in relation to the wall will increase difficulty as you step away from wall and decrease difficulty as you step closer to wall.

If this is too easy, but you're not quite sure you're ready to progress to Level 2, try an incline push up. To do so, push a chair securely against a wall. Then do a push up on the seat of the chair (pictured to the right)!



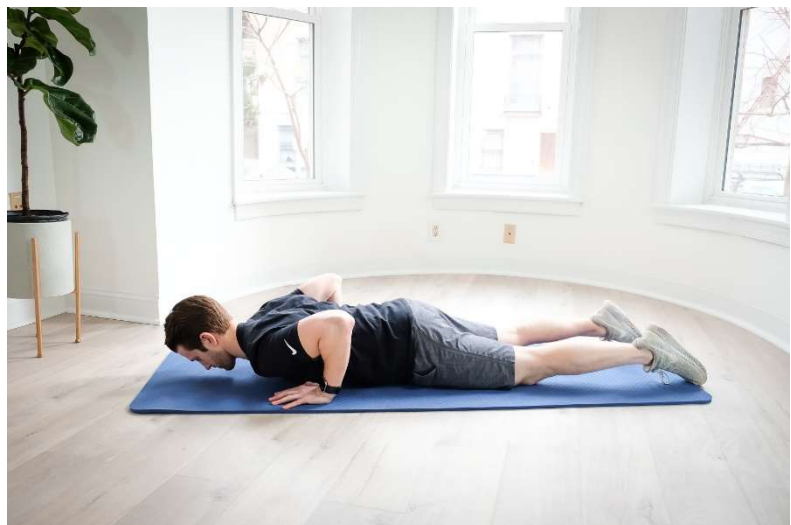
Progression criteria to next level of difficulty: once you can complete 20 wall push-ups with good form and control, progress to level 2!

Push Ups Level 2: The Kneeling Push Up

Setup: start on the ground with your knees slightly behind your hips, and your hands shoulder width apart. While keeping your knees set on the floor, walk your hands out until your hips fully extend and your back is flat. Your hands should still be just outside your shoulders.



Movement: bend your elbows to allow your body to come down to the floor. Then, push away from the floor to return to neutral. Breathe in on the way down, push breath out on the way back up!



What you should feel: your shoulders, chest, and core are engaged through this movement!

What you should *not* feel: pain in your shoulders, back, or knees. Feel free to use a cushion or mat to stay comfortable on your knees!

Pro Tips: the best way to complete this move with good form is to keep your back flat through the entire movement, squeezing your core and gluteals while making sure to breathe!

Progression criteria to next level of difficulty: once you can complete 20 push-ups on your knees with good form, depth, and control, progress to level 3!

Push Ups Level 3: The Full Push Up



Setup: start in a high plank position, on your hands and toes with a straight back, core tucked in (belly button to back of spine), gluteal muscles squeezed.

Movement: allow your elbows to bend as your chest comes down to the floor. Very lightly touch your chest to the floor, then push back up to the start position and repeat.

What you should feel: engaged chest, upper arms, and core. Muscle burning and fatigue are appropriate!

What you should *not* feel: pain in your upper back, lower back, shoulders, elbows, or wrists. Your pelvis should also *not* be the first part of your body to touch the floor!

Pro Tips: if you're having trouble getting your chest to the ground, try to lower yourself down as slow as possible. Shoot for 6-8 reps. This will build your strength to get the full motion! Also, doing full push-ups (level 3) until you lose form and then dropping to your knees (level 2) to finish your set is a great way to build strength and increase reps over time.

As this becomes easy, work on changing your tempo to increase the load!

What medication has been proven to have ALL of the following effects?

- Lower risk of all-cause mortality
- Protective effects for hypertension
- Reduce metabolic syndrome prevalence
- Reduced likelihood of future cardiovascular events

Answer: It's not a pill- It's push-ups.



Yang, Justin & Christophi, Costas & Farioli, Andrea & M. Baur, Dorothee & Moffatt, Steven & W. Zollinger, Terrell & N. Kales, Stefanos. (2019). Association Between Push-up Exercise Capacity and Future Cardiovascular Events Among Active Adult Men. JAMA Network Open. 2. e188341. 10.1001/jamanetworkopen.2018.8341.

Artero, Enrique & Lee, Duck-chul & Lavie, Carl & Vanesa, España-Romero & Sui, Xuemei & S Church, Timothy & N Blair, Steven. (2012). Effects of Muscular Strength on Cardiovascular Risk Factors and Prognosis. Journal of cardiopulmonary rehabilitation and prevention. 32. 10.1097/HCR.0b013e3182642688.

Alternating Extension Level 1: The Abdominal Series



Setup: lying on your back with knees bent, bring both knees up towards your chest. Place your hands on the edge of your thighs with your fingers pointing straight in the air.

Movement: push your hands up and out into your thighs with a force towards the ceiling. Maintain this position for the duration of the exercise, no movement involved. Just make sure to breathe!

What you should feel: work in your abdominal muscles!

What you should *not feel*: lower back pain, pinching or exertion in the front of your hips.

Pro Tips: again, make sure to breathe! Lifting the head is not absolutely necessary, but if you do, try to do a simple chin tuck and only *slightly* lift off the ground (don't push the head too far forward). Note how the head is aligned with the spine in the second picture above.

Difficulty modifier: if this is a bit too difficult, try doing it in sitting (on a chair or swiss ball) or just with one leg at a time!

Progression criteria to next level of difficulty: when you can hold this position with a good amount of force and breathe for a full 60 seconds, you are ready to move on!

Alternating Extension Level 2: 90/90 Marching



Setup: lying on your back with your knees bent, bring both knees into your chest, lifting one leg at a time. Now you should be in the 90/90 position (picture 1) - your hips and knees at 90 degrees - keeping your lower back flat. There should be no space for your hand to fit between your back and the ground.

Movement: keeping your back flat, tap one heel down to the ground keeping your knee bent, and then return it to the starting position. Repeat, alternating your legs.

What you should feel: abdominal muscles working, with a stable (not moving core) and light touches on your heels when they contact the ground!

What you should *not feel*: there should be no pain in your lower back or hips. You should not feel your back arch - it should stay flat on the ground.

Pro Tips: to start to make this harder, you can tap your heels out a little farther away from you, meaning that your knee will have to straighten out a little more than 90 degrees.

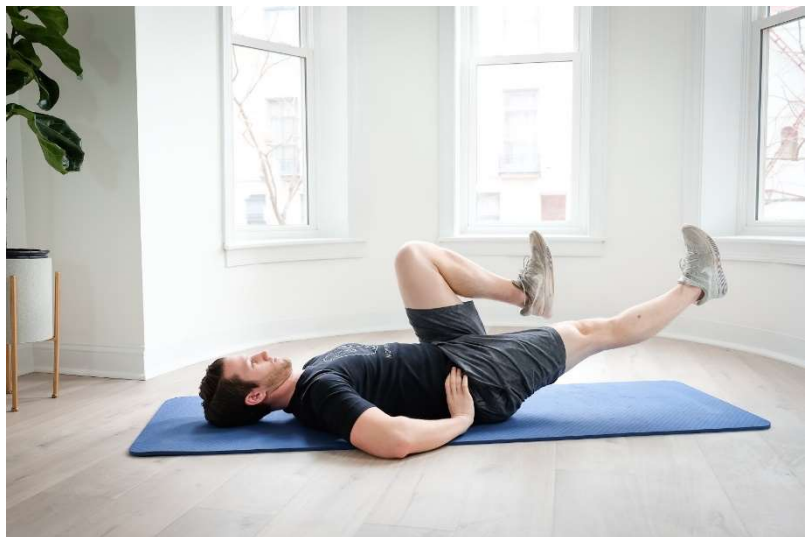
Progression criteria to next level of difficulty: once you are able to maintain excellent control for at least 20 reps, progress to the level 3 exercise.

Alternating Extension Level 3: Full Alternating Extension

Setup: lying on your back with your knees bent, hug both knees into your chest, lifting one leg at a time. Now you should be in the 90/90 position (picture 1) - your hips and knees at 90 degrees - keeping your lower back flat. There should be no space for your hand to fit between your back and the ground.



Movement: keeping your back flat, extend one leg straight out so that your heel lightly taps the ground and then return it to the starting position. Repeat, alternating legs.



What you should feel: abdominal muscles working, with a stable (not moving core).

What you should *not* feel: pain in your lower back, hips, or knees. You should not feel your back arch - it should stay flat on the ground.

Pro Tips: to make this a little easier, you can tap your heel a little closer to you, with your knee slightly bent (regression towards level 2).

Notes

What did you learn in this section?

Which exercises were easy? And which were challenging?

What one big thing will you change moving forward?

Any other thoughts?

Core and Lower Back Strengthening

Believe it or not, the United States spends \$87.6 billion treating low back and neck pain each year- third only behind diabetes and heart disease. That's right- more is spent on low back and neck pain than on conditions like high blood pressure, dental work, and skin problems!¹

Back pain is also *incredibly* common, some research suggesting 85-90% of individuals have it at some point in their life, with 29% of our entire population reporting back pain in the past 3 months!²⁻³

While so much money is spent on treating lower back pain with expensive surgeries, injections, and medications, we have great evidence to show that core training is highly effective. Exercises such as trunk coordination, strengthening, and endurance work have strong evidence behind it.⁴

Our core and lower back strengthening exercises were chosen for their diversity and comprehensive approach:

- *Dead Bugs* are a great way to strengthen your core (heavy abdominals, front of your core) and progress towards building your endurance.
- *Bridges* provide excellent posterior chain (lower back, gluteals, and thighs- back of the core) strength and endurance work.
- *Deadlifts* are an extremely functional way to train appropriate trunk coordination while also gaining lower back and leg strength to pick up objects from the floor. Deadlifts have also been proven to reduce chronic back pain!⁵

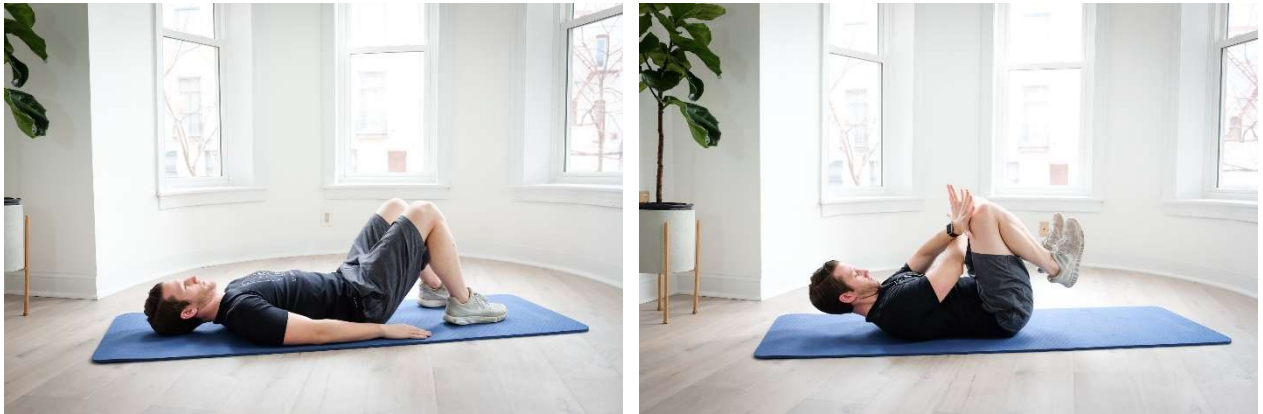
Combined, these three exercises hit the front, side, and back of your core, while training you in the appropriate positions.

Whether you utilize these exercises to reduce lower back pain, prevent it from coming back, or simply ensure you are moving and living your best, we are sure you will benefit from them!

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Dead Bug Level 1: Crossed Abdominal Series



Setup: lying on your back with knees bent. Bring both knees up towards your chest. Cross your hands and place them on the edge of your thighs with your fingers pointing straight in the air.

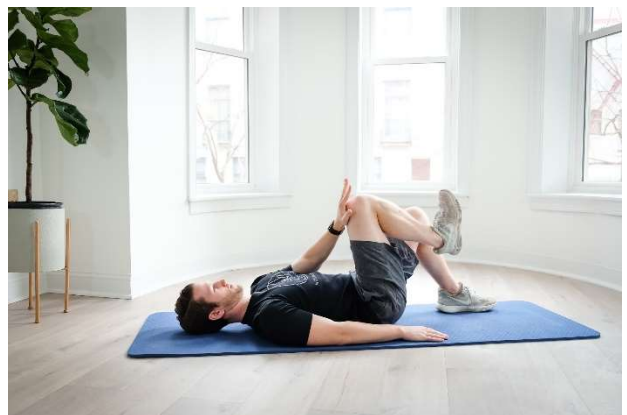
Movement: push your hands up and out into your thighs with a force towards the ceiling. Maintain this position for the duration of the exercise.

What you should feel: work in your abdominal muscles!

What you should *not feel*: lower back pain, pinching or exertion in the front of your hips.

Pro Tips: make sure to breathe! If this is a bit too difficult, try doing it in one arm at a time (can be on your back, as pictured to the right, or in sitting).

Progression criteria to next level of difficulty: when you can hold the full, both leg position with a good amount of force and breathe for a full 60 seconds, you are ready to move on!



Dead Bug Level 2: Modified Dead Bug



Setup: lying on your back, engage your abdominals and flatten your back against the ground. Keeping your back flat, bring your knees over your hips and keep a 90-degree bend in the knees. Reach your arms up towards the ceiling. This is your starting position.

Movement: keeping your knees and arms bent, move one arm and the opposite leg towards the ground. Bring them back to the start position and repeat with the opposite arm and leg.

What you should feel: your abdominals engaging!

What you should *not feel*: lower back pain.

Pro Tips: the further away your arms and legs are from your body, the more the load increases and more difficult it becomes. The exercise is therefore easy to modify based on how far away you reach!

Progression criteria to next level of difficulty: once you can repeat this movement 20 times with both sides, with good quality control, move on to level 3!

Dead Bug Level 3: Full Dead Bug



Setup: lying on your back, engage your abdominals and flatten your back against the ground. Keeping your back flat, bring your knees over your hips and keep a 90-degree bend in the knees. Reach your arms up towards the ceiling. This is your starting position.

Movement: keeping your arms and leg straight, move one arm and the opposite leg away from you. Make sure your abdominals stay engaged! Then return to the start position and repeat.

What you should feel: abdominal muscle engagement. Do your best to reach far away from your body, so long as you can keep the lower back position!

What you should *not feel*: lower back pain or your lower back arching.

Pro Tips: even this feeling too easy? Try moving both arms away, then return to the start position and move both legs at the same time (pictured below)!



Bridges Level 1: The Basic Bridge



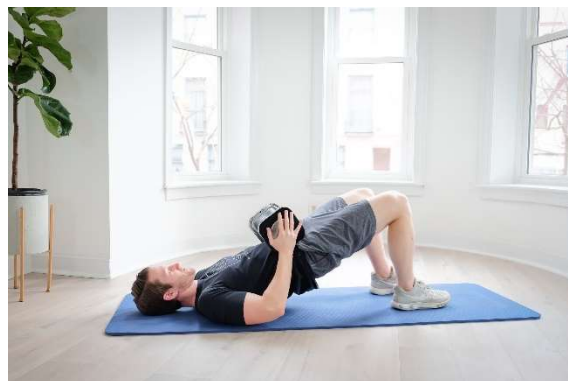
Setup: lying on your back, with your knees bent. Arms can be on the ground (a little easier) or across your chest (a little harder).

Movement: lift your pelvis up from the ground, forming a straight line between your knees and shoulders. Pause briefly, then return to the starting position and repeat.

What you should feel: exertion in the front and back of your thighs and/or in your core.

What you should *not feel*: pain in the lower back or knees.

Pro Tips: if you feel any discomfort in your back, try to flatten your back before you lift your pelvis. If it still is uncomfortable, try pushing your knees away from your body as you lift (feet still stay planted). Also, do an active squeeze of your gluteals for extra engagement! Lastly, to make it a bit harder, add some load to your abdomen (pictured to the right).



Progression criteria to next level of difficulty: once you can complete 30 repetitions with full height at a slow controlled pace, move on to the next level.

Bridges Level 2: The Modified Single Leg Bridge



Setup: lying on your back with your knees bent, pull one knee up towards your chest.

Movement: maintaining the setup position, lift your pelvis up from the ground. Hold this position briefly, then return the start position and repeat.

What you should feel: your core and gluteals on the side that is still on the ground should be working hard to keep your hips up high and level!

What you should *not feel*: your lower back should not be overly involved in this movement. You should also *not feel* your pelvis rotating or dropping on one side as you lift (it should stay horizontal, as if you could rest a plate on your abdomen).

Pro Tips: it's okay to start with a little lift and then work on lifting higher over time, as you get stronger.

Progression criteria to next level of difficulty: once you are able to do 20 repetitions with full height of the lift, move on to the full Single Leg Bridge!

Bridges Level 3: The Single Leg Bridge



Setup: lying on your back with your knees bent, then straighten one knee. Keep the straight leg at the height of the thigh of the bent leg. Hands can be at your sides.

Movement: maintaining the setup position, lift your pelvis up from the ground. Hold this position briefly, then return the start position and repeat.

What you should feel: your core and gluteals on the side that is still on the ground should be working hard to keep your hips up high and level! Try your best to relax your hands and arms.

What you should *not feel*: your lower back should not be overly involved in this movement. You should also *not feel* your pelvis rotating or dropping on one side as you lift (it should stay horizontal, as if you could rest a plate on your abdomen).

Pro Tips: it's okay to start with a little lift and then work on lifting higher over time, as you get stronger.



As this becomes easier, consider adding load, as pictured to the right and slightly above! Don't forget, any exercise can be loaded in a variety of ways (see the 'Loading' section from earlier in the book).

Deadlifts Level 1: Standing Hip Hinging



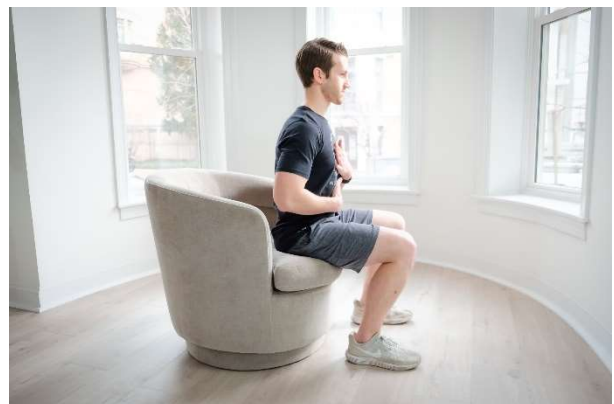
Setup: start in a standing position. You can place one hand on your abdomen and one on your chest to help keep your back straight.

Movement: keeping your back straight, bend your knees slightly, and sit your bottom back. Squeeze your bottom and return to the starting position.

What you should feel: slight tension in the back of your legs (hamstrings) front of your legs (quads) and bottom. You may feel tension in your lower back.

What you should *not feel*: while you might feel tension, you should not feel strain or pain in your lower back during or after this movement.

Pro Tips: when initiating the exercise in standing, pretend you are holding a grocery bag in both hands (if hands are not on abdomen/chest) and you are trying to close a car door with your bottom. Also, if this is a bit hard to control in standing, try it while sitting first (starting position pictured on right)!



Progression criteria to next level of difficulty: pain free performance of movement for at least 25 repetitions before moving on.

Deadlifts Level 2: Partial Romanian Deadlift



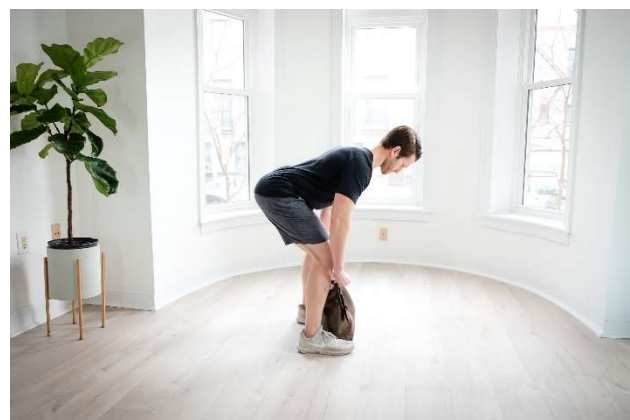
Setup: start in a standing position, with hands at your side. Main difference here compared to the last level is the change of the hand position and expectation of added load. Pictured above is loaded with weights.

Movement: keep your back straight, bend your knees slightly, and sit your bottom back. Bend to approximately 60% depth of what you could. Squeeze your bottom and return to the starting position.

What you should feel: slight tension in the back of your legs (hamstrings) front of your legs (quads) and bottom. You may feel tension in your lower back.

What you should *not feel*: while you might feel tension or muscle exertion, you should not feel strain or pain in your lower back during or after this movement.

Pro Tips: when initiating the exercise in standing, pretend you are holding a grocery bag in both hands and you are trying to close a car door with your bottom. If you don't have weights, you can use a household item like a purse, as pictured to the right!



Progression criteria to next level of difficulty: pain free performance of movement for at least 20 repetitions before moving on.

Deadlifts Level 3: Full Romanian Deadlift



Setup: start in a standing position, with hands at your side. Same starting position as the previous level.

Movement: keep your back straight, bend your knees slightly, and sit your bottom back. Bend far enough down that you could pick something up off of a desk or dresser, to 100% of your depth. Squeeze your bottom, keep your back straight, and return to the starting position.

What you should feel: slight tension in the back of your legs (hamstrings), front of your legs (quads) and bottom, and some tension in your lower back.

What you should *not feel*: while you might feel tension, you should not feel strain or pain in your lower back during or after this movement.

Pro Tips: when initiating the exercise in standing, pretend you are holding a grocery bag in both hands and you are trying to close a car door with your bottom.



Front view also shows knees well aligned over toes

Notes

What did you learn in this section?

Which exercises were easy? And which were challenging?

What one big thing will you change moving forward?

Any other thoughts?

Motion is Lotion.



Walking & Running

Question: How much can someone's walking speed tell you?!

Answer: A whole lot!

Movement is an incredible peak into someone's health and when it comes to walking, that statement rings deeply true. Walking speed can give us information on someone's life expectancy, overall health, balance, emotion, and even their ability to recover from a hospitalization or surgery.¹⁻⁵

Walking speed is so important, researchers have even recommended it should be labeled as the 'sixth vital sign.'⁶ They suggest it is as important, if not more important, than your blood pressure and heart rate.

We chose a few specific exercises to optimize your speed and strength of walking by breaking it down into a few components:

- *The Wall Lunge* helps drive a powerful push off! This will give you greater power for your walking and build up your speed and endurance.
- *The Balance Series* ensures that you have a very stable 'stance phase' (when only one foot is on the ground) and will reduce the likelihood of falls.
- *Forward Lunging* will help with your shock absorption and control your forward momentum. Not to mention, it will also help you build up the strength for activities like stair climbing and even hiking!

In addition to the exercises we included, we encourage you to go for a brisk walk/run frequently. For short periods, challenge yourself by increasing your speed. Even short bouts of fast walking can make meaningful improvements for your walking speed, endurance, and overall health.

Walking is one of the easiest, most cost effective, and mood lifting ways to take care of yourself. The only request we have is that next time you go for a walk, you invite one of us. ;-)

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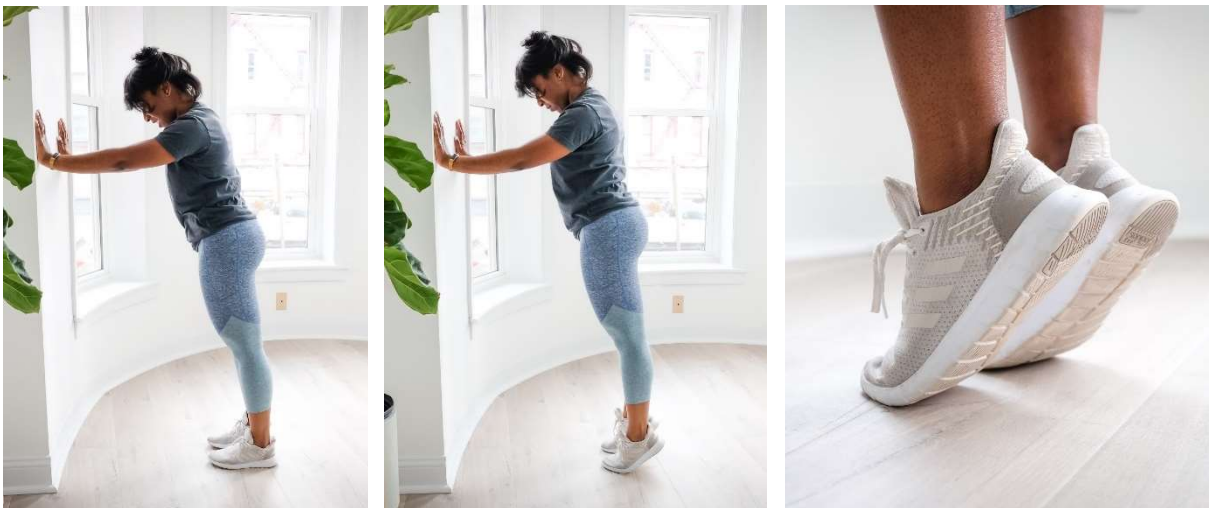
Walking speed at 45 years old is predictive of health later in life.

Move Well. **Walk** Well. **Live** Well.



Roxby, B. (2019, October). Slow walking at 45 'a sign of faster ageing.' *BBC News*. Retrieved from URL: <https://www.bbc.com/news/health-50015982>

Wall Lunge Level 1: Wall Calf Raise



Setup: standing about 18-24 inches away from a wall, place your hands on the wall for support.

Movement: keeping your feet about hip width apart, raise up onto your toes and push your hands into the wall, making sure your heels don't start to separate from each other (to the sides). Once you reach your highest point, lower down slowly until your heels are on the ground again and repeat.

What you should feel: your calves tensing up and working as you go through the movement. Your glutes may even turn on to help, especially if you drive your toes backwards as you raise your heels!

What you should *not feel*: there should be no pain in your knees, ankles, feet or toes

Pro Tips: the more weight you push into the wall (like trying to push the wall over), the harder the exercise will become.

Progression criteria to next level of difficulty: once you are able to comfortably perform 30 repetitions going through the full range of motion, progress to the Full Wall Lunges.

Wall Lunge Level 2: Full Wall Lunge



Setup: start standing approximately 24 inches away from the wall. Lean into the wall and place both hands on it, shoulder width apart.

Movement: lift one knee up towards the wall and simultaneously lift the opposite heel off the ground. Slowly return both legs to the starting position and repeat.

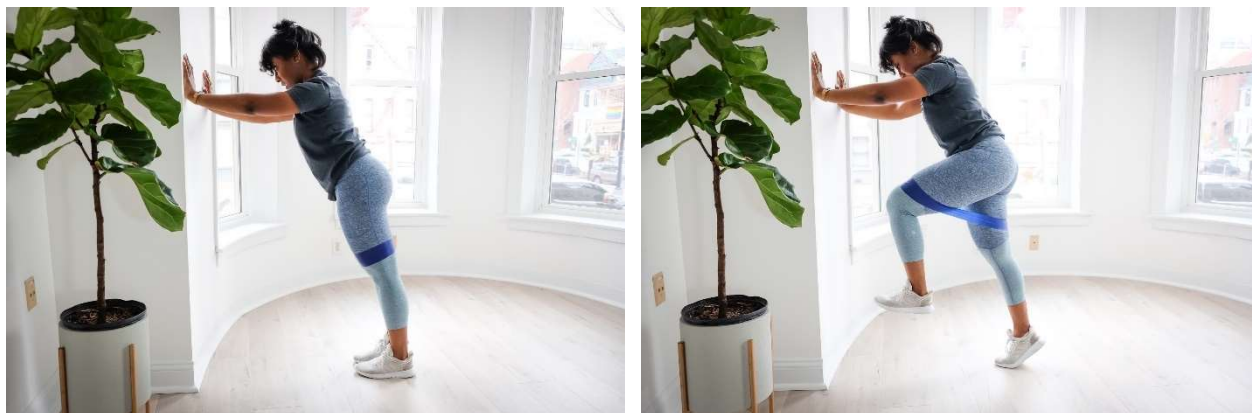
What you should feel: exertion in the calf and potentially in the back of the hip in the leg that stays on the ground. It might also be in the core or shoulders- it's a full body exercise!

What you should *not feel*: pain or discomfort in the joints of your hip, knees, foot, ankle or toes.

Pro Tips: the more weight you put into the wall (think about pushing it over!) or the more you push your standing foot backwards as you lift the heel, the harder the exercise becomes.

Progression criteria to next level of difficulty: Once you can perform 30 repetitions with a good amount of force into the wall, you are ready to move on to the next level.

Wall Lunge Level 3: Resisted Wall Lunge



Setup: the same as the previous exercise, with resistance! Place a band just above both knees, hands on the wall shoulder width apart, feet about 24 inches from the wall.

Movement: lift one knee up towards the wall and simultaneously lift the opposite heel up off the ground. Make sure to keep the standing leg straight! Slowly return both legs to the starting position and repeat.

What you should feel: exertion in the calf and potentially in the hip in the leg that stays on the ground. Also, exertion in the hip/thigh that is lifting up towards the ceiling. It might also be in the core or shoulders!

What you should *not feel*: pain or discomfort in the joints of your hip, knees, foot, ankle or toes.

Pro Tips: the higher the resistance, the more you will have to work. Each leg is working in the opposite direction- stance leg working to stay straight and lifting leg working to lift higher. Also make sure to keep your pelvis facing straight forward. If your pelvis had headlights, they should be pointed directly towards the wall!

Every walking speed increase of 4 inches per second reduced the chance of dying in the next decade by 12 percent.¹

Slow walking can be a problem sign even at age 45, decades before the problems become evident or signs and symptoms appear in older age.²

Walking speed is a consistent predictor of survival length across age, race, and height categories.³

“An improvement in walking speed of at least 0.1 m/s is a useful predictor for well-being, while a decrease in the same amount is linked with poorer health status, more disability, longer hospital stays, and increased medical costs.”⁴

Move Well. Walk Well. Live Well.



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Balance Level 1: Tandem Stance



Setup and Movement: stand with one foot in front of the other like you're on a balance beam, toe of one foot touching the heel of the other foot.

What you should feel: your core muscles and glutes should be firing, along with your inner thighs, ankles, and feet, all trying to stabilize you. Essentially, you will just feel your body trying to maintain its balance!

What you should *not feel*: pain in your feet, ankles, knees or hips.

Pro Tips: if this is a little too difficult and you are not able to maintain it, bring your foot back so it's only halfway in front of the other. (pictured to the right). If this is still too difficult, you can widen your stance.



Progression criteria to next level of difficulty: you should be able to maintain your balance in the full tandem stance for at least 30 seconds, without any compensations like waving your arms around for balance or needing to hold on to anything before progressing to Single Leg Balance.

Balance Level 2: Single Leg Balance



Setup and Movement: standing near a wall or counter for safety in case you need support, stand on one leg with the other leg bent slightly off the ground. Keep your hips level and stay balanced.

What you should feel: your core, glutes, inner thigh, calf, and foot engaging to keep yourself balanced.

What you should *not feel*: pain at your foot, ankle, knee, or hip.

Pro Tips: as this gets easier, try reaching forwards and backwards, simulating a walking/running motion. Another idea to make it more difficult could be turning your head left/right or reaching both of your arms out in front of you and then slowly raise them over your head- you can hold a small weight (3-5 lbs.) if you'd like.

Progression criteria to next level of difficulty: you should be able to stay in this position for at least 30 seconds before adding other movements in to make it more difficult, or standing on an unstable surface like a foam pad or progressing to Level 3.

Balance Level 3: Runner's Lunge



Setup: start standing with your feet shoulder width apart and your arms by your side.

Movement: bring your right leg backwards and right arm forwards and up. Lightly tap your back toe. Front knee will be bent slightly in this position. Then reverse the motion as if you are running and bring the right knee up and the left arm down and back. Repeat this motion with slow control.

What you should feel: work will be felt predominantly in your standing leg, potentially in your thigh, hip, ankle, or even core!

What you should *not* feel: that you are out of control and unable to balance through a full motion.

Pro Tips: start with a smaller range of motion if this is particularly difficult for you and increase the range as you improve. It should simulate walking and running!

Balancing on one leg for more than 20 seconds is indicative of a healthy brain.



Association of postural instability with asymptomatic cerebrovascular damage and cognitive decline: The japan shimanami health promoting program study. Tabara Y., Okada Y., Ohara M., Uetani E., Kido T., Ochi N., Nagai T., (...), Kohara K. (2015) *Stroke*, 46 (1) , pp.16-22

Lunges Level 1: Forward Step



Setup: standing with feet shoulder width apart and arms at side.

Movement: step forward slowly, putting the majority of your weight into the front foot with a small knee bend. Move back to the starting position and repeat.

What you should feel: good, smooth control of your balance in both directions.

What you should *not feel*: the sensation of instability like you are going to fall over or that you couldn't maintain your balance if asked to pause in the middle of the motion.

Pro Tips: as this gets easier, start progressively bending the front knee a bit more to prepare for the next level. There is also good evidence to suggest if you can step/reach further, your balance is better and you are less likely to fall!

Progression criteria to next level of difficulty: once you can complete 15 long steps maintaining balance with good quality control, you are ready to progress to level 2!

Lunges Level 2: Mini Forward Lunge



Setup: standing with feet shoulder width apart and arms at side (same as previous position).

Movement: step forward slowly on to your front foot. The main progression here is bending the front leg deeper, to about 45-60 degrees. Try to put most of your weight into the front foot. Once there, move back to the starting position and repeat.

What you should feel: exertion in the thigh and hip of the front leg!

What you should *not feel*: pain in the knees.

Pro Tips: make sure your knee does not go beyond your toes and that they stay in good alignment relative to the foot (not rolled in/out, see pic below)!

Progression criteria to next level of difficulty: once you can complete 15 partial lunges maintaining balance with good quality control, with most of your weight on the front leg you are ready to progress to level 3!



Lunges Level 3: Full Lunge



Setup: standing with feet shoulder width apart and arms at side (same as previous position).

Movement: step forward slowly, putting the majority of your weight into the front foot. The main progression here is bending the front leg deeper, to about 90 degrees. Try to put most of your weight into the front foot. Once there, move back to the starting position and repeat.

What you should feel: exertion in the thigh and hip of the front leg!

What you should *not* feel: pain in the knees.

Pro Tips: make sure your knee does not go beyond your toes and that it stays in good alignment relative to the foot (not rolled in or out, see front view below)! This is also a great one to add weights as your form, strength, and endurance improves.



Notes

What did you learn in this section?

Which exercises were easy? And which were challenging?

What one big thing will you change moving forward?

Any other thoughts?

Shoulder and Arm Mobility & Strengthening

True or False: if you have a rotator cuff tear, you need to get surgery to repair it.

Answer: False!

Rotator cuff tears are both relatively common and often don't even cause pain. In fact, research has shown that 50% of individuals 80 years and older have rotator cuff tears and are completely asymptomatic!¹⁻²

Simply because an MRI shows rotator cuff damage does not necessarily mean surgery or other medical interventions are necessary.

Whether you have a rotator cuff tear or not, focusing on strength, mobility, and control of the shoulder will help prevent or reduce pain and ensure you will be able to continue carrying, lifting, and reaching with your arms.

Our team has selected three diverse and impactful shoulder exercises to keep you moving and living well:

- *Planks* are great for rotator cuff activation, bone density improvements, and overall shoulder girdle strengthening!
- *Overhead Press* (think pushing!) is a critical but often overlooked motion that helps us do activities like putting heavy dishes in the cabinets and lifting our suitcases overhead for travel.
- *Rowing* (think pulling!) is important for maintaining and improving our posture and doing activities like opening heavy doors.

These three exercises, complemented with the others in this book, will help form the foundation for a strong shoulder, now and in the future.

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Plank Level 1: Chair Push Up



Setup: start sitting in a chair with armrests, hands on the armrests, feet about shoulder width apart.

Movement: push your arms so your elbows straighten and you lift yourself up out of the chair. Keep your shoulders low (don't let them shrug up to your ears)! Slowly return to the start position and repeat.

What you should feel: exertion and work in your shoulders and arms.

What you should *not feel*: pain in the elbows, wrists, or sharp pain in the shoulders.

Pro Tips: try to minimize the amount of weight in your feet and maximize the amount of weight in your arms.

Progression criteria to next level of difficulty: once you can complete 15 repetitions with a nice, slow descent, move on to Level 2.

Plank Level 2: Kneeling Plank



Setup and Movement: start on the ground with your knees slightly behind your hips and your forearms on the mat, shoulder width apart. Elbows should be under the shoulders. Hips should stay square (equal distance from the floor) engage your glutes to keep good form. Engage your core (belly button pulled in) and don't forget to breathe!

What you should feel: planks are a full body exercise, but mostly will train your core! You should feel this primarily in your shoulders, your abdominal muscles, and potentially even your glutes.

What you should *not* feel: your hips sagging towards the floor, or your hips raising up towards the ceiling. You should not feel pain in your shoulders, elbows, wrists, lower back, or knees. Feel free to use a cushion or mat to stay comfortable on your knees!

Pro Tips: if this is too difficult, try pushing a chair up against a wall and doing a plank from there (pictured right with arms straight).

Progression criteria to next level of difficulty: once you can hold a plank on your knees with good form for 45-60 seconds, try progressing to a full plank.



Plank Level 3: The Full Plank



Setup and Movement: start in your kneeling plank position (level 2). Then push up on your toes, so your knees are straight. Be sure to stack your shoulders on top of your elbows. Think about pulling your core in tight while pushing the floor away from you. Your shoulders should push away from your ears, back stays as flat as possible, glutes should be engaged, and hips stay square to the floor. Hold this great position!

What you should feel: work in your shoulders, abdominals, and gluteals.

What you should *not feel*: your hips or chest sagging towards the floor, or your hips raising up towards the ceiling. You should not feel pain in your shoulders, elbows, wrists, or lower back.

Pro Tips: remember, planks are one of the best ways to train your core strength, which can improve all other movements you see in this book! Initially, try training planks by breaking them up into smaller segments of time (15-30 seconds at a time) to improve your strength and endurance.

As this gets easier, try lifting one leg with the opposite arm! Slowly return to the plank position and repeat on the opposite side (pictured below).



Overhead Press Level 1: Bilateral Overhead Press



Setup: start sitting in a chair or on a bench, holding a barbell, cane, dowel, umbrella, or even a golf club!

Movement: push both arms straight up overhead towards the ceiling. Try to reach as high as possible.

What you should feel: shoulders working or stretching.

What you should *not feel*: pinpoint pain or pinching in the shoulders.

Pro Tips: make sure you do *not* shrug your shoulders up to your ears! As this becomes easy, this is a great one to add load.

Progression criteria to next level of difficulty: once you can do 30 repetitions through a full range of motion, progress to level 2!

Overhead Press Level 2: Incline Press



Setup: start by wrapping a resistance behind your back, underneath your shoulder blades and under your armpits, while sitting up tall at the edge of a chair. Hold the band at your sides, between your side and your arms.

Movement: push your arms up and away from your chest at a 45 degree angle (think about finding the point where the wall meets the ceiling and aim there) for a fast single count, and release your arms back to neutral at your chest/side. Keep your core in tight and press your back fully into the chair. Breathe out while pressing out, breathe in while returning to neutral.

What you should feel: this is an upper chest and shoulder exercise. You may also feel this is your triceps (back of the upper arm)!

What you should *not feel*: pain in your shoulders, elbows, wrists, or your back.

Pro Tips: if you hold the band closer to its anchor point, the band will increase its resistance. The further you hold it from its anchor, the looser it will be and the less resistance you will feel!

Progression criteria to next level of difficulty: once you can do 30 repetitions at a medium to heavy resistance, move on to level 3!

Overhead Press Level 3: Loaded Overhead Press



Setup: choose your weight of choice- this could be a dumbbell, a weighted dowel, a liter of water, or a can of soup! Sit in a chair with your feet firmly placed on the ground and leaning into the back of the chair to be fully supported.

Movement: starting with the weights at your shoulders, press the weight overhead and towards the ceiling. Press up with a fast 1 count motion, and release with a slow 2 count motion. Breathe in while pushing, breathe out when returning to neutral.

What you should feel: engagement of your shoulders, upper back, particularly your deltoids (outside of the shoulder).

What you should *not feel*: sharp or achy pain in your shoulders, neck, or back.

Pro Tips: changing the position of the dumbbell can activate your muscles in different ways. Try your first set with your palm facing inwards towards each other, and the second set with your palm facing forwards in front of you.

As you become comfortable with this motion, increase the weight or potentially try it in standing!

Grip strength has a stronger association with all cause and cardiovascular disease mortality than do systolic blood pressure or total physical activity.¹

Among people in their 80's, grip strength predicted the likelihood of making it past 100.²



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2 - Strand, Bjørn & Cooper, Rachel & Bergland, Astrid & Jørgensen, Lone & Schirmer, Henrik & Skirbekk, Vegard & Emaus, Nina. (2016). The association of grip strength from midlife onwards with all-cause and cause-specific mortality over 17 years of follow-up in the Tromsø Study. *Journal of epidemiology and community health*. 70. 10.1136/jech-2015-206776

Rowing Level 1: Standing Rowing



Setup: holding the resistance band with both hands with the band anchored in front of you, such as in a door. The anchor should be about elbow height.

Movement: pull the band straight backwards, squeezing your shoulder blades together. Elbows should stay close to your sides, palms facing each other. Pull back with a fast 1 count motion, and release with a slow 2 count motion. Breathe in while pulling, breathe out when returning to neutral.

What you should feel: in your shoulders and upper back, particularly between the shoulder blades and the back of the shoulder.

What you should *not feel*: pain in your neck, shoulders, elbows, or wrists.

Pro Tips: try to keep your forearms parallel with the ground throughout the motion.

Progression criteria to next level of difficulty: after you can do 30 repetitions with good quality form, move to level 2!

Rowing Level 2: Bent over Row



Setup: holding the resistance band with both hands, stand firmly on the band with one foot back and one foot forward. Find a bent over position by hinging at your hip, keeping your back straight, core tight, and gaze a few feet in front of you.

Movement: pull the resistance band up, keeping your elbow close to your rib cage. Your shoulder blade retracts as your elbow comes up to or above the level of your back. Breathe in while pulling, breathe out when returning to neutral.

What you should feel: work in your mid back, lats, and triceps. You may feel this particularly in between your shoulder blades.

What you should *not feel*: achy, sharp, or pinching pain in your neck, shoulders, mid back, or lower back.

Pro Tips: imagine you are trying to squeeze a tennis ball between your shoulder blades when your elbows come back!

Progression criteria to next level of difficulty: once you can perform 30 repetitions in a good position, go to level 3!

Rowing Level 3: The Functional Row



Setup: holding the resistance band with one hand with the band anchored in front of you, such as in a door. The anchor should be about elbow height. One foot (opposite of the hand you are holding the resistance band) should be forward, the other foot back. Palm should be down and arm extended.

Movement: pull the band straight backwards, squeezing your shoulder blade back and flip your palm, so it's facing the ceiling. Slowly return to start position and repeat. Breathe out on the way back, in on the way forward.

What you should feel: effort in your shoulder and arms! Work can also be in the mid back, around the shoulder blade.

What you should *not feel*: pain in your neck, shoulders, elbows, or wrists.

Pro Tips: try to keep your forearm parallel with the ground as you pull it backwards.

This is the highest level of this exercise, so make sure to increase the load as it becomes easier!

Notes

What did you learn in this section?

Which exercises were easy? And which were challenging?

What one big thing will you change moving forward?

Any other thoughts?

A quick interlude: Exercise Snacks

At this point, you have made it through four sections, complete with 12 potential exercises and three levels of each exercise- that's 48 total exercises!

There's a big myth in the world of exercise: that it needs to be long duration, 45-60 minutes, a bunch of different exercises, in gym clothes, with equipment, etc., to be effective.

A recent research article looked at the impact of "Exercise Snacks," or extremely short bouts of exercise.

One group was asked to do two Exercise Snacks per day. Each Snack "consisted of five exercises, each undertaken for one minute with the aim to complete as many repetitions as possible in that minute." The other group maintained their regular physical activities levels.

Coincidentally, three of the five exercises they included (sit to stand, calf raises, and standing marching) are covered in this book. The other two (sitting knee straightening and standing knee bending)...well, in our humble opinion, you can do better.

At the end of the 28 day study, the Exercise Snack group had improved leg muscle strength and power, increased thigh muscle size, and better functional sit to stand scores!

So there you have it, **even 10 minutes(!) of exercise per day can result in meaningful change.**

As the number of exercises grows in this book, make special note of the ones that are challenging for you. Perhaps you can integrate those into your exercise snacks in the future! Eat up! (Or as Fred likes to say, 'nom nom nom').

Consider the myth *busted*.

The Study: Perkin, Oliver & McGuigan, Polly & Stokes, Keith. (2019). Exercise Snacking to Improve Muscle Function in Healthy Older Adults: A Pilot Study. Journal of Aging Research. 2019. 1-9. 10.1155/2019/7516939.

Posture

Posture is one of the most misunderstood topics as it relates to movement health. Many people know it's important, but don't know why. Others try to detract from its importance, without acknowledging its benefits. And then there's the enduring question: is there a perfect posture?! Let me layout what we do indeed know...

Simple physics tells us that some postures are more efficient than others. For example, when we push our head forward, it's much harder to look left or right than when our cervical spine is in a neutral position. Additionally, when we are slouched forward with rounded shoulders, we are unable to lift our arm as far overhead when compared to sitting in a more neutral position (try these yourself!).

We also know that posture can have an impact on everything from strength to pain, mood to memory.¹⁻² Some research suggests certain postures can lead to improvements in confidence!³

Much has also been made over sitting posture recently, some even going as far as calling sitting 'the new smoking,' predominantly for its correlation to high rates of cardiovascular disease.⁴ Subsequently, there was a push towards standing at work. However, that seemed to be only *slightly* better than sitting.⁵

The truth is that no position is 'perfect' and frequent movement and exercise snacks are likely the best. Think of how humans evolved as a species- as hunters and gatherers, we were always on the move!

Even though movement is most important, posture still has a potential significant and wide ranging impact. At MovementX, we empower our patients and clients to know what's a neutral posture vs a poor posture. Once you know the basics, then we make sure you have the flexibility, strength, endurance, and control to hold that neutral posture when you need to use it.

In this book, we chose three major areas of posture to address:

The thoracic spine (upper back) which can become more rounded with age, often due to a combination of loss of soft tissue and joint mobility.⁶

The pectorals (chest) and front of your shoulder muscles often become tight, as we tend to focus on operating in front of our bodies all day long, rather than working backwards.

Finally, our scapular (shoulder blade) stability begins to be affected, as our shoulder blades are rounded and pushed forward. This puts some of our musculature in an elongated and less effective position.

The good news is that all of this can be changed and maintained! Check out the below three exercises which are of great help:

- *Thoracic Extension*. Whether in sitting or lying on the ground using gravity to our advantage, there are simple techniques to keep our thoracic spine loose and flexible.
- Pectoral and shoulder girdle mobility with the *Wall Angels*. Earlier I mentioned that we don't work backwards enough- this exercise gives us the opportunity to do so while challenging our mobility!
- *Scapular stability*. Using resistance while pulling our shoulder blades backwards, in a variety of ways, will help to build the strength, endurance, and control of important muscles for posture.

Our posture might not always be perfect, but giving these exercises a consistent shot will help ensure we can achieve a neutral posture when needed. Not only that- these exercises get us doing the most effective activity we can to reduce pain, improve function and maintain our quality of life: moving and exercising!

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Knowledge is Power.



Thoracic Mobility Level 1: Passive Chair Extension



Setup: start sitting on a chair, where your feet can be fully on the ground and your upper back is leaned against the back of the chair. Ideally, the crease of the chair begins in your mid upper back. Hands are supporting the neck.

Movement: lean backwards over the chair, trying to extend your upper back over it. Try not to arch your lower back! Hold here for 3-5 seconds, relax, and repeat.

What you should feel: stretch in your upper back or in the shoulders!

What you should *not feel*: lower back pain/discomfort.

Pro Tips: this is meant to be a mobility exercise, so it should feel like you are working through tightness rather than getting a muscle burning or exertion sensation.

Progression criteria to next level of difficulty: once this becomes comfortable, it feels easy, or you are used to the motion, you can move on to the next level, which is similar but more intense. Some individuals who are comfortable on the ground might also skip this level and go to the second level immediately.

Thoracic Mobility Level 2: Foam Roller Extension

Setup: start lying on your back, with a foam roller or towel (rolled tightly) perpendicular across your mid back. Knees are bent and hands are behind the head.

Movement: lean backwards over the foam roller or towel, trying to extend your upper back over it. Try not to arch your lower back! Hold here for 3-5 seconds, relax, move to a different spot in your upper back, and repeat.

What you should feel: stretch in your upper back, chest or in the shoulders!

What you should *not* feel: lower back or head/neck pain or discomfort



Pro Tips: this is meant to be a mobility exercise, so it should feel like you are working through tightness rather than getting a muscle burning or exertion sensation. You can use this anywhere from your mid back to upper back, but we do not recommend it for the lower back.

Progression criteria to next level of difficulty: once you feel that you have good range of motion and flexibility here, it's time to try moving through your range actively- the next level!

Thoracic Mobility Level 3: Seated Active Extension



Setup: sit tall with good posture either in a chair or with your legs crossed on the ground. Sitting with your legs crossed in front of you increases the difficulty of this exercise. Interlock your hands behind your head and bring your elbows as close together as possible.

Movement: without arching your lower back, bend backwards through the upper back as you point your elbows up towards the ceiling as high as possible. Hold briefly, then return to the starting position and repeat.

What you should feel: a stretch and an activation of the muscles in the upper back and shoulder blades. You may also feel a stretch on the underside of your arms.

What you should *not feel*: a stretch or discomfort in the small (lower part) of your back.

Pro Tips: keep your core active as you send your elbows up towards the ceiling so that you bend through the upper back (thoracic spine) instead of the lower back (lumbar spine).

Wall Angels Level 1: Standing Wall Angels

Setup: stand with your upper back leaning up against the wall. It's okay for your feet to be 12 inches or so away from the wall.

Movement: take both arms out in front of you, with elbows bent to 90 deg (pic 1). Elbows should be at about the height of the shoulders. Bring both elbows and forearms backwards to touch the wall (pic 2). Once able to get there, slowly slide the arms up the wall as high as you can, maintaining contact with the wall (pic 3). Hold there 1-2 seconds, then slowly slide your arms back down, return to start position, and repeat.

What you should feel: a big stretch in the shoulders, like you are working through tightness! It will likely be difficult to maintain the arms against the wall.

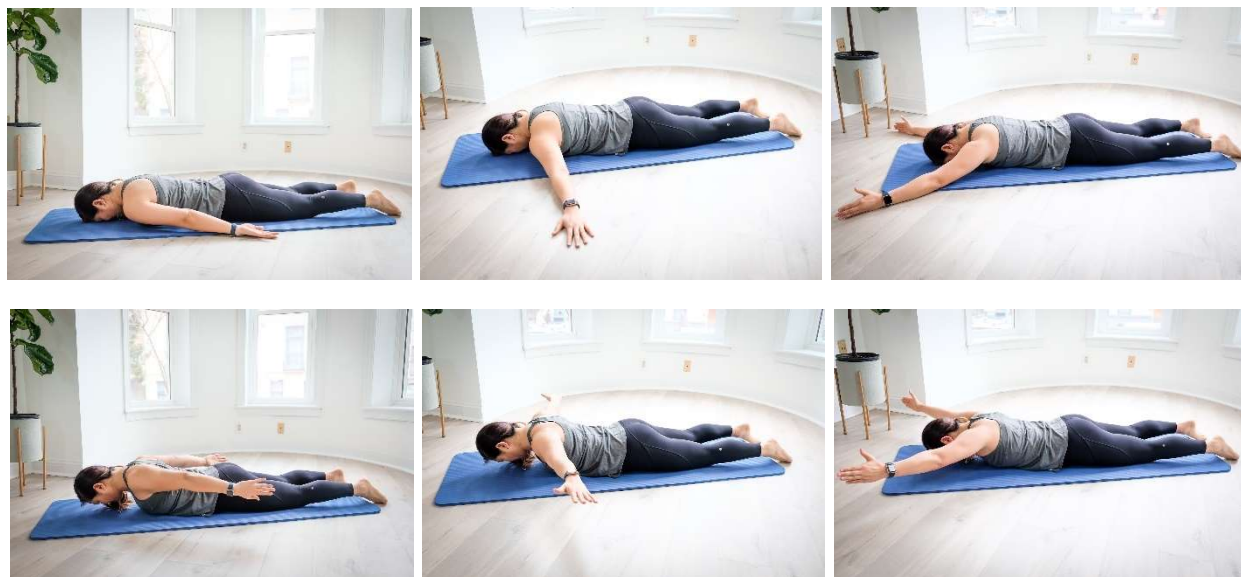
What you should *not feel*: sharp or achy pain in the shoulder/arms, numbness or tingling in the hands.

Pro Tips: if it's too difficult, just start by trying to touch your elbows and forearms to the wall. Then return to the start position and repeat (going from pic 1 to pic 2 and back to pic 1). As you improve, inch your arms up the wall.

Progression criteria to next level of difficulty: to progress to level 3, we recommend the ability to bring both arms to the wall and slide them at least ~75% of the way up for one rep. Feel free to integrate some level 2 even if this one is not perfect!



Wall Angels Level 2: Prone arm lifts I's, T's, & Y's



I Position

T Position

Y Position

Setup: begin lying on your stomach on the ground. Feel free to use a towel roll or pillow to support your forehead. There are three different versions of this exercise: one with arms at your sides (like an I), one with arms at 90 degrees (like a T), and one with arms overhead (like a Y).

Movement: regardless of what position you are in (I, T, **or** Y), lift the arms up off the ground and squeeze the shoulder blades together.

What you should feel: muscles working in the back of your shoulders and between your shoulder blades.

What you should *not feel*: pain radiating down the arm into your elbow, in the neck, or lower back.

Pro Tips: make sure you are not shrugging your shoulders up towards your ears. This is also a great one to do on a swiss ball! If you have one, give it a shot. Lastly, play around with loading this one with even just one or two lbs. Light weights make it much, much more difficult!

Progression criteria to next level of difficulty: completing 15 repetitions of each with good quality form, without much difficulty.

Wall Angels Level 3: Prone Angels

Setup: lie on your stomach and with your forehead gently resting on the ground. Keep your glutes and core engaged but keep them firmly planted on the ground during the entire exercise.

Movement: lift your arms to a 90 degree angle like you are making a touchdown signal. Slowly extend your arms up overhead so they are parallel with the floor. Return to the starting “touchdown” position and repeat.

What you should feel: you should feel a burn in the back of the shoulder and shoulder blades. You may also feel your core and neck muscles working.

What you should *not feel*: you should not feel your low back muscles and glutes compensating for the movement.

Pro Tips: make sure your feet and forehead remain firmly planted on the ground throughout the movement.



Scapular Activation Level 1: Resisted Bilateral External Rotation



Setup: start with your palms up and elbows bent to 90 degrees, like you are holding a large serving plate. Hold on to a theraband with elbows at your side.

Movement: rotate your arms away from each other, keeping your elbows close to your sides and arms bent 90 deg. As you do so, squeeze your shoulder blades together.

What you should feel: muscle burning/exertion in the back of your shoulders and between your shoulder blades.

What you should *not feel*: pain radiating down your arm into your elbow or exertion on the top of your shoulders/neck area.

Pro Tips: make sure you do NOT shrug your shoulders up towards your ears!

Progression criteria to next level of difficulty: once you can do 30 repetitions with a fair amount of resistance, progress to the next level (or increase the resistance band level you are using).

Scapular Activation Level 2: Resisted Bilateral Extension



Setup: start by holding a resistance band with your arms in front of you. The band should be anchored in a secure location slightly below the height of your belly button.

Movement: holding the bands, pull them straight backwards with your palms facing in. Keep your elbows pretty straight. Slowly return and repeat.

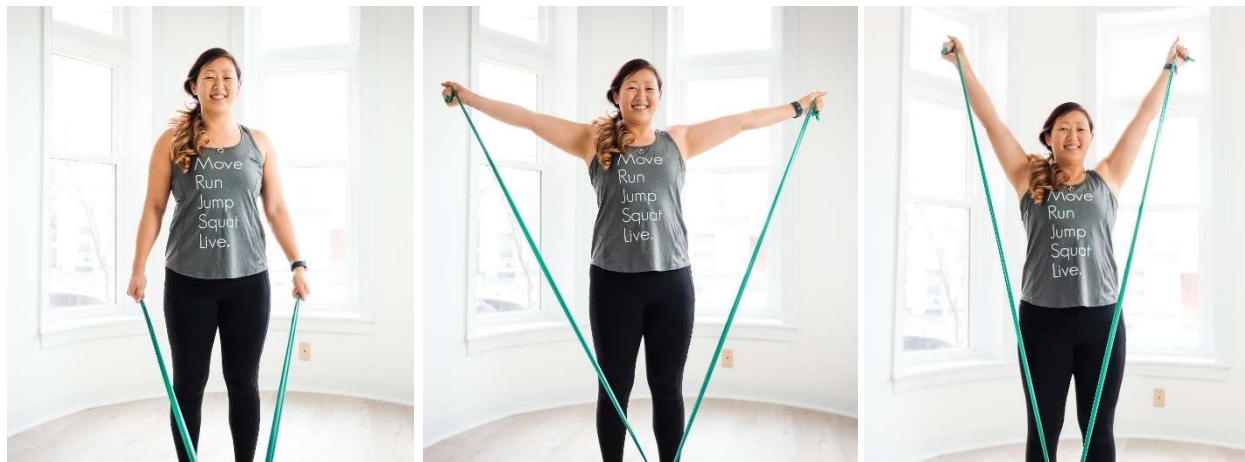
What you should feel: muscles working and burning in the back of your shoulders.

What you should *not* feel: sharp or achy discomfort radiating down the arm or pain in the front of the shoulder.

Pro Tips: no need to push your arms way behind you! About to your torso or slightly behind is sufficient.

Progression criteria to next level of difficulty: able to complete 30 repetitions with a fair amount of resistance.

Scapular Activation Level 3: Resisted Snow Angel



Setup: start by holding a resistance band with your arms in front of you. The band should be anchored a bit lower this time, near your ankles.

Movement: holding the bands, pull them straight out the side and then up overhead, like you are making a snow angel. Slowly return and repeat.

What you should feel: shoulder muscles working hard!

What you should *not feel*: sharp or achy discomfort radiating down the arm or pain in the front of the shoulder; back muscles compensating.

Pro Tips: as you move, pretend like you are trying to keep the arms back in the snow, or in other words try to keep your arms in line with your body. You will have a tendency to let the arms drift forwards relative to your body due to the resistance, but try to stay honest!

Discover your **X**

At **MovementX**, the **X** represents the intersection between your **best movement** and **best life**.



Notes

What did you learn in this section?

Which exercises were easy? And which were challenging?

What one big thing will you change moving forward?

Any other thoughts?

Hip and Knee Strength and Mobility

When discussing hip and knee strength and mobility- there's a common statement we hear: "it's bad for my knees to squat!"

If that's true, we have a question for you: what do you do when you sit down on the toilet? On an airplane seat? On a couch? Pick something up from the floor?

Yes, it's a squat. And if you're doing it every day, it's important to train it so that you maintain the strength, power, and endurance to do it successfully for as long as possible.

The next common statement we hear is: "I heard it's bad to squat below 90."

It turns out that not only is squatting below 90 degrees safe and important for your function, but it also *reduces* pressure on your joints as you dip below 90 degrees and is **recommended** for protection against injury!¹

Now of course, you need the proper strength, mobility, and power to get there, which is why we provide progressions with each exercise.

Knees and hips are also hot topics because they are the most commonly replaced joints. That number of hip and knee replacements performed each year is expected to triple(!) in the next 20 years.²

The good news is that we have great research to show that strengthening the legs can lead to reduced rates of pain and surgery.³ In the circumstance that surgery is necessary, having more flexibility and strength makes it much more likely that you will recover better afterwards. Either way- exercise and movement will help!⁴⁻⁵

We chose three of our favorite hip and knee strengthening exercises as part of the comprehensive lower extremity strengthening program:

- *Squats* are the only exercise that appear twice in this book- and there's a reason for it! They are one of the most important and most functional exercises in our day-to-day life. Big benefits for your quads, hamstrings, gluteals, and trunk here.

- *Reverse lunges* are a great gluteus maximus exercise, which is a muscle that often becomes weak with age. It's also an extremely important muscle for getting up from low chairs and couches.
- *Side Planks* are excellent ways to strengthen the gluteus medius and minimus, as well as excellent for your core. Keep the hips and core strong by keeping them high with this exercise!

We are excited for you to give these a shot. Doing so will help to minimize your pain, while maximizing your movement.

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Squat Level 1: The Mini Squat

Setup: start by facing a countertop or something to place your hands on if you need it for support. Stand with your feet about shoulder width apart.

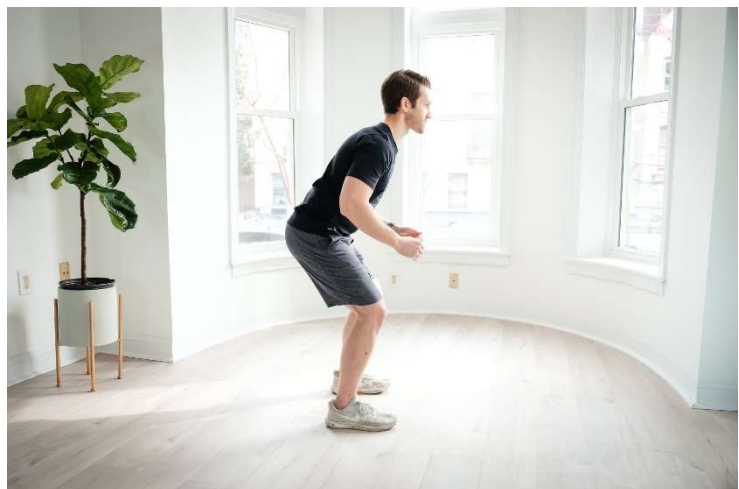
Movement: slowly bend your knees and sit your hips down and back, as if you're going to sit down in a chair. Straighten your legs and stand back up.

What you should feel: the muscles in your legs (quadriceps, gluteals, hamstrings) working.

What you should *not* feel: knee or lower back pain/discomfort.

Pro Tips: to start, keep the squats very shallow, and as you get more comfortable work on increasing your depth. This is also a good one to add load, such as dumbbells.

Progression criteria to next level of difficulty: when you can complete 20 repetitions without pain or fatigue, progress to the next level or add load.



Squat Level 2: Sit to Stand

Setup: start by standing just in front of a stable chair of average height, feet about shoulder width apart.

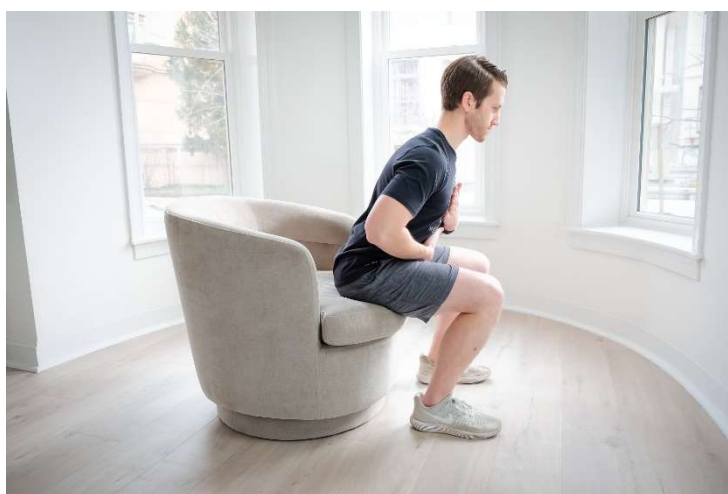
Movement: lean your trunk forward by hinging at the hips to bring your nose over your toes, and slowly sit down into the chair. Make sure you are at the front edge of the chair, lean forward, and stand back up. Keep your knees in line with your feet.

What you should feel: the muscles in your legs (quadriceps, gluteals, hamstrings) working.

What you should *not feel*: knee or lower back pain/discomfort.

Pro Tips: if too difficult, start by using your arms to assist you in standing, and when 10 repetitions feel easy progress to one arm, then sit to stand with your legs only.

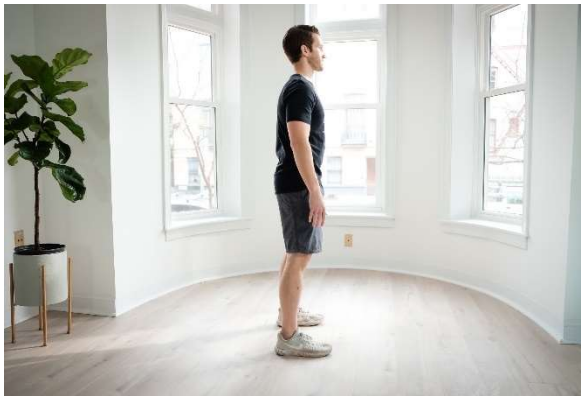
Progression criteria to next level of difficulty: when you can complete 20 repetitions, slowly, without pain or fatigue, progress to the next level.



Squat Level 3: The Air Squat



Front View



Side View

Setup: stand with your feet just about hip distance apart or slightly wider.

Movement: start to sit backwards as if a chair is behind you. Keep your chest high, head up, keeping your knees behind your toes. Have a strong core (pull belly button in) to protect your back, breathe in on the way down, force breath out on the way up! Hands out as a counter-balance if needed.

What you should feel: engagement of your glutes, quads, hamstrings, and core!

What you should *not feel*: pain in your lower back, hips, knees, or ankles.

Pro Tips: we love to load this squat! The goblet squat is one of our favorites. Just grab a kettlebell or dumbbell and hold it at your chest! Pretend it's your child or grandchild ;-). Check it out on the next page.

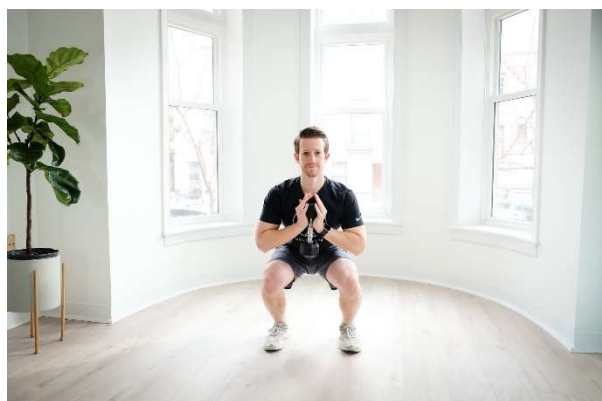
Special Squat Variations!



No dumbbells? No problem! Use a household item, like this purse, and hold it at your chest. This can be done for any of the levels!



Utilize the Supported Squat to work on controlling your full depth! Simply hold on to a stable object, like a countertop, and slowly go all the way down. Minimize the use of your hands to improve!



Dumbbells are an easy way to load the squat. Hold it at your chest (pictured here) to do the goblet squat or hold one in each hand. Again, loading can be done at any level!

Reverse Lunge Level 1: Reverse Mini Lunge



Setup: stand with your feet about shoulder width apart.

Movement: step backwards with one leg to achieve a split stance. With most of the weight on your front leg (~80-90%) and keeping your chest up, drop your back knee downwards in a lunge motion about halfway towards the ground. Your back heel will come off the ground during this motion. Using the front leg, push back up to the start position and repeat.

What you should feel: most of the weight being in your front leg, you should feel great engagement in the front of the thigh (quadriceps), back of the thigh (hamstrings), and hips (gluteals). You might even feel it in your calf!

What you should *not feel*: pain in the knees or hips.

Pro Tips:

- Your front knee ends up about 45-60 degrees bent.
- Your knees do not go past your toes (for the standing leg).
- Your knee should stay in alignment over the foot (it should not be rolling inwards or outwards).
- This is a great one to load with dumbbells!

Progression criteria to next level of difficulty: perform 15 reps with dumbbells, with appropriate amount of bend in the knee, then move up!

Reverse Lunge Level 2: Reverse Backwards Slide



Setup: stand with your feet about shoulder width apart.

Movement: *slide* one leg backwards with nearly no weight in it until the front knee starts to bend. With 95-98% of the weight on your front leg, bend as low as you're able to while maintaining good form. Keeping that weight distribution, return to the starting position and repeat.

What you should feel: most of the weight being in your front leg, you should feel great engagement in the front of the thigh (quadriceps), back of the thigh (hamstrings), and hips (gluteals). You might even feel it in your calf and ankle muscles working to help balance!

What you should *not feel*: pain in the knees, hips, or back.

Pro Tips:

- The more you bend the front knee, the more difficult it becomes.
- Your knee should go past your toes (for the standing leg).
- Your knee should stay in alignment over the foot (it should not be rolling inwards or outwards).

Progression criteria to the next level of difficulty: perform 15 reps, with excellent form and confidence in your control, then either add load or move up to the next level!

Reverse Lunge Level 3: Full Reverse Lunge



Setup: stand with your feet about shoulder width apart.

Movement: step backwards with one leg to achieve a split stance. With most of the weight on your front leg (~80-90%) and keeping your chest up, drop your back knee downwards in a lunge motion nearly all the way to the ground (but don't let the knee touch). Using the front leg, push back up to the start position and repeat.

What you should feel: most of the weight being in your front leg, you should feel great engagement in the front of the thigh (quadriceps), back of the thigh (hamstrings), and hips (gluteals). You might even feel it in your calf!

What you should *not feel*: pain in the knees or hips.

Pro Tips:

- Your front knee ends up about 90 degrees bent.
- Your knees do not go past your toes (for the standing leg).
- Your knee should stay in alignment over the foot (it should not be rolling inwards or outwards).
- This is a great one to load with dumbbells!

Progression criteria to next level of difficulty: while this is the highest level of difficulty, make sure to load it after you get comfortable with the motion!

Side Plank Level 1: Lateral Band Walks



Setup: start by wrapping a mini loop band around your ankle/calf area. Stand with the feet closer together and as if you were about to go down into a squat- chest stay high while hips go back with a slight bend in your knees.

Movement: start walking sideways, stepping way out to the side, sitting lower into the lateral step, with your other foot following to get back to your neutral stance.

What you should feel: your hip abductors (the side of your hips), as well as your glutes!

What you should *not feel*: pain in your lower back, hips, knees, or ankles.

Pro Tips: don't forget to change your lead leg during this banded lateral walk! The left leg leads in one direction, right leg leads the opposite way. Also, don't drag/slide the feet on the ground- that just creates friction!

Progression criteria to next level of difficulty: If you feel strong during this exercise at a walking pace, increase to faster lateral side shuffle! Remember, speed is one way to increase load.

Side Plank Level 2: Kneeling Side Plank



Setup: start by lying on your side, with your forearm underneath your shoulders and your knees bent.

Movement: lift your hips up towards the ceiling, creating a straight line from your knees to your shoulders. Hold this position!

What you should feel: your hip abductors (the side of your hips), as well as the side of your core (obliques). Make sure to give them a good squeeze! You might also feel your shoulder working hard.

What you should *not* feel: pain in your lower back, hips, knees, or shoulder.

Pro Tips: if this is a bit too hard, try simply lying on your side with your shoulder underneath you to start (pictured right), hips are *not* off the ground. Spending time here can help build your shoulder endurance.



Progression criteria to next level of difficulty: if you can hold this position and breathe in a controlled fashion for 60 seconds, progress to the next level!

Side Plank Level 3: The Full Side Plank



Setup: start by lying on your side, with your forearm underneath your shoulders and your knees straight.

Movement: lift your hips up towards the ceiling, creating a straight line from your ankles to your shoulders. Hold this position!

What you should feel: your hip abductors (the side of your hips), as well as the side of your core (obliques). Make sure to give them a good squeeze! You might feel your shoulder working hard too.

What you should *not feel*: pain in your lower back, hips, knees, or shoulder.

Pro Tips: start holding just a few seconds. As it becomes easier, hold for progressively longer until you can reach a full minute!

If even this is too easy, try also lifting your top leg straight up towards the ceiling (pictured right). It's tough, but great hip and core strengthening!



**Let's create a movement
out of movement.**

Move Well. Live Well.



Notes

What did you learn in this section?

Which exercises were easy? And which were challenging?

What one big thing will you change moving forward?

Any other thoughts?

Balance and Dizziness

Falls are all too common- more than one in four adults over 65 years old fall every year.¹ They are also “the leading cause of fatal and non-fatal injuries for older americans.”² The public and policy makers are also beginning to take note about how important it is to prevent falls. Recently, the United States Senate Select Committee on Aging published a report on falls, calling for more attention and efforts around fall prevention.³

There are a number of risk factors for falling- loss of muscle strength and power and poor balance to name a couple.³ Fear of falling also has a significant impact on falls and quality of life.⁴

The reality we face is that balance tends to decline with age.⁵ By simply examining balance, we can gather information about health measures such as your likelihood of falling, risk for cognitive decline, potential risk for stroke, and longevity.⁵⁻⁸

While falls are common and can be harmful, the good news is that there is a lot you can do to prevent them and minimize their impact if they do happen. In a recent study looking at nearly 15,000 individuals, exercise was proven to have the most consistent and widespread fall related benefit.⁹

The exercises we have chosen help to develop strength, power, and balance in all directions, minimizing the risk for and impact of falls:

- *Calf Raises*: ankle strength typically declines with age and low ankle strength can be a predictor of falls.¹⁰ If that's the case, let's improve it! Calf Raises are one of the most direct ways to do so.
- *3-Way Lunges* get you comfortable and confident moving in a variety of directions. We need to control our movement in all directions and have the appropriate postural responses to maintain our balance. Working on multi-directional lunges are a great way to do so.
- *Burpees* not only help train us to get up and down from the floor (which is a big predictor of longevity itself!¹¹), but also are a great way to train power of the lower extremities.

Doing these exercises will help improve your muscle strength, balance, and build your confidence- eliminating risk factors for falls!

One other important note- dizziness can also contribute to loss of balance and potentially falls. While dizziness is another symptom that can gradually appear as we get older, there are a number of contributing factors. Typically, it can either be related to the inner ear, medications, or the neck, upper back, and head.

Working through the exercises in this book will certainly help keep your neck, upper back, and head flexible and strong, thereby reducing the likelihood of developing dizziness.

With a comprehensive gameplan to address balance and dizziness, we are confident you will be moving at your best so you can live at your best- that means doing the activities you love, for longer.

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Calf Raises Level 1: Standing Calf Raises



Setup: start standing with feet about shoulder width apart. Be near something you can hold in case you lose your balance.

Movement: raise your heels, lifting up on to your toes. Slowly return to start position and repeat. Try to make sure the weight moves through your big toes (do not let your ankles roll out to the side).

What you should feel: work in your calves!

What you should *not feel*: discomfort in the bottom of your foot/heel or in the ankle.

Pro Tips: make sure to go *all* the way up and down, meaning push up as high as you possibly can while maintaining good form! This will fully engage the calf muscles.

For variation, try this in sitting and put a weight on top of your thigh (pictured on right)! Great for another muscle of the calf that helps to lock the knee.

Progression criteria to next level of difficulty: when you can do 30 repetitions of these with FULL range of motion (going ALL the way up on your toes!), either hold weight or move on to the next level of difficulty.



Calf Raises Level 2: Edge of Step Calf Raises



Setup: start standing on a step (i.e. the stairs) with feet about shoulder width apart, holding on to something stable for support.

Movement: drop your heels as low as they will go, then raise your heels, lifting up as high as you can on to your toes. Slowly return to start position and repeat.

The major difference between this and the lower level is that you are dropping your heels below horizontal, working through the full range of your ankle (also great for your ankle mobility).

What you should feel: work in your calves!

What you should *not feel*: discomfort in the bottom of your foot/heel or in the ankle.

Pro Tips: make sure to push your weight through the big toe (do not let your ankles roll out to the side).

Progression criteria to next level of difficulty: when you can do 30 repetitions of these with FULL range of motion (going ALL the way up on your toes!), then either add load or move on to the next level of difficulty.

Calf Raises Level 3: Single Leg Calf Raise on Step



Setup: start standing on a step (i.e. the stairs) with feet about shoulder width apart, holding on to something stable for support. Lift one leg up.

Movement: drop your heel below horizontal as low as it will go, then raise your heel up, lifting as high as you can on to your toes. Slowly return to start position and repeat.

The major difference between this and the lower level is that 100% of your weight is now on one leg, making it much more challenging!

What you should feel: work in your calves!

What you should *not feel*: discomfort in the bottom of your foot/heel or in the ankle.

Pro Tips: make sure to push your weight through the big toe (do not let your ankles roll out to the side).

Progression criteria: this is our highest level for calf raises, so make sure to challenge yourself in a variety of ways. You can work on increasing the speed (go fast!) or going extremely sssllloooowwww, particularly on the way down. Don't be afraid to also grab a dumbbell and hold it while you go up and down! Lots of great ways to work the calves and improve your balance and capacity for walking.

**Calf strength is directly correlated
with balance and stability.**

Better calf strength = Better balance.



3-Way Lunge Level 1: 3-Way Tapping



Start



Forward Tap



Side Tap



Backward Tap

Setup and Movement: start standing with your feet about shoulder width apart. From this position, reach **forward** with one foot and *lightly* tap the ground. Return to start position. Then repeat to the **side**. Then repeat **backwards**.

What you should feel: your weight should be in your standing leg, but you should be reaching far enough to challenge your balance. Muscle burning, exertion, and work could be felt anywhere up and down the leg!

What you should *not feel*: pain in your joints (i.e. directly in your knee or hip).

Pro Tips: squeeze the thigh and hip muscles of the leg you are standing on! That will help to maintain your balance throughout.

Progression criteria: once you can do 15 reps in each direction and maintain your balance throughout, move on to the next level.

3-Way Lunge Level 2: 3-Way Mini Lunge

Setup and Movement: start standing with your feet about shoulder width apart. From this position:

- Reach **forward** with one foot, put your weight into it, and do a small knee bend with most of your weight in the **front** foot.
- Reach **to the side** with one foot, put your weight into it, and do a small knee bend with most of your weight in the **side** foot.
- Reach **backward** with one foot, put your weight into it, and do a small knee bend with most of your weight in the **front** foot.

What you should feel: exertion in the thighs and hips of the leg that is taking the weight.

Mistake Alert! The knee should be aligned with the foot, not rolled in or out (see picture #2 for an example of good alignment) or too far forward past the toes.

What you should *not feel*: pain in your knees or that you are very off balance.

Pro Tips:

- Shoot for a 45-60 degree angle in the knee!
- Also, try to actively squeeze your thigh as you are bending the knee. This helps to recruit your quadriceps muscle!

Progression criteria: once you can do 15 reps in each direction with a true 45-60 degree bend of the knee, either add load or progress to the next level.



3-Way Lunge Level 3: 3-Way Full Lunge



Setup and Movement: start standing with your feet about shoulder width apart. From this position:

- Reach **forward** with one foot, put your weight into it. With most of your weight in the **front** foot, bend it to ~90 degrees.
- Reach **to the side** with one foot, put your weight into it. With most of your weight in the **side** foot, bend it to ~90 degrees.
- Reach **backward** with one foot, put your weight into it. With most of your weight in the **front** foot, bend it to ~90 degrees.

What you should feel: exertion in the thighs and hips of the leg that is taking the weight.

What you should *not feel*: pain in your knees or that you are very off balance. **Mistake Alert!** The knee should be aligned with the foot, not rolled in or out (see pic #2 above for a good example) or too far forward.

Pro Tips:

- Bending below 90 degrees is great, so long as you can maintain the form!
- Also, try to actively squeeze your thigh as you are bending the knee. This helps to recruit your quadriceps muscle!

Progression criteria: once you can do 15 reps in each direction, think about adding some load! We love to do so holding one dumbbell in each hand, but you could also add speed variation!

Burpees Level 1: The Incline Burpee

Setup: place the back of a sturdy chair against a wall, such that if you sat in the chair you would have 5-7 feet of open space in front of you. Stand fully upright about 1-2 feet from the front of the chair. Place both hands on the chair.



Movement:

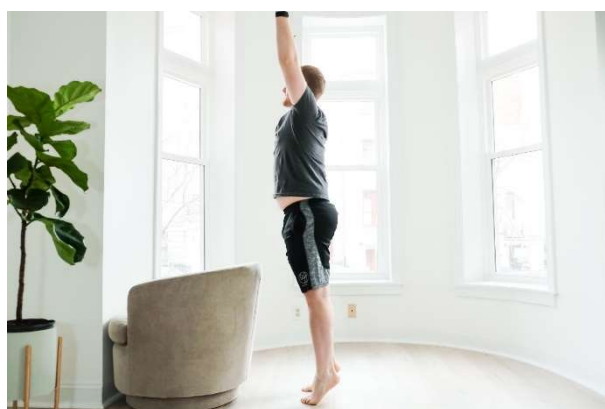
1. Step back into a plank so that your body weight is equally supported on your hands and feet.
2. Step forward to your original foot placement.
3. Stand fully upright.
4. Raise hands into the air.
5. Rise up onto your toes.
6. Repeat!



What you should feel: your back should stay straight despite changing from upright to angled. This is one where you should start to feel out of breath as you increase the repetitions!

What you should *not feel*: your back bend or pain in your joints.

Pro Tips: the larger range of motion you make, the more difficult it becomes!



Progression criteria to next level of difficulty: if you are able to complete 60 seconds in a row or 30 repetitions, move on to level 2!

Burpees Level 2: The Floor Burpee

Setup: find a space about the size of a yoga mat.

Movement:

1. Stand fully upright.
2. Squat down placing hands on the floor near your feet.
3. Keeping your arms straight, step back with both feet into a full plank with your legs and body in a straight line (depending on your ability you may jump back with both feet at the same time or step back with one leg and then the other).
4. Step or jump your feet forward to your original foot placement.
5. Stand up.
6. Raise hands into the air while completing a small jump.
7. REPEAT!

What you should feel: effort from your shoulders, core, and legs! You might also feel your breathing and heart rate increasing.

What you should *not* feel: a big back bend or pain in any of your joints!

Pro Tips: start slow and as you get more comfortable with the series of movements, increase the speed to increase the challenge!

Progression criteria to next level of difficulty: if you are able to complete 25 repetitions smoothly and easily, move on to level 3.



Burpees Level 3: The Full Burpee

Setup: find a space about the size of a yoga mat.

Movement:

1. Stand fully upright.
2. Squat down placing hands on the floor near your feet.
3. Keeping your arms straight, jump back with both feet into a full plank position.
4. Complete a push up
5. Jump your feet forward to your original foot placement.
6. Stand up.
7. Raise hands into the air while completing a jump.
8. REPEAT!

What you should feel: effort from your shoulders, chest, core, and legs!

What you should *not feel*: you should not feel a big back bend or pain in any of your joints!

Pro Tips: this is a great way to get your heart rate and respiratory rate up with a challenging and functional movement! As you become more comfortable, increase your power and jump height!



“The beliefs people possess about their capabilities, rather than their actual physical performance, may be most important in identifying those who are at risk for falling.”

Mindset Matters.



Merrill R. Landers, Sarrie Oscar, Jessica Sasaoka, Kyle Vaughn, Balance Confidence and Fear of Falling Avoidance Behavior Are Most Predictive of Falling in Older Adults: Prospective Analysis, *Physical Therapy*, Volume 96, Issue 4, 1 April 2016, Pages 433–442, <https://doi.org/10.2522/ptj.20150184>

Notes

What did you learn in this section?

Which exercises were easy? And which were challenging?

What one big thing will you change moving forward?

Any other thoughts?

Endurance, Agility, and Speed

The next time you are walking by a school playground, stop for a moment to take a look: what are the children doing?

Chances are they are running and jumping, pushing and pulling, knocking themselves over and getting back up again; chances are they are *playing*.

Over the course of time, maybe whenever recess ends or maybe as we begin to focus on our careers, we tend to stop playing. We sit at a desk more, or at dinner. We walk more, but don't think about running. Maybe we even exercise and lift weights, but we don't think about jumping.

Over the course of time, we stop playing.

Yet, play has such an important role in our lives. Not only do we mentally grow from play, we physically grow as well. Our balance improves when we test our limits of stability as we try to quickly turn directions when playing tag. Our strength improves when we try to lift something heavy (maybe even another kid!) but fail. Our flexibility improves when we reach our glove as far as it can possibly go to catch a ball.

Within the endurance, agility, and speed section, we included a few recommended exercises, but more than anything we hope that you consider how you can integrate play into your life.

Maybe it's running to play 'chase' with your kids or grandkids (speed!); maybe it's playing red light, green light with your friends (agility!); maybe it's spending more time in the pool than you'd expect of yourself (endurance!).

Play can happen in an infinite number of ways. Here are a few of our favorites:

- *Agility Drills*: making sure to challenge our limits of stability and our ability to move quickly can be easy and fun. Try our stepping and ladder drills as a way to get started.
- *Duck Walks*: walking like a duck isn't as easy as it sounds - and the lower you go, the harder it becomes.

- *Running in place*: there's never an excuse to not work on endurance- you can do it anywhere! From running in place to doing jumping jacks, even just a few minutes can be taxing and beneficial.

Give it a shot. Then try it with friends. And family. Spread the movement.

Agility Level 1: Lateral Stepping



Setup: stand in an open area with a physical or imagined line to one side of your body.

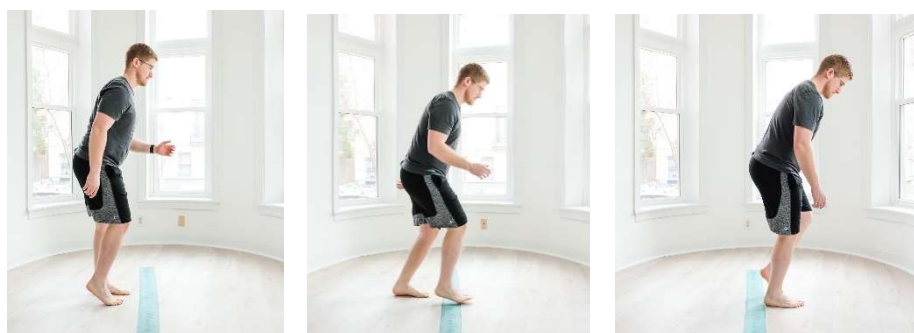
Movement: step over the line with one foot and then the other. Return to the other side and repeat. As this becomes easy, increase the speed. Then try to hop from one foot to the other, back/forth. Put both feet down on each side!

What you should feel: work through your legs and potentially through your core! As you increase the speed, you should also feel your respiratory rate and heart rate increase.

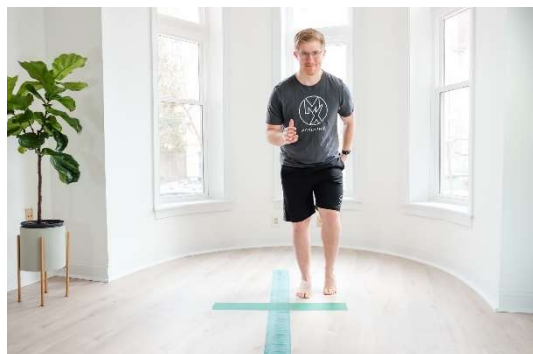
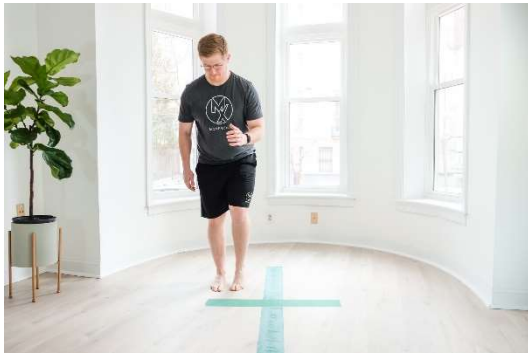
What you should *not feel*: pain in the hips, knees, or ankles, or so much instability that you feel like you might fall over. Safety first!

Pro Tips: try also performing this forward and backwards (pic below)!

Progression criteria to next level of difficulty: once you can increase the speed for 60 seconds, consider trying forward/backward or move on to level 2!



Agility Level 2: Quadrant Stepping



Setup: stand in an open area with a physical or imagined 'plus sign' to one side and in front of your body.

Movement: step forward, then to the side, then backwards, and repeat. As this becomes comfortable, increase the speed and/or height you are lifting your knees!

What you should feel: work through your legs and potentially through your core! As you increase the speed, you should also feel your respiratory rate and heart rate increase.

What you should *not feel*: pain in the hips, knees, or ankles, or so much instability that you feel like you might fall over. Safety first!

Pro Tips: change up the patterns all the time! Variety is good here.

Progression criteria to next level of difficulty: once you can increase the speed for 60 seconds and do a variety of patterns, consider trying forward/backward or move on to level 2!

Agility Level 3: Ladder Drills

Setup: start with an athletic ladder in front of you. If you don't have one, you can use tape, sidewalk chalk, or imagine one! It's the movement that counts.

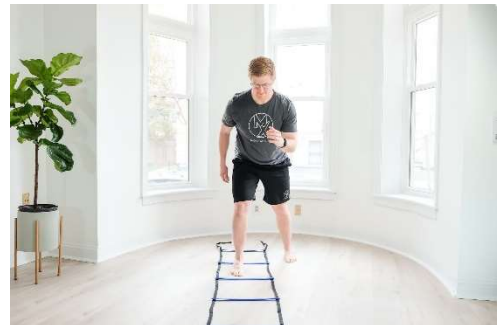
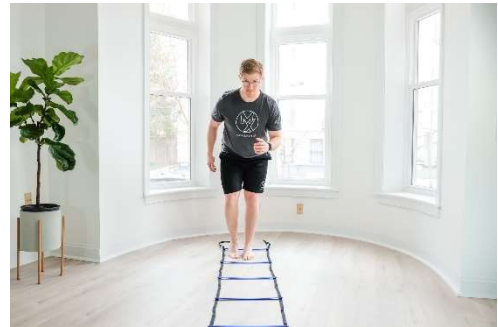
Movement: step forward and to the side, placing your foot in the box (pic 2). Then move the other foot into it (pic 3). Step to the side with both feet (pic 4). Then forward and to the side with the inside foot (pic 5). Keep going!

What you should feel: work to coordinate your steps in the appropriate fashion. Maybe a little work to keep balance as well, but it should be controlled!

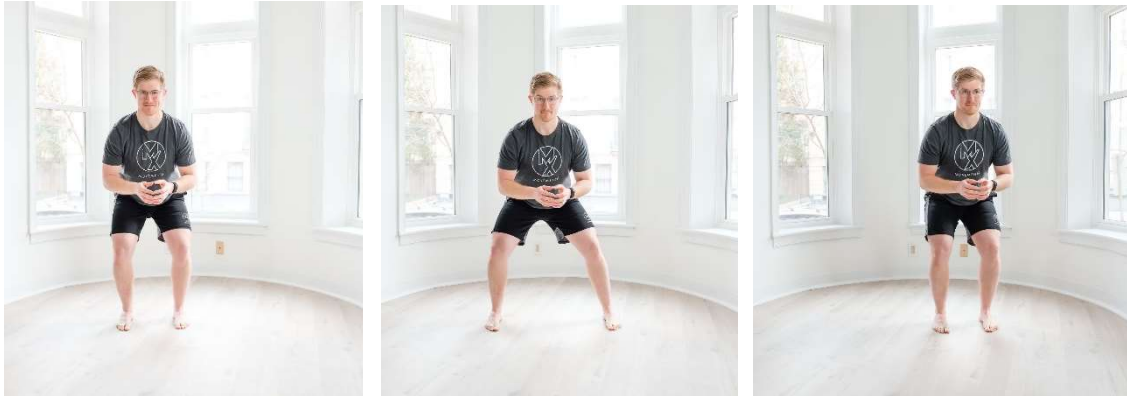
What you should *not feel*: any sensation like you are falling or any pain in your feet/ankles, knees, or hips.

Pro Tips: start slow and as you get more comfortable with the series of movements, increase the speed to increase the challenge!

Make sure to change the patterns - anything goes! Diversity is great here. You can step forward with both feet, one foot at a time, or even just do side steps, as just a few examples!



Duck Walk Level 1: High Duck Walk



Setup: all you need here is an open space and about 10 feet!

Movement: to perform the exercise, squat about 50 percent of your normal squat depth and while maintaining this position, walk 20 steps to the side and then 20 steps back. Your knees should stay bent in the squat position the entire length of the walk.

What you should feel: a burn in both your quads and your gluteals.

What you should *not feel*: you should not feel any pain in your knees, back, or hips!

Pro Tips: also try doing this while walking forward and backwards!

Progression criteria to next level of difficulty: if you can achieve 20 steps forward and 20 steps backwards without excess fatigue or pain, progress to the next level duck walk.

Duck Walk Level 2: Low Duck Walk



Setup: all you need here is an open space and about 10 feet!

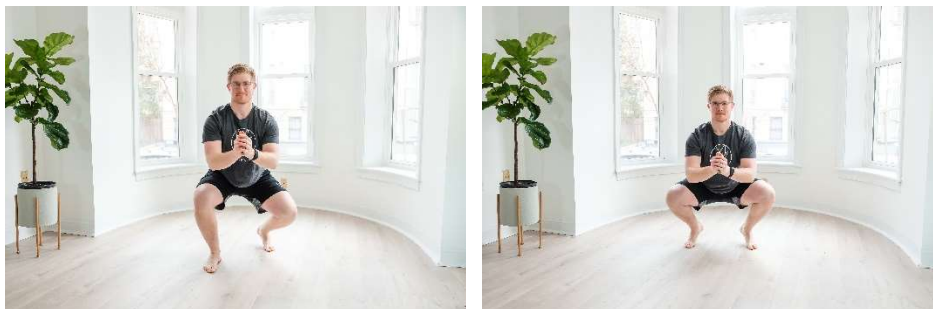
Movement: squat deeply. The depth of the squat is the main difference between this and the lower level. While maintaining this position, walk 20 steps to the side and then 20 steps back. Your knees should stay bent in the squat position the entire length of the walk.

What you should feel: a burn in both your quads and your glutes. You may also feel a burn in your upper back as your posterior chain and posture muscles work to keep your trunk upright.

What you should *not* feel: You should not feel any pain or sharp discomfort in your knees, back, or hips!

Pro Tips: also try doing this while walking forward and backwards! Still too easy? Get way lower, like the pics below!

Progression criteria to next level of difficulty: if you can achieve 20 steps forward and 20 steps backwards without excess fatigue or pain, progress to the next level duck walk.



Duck Walk Level 3: Quick Duck Walk



Setup: all you need here is an open space and about 10 feet!

Movement: to perform the exercise, squat as deep as possible. This time, work on your speed! While maintaining this position, walk 20 steps to the side as quickly as you can and then 20 steps back. Your knees should stay bent in the squat position the entire length of the walk.

What you should feel: a burn in both your quads and your glutes, with your heart rate increasing. You may also feel a burn in your upper back as your posterior chain and posture muscles work to keep your trunk upright. Lastly, your breathing rate might increase as you work harder!

What you should *not feel*: pain or sharp discomfort in your knees, back, or hips!

Pro Tips: also try doing this while walking forward and backwards, reaching forward, increasing the length of time you are in the position, and even loading this exercise!

Endurance Level 1: Standing Marching



Setup: stand firmly with your feet underneath your hips, and your arms bent by your sides.

Movement: lifting your opposite knee and opposite arm, start to march in place. Bring your bent knees high, working your bent arms through large swings forward and backward.

What you should feel: like you are quietly marching in a band (don't stomp and wake up your neighbors!). You should feel your heart rate and breathing rate increase within the first 30-60 seconds! Your arms and legs will start to fatigue after a few minutes.

What you should *not feel*: you should not feel pain in your lower back, knees, ankles, or chest.

Pro Tips: pick up the speed as you go until you get to the next level- fully running in place!

Progression criteria to next level of difficulty: if you have no pain with marching in place and feel comfortable with increasing your heart rate even more, bring it up to the next level!

Endurance Level 2: Running in Place



Front Profile



Side Profile

Setup: stand firmly with your feet underneath your hips, and your arms bent by your sides.

Movement: lift your opposite knee and opposite arm, start to lightly run in place. Stay light on your toes, allowing your knees to drive up, and moving your arms to swing forward and backwards.

What you should feel: your heart rate and breathing rate increase within the first 15-30 seconds! You should feel your quads and calves working, with some assistance from your glutes and hamstrings.

What you should *not feel*: pain in your lower back, knees, or any sensations of dizziness.

Pro Tips: music is a great addition to bring added motivation and focus when increasing cardiovascular load! Pump your favorite song and try to run in place from start to end!

Progression criteria to next level of difficulty: if you are feeling strong, start to bring your knees higher while jogging in place, or try getting outside to jog around the block! Once you can do this for 2 minutes, move on to the next level.

Endurance Level 3: Jumping Jacks



Setup: stand firmly with your feet underneath your hips, and your arms by your sides.

Movement: at the same time, jump your feet wider than your starting stance while your arms come up into a “y” position overhead. Then jump your feet back to your starting stance while bringing your arms back down to your sides.

What you should feel: your heart rate and breathing rate increase within the first 15-30 seconds! This exercise activates all of your large muscle groups, but you may feel this mostly in your calves and your shoulders.

What you should *not feel*: pain in your shoulders, lower back, hips, knees, or ankles.

Pro Tips: keep your core activated (belly button to spine) to protect your back and to keep great control and form through the movement. Adding a clap overhead can increase your range of motion and slightly increase your cardiovascular load. If this is too difficult, try one leg at a time!

Progression criteria: this is our highest level of endurance exercises, but try going for longer or increasing the speed!

Notes

What did you learn in this section?

Which exercises were easy? And which were challenging?

What one big thing will you change moving forward?

Any other thoughts?

“After measuring over 31,000 walking speeds of individuals 60 years and older, only 10% were deemed safe to cross the road.”

Let's Change That.



Webb EA, Bell S, Lacey RE, Abell JG. Crossing the road in time: Inequalities in older people's walking speeds. *Journal of Transport & Health*. 2017 Jun;5:77-83. DOI: 10.1016/j.jth.2017.02.009.

Closing Thoughts

You made it! We knew you would :)

As you worked through this book, we hope you learned a bit more about your body, where you can work to make gains, and how you can use movement and exercise to maximize your life.

The final piece of advice we offer is thus: enjoy the journey.

Movement is never perfect, but then again neither is life. Whenever you succeed, there will always be something a little bit more to work on, a way to get even a little bit better, a process to get even further beyond your goals.

Don't forget to stop and celebrate the small wins- a few more repetitions here, a bit heavier weight there, a more difficult exercise completed for the first time. These are often the little gains that can have a big impact on our daily life.

Take note of how you feel during and after exercise. Appreciate the small wins. Know that if you do take a step back, you will likely take two steps forward soon.

Each exercise is an investment in your future. Yet, as we hope you know by now, it's also a way to elevate your mood and feelings in the present.

Lastly, we want you to know that we are always here for you and are happy to be part of your healthcare team and personal community. Whether that's connecting for a bit of advice over the phone or setting up time for a one-on-one session (physical therapy or personal training), we would be honored to work with you and to play a small role in your larger success.

The truth is that the success of one individual is most often supported by an entire community. We hope this book has done a little to add to that community.

Let's lift each other up, grow together, and continue pursuing our best movement and best lives. With your help and a few other like you, we can get more people moving better, and more people moving better around the world is a better world.

Movement is Life.



Acknowledgements

A special thank you to the team at MovementX. There is no way we could have created such a special, impactful, and meaningful set of exercises and classes without the likes of Fred Gilbert, Scott McAfee, and Keaton Ray, along with our other providers who helped develop and deliver the content seamlessly. It's your collective belief in the power of movement that fuels our fire on a daily basis.

We have great appreciation for Dr. Natasha Beauvais, of Northern Virginia Family Practice (NVFP), who first allowed us the opportunity to teach members of her practice how to exercise. We would also like to thank Lauren Kenney, who helped bring our idea to life for the members of NVFP. The trust from Dr. Beauvais and Lauren helped us to take this class from an idea to conception, and subsequently to a movement.

A deep and wholehearted thank you to Scott McAfee, for elevating himself to the level of a professional photographer, and Stu Pollock, for editing the photos to make them even clearer and crisper, which is helpful for each participant. We also have great gratitude for Ryan Hodgkinson, for allowing us to utilize his beautiful studio, Twist Pilates in Washington, DC, take all of our exercise photographs.

Thanks to Tebine Otubu, Jane Kruszewski, and Fred Gilbert for being our lovely exercise models. We appreciate how patient you were, allowing us to correct small positions, postures and movements, so we could get the perfect picture each time. Thank you to all who contributed to writing the exercises- Meredith Black, Jane Kruszewski, Molly Weinbender, Rebecca Martin, Fred Gilbert, and Keaton Ray. Your support was so tremendously helpful.

Perhaps most of all, our deep gratitude goes to the participants of each ageproof your body class series. It's your engagement, encouragement, and effort that keeps us continuing to pursue growth in the ageproof your body exercise routine. Each iteration is better, more effective, and more evidence informed because you inspire us to do more to help you. Thank you for allowing us to work with you and be a part of your family.

About the Authors

Dr. Josh D'Angelo is the lead author of the Ageproof Your Body Exercise book. He is a Doctor of Physical Therapy (DPT) and a Board Certified Orthopedic Clinical Specialist. Dr. D'Angelo co-founded MovementX and has the pleasure of serving as its CEO. He graduated with his Bachelors in Science from the University of Michigan in 2010 and his DPT from The George Washington University in 2013. During his time in graduate school, Dr. D'Angelo received The George Washington University's highest honor, 'The George Washington Award,' as well as the American Physical Therapy Association's (APTA's) Mary McMillan Scholarship, named after the physical therapy profession's founder. In 2018, he was awarded the George Washington University's Distinguished Young Alumni Award and APTA's Societal Impact Award for his work in global health. Dr. D'Angelo has spoken nationally and internationally on the topics of physical therapy, leadership, entrepreneurship, and global health, and serves as adjunct faculty at The George Washington University. He lives in Arlington, VA and when not working on MovementX, serves on the team for Move Together, which he co-founded, a 501(c)3 non-profit organization whose mission is to increase access to quality rehab medicine around the corner and around the world. Dr. D'Angelo is excited about the potential for improvement for all who begin practicing the ageproof your body exercise routine.



Dr. D'Angelo could not have developed this book without the teamwork, help, and knowledge of Dr's Scott McAfee, Fred Gilbert, and Keaton Ray, the founding team of MovementX.

Dr. Scott McAfee is a Doctor of Physical Therapy (DPT) and a Board Certified Orthopedic Clinical Specialist. He is the mastermind behind the name 'ageproof your body' and many of the early exercises that were selected.

Dr. McAfee believes in a world where anyone—regardless of age—can move healthy and live an active life. Originally from Los Angeles, Scott received his bachelor's degree in physiological science from UCLA and Doctor of Physical Therapy degree from the rival school of USC. In 2016, Scott was named one of Clinicient's Top 100 Physical Therapists and went on to complete his orthopedic residency training at Adventist Health hospital in Los Angeles. Dr. McAfee has held various board, committee, and delegate positions within the American Physical Therapy Association, and has also served as clinical faculty for several schools in Southern California.

After moving to Washington, DC in 2018, Dr. McAfee now splits his time between serving as CMO for MovementX and continuing to treat patients in their homes, gyms, or offices to help them decrease pain, prevent injury, and live a better life. He enjoys speaking at various conferences throughout the country, volunteering for nonprofit organizations, and serving as an advisor to other companies within the healthcare industry. In all of his spare time, Dr. McAfee loves traveling the country, playing various sports, blasting loud music, and laughing with his friends & family.



Dr. Fred Gilbert is a Doctor of Physical Therapy (DPT) and a Board Certified Orthopedic Clinical Specialist (OCS). He is the creative brains behind many of the exercises and themes you see in the ageproof your body exercises. Dr. Gilbert was born and raised in Birmingham, AL. He attended Clemson University and graduated with a degree in Biological Sciences in 2011. Dr. Gilbert attended graduate school at the University of Alabama at Birmingham (UAB) where he received his



Doctorate in Physical Therapy (DPT) in 2015. During his graduate career, Dr. Gilbert was elected as President of the Student Assembly Board of Directors of the American Physical Therapy Association, representing the 25,000+ student physical therapists and physical therapist assistants across the nation. After graduate school, he spent several years working in northern Alabama where he completed a residency program to receive his OCS in 2018. Dr. Gilbert moved to Arlington, VA in February of 2018 to help launch MovementX and has treated across the DMV since that time. He works with clients of all ages and diagnoses and has a special focus in chronic and complex orthopedic and vestibular conditions. He has a passion for movement education and empowering people to see that the best movement is ahead of them no matter their age. Dr. Gilbert loves the ageproof classes, where he likes to say ‘we keep our standards high and our squats low!’

Dr. Keaton Ray is a Doctor of Physical Therapy (DPT) and a Board Certified Orthopedic Clinical Specialist (OCS). Dr. Ray co-founded MovementX in 2016 and now serves as COO. She received her Bachelor's in Athletic Training from University of the Pacific in 2011 and went on to receive her DPT from Duke University in 2014 where she also served as class president. She went through extensive post-graduate training in orthopedic rehabilitation,



spinal diagnostics and treatment, and strength and conditioning training. Dr. Ray has worked with clients across the lifespan from those who have never exercised a day in their lives, to those who are afraid to exercise because of pain, to advanced athletes looking to take their performance to the next level. She has been extensively involved in the American Physical Therapy Association and Oregon Physical Therapy Association serving on numerous legislative and governance committees and received the profession's distinguished Emerging Leader Award. Keaton lives in Portland, OR with her husband and their Corgi, Atlas. When she isn't treating patients and focusing on the growth of MovementX, she loves taking care of her houseplants, enjoying the great Pacific NW, weight training, and spending time with loved ones. She is excited for ageproof classes because she believes it is an opportunity to teach the many benefits of movement health to those who need it the most. When you can move your best, you can live your best!

About MovementX

MovementX's founders united around a common pain point:

It started with *providers* who were frustrated, working in environments where they did not feel like they can *provide* their best quality care.

Simultaneously, they noticed that *patients* were also frustrated with the traditional, impersonalized healthcare system and too often did not feel that they were *receiving* the best quality care.

The founders realized- if providers are frustrated *and* patients are frustrated, *there must be a better way*. Thus, MovementX was born.

MovementX's mission is to help people move their best, so they live their best. Their vision- the ideal future they believe in, is a world healed by movement. They are creating an ecosystem of innovative movement health products to achieve their mission.

The MovementX team of trusted Doctors of Physical Therapy (and more recently, extraordinary Personal Trainers!) are based out of the Washington, DC metropolitan area and Portland, OR. Their providers deliver innovative services designed to help empower your life with healthy movement, at your convenience.

Whether it's through a one-on-one physical therapy session, personal training session, Movement Physical,TM or Ageproof Your Body Class, our team would love to connect with you. MovementX looks to help all clients 'discover their X,' or the intersection between their best movement and best life.

To learn more about MovementX or get in contact with a team member, visit movement-x.com or email info@movement-x.com.