



Riordan
Clinic

Health Hunters

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Riordan Clinic is a not-for-profit 501(c)(3), nutrition-based health facility in Wichita, Kansas co-founded in 1975 by Olive W. Garvey and Hugh D. Riordan. We have integrated lifestyle and nutrition to help you find the underlying causes of your illness. Since our inception in 1975, the mission has been clear and unwavering to "...stimulate an epidemic of health."

Muscle as Medicine

A three-letter word we all dread, O-L-D. The feeling of time growing on our bodies as our youth trails behind us. Aging can have such a negative connotation, but with age comes many life experiences that develop us into the wonderful human beings we are. What does aging mean to you? Is it a feeling? A changed body? A number?



AUTHOR

Dustin Moffit, ND

As we age, we may notice a few more aches and pains and sprout gray hairs, age spots, and wrinkles. We may find that our balance isn't what it once was, and walking to the car over an ice-covered driveway feels like a death-defying feat. But, there is a way to slow the aging process, protect our health, and feel youthful throughout our later years. Have you ever heard the phrase "move it or lose it?" Moving it may be the key to staying "young" and vibrant despite our chronological age. I'll talk more about this concept in a minute, but first I want to revisit the ways we measure aging.



According to an article *The Hallmarks of Aging*¹, there are nine signs that help us measure age². They take into account the biochemical, genetic, and physiological changes that occur as the years pass.

1. EPIGENETIC ALTERATIONS

Epigenetics refers to external modifications to DNA that determine how particular genes are expressed. These alterations do not change the DNA sequence itself. Instead, they affect how our cells read or interpret genes. We are finding that environmental factors play a large role in these alterations. More years under our belt means more exposure to environmental factors, and therefore a greater likelihood of alterations in the epigenome.

2. LOSS OF PROTEOSTASIS

Proteostasis or "protein homeostasis" means that proteins in the body are abundant and in their original state. As we age, proteins may get damaged or misfolded, affecting their ability to do their many jobs and may even make them toxic.

Continued on page 2

THE NINE SIGNS OF AGING



Epigenetic Alterations



Loss of Proteostasis



Deregulated Nutrient Sensing



Mitochondrial Dysfunction



Cellular Senescence



Stem Cell Exhaustion



Altered Intercellular Communication



Genomic Instability



Telomere Shortening

3. DEREGULATED NUTRIENT SENSING

Deregulated nutrient sensing means that body is not able to detect nor use nutrients as it should.

4. MITOCHONDRIAL DYSFUNCTION

Mitochondria are considered the “powerhouses of the cell” and are where most of the cell’s energy gets produced. As we age, mitochondria become less efficient or may even lose the ability to create energy altogether.

5. CELLULAR SENESCENCE

When we are young, our cells replicate rapidly. As we age, certain cells lose the ability to divide. These cells don’t die but instead hang around, take up space, and secrete damaging molecules around them.



6. STEM CELL EXHAUSTION

Stem cells are our ultimate source of new cells. What is unique about stem cells is their ability to replicate when needed and stop when they are not. However, this ability to start or stop the process as required declines with age.

7. ALTERED INTERCELLULAR COMMUNICATION

Not only do cells degrade over time, but their ability to communicate with each other does as well. This means certain tissues and organs are not getting the information they need to function optimally.

8. GENOMIC INSTABILITY

Your DNA is easily damaged, but there are also mechanisms in place for DNA repair. However, the repair isn’t always perfect, and as we age, the damage accumulates. Compromised DNA can lead to accelerated aging and disease.

9. TELOMERE SHORTENING

Telomeres are like the endcaps on chromosomes. They play a vital role in regulating gene expression and the functioning of chromosomes. Telomeres shorten as we age as a result of normal cell division and other damaging processes. Critically short telomeres signal the turning off of cell replication.

With the accumulation of the factors mentioned above, we do indeed become old. The million-dollar question is: How do we age less rapidly and retain some of our youth?

THE ANSWER IS TO LEAD A LIFE THAT BUILDS YOU UP RATHER THAN BREAKS YOU DOWN - A LIFE THAT CONTRIBUTES TO PHYSICAL, MENTAL, AND SPIRITUAL WELL-BEING.

Mental well-being comes from placing attention on things that make you feel good or positive. It also comes from talking about or letting go of the things that do not. Spiritual well-being may come from being involved in your community, developing a meditation practice, or adopting the customs of your chosen religion.

Physical well-being is achieved through a healthy diet and exercise. This doesn’t mean going on a diet, per se, but eating in a way that fuels your body with nutrient-dense foods. Exercise comes in many forms. Do daily chores count? Yes, but are they the only thing we should rely on? No. Ideally, we incorporate many forms of movement. Walking, yoga, climbing stairs, running, jogging, hiking, rock climbing, weightlifting, etc., are all good options.



The American Heart Association and Center for Disease Control recommend getting at least 150 minutes of moderate-intensity aerobic activity, or 75 minutes of

vigorous aerobic activity, or a combination of both spread throughout the week. They also recommend adding moderate- to high-intensity muscle-strengthening activities like resistance training at least two days per week. You can excel even more by being active at least 300 minutes (5 hours) per week. ³

Additionally, we should all spend less time sitting. Excessive sitting may be as detrimental to our health as smoking. The good news is that even light-intensity activity can offset some of the risks of being sedentary. Every movement counts.

Recommendations vs. Reality

We know how much exercise we are *supposed* to get, but how are we really doing? Statistics from The U.S. Department of Health & Human Services⁴ indicate that we could use a little work – and working out.

On average:

- Only one in three children are physically active every day.
- Less than 5% of adults participate in 30 minutes of physical activity each day; only one in three adults receive the recommended amount of physical activity each week.
- Only 35 – 44% of adults 75 years or older are physically active, and 28-34% of adults ages 65-74 are physically active.
- More than 80% of adults do not meet the guidelines for both aerobic and muscle-strengthening activities. More than 80% of adolescents do not do enough aerobic physical activity to meet the guidelines for youth.
- 27% of adults engage in weight training.



Muscle is Medicine

We know that skeletal muscles form connections between our bones and joints, acting as levers and pulleys to create movement and controlled stability. But, our muscles are more than that. Truly, we can think of muscle as medicine⁵ for our body.

Here's why. In addition to skeletal muscle, we also have cardiac muscle making up our heart and smooth muscle that makes up parts of other organs assisting with their functionality. Without

muscle mass our hearts do not pump blood, and our lungs cannot take in or expel air. There are over 600 muscles in our body that comprise 40% of our body weight on average. The benefits of having and maintaining lean muscle mass extend beyond simply making us strong.

Important functions of muscle include:

- Pumping blood (heart)
- Moving blood throughout the body, distributing nutrients to organs, tissues, and all major body parts
- Expanding and contracting organs (i.e., the lungs, to facilitate air exchange)
- Facilitating movement in the digestive tract and through other organs
- Moving and protecting the body



Additional benefits associated with lean muscle mass:

- Increases cognitive function via BDNF (Brain-derived Neurotrophic Factor)
- Helps maintain blood sugar regulation and insulin sensitivity
- Increases metabolism through thermogenesis
- Decreases inflammation
- Increases testosterone (beneficial for both men and women)
- Increases Human Growth Hormone
- Assists in the conversion of thyroid hormone from the inactive to the active form
- Increases mitochondrial synthesis
- Reduces pain (most notably back pain, but also neck pain, joint pain, fibromyalgia pain, etc.)
- Improves immune function
 - Offers a better prognosis if confronted with a cancer diagnosis
 - Fights against conditions such as Cachexia from HIV, AIDs, CHF, and kidney disease
 - Assists in chronic disease prevention ⁶
- Increases bone density, and prevents structural imbalances and injuries
 - Supports & protects organs (lack of muscle tissue, particularly in the abdominal and lower back regions of the torso, allows organs to shift and pull

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- Provides support for our joints, ligaments, and tendons, preventing injury and the need for major surgeries and joint repair
- Improves mood
- Increases adaptive abilities to various stressors as we age
- Increases healing
- Growth factors coordinate to promote cell and fiber growth after injury

How to increase Lean Muscle Mass

Resistance training is an essential and powerful tool for increasing lean muscle mass. You can use your own bodyweight for resistance performing exercises like push-ups, planks, squats, and lunges, to name a few. Or, you can opt for weight training. When using weights, it is important to choose an appropriate weight: not too easy to lift, but not too heavy to move without injury. Using proper form is crucial, so you might even consider working with a trainer or attending classes (pandemic permitting, of course!) in the beginning. Include exercises that work all different parts of your body. Full-body strength training routines allow you to do this during the same session, but some people prefer to focus on one area of the body each day. You can choose to structure your program however

you like, but make sure no muscle goes unturned! Studies also reveal that varying the amount lifted increases muscle strength and decreases the likelihood of falls⁷.

I personally like to focus on functional training that adds weight to movements similar to those I might do on a normal day. This essentially makes me stronger and better at the things I already do and keeps me from getting injured.

The numerous benefits of building lean muscle mass are why I encourage all my patients to establish a movement routine that also includes weight training. Simply put, take the time to regularly pick up heavy things (safely) and place them back down.

If pain is something that is holding you back, then we are here to help. We have numerous therapies to get you back on your feet and back to building muscle as medicine for your body.

VISIT RIORDANCLINIC.ORG TO LEARN MORE

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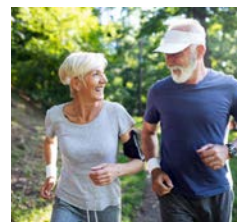
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The goal of healthy aging involves moving from reactively responding to disease when it is expensive and difficult to treat, to **proactively** using strategies that prolong the health span of a person's life. When implemented and maintained, these strategies help decrease illness and increase wellness throughout our final years.

With an understanding of the processes that support healthy aging at the cellular and molecular level, we can design age-appropriate lifestyle and micronutrient protocols that limit the risk of developing age-related disease while promoting lifelong healthy functioning. By improving one's healthspan, we may also increase their lifespan.

Join Dr. Dustin Moffitt, Naturopathic Doctor and aging expert, as he explores three areas of healthy aging: Prevention & Real Health, Maintaining Wellness, and Addressing Root Causes.



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Strength Building Exercises You Can Do at Home

We've learned that exercise is an important component of Real Health and that building muscle has major benefits. But what if your favorite workout spot is closed due to Covid restrictions, or maybe you just aren't a gym person? That doesn't mean you have to forgo strength training. Bodyweight exercises are a great way to build lean muscle, and they can easily be done in the comfort of your own home.

Below are several strength building exercises that can be done anytime, anywhere. You can even add weights like dumbbells to certain moves for an added challenge.

Wall Sit

Wall sits build strength in the quadriceps, glutes, and calves.

With your back against the wall, place your feet shoulder-width and about 2 feet from the wall. Engage your core and slide your back down the wall until your thighs are parallel to the floor. Make sure that your knees are directly over your ankles (not the toes) and your legs form a 90-degree angle. Keep your back flat against the wall and hold the position for 20-60 seconds.

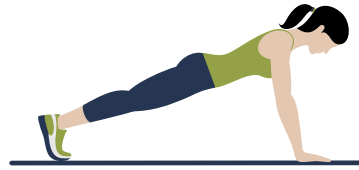


Step-Ups

Step-ups are great for targeting the lower body, strengthening the quadriceps, glutes, and hamstrings. You will need a sturdy stool, chair, or step to complete this exercise. Step-ups can be done with or without added weight.

Standing in front of your stool, step up with the right foot and press through the heel to straighten your leg.

Bring the left foot up to meet the right on top of the stool. Slowly step back down with the left foot and then bring the right foot down to meet the left. Complete several repetitions with one leg leading and then switch lead legs to complete the same number of repetitions on the other side.



Contract the abdominal muscles and slowly bend your elbows, lowering yourself until the elbows are at a 90-degree angle. Exhale to push your body back up into the starting position.

Push-ups

Push-ups are great for building upper body and core strength.

Start on the floor on all fours and position your hands slightly wider than your shoulders. Extend the legs back so you are in a plank position, making

Abdominal Crunches

Crunches target the rectus abdominis or the "six pack" muscle of the abs.

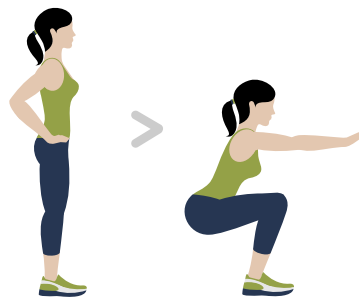
Lying on your back, bend your knees and keep your feet flat on the floor. Put your hands behind your head, across your



chest, or pointed toward the ceiling. Keeping your lower back on the floor, contract the abdominal muscles, and lift your shoulder blades 1-2 inches off the floor. Hold at the top for 1-2 seconds and slowly lower back down to the floor. As you do this exercise, make sure that you are not pulling your head forward with your hands and cranking the neck.

Squats

Squats are excellent exercises for the thighs - hamstrings, quadriceps, and glutes in particular.



Stand with your feet slightly wider than hip-width apart, turning the toes slightly outward. Engage your abdominal muscles and begin by hinging at the hips. Then bend the knees to lower to a squat position until thighs are near parallel or parallel to the floor. Press the feet into the floor to go back to a standing position.

Throughout the exercise, make sure your weight is evenly distributed across both feet, heels remain on the floor, and the torso stays upright.



Tricep dips

Tricep dips are an exercise for strengthening and toning the back of the upper arms. You will need a sturdy chair or bench to perform this exercise.

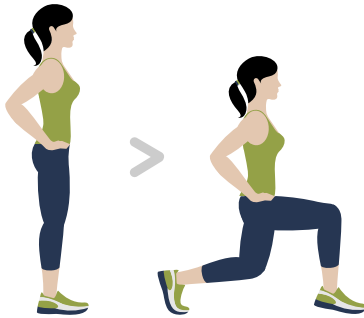
Start by sitting on the edge of your chair, gripping the edge of the chair next to your hips. Extend your legs with feet hip-width apart and heels touching the ground. Press into the hands to lift your body off the chair and move forward just enough so your backside clears the chair. Slowly bend the elbows until they reach between 45-90 degrees, then push yourself back into the starting position.



Plank

Planking is a great way to tone and strengthen the core muscles, and also works the shoulders, arm, and legs.

Start on the floor on all fours. Drop on to your elbows making sure they are directly below your shoulders, with your forearms and palms flat on the floor. Extend the legs back so you are in a plank position, making sure your body is in a straight line and the spine is neutral. Your weight should be evenly distributed on both sides of the body with core, legs, and arms engaged. Avoid any drooping or sagging through the middle. Hold for at least 10 seconds and work up to a 30-60 second hold.



Lunge

Lunges are great for working the major muscles of the hips, glutes, and thighs. This exercise can be performed with weights for an added challenge.

Start with your right foot forward and left foot back so they are about three feet apart. Engage the core and bend the knees to lower your body toward the floor. Make sure the front knee stays directly above the front toes. Let the back knee hover just above the floor below before pushing back up to the starting position. Complete all desired reps on the right side before switching to the left foot in front.



Side plank

Side planking primarily strengthens the oblique abdominal muscles, and also works the shoulders and glutes as they help stabilize the body.

Start by lying on your right side with the legs extended and stacked. Make sure the right elbow is directly under the right shoulder as you lift your hips into a side plank position. Engage the core and maintain a straight line from the bottoms of the feet to the top of the head. Hold for at least ten seconds. Work up to holds of 30-60 seconds. Repeat on the left side.

You can create your own workout by combining several or all of these exercises into a routine. One suggestion is to do each exercise for one minute, and then rest 10 seconds before moving to the next exercise. Once you have completed all of the exercises, rest for two minutes. Repeat the circuit two more times.

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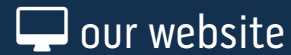
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My Continued Journey to Real Health

How a Long-Distance Runner Survived 2020

Just when you think you've nailed down the concept of Real Health, 2020 comes along.

Like most of us, I feel like 2020 punched me in the gut, kicked me while I was down, drove over me with a semi-truck, and then backed up, making sure to get me with each and every one of its 18 wheels. I started 2020 with such enthusiasm, making a list of 10 goals that included reading the entire bible, running three 50 mile races, and totally giving up alcohol.

Then March hit.

I had a senior in high school doing remote learning. She lost her prom and high school graduation. I wasn't feeling secure about allowing her to work a restaurant drive-thru until I had more knowledge to make an informed decision. My family experienced furloughs and transitioned to working from home. There were many changes at the Riordan clinic to keep our co-learners and staff safe. We were all bombarded with varying opinions about COVID-19 and politics. On top of that, every single race that I anticipated completing - **CANCELLED.**

Do I consider 2020 a waste? Absolutely not! I probably experienced more personal growth last year than in all my previous 45 years. Growth in my faith, growth in my relationships, and a rediscovery of how much grit, strength, and determination lies within me. I can't say that I didn't sulk and mourn the loss of what I thought was going to be an amazing year. Honestly, it didn't take just a month or two, but more like a few to really pull myself together. The goal to not have any alcohol went by the wayside pretty quickly. I'm sure many can relate.

How did I turn it around?

One step at a time. Or as some like to say, fake it until you make it. Here are some of the things I learned along the way:

Get up every morning and concentrate on the small things first. Drink enough water, eat the right things, and make sure to sleep well.

Work with a doctor to begin taking supplements that are essential for a strong immune system.

A few of my favorites are Vitamin C, Vitamin D, Zinc, Vitamin A, Melatonin, and NAC.

Be intentional about mental health.

Read motivational books.



AUTHOR

Krystal Dinkel, RN

Start a gratitude list and watch the things that you are grateful for multiply.

I know it sounds cliché, but I started with only a few, and now I could easily write 50 or more.

Surround yourself with a bubble of people you trust!

I sit next to two of the most amazing humans that I have ever met (Annette and Olivia) daily, I have the most incredible father, and my church and my pastor are invaluable to me. When you reach out, you find out you have more people in your corner than you imagined.

It's okay to talk about what you're feeling.

The best part about talking to someone is that you often find that the person you're talking to is going through a similar circumstance. You then have the opportunity to help them. Helping others is one of the best ways to help yourself and turn your life experiences into something positive. It benefits your happiness, health, and sense of well-being.



Around September, I discovered that one of the races I had intended to complete was a go! I had only one month to train, and that quickly snapped me out of my funk. Finding that race helped me find two more 50-mile races. Each of them were roughly 5 hours away, so I pulled the trigger. I've found that goals are so important, and I was determined to complete mine. It's not what I had envisioned at the beginning of the year and probably a little bit reckless, but my only option was to complete a race in October, November, and December. One race every month was bound to be hard on my joints. I started training, focusing on stretching, doing IV Vitamin C infusions and IV Glutathione pushes, taking fish oil, curcumin, and collagen. My all-time favorite was prolotherapy. Dr. Moffitt saved me when an injury to my hip almost took me out of the game.

What most people don't know about me is that I was the girl that quit her high school cross-country team after one meet, and I had never run more than five miles up until five years ago. It's not about winning or beating anyone else out there. It's about overcoming that little voice in my head that tells me I am not capable. It's about the journey. It's true that 2020 was a rough year, but I wouldn't change where it's gotten me. I've realized that I don't have anything to prove to anyone except myself. I've embraced challenges for personal growth and learned how to give myself grace.

To everyone that supported me in my growth this year, I am thankful for you!