

Is resistance training truly necessary after the age of 50?

Here I outline an evidence-based approach for sustainable weight management and fitness for all adults. These are particularly suited for adults over 40. Alongside promoting fitness, these guidelines support graceful aging by prioritizing resistance training over solely focusing on cardio or aerobic exercises. Key points include:

1. Resistance training benefits:
 - Builds strength, enhances endurance, and maintains muscle mass.
 - Improves bone density, metabolic health, and joint stability.
 - Essential for overall functionality and reducing age-related muscle loss (sarcopenia).
2. Cardio alone isn't enough:
 - Limited calorie burn and risk of muscle loss.
 - Often leads to hunger, counteracting calorie deficits.
3. Balanced approach:
 - Combine resistance training (3-4 sessions/week) with low-intensity cardio (7,000–10,000 steps/day).
 - Maintain a flexible, enjoyable, and sustainable diet with periodic breaks.
 - Incorporate flexibility and balance exercises.
4. Relevance for older adults:
 - Resistance training prevents frailty and maintains independence.
 - Enhances cardiovascular and mental health while reducing chronic inflammation and fall risks.
5. Metabolic health:
 - Improves insulin sensitivity, reduces visceral fat, and lowers blood pressure.
 - Enhances lipid profiles and combats metabolic syndrome.

The comprehensive strategy blends cardio, strength training, and balanced nutrition for sustainable results.

The next section provides an overview of the significance of resistance training and covers the following key topics:

A. The challenges of weight loss: what is effective and what isn't

B. The universal benefits of resistance training

C. The relationship between strength training and metabolic syndrome

METABOLIC SYNDROME

What is METABOLIC SYNDROME?

▶ It is a **CLUSTER OF RISK FACTORS** that can increase your risk of having:



HEART ATTACK



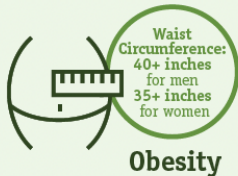
STROKE



TYPE 2 DIABETES

KNOW YOUR NUMBERS

People with metabolic syndrome have **AT LEAST 3 OF THE FOLLOWING:**



Obesity



HIGH Triglycerides



LOW HDL or "Good" Cholesterol



HIGH Blood Pressure

HIGH Fasting Blood Glucose



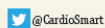
How to PREVENT it

▶ The best ways to **PREVENT – EVEN REVERSE** – metabolic syndrome:



Information provided for educational purposes only. Please consult your health care provider regarding your specific health needs.

▶ For more information, visit CardioSmart.org/MetabolicSyndrome



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The Importance of resistance training

Resistance training, also referred to as strength training, is a vital form of exercise that enhances muscular strength and endurance. To avoid misconceptions often associated with "strength training," the term "resistance training" is used here deliberately.

What is resistance training?

Resistance training involves exercises that prompt muscle contractions against external resistance, aiming to increase strength, tone, muscle mass, and endurance. This resistance can come from various sources such as:

- Dumbbells
- Rubber sheet/tubing
- Body weight
- Household items like bricks or water bottles

Definition by Wikipedia:

“Strength training involves the performance of physical exercises which are designed to improve strength and endurance. It is often associated with the use of weights but can take a variety of different forms”.

Key misconceptions

Resistance training is often misunderstood due to its association with:

- **Weightlifting:** While resistance training can involve weights, it does not always lead to bodybuilder-like physiques. Moderate or low-weight exercises are common in resistance training and are not aimed at building a "hulky" body.
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- **Strength training misinterpretation:** This term often mistakenly implies excessive muscle growth, discouraging some individuals, particularly women, from trying it.

What resistance training really entails:

It involves moving your limbs against resistance provided by your body weight, gravity, or equipment such as dumbbells, bands, or weighted bars.

How it differs from aerobic exercise

- **Aerobic Exercise:** Focuses on cardiovascular conditioning and includes activities like brisk walking, swimming, running, and cycling. Often called “cardio,” it increases breathing and heart rate, enhancing overall stamina and endurance.
- **Resistance Training:** Targets muscle strength and endurance, often complementing aerobic workouts for a well-rounded fitness regime.

By understanding its true nature and benefits, resistance training can be more widely embraced as an essential component of physical fitness.

The taboo of going to the gym

Many people avoid gyms due to the misconception that resistance training is solely for building muscle or achieving a bodybuilder-like physique. However, there is a clear distinction between **bodybuilding** and **exercise**. While bodybuilding focuses on achieving a specific aesthetic through intense and heavy resistance training, regular exercise, including resistance training, is aimed at improving overall health, strength, and functionality.

Breaking the stigma

Resistance training is not just about body aesthetics or heavy lifting. It's a practical, accessible, and science-backed form of exercise that can transform health and quality of life at any age. Making it a mandatory part of a fitness routine could lead to healthier and more active lifestyles, helping individuals achieve not just physical, but also mental and emotional well-being.

A. The challenges of weight loss

Many adults, particularly those over 40, often rely solely on cardio or aerobic exercises to manage their weight. They frequently experiment with various diet plans, such as keto, low carb, or intermittent fasting, but the results are typically inconsistent and unsustainable. This often leads to frustration and a loss of motivation to continue any form of exercise.

Why cardio alone isn't enough

- **Limited calorie burn:** A 30-minute jog burns about 300 calories, roughly equivalent to one cookie. Over time, your body adapts, making cardio less effective.
- **Muscle loss risk:** Excessive cardio, especially in a calorie deficit, can lead to muscle breakdown, slowing your metabolism and hindering fat loss.
- **Increased hunger:** Cardio often triggers hunger, leading to overeating and counteracting calorie burn.

What you should do instead

1. Calorie deficit

Create a calorie deficit by consuming fewer calories than you burn. You don't have to count every calorie—just increase physical activity and minimize high-sugar, calorie-dense foods.

- Opt for a diet that is:
 - Flexible: Fits your lifestyle.
 - Enjoyable: Includes your favorite foods in moderation.
 - Realistic: Easy to maintain over the long term.

Recalculate your calorie targets as you lose fat to ensure consistent progress.

2. Resistance training

Lift weights 3-4 times per week. Prioritize compound movements like squats, deadlifts, and bench presses, and train to near failure for optimal muscle growth and fat loss.

- Why It Works:
 - Preserves muscle mass during a calorie deficit.
 - More muscle boosts metabolism, making fat loss easier.
 - Enhances your physique as fat diminishes.

3. Low-intensity cardio

Forget high-intensity workouts for now. Opt for activities like walking, swimming, cycling, or rowing to burn calories without affecting recovery or spiking hunger.

- Aim for 7,000–10,000 steps per day to:
 - Improve cardiovascular health.
 - Burn extra calories.
 - Preserve energy for resistance training.

4. Diet breaks

Take periodic diet breaks every 4–6 weeks. Eat at maintenance calories for 1–2 weeks to:

- Reset hormones.
- Reduce diet fatigue.
- Maintain long-term sustainability.

The bottom line

Skip excessive treadmill/garden walking sessions. Instead:

- Focus on resistance training.
- Incorporate low-intensity cardio.
- Stick to a flexible, enjoyable diet.

This approach is not only more effective for long-term fat/weight loss but also sustainable and enjoyable, helping you achieve lasting results.

B. The universal benefits of resistance training

Physiology of resistance training

Resistance training involves controlled and repetitive movements against external resistance, which triggers several physiological benefits:

- **Muscle maintenance:** Stimulates muscle fibers, preserving and enhancing muscle mass.
- **Bone health:** Increases bone density, reducing the risk of osteoporosis.
- **Metabolic boost:** Builds lean muscle, which boosts resting metabolic rate, aiding in weight management.
- **Joint and ligament support:** Strengthens surrounding tissues, improving joint stability and reducing injury risks.
- **Neuromuscular coordination:** Improves motor function, balance, and coordination, essential for daily activities.

These benefits make resistance training essential for individuals of all age groups, whether young or old.

Why resistance training should be essential across all ages

For general well-being

- Enhances **cardiovascular health** by improving blood pressure and lipid profiles.
- Supports **mental health** by reducing anxiety, depression, and stress levels through the release of endorphins.
- Improves **functional strength**, aiding in everyday tasks like lifting, carrying, and climbing stairs.

Benefits of resistance training for middle age and aging adults (After 40 and 60)

- **After 40:**
 - Prevents **sarcopenia** (age-related muscle loss), which begins around this age.
 - Maintains metabolic health, preventing conditions like diabetes, obesity, and cardiovascular diseases.
 - Enhances posture and reduces chronic back pain, a common complaint in midlife.
- **After 60:**
 - Counteracts accelerated muscle and bone loss, maintaining independence in daily activities.
 - Reduces the risk of falls by improving balance and coordination.
 - Alleviates symptoms of arthritis and other degenerative conditions by improving joint mobility and reducing stiffness.
 - Promotes longevity by improving overall physical resilience and reducing frailty.

How does resistance exercise work?

Resistance training triggers microscopic tears in the muscle fibers, which the body quickly repairs to regenerate and strengthen the muscles. This process involves two key phases: **catabolism** (the breakdown of muscle fibers during exercise) and **anabolism** (the repair and regrowth of muscle tissue). Anabolism, commonly associated with growth, is facilitated by resistance training.

For muscle growth, certain biological processes require an initial breakdown phase before regeneration. For example, bones need to break down slightly before calcium and other growth factors rebuild and strengthen them. Similarly, during resistance training, hormones like **testosterone**, **insulin-like growth factor**, and **growth hormone**, along with nutrients like protein, flood into the muscles to repair and fortify them after exercise. Importantly, muscle healing and growth occur during rest, making recovery time between workouts essential for optimal results.

Why resistance training?

The advantages of resistance training are extensively supported by research, and studies continue to emphasize its importance for overall health and well-being. Historically, humans relied on manual labor, such as farming, hunting, and building shelters, to stay physically active. In contrast, modern conveniences and labor-saving devices have drastically reduced the need for physical exertion in daily life.

Today, most people don't manually rake leaves, shovel snow, or climb stairs; machines like robotic vacuum cleaners and automated walkways have replaced physical effort. Additionally, many spend extended hours in front of computers or televisions rather than engaging in outdoor recreational activities or sports such as hiking, soccer, or tennis.

Physical inactivity has become the second leading preventable cause of death in the United States. Resistance training, therefore, is critical to counteracting the detrimental effects of sedentary lifestyles, promoting physical fitness,

Strength training not only helps maintain physical strength but also supports overall cardiovascular health and aids in managing a healthy weight. The Mayo Clinic highlights that strength training can also preserve bone density, enhance quality of life, and promote independence as you age.

Is exercise by means of (extended) running/walking enough?

While running or walking is beneficial for cardiovascular health, endurance, and overall well-being, relying solely on these activities may not be enough for optimal health. A well-rounded exercise routine should ideally include the following components:

1. **Cardiovascular health:**
Running and walking are excellent for improving heart and lung function, burning calories, and boosting mood.
2. **Muscle strength and endurance:**
Strength or resistance training is crucial to build and maintain muscle mass, improve metabolism, support joint health, and reduce the risk of age-related muscle loss (sarcopenia).
3. **Flexibility and balance:**
Activities such as stretching, yoga, or tai chi improve flexibility, reduce the risk of injury, and enhance balance—especially important as you age.

4. **Bone density:**

Weight-bearing exercises (including strength training and certain forms of running) help maintain and increase bone density, reducing the risk of osteoporosis.

5. **Functional fitness:**

Strength and mobility exercises prepare the body for everyday activities, making daily tasks easier and reducing the risk of injury.

Why running or walking alone may not be sufficient:

- **Muscle imbalance:** Running or walking primarily targets the lower body, leaving upper body muscles underdeveloped if not supplemented with resistance training.
- **Bone health:** While walking and running support bone health, resistance training is more effective in building bone density.
- **Plateauing benefits:** Over time, your body adapts to the same repetitive exercise, which may limit fitness improvements unless other forms of exercise are introduced.
- **Reduced metabolism support:** Strength training plays a key role in maintaining muscle mass, which helps boost metabolism and facilitates long-term weight management.

Recommendation: For a comprehensive fitness plan, aim to combine:

- **Cardio:** 150–300 minutes of moderate-intensity or 75–150 minutes of vigorous-intensity aerobic activity per week (walking, running, cycling).
- **Strength Training:** At least three days per week, focusing on all major muscle groups.
- **Flexibility and Balance:** At least two to three days a week of stretching or balance exercises, especially for older adults.

Integrating a variety of exercise types ensures you reap the full spectrum of physical and mental health benefits.

Choosing between cardiovascular and strength training

The choice between aerobic (cardiovascular) exercise and strength training depends on your individual goals, health status, and preferences. However, in most cases, a balanced combination of both is ideal for overall health and fitness.

Striking the right balance

- For general health, incorporating both aerobic and strength exercises into your routine is highly recommended, as they provide complementary benefits.
- The American College of Sports Medicine (ACSM) suggests at least 150 minutes of moderate-intensity or 75 minutes of vigorous-intensity aerobic activity weekly, along with strength training on at least two non-consecutive days per week.
- The balance can be adjusted based on your goals. For instance, if building muscle mass is the priority, strength training should take precedence. If weight loss or endurance is the main focus, aerobic exercise may be emphasized more.

Ultimately, the best exercise routine is one that aligns with your goals, is enjoyable, and sustainable over the long term.

Should women engage in strength training?

Absolutely! Strength training is highly beneficial for women of all ages and fitness levels. Beyond improving muscle tone and bone health, it supports hormonal balance, boosts metabolism, and helps maintain functional independence as women age.

It's worth noting that strength training doesn't necessarily mean lifting heavy weights. Women can choose various methods, such as bodyweight exercises, resistance bands, or light free weights, tailoring the intensity to their fitness level and objectives.

In summary

Strength training is an essential component of a balanced fitness routine for all adults. It delivers significant physical and mental health benefits, making it suitable for individuals at all stages of life. Combining it with aerobic exercise creates a holistic approach to achieving optimal health and well-being.

C. The relationship between strength training and metabolic syndrome

Strength training, also known as resistance training, has a significant impact on improving metabolic syndrome, a cluster of conditions that includes increased blood pressure, high blood sugar, excess body fat around the waist, and abnormal cholesterol or triglyceride levels. Here's how strength training positively affects metabolic syndrome:

1. Improves insulin sensitivity

- Strength training enhances the muscle's ability to take up glucose from the bloodstream, reducing insulin resistance—a key factor in metabolic syndrome.
- Increased muscle mass improves overall glucose metabolism, as muscles are major sites for glucose disposal.

2. Reduces body fat

- Resistance training helps reduce visceral fat (fat stored around internal organs), which is strongly associated with metabolic syndrome.
- It boosts resting metabolic rate, promoting calorie expenditure even at rest, which contributes to weight management.

3. Lowers blood pressure

- Regular strength training can lead to improved arterial function and a reduction in systolic and diastolic blood pressure.
- Enhanced blood vessel elasticity and reduced vascular resistance contribute to better cardiovascular health.

4. Improves lipid profile

- Resistance training helps lower triglyceride levels and increase high-density lipoprotein (HDL, the "good" cholesterol), improving the lipid profile.
- It may also reduce low-density lipoprotein (LDL, the "bad" cholesterol) levels in some individuals.

5. Increases lean muscle mass

- Building muscle through strength training increases overall metabolic rate, helping prevent obesity—a key risk factor for metabolic syndrome.
- Higher muscle mass improves body composition and metabolic health.

6. Reduces chronic inflammation

- Strength training decreases markers of systemic inflammation, such as C-reactive protein (CRP), which are often elevated in individuals with metabolic syndrome.

7. Enhances hormonal balance

- Resistance exercise positively influences hormones like testosterone and growth hormone, which play roles in fat metabolism and muscle growth.
- It can also improve leptin and adiponectin sensitivity, regulating appetite and fat metabolism.

8. Improves overall cardiovascular health

- By improving muscle strength and endurance, strength training reduces the workload on the heart and lowers the risk of cardiovascular complications associated with metabolic syndrome.

Practical considerations:

- **Frequency:** 3-4 sessions per week are generally recommended for strength training.
- **Intensity:** Moderate to high intensity, with focus on compound movements (e.g., squats, deadlifts, bench press) that engage multiple muscle groups.
- **Combination with aerobic exercise:** Combining strength training with aerobic exercise provides the most significant benefits for metabolic syndrome.

In summary, strength training plays a critical role in mitigating the risk factors associated with metabolic syndrome and improving overall metabolic health. It is a powerful intervention that complements dietary changes and other lifestyle modifications.

Please note: These guidelines are based on both my personal experience and practice, discussions with experts, as well as some of the sources cited in the article. If anyone is interested in the specific scientific evidence supporting any of these points, I can provide those details as well.