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A PATIENT GUIDE FROM YOUR CARDIOLOGIST

Resistance Training *& a Healthier Heart*

A practical, evidence-based guide and home workout programme — strength training to protect your heart, build muscle and age well.

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A NOTE FROM YOUR CARDIOLOGIST

01 Why resistance training matters

Lifting, pushing and pulling against resistance is no longer the "other" kind of exercise — it is now recognised as essential for cardiovascular and metabolic health, alongside aerobic activity such as walking or cycling.

The headline numbers

3–8%
LOSS OF MUSCLE MASS PER DECADE AFTER AGE 30, ACCELERATING AFTER 60

10–27%
REDUCTION IN ALL-CAUSE MORTALITY RISK WITH REGULAR MUSCLE-STRENGTHENING ACTIVITY

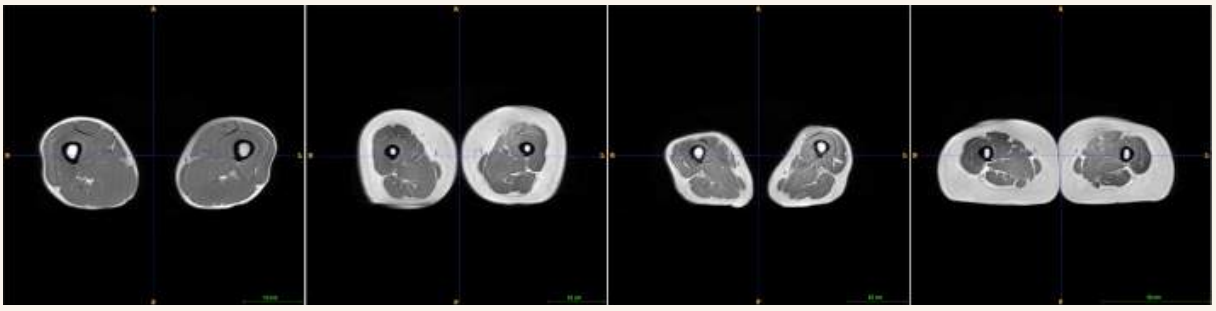
0.4–0.6%
AVERAGE REDUCTION IN HBA1C WITH STRUCTURED RESISTANCE TRAINING IN TYPE 2 DIABETES

Sarcopenia: the silent loss of strength

Sarcopenia is the age-related loss of skeletal muscle mass, strength and function. It is a major driver of falls, frailty, hospital admissions and loss of independence in older adults — and is increasingly recognised as a cardiovascular risk factor in its own right.

- Globally, sarcopenia affects roughly **10–16%** of adults aged 60 and over, rising to around **50%** in those aged 80 and above.
- Adults typically lose **3–8% of muscle mass per decade after age 30**, with the rate accelerating beyond 60.
- Resistance training is the **single most effective intervention** recommended by the European Working Group on Sarcopenia in Older People (EWGSOP2) for prevention and treatment.
- Even **2 sessions per week** can produce meaningful gains in muscle mass, strength and physical function within 8–12 weeks.

MRI Images of the Quadricep Muscles



Normal | Obese | Sarcopenia | SO (Sarcopenia Obesity)

02 Why it protects your heart

Resistance training improves several risk factors that drive coronary artery disease and heart failure progression. The benefits are independent of, and additive to, those of aerobic exercise.

Cardiovascular benefits

- **Blood pressure:** Meta-analyses show resting systolic blood pressure falls by approximately **3–4 mmHg** and diastolic by **2–3 mmHg** with regular dynamic resistance training — a magnitude similar to many antihypertensive drugs at low doses.
- **Mortality:** Just **30–60 minutes per week** of muscle-strengthening activity is associated with a **10–20% reduction** in all-cause, cardiovascular and cancer mortality.
- **Endothelial function:** Just after 8 weeks of consistent exercise can improve the health and flexibility of your blood vessels helping blood flow more easily through your body
- **Lipids and body composition:** Exercise can help lower triglycerides (a type of blood fat), reduce excess fat around the abdomen and preserve or build muscle.

Metabolic benefits

- **Insulin sensitivity** can improve by **24–48%** in people with type 2 diabetes after a programme of resistance training.
- **HbA1c** falls by an average of **0.4–0.6%** — comparable to aerobic exercise alone, and additive when both are combined.
- **Resting metabolic rate** is preserved or modestly increased, which helps with long-term weight maintenance.
- Improved glycaemic variability and reduced fasting glucose after consistent training.

WHAT THIS MEANS FOR YOU

Adding two short, well-designed strength sessions to your week is one of the highest-yield things you can do for your long-term cardiovascular health. The goal is consistency, not heroics.

WHAT THE EVIDENCE SAYS

03 What the major guidelines recommend

Every leading cardiovascular and public-health body now recommends muscle-strengthening activity as a separate, essential component of weekly exercise — not an optional extra.

GUIDELINE	RECOMMENDATION
World Health Organization — Physical Activity Guidelines (2020)	Adults should perform muscle-strengthening activities at moderate or greater intensity, involving all major muscle groups, on **2 or more days per week**.
American Heart Association / American College of Cardiology (2019 Primary Prevention)	Resistance training of the major muscle groups **at least 2 days per week**, in addition to ≥150 min/week moderate aerobic activity.
European Society of Cardiology (2021 CV Prevention Guidelines)	Resistance exercise on **≥2 days per week**, combined with regular aerobic activity, is recommended for all adults.
American College of Sports Medicine (Position Stand)	**2–3 days per week**, 8–10 multi-joint exercises covering all major muscle groups, 8–12 repetitions per set, 1–3 sets per exercise.
UK Chief Medical Officers' Physical Activity Guidelines (2019)	Adults should undertake muscle-strengthening activities on **at least 2 days a week** that work all major muscle groups.

BEFORE YOU BEGIN

If you have a recent cardiac event, unstable symptoms, uncontrolled blood pressure, severe valvular disease, or have had cardiac surgery in the last few weeks, please confirm with your cardiologist that this programme is appropriate before starting.

Stop and seek advice if you experience: chest pain or pressure, unusual breathlessness, dizziness, palpitations, or pain that is more than mild muscular soreness.

YOUR WEEKLY PLAN

04 Your weekly programme at a glance

Resistance training works best when it sits alongside regular aerobic activity. The schedule below combines **two full-body strength sessions** with **at least 150 minutes of moderate-intensity aerobic activity** across the week — the dose recommended by the WHO, the AHA/ACC and the European Society of Cardiology. Each strength session takes 45–60 minutes including warm-up and cool-down, and both sessions hit every major muscle group, so you can do them in either order with at least one day between them.

Equipment you will need

- **Dumbbells:** a light pair (2–4 kg) and a heavier pair (5–10 kg). Adjustable dumbbells work well at home.
- **Resistance bands** of varying tension — long loop bands or tubes with handles.
- **A sturdy chair, bench or wall** for support, and a **non-slip mat** for floor exercises.

How hard should it feel?

Aim for a **Rate of Perceived Exertion (RPE) of 6–8 out of 10** on the last few repetitions of each set, you feel you could have done another 2–3 reps if you absolutely had to.

You should be able to speak short sentences but not sing. Rest **60–90 seconds** between sets.

DAY	ACTIVITY	TIME
Monday	**Session A** — Full-body resistance training	45–60 min
Tuesday	Moderate aerobic — brisk walk, easy cycle, swim or similar	30 min
Wednesday	**Session B** — Full-body resistance training	45–60 min
Thursday	Moderate aerobic — same options as Tuesday	30 min
Friday	Moderate aerobic *(or repeat Session A if well-recovered)*	30 min
Saturday	Longer aerobic activity — extended walk, hike, cycle or swim	60 min
Sunday	Rest Day — gentle mobility or stretching only	—

≥150 min
MODERATE AEROBIC ACTIVITY PER WEEK (THE WHO/AHA TARGET)

2
FULL-BODY RESISTANCE SESSIONS PER WEEK

1
FULL REST DAY FOR RECOVERY

WHAT COUNTS AS MODERATE AEROBIC ACTIVITY?

Brisk walking, easy cycling, swimming, gardening or dancing — anything where you can still talk in short sentences but not sing. The 30-minute blocks can be broken into **two or three shorter sessions** on the same day.

05 Session A — Full Body

Warm-up · Dynamic Warm-Up

Equipment: None | Targets: Whole body, cardiovascular system

Prescription: 5–7 minutes

How to do it: Marching on the spot, large arm circles forwards and backwards, gentle bodyweight squats and shoulder rolls. Build to a light sweat with breathing slightly elevated.

Make it easier / harder: Take longer if you feel stiff. Do not skip — it primes the heart and joints.

1 · Goblet Squat

Equipment: One dumbbell | Targets: Quadriceps, glutes, core

Prescription: 3 sets × 10–12 reps · rest 60–90 s

How to do it: Hold one dumbbell vertically against your chest. Stand with feet shoulder-width apart, toes turned slightly out. Sit your hips back and down as if into a low chair, keeping your chest tall and heels planted. Push through the floor to stand up.

Easier / harder: *Easier:* sit back to a chair and stand without weight. *Harder:* increase weight or pause 2 seconds at the bottom.

2 · Incline Push-Up

Equipment: Sturdy bench, box or kitchen counter | Targets: Chest, shoulders, triceps, core

Prescription: 3 sets × 8–12 reps · rest 60–90 s

How to do it: Place hands on a stable raised surface, slightly wider than shoulder-width. Walk your feet back so the body forms a straight line. Lower your chest toward the surface with elbows at a 45° angle, then press back to the start.

Easier / harder: *Easier:* use a higher surface (wall or counter). *Harder:* use a lower surface, or progress to floor push-ups.

3 · Dumbbell Bent-Over Row

Equipment: Pair of dumbbells | Targets: Upper back, lats, biceps, posterior shoulder

Prescription: 3 sets × 10–12 reps · rest 60–90 s

How to do it: Stand with feet hip-width apart, a dumbbell in each hand. Hinge forward from the hips with a flat back, knees softly bent, until your torso is roughly parallel with the floor. Pull both dumbbells toward your lower ribs, leading with the elbows and squeezing the shoulder blades together. Lower under control.

Easier / harder: *Easier:* lighter weights, smaller range. *Harder:* pause 1 second at the ribs or slow the lowering to 3 seconds.

4 · Romanian Deadlift

Equipment: Pair of dumbbells | Targets: Hamstrings, glutes, lower back

Prescription: 3 sets × 8–10 reps · rest 60–90 s

How to do it: Stand with feet hip-width apart, dumbbells in front of your thighs. Keep a slight bend in the knees. Hinge at the hips, sliding the dumbbells down the front of your legs while keeping the back flat. Stop when you feel a stretch in the hamstrings, then drive the hips forward to stand tall.

Easier / harder: *Easier:* lighter weights, reduced range. *Harder:* slow the lowering phase to 3 seconds.

5 · Standing Dumbbell Overhead Press

Equipment: Pair of dumbbells | Targets: Shoulders, triceps, upper back, core

Prescription: 3 sets × 8–10 reps · rest 60–90 s

How to do it: Stand tall with dumbbells at shoulder height, palms facing forward or slightly inward. Brace your core and press the weights overhead until the arms are nearly straight. Lower under control.

Easier / harder: *Easier:* sit on a chair with back support. *Harder:* add a brief pause at the top. **Avoid** if you have shoulder impingement; substitute the lateral raise.

6 · Resistance-Band Pull-Apart

Equipment: Resistance band | Targets: Mid-back, rear deltoids, postural muscles

Prescription: 2–3 sets × 12–15 reps · rest 45–60 s

How to do it: Hold the band with both hands at shoulder height, arms extended in front. Keeping arms straight, pull the band apart by squeezing the shoulder blades together. Slowly return.

Make it easier / harder: Excellent for posture — particularly useful if you spend long periods sitting.

7 · Front Plank

Equipment: Mat | Targets: Deep core, shoulders, glutes

Prescription: 2–3 sets × 20–45 seconds · rest 45–60 s

How to do it: Rest on your forearms and toes, elbows directly under shoulders. Form a straight line from head to heels — no sag in the lower back, no piking the hips up. Breathe normally throughout.

Easier / harder: *Easier:* drop to the knees. *Harder:* extend the hold time or lift one foot for 5 seconds at a time.

Cool-down · Cool-Down & Stretch

Equipment: None | Targets: Whole body

Prescription: 5 minutes

How to do it: Walk gently for 2–3 minutes to bring the heart rate down. Then hold static stretches (hamstrings, quadriceps, chest, shoulders) for 20–30 seconds each, breathing slowly.

06 Session B — Full Body

Session B — Full Body

45–60 min · 7 exercises · 2–3 sets each

Warm-up · Dynamic Warm-Up

Equipment: None | Targets: Whole body, cardiovascular system

Prescription: 5–7 minutes

How to do it: As in Session A — marching, arm circles, gentle squats, hip circles. Build gradually until you feel warm and loose.

1 · Reverse Lunge

Equipment: Pair of dumbbells (or none) | Targets: Quadriceps, glutes, hamstrings, balance

Prescription: 3 sets × 8–10 reps per leg · rest 60–90 s

How to do it: Stand tall with dumbbells by your sides. Step one foot back and lower until both knees are bent to roughly 90°. Push through the heel of the front foot to return to standing. Alternate legs.

Easier / harder: *Easier:* hold a wall or chair for balance and skip the dumbbells. *Harder:* increase weight or pause at the bottom.

2 · Dumbbell Bench Press

Equipment: Pair of dumbbells, sturdy bench | Targets: Chest, shoulders, triceps

Prescription: 3 sets × 8–10 reps · rest 60–90 s

How to do it: Lie flat on a bench with a dumbbell in each hand at chest height, palms facing forward and elbows at roughly 45° from the torso. Brace the core, then press both dumbbells straight up until the arms are nearly extended. Lower under control until the dumbbells are level with the chest.

Easier / harder: *Easier:* lighter weights, or on the floor with a smaller range. *Harder:* add a 1-second pause at the bottom, or slow the lowering to 3 seconds.

3 · Single-Arm Dumbbell Row

Equipment: One dumbbell, sturdy bench or chair | Targets: Lats, mid-back, biceps, core

Prescription: 3 sets × 10 reps per side · rest 60–90 s

How to do it: Place one hand and the same-side knee on a bench. Keep the back flat and parallel to the floor. Let the dumbbell hang from the free hand, then row it up to the side of your ribcage, leading with the elbow. Lower under control.

Easier / harder: *Easier:* lighter weight, focus on full range. *Harder:* add a 1-second squeeze at the top.

4 · Glute Bridge

Equipment: Mat (optional dumbbell across hips) | Targets: Glutes, hamstrings, core

Prescription: 3 sets × 12–15 reps · rest 45–60 s

How to do it: Lie on your back with knees bent and feet flat on the floor, hip-width apart. Drive through your heels and lift your hips until your body forms a straight line from shoulders to knees. Squeeze the glutes at the top, then lower with control.

Easier / harder: *Easier:* bodyweight, smaller range. *Harder:* place a dumbbell across the hips, or hold the top for 2–3 seconds.

5 · Lateral Raise

Equipment: Pair of light dumbbells | Targets: Lateral deltoids, upper back

Prescription: 2–3 sets × 12 reps · rest 45–60 s

How to do it: Stand tall with a light dumbbell in each hand by your sides, elbows soft. With control, lift the arms out to the sides until they reach roughly shoulder height. Pause briefly, then lower slowly.

Make it easier / harder: Use lighter weights than you think — quality of movement matters far more than load here.

6 · Bicep Curl

Equipment: Pair of dumbbells (or band) | Targets: Biceps, forearms

Prescription: 2–3 sets × 10–12 reps · rest 45–60 s

How to do it: Stand tall with dumbbells in your hands, palms facing forward. Keep the elbows tucked into your sides as you curl the weights up to shoulder level. Lower under control through the full range of motion.

Easier / harder: *Easier:* seated with back support. *Harder:* slow the lowering phase to 3 seconds.

7 · Bird Dog

Equipment: Mat | Targets: Deep core, glutes, balance, lower back

Prescription: 2–3 sets × 8 reps per side · rest 45–60 s

How to do it: Start on hands and knees with a flat back. Slowly extend the opposite arm and leg until both are parallel with the floor, keeping the hips and shoulders square. Pause for 1–2 seconds, then return with control.

Make it easier / harder: Move slowly. The aim is steadiness, not range — wobbling is fine in early sessions.

Cool-down · Cool-Down & Stretch

Equipment: None | Targets: Whole body

Prescription: 5 minutes

How to do it: Slow walking, then static stretches for the chest, lats, quadriceps and hamstrings. Hold each stretch 20–30 seconds, breathe slowly.

KEEP IMPROVING

07 Progressing safely over time

Strength gains come from gradually asking your muscles to do a little more than they did last time — but the changes should feel small and manageable. The two safest ways to progress are:

- **Add a repetition or two** per set before adding any weight.
- Once the top of the rep range feels easy at **RPE 6–7**, add a small amount of weight (1–2 kg for dumbbells, or move up one band tension).
- Aim to **change one variable at a time** — either reps, sets, or load — never all together.
- Take a **de-load week** (lighter weights, fewer sets) every 6–8 weeks to allow recovery.

Simple weekly tracker

Fill this in each week — it works on screen or printed. Note your two sessions, your total aerobic minutes, and how it felt (RPE) with any notes.

WEEK	SESSION A	SESSION B	AEROBIC MINUTES (TOTAL)	RPE	NOTES
1					
2					
3					
4					
5					
6					
7					
8					
8-WEEK TOTAL AEROBIC MINUTES				Target: 1,200 min (150/week)	

⚠ WHEN TO CONTACT YOUR CARDIOLOGY TEAM

Stop the exercise and seek medical advice if you experience chest pain or pressure, marked breathlessness out of proportion to the effort, dizziness or fainting, irregular or rapid palpitations, or any new symptom you would normally bring to clinic.

Mild muscle soreness for 24–48 hours after a session is normal and expected, especially when starting a new routine.

IN SUMMARY

08 References & further reading

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⚠ IMPORTANT — PLEASE READ

This worksheet is general health information intended for educational use within the cardiology clinic and should be tailored to each patient. It does not replace individual clinical judgement. Decisions about your medication, exercise and treatment should be made together with your GP or cardiologist — especially after a recent cardiac event or surgery. If you experience chest pain, breathlessness, palpitations or sudden weakness, seek medical help immediately.

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