

# Meeting Nazionale ITACARE-P 2025

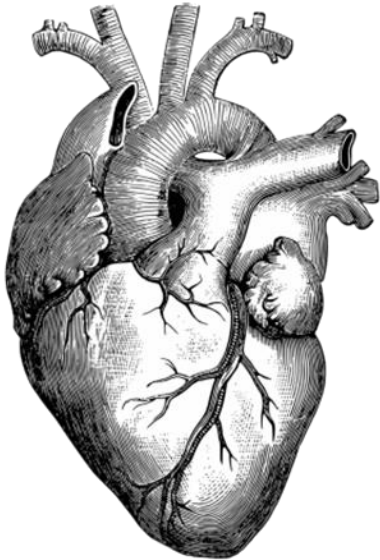
La Cardiologia Riabilitativa e Preventiva  
come snodo fondamentale  
della cura della persona con cardiopatia



CENTRO CONGRESSI FRENTANI  
Roma, 21-22 novembre 2025



## Allenamento alla resistenza



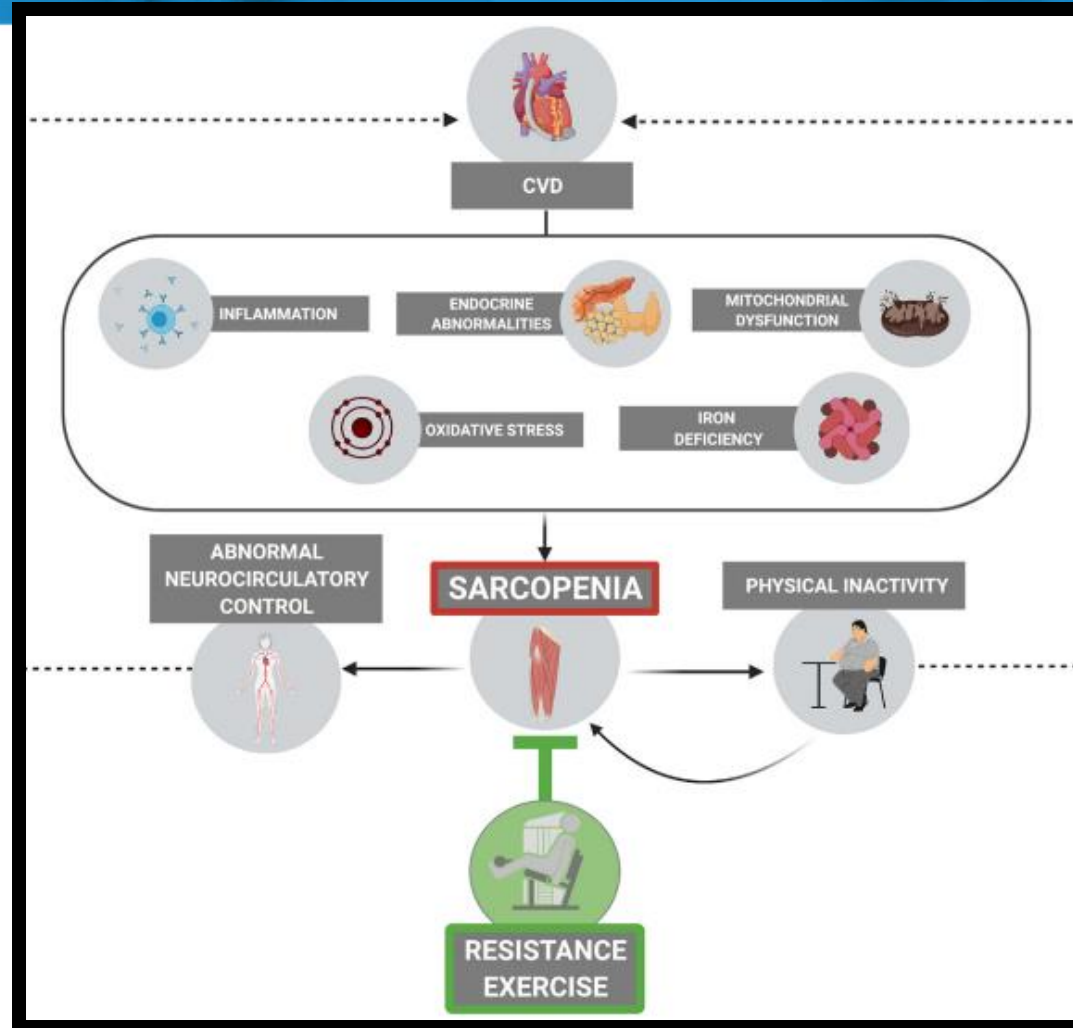
**Il 50% dei pazienti con CVD riportano anomalie muscoloscheletriche con impatto sulla forza e sulla capacità di esercizio**



**Impatto dannoso sulle ADL**



**Riduzione della partecipazione sociale e della qualità di vita**



I pazienti affetti da patologie cardiovascolari presentano molteplici fattori che determinano perdita di massa muscolare:

- disfunzione muscoli periferici
- ridotta densità capillare
- alterazioni del metabolismo mitocondriale
- infiammazione sistemica



**INATTIVITA' FISICA**

Resistance exercise for cardiac rehabilitation. Kirkman DL, et al. Progress in Cardiovascular Diseases 2022 (70): 66-72

Aerobic, resistance and specialized exercise training in heart failure with preserved ejection fraction: a state of the art review. Mirzai S, et al. Heart Failure Review 2025 (30): 1015-1034.





AACVPR

American Association of Cardiovascular  
and Pulmonary Rehabilitation

Promoting Health & Preventing Disease



American  
Heart  
Association



AMERICAN  
COLLEGE of  
CARDIOLOGY

## LINEE GUIDA



**F:** frequenza (2-3/sett)

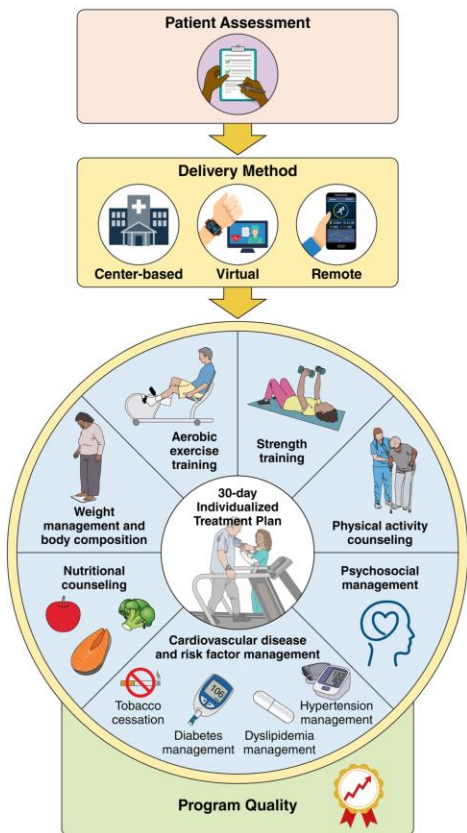
**I:** intensità (misurazione diretta o indiretta 1RM)

**T:** tempo

**T:** tipo (corpo libero, bande elastiche, pesi, macchinari)

**V:** volume

**P:** progressione (adattamenti centrali)



Core components of Cardiac Rehabilitation Programs: 2024 update: a scientific statement from the American Heart Association and the American Association of Cardiovascular and Pulmonary Rehabilitation. Brown TM, et al. Circulation 2024 (150): 328-3347.



Training parameter	Initial prescription***	Optimal progression
<b>Aerobic training</b>		
Frequency	2–3 days/week	Moderate intensity: 3–7 days/week High intensity: 1–3 days/week
Intensity	40–50% $\text{VO}_2\text{R}$ or HRR; 45–55% $\text{VO}_2\text{peak}$ ; RPE 11–12 Until 20 min duration is achieved May use short intervals if unable to maintain continuous exercise	Continuous: 70–80% $\text{VO}_2\text{R}$ , or HRR; 75–85% $\text{VO}_2\text{peak}$ ; RPE 11–14 High-intensity intervals: 80–90% $\text{VO}_2\text{R}$ , or HRR; 85–95% $\text{VO}_2\text{peak}$ ; RPE 15–17
Time	Session total: 15–30 min	Session total: 45–60 min

## Resistance training

Frequency	2–3 non-consecutive days/week	
Intensity	< 30% 1-RM; RPE 11–12	40–70% 1-RM; RPE 12–15
Time (duration)	1–2 sets/day for each muscle group, 5–10 repetitions, 4–6 exercises	2–3 sets/day for each muscle group, 8–15 repetitions, 8–10 exercises
Type (mode)	Fixed weight machines, resistance bands, handheld weights, or bodyweight exercise. Commence with isolated muscles	Fixed weight machines, resistance bands, handheld weights, or bodyweight exercise

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## Inspiratory muscle training

Frequency	Standard protocol: 6–7 days/week (twice daily) High-intensity protocol: 3–5 days/week	
Intensity	Standard protocol: 50% of $\text{PI}_{\text{max}}$ High-intensity protocol: 20–30% $\text{PI}_{\text{max}}$	Standard protocol: 50% of $\text{PI}_{\text{max}}$ High-intensity protocol: 40–70% $\text{PI}_{\text{max}}$
Time (duration)	Session total: 20–30 min Standard protocol: 30 breaths (twice daily) High-intensity protocol: 2 min of work, 1-min recovery, repeated 7 times	
Type (mode)	Pressure threshold device	

## Resistance Exercise Training in Individuals With and Without Cardiovascular Disease: 2023 Update: A Scientific Statement From the American Heart Association

Amanda E Paluch, William R Boyer, Barry A Franklin, Deepika Laddu, Felipe Lobelo, Duck-Chul Lee, Mary M McDermott, Damon L Swift, Allison R Webel, Abbi Lane;  
on behalf the American Heart Association Council on Lifestyle and Cardiometabolic Health; Council on

### Panel A Resistance Training Prescription Components

RT Intensity	Percent of 1-RM	Number of Reps	Frequency per week	Muscle Adaptation	Population
Low Intensity	<40% 1-RM	15–20 reps	≥ 2 days/week	Endurance	High risk patients
Moderate Intensity	40–60% 1-RM	8–12 reps	≥ 2 days/week	Strength and endurance	General Population
High Intensity	>80% 1-RM	1–6 reps	≥ 2 days/week	Strength	Healthy adults looking to optimize strength

### Panel B Contraindications to Resistance Training

- |   |  |
|---|--|
| <b>Absolute Contraindications</b> <ul style="list-style-type: none"><li>• Unstable coronary heart disease</li><li>• Decompensated heart failure</li><li>• Uncontrolled atrial and/or ventricular arrhythmias</li><li>• Severe pulmonary hypertension (mean pulmonary arterial pressure &gt;55 mm Hg)</li><li>• Severe and symptomatic aortic stenosis</li><li>• Acute myocarditis, endocarditis, or pericarditis</li><li>• Uncontrolled hypertension (&gt;180/110 mm Hg)</li><li>• Aortic dissection</li><li>• Marfan syndrome</li><li>• High Intensity RT in patients with active proliferative retinopathy or moderate or worse nonproliferative diabetic retinopathy</li></ul> | <b>Relative Contraindications (consult a physician before participation)</b> <ul style="list-style-type: none"><li>• Individuals with defibrillators or pacemakers</li><li>• Diabetes</li><li>• Controlled hypertension</li><li>• Musculoskeletal conditions or limitations</li><li>• History of stroke</li><li>• Low functional capacity (&lt;4 METs)</li></ul> |
|---|--|



## Principi di Allenamento alla Resistenza

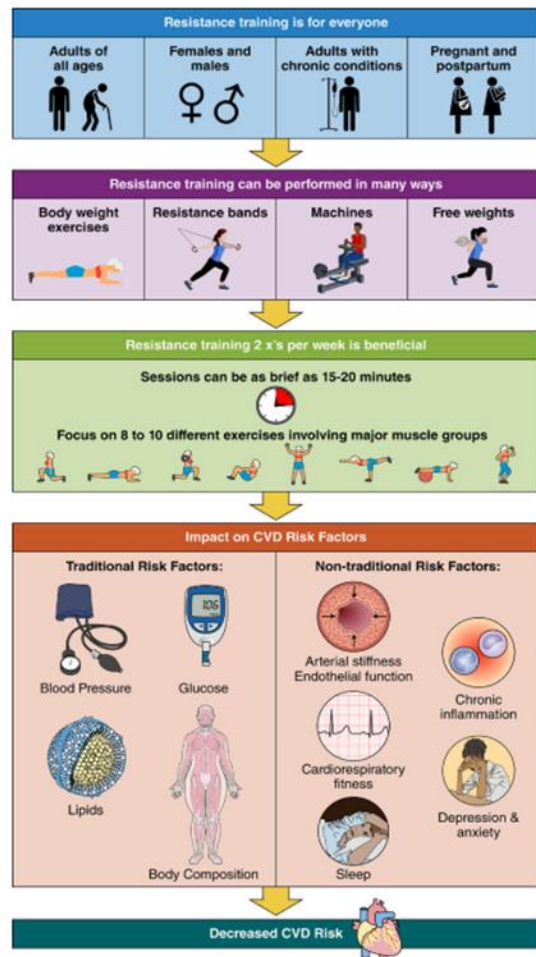
Fase iniziale a basso carico di lavoro (inf. 30% 1 RM)



Fase di RESISTENZA (30-40% 1 RM)  
alto numero di ripetizioni: 12-25 rip





























Fase ad ALTA INTENSITA' (40-60% 1 RM)  
8-15 rip





## Cardiovascular Disease: 2023 Update: A Scientific Statement From the American Heart Association

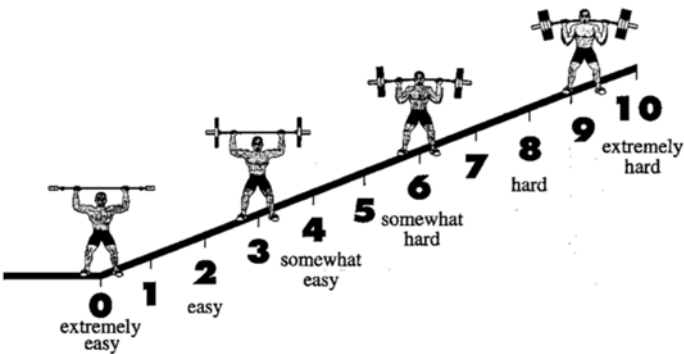
Amanda E. Paluch, PhD, FAHA Chair

Major Muscle Group, accessory muscle group	Example Exercises
Pectoralis, anterior deltoids, triceps	Chest press   Push-up  
Deltoids	Shoulder press   Shoulder raise  
Rhomboids, latissimus dorsi, rear deltoids, biceps	Seated row   Bent-over row  
Triceps brachii	Triceps extension  
Biceps brachii	Biceps curl  
Quadriceps, Hamstrings, and Gluteals	Squat   Lunge  
Gastrocnemius, soleus	Calf raise  
Abdominals, obliques	Abdominal crunch  
Quadratus lumborum	Back extension  

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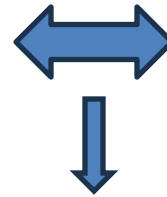
8-10 esercizi multi-articolari  
Valutazione fatica percepita







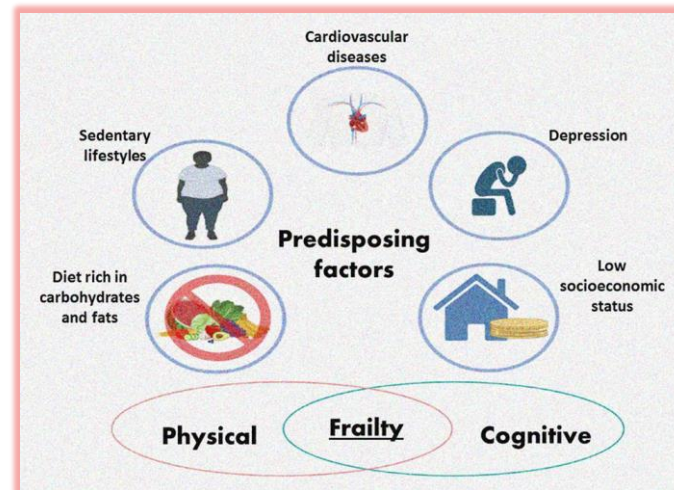
## INSUFFICIENZA CARDIACA (HF)



## FRAGILITÀ



Il 45% dei pazienti con HF presenta fragilità (sarcopenia, mobilità limitata, stile di vita sedentario, affaticamento)



## ALLENAMENTO ALLA RESISTENZA

Practical guidelines for exercise prescription in patients with chronic heart failure . Taylor JL, et al. Heart Failure Reviews 2023 (28): 1285-1296  
Resistance Training in heart failure patients: a systematic review and meta-analysis. Fischer S, et al. Heart Failure Review 2022 (27): 1665-1682.  
Exercise-Based Cardiac rehabilitation programs in heart failure patients. Patti A, et al. Herth Failure Clin 2021 (17): 263-271.





## Benefici "Resistance Training"



- miglioramenti nella Forza e nella Massa Muscolare
- miglioramento capacità funzionali (6MWT)
- miglioramento Vo2 Peak (capacità aerobica)
- cambiamenti nella composizione muscolare
- aumento della percentuale di massa magra
- Benefici psicologici e riduzione dei fattori di rischio (glicemia, profilo lipidico, composizione corporea...)

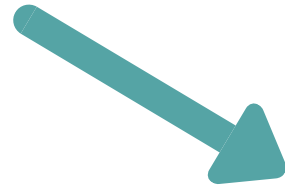
**IMPORTANT!**



*\*Take  
home message*



**prove emergenti suggeriscono che  
Resistance Training possa avere effetti  
sulla funzione cardiaca**



**LIMITI:**  
**ridotto numero di studi**  
**eterogeneità dei protocolli**