

Home-Based Vs. Usual and Center-Based Cardiac Rehabilitation: Effects on Aerobic Fitness and Quality of Life

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Abstract

Home-based cardiac rehabilitation has been proposed as an alternative to expand access to treatment for patients with cardiovascular diseases. This systematic review evaluated the effects of home-based cardiac rehabilitation, with emphasis on physical exercise, on aerobic fitness, quality of life, and adverse events compared with usual cardiac rehabilitation and center-based cardiac rehabilitation. A literature search was conducted in the PubMed database, including only randomized controlled clinical trials involving adults and older adults with coronary artery disease or heart failure. Twenty-three studies conducted in different countries were identified; however, none was performed in Brazil. The total sample comprised 2,298 participants, of whom 24% were women. All studies implemented aerobic training, either alone or combined with resistance training, and the vast majority maintained remote contact with participants every one to two weeks. Comparisons between pre- and post-intervention outcomes showed that home-based cardiac rehabilitation improved aerobic fitness and/or quality of life in 22 studies, with greater improvements than those observed with usual cardiac rehabilitation and outcomes comparable to those achieved with center-based cardiac rehabilitation. Furthermore, the incidence of adverse events was low and similar across the three rehabilitation models. Overall, home-based cardiac rehabilitation improves aerobic fitness and quality of life more effectively than usual cardiac rehabilitation and provides benefits comparable to those of center-based cardiac rehabilitation without increasing the risk of adverse events, supporting its use in the treatment of cardiovascular diseases. Nevertheless, the absence of studies conducted in Brazil highlights the need for further research on this rehabilitation model in the Brazilian context.

Introduction

Cardiovascular diseases are the leading cause of death worldwide¹ and affect a significant portion of the Brazilian population: more than 4 million adults in the country have

coronary artery disease and approximately 160 thousand have heart failure.² Thus, the treatment and control of these diseases are considered important public health issues.

Cardiac rehabilitation (CR) is a set of activities necessary to ensure optimal physical, mental, and social conditions for individuals with cardiovascular diseases.³ Conventional or usual cardiac rehabilitation (USUAL-CR) mainly consists of patient guidance toward healthy lifestyle habits, information about heart disease, maintenance of pharmacological treatment, and possible psychosocial interventions. Although this rehabilitation model does not include structured physical exercise, it recommends regular physical activity. Another CR model is conducted in clinical centers and is based on physical exercise (CENTER-CR). This model is strongly recommended in the treatment of cardiovascular diseases due to its greater benefits;⁴ however, even though it is an effective and low-cost intervention, a low number of patients participate in CENTER-CR programs (estimated adherence < 15%).⁵ This low adherence rate is observed worldwide, especially in low- and middle-income countries, and is mainly attributed to a lack of infrastructure (e.g., the absence of centers offering such services), low rates of medical referrals, and difficulties with behavior change.⁶⁻⁸ Thus, to overcome the structural barriers that reduce adherence to CR, home-based cardiac rehabilitation (HOME-CR) has emerged as an alternative or complement model to USUAL-CR and CENTER-CR. HOME-CR is a promising tool characterized by the implementation of physical exercise programs in the home environment, with direct or indirect supervision.⁴

Although some studies have evaluated the effects of HOME-CR on various outcomes, literature lacks the systematization of findings related to the effectiveness and safety of this alternative CR model. Therefore, this study was conducted a systematic review of the literature to identify the effects of HOME-CR, focused on physical exercise, on aerobic fitness and quality of life of adult and older adult patients with coronary artery disease or heart failure. The incidence of adverse events and comparison of these outcomes between HOME-CR, USUAL-CR, and CENTER-CR were also investigated.

Methods

This systematic review was conducted through a literature search of the PubMed database. Searches were performed between February and March 2024 and included studies published up to that date.

The search strategy combined MeSH terms and keywords with filters available in the database to refine the search. A specific search was performed for each primary outcome (aerobic fitness and quality of life) and included synonyms for the outcome (aerobic fitness = aerobic capacity OR oxygen

Keywords

Cardiac Rehabilitation; Exercise; Quality of Life

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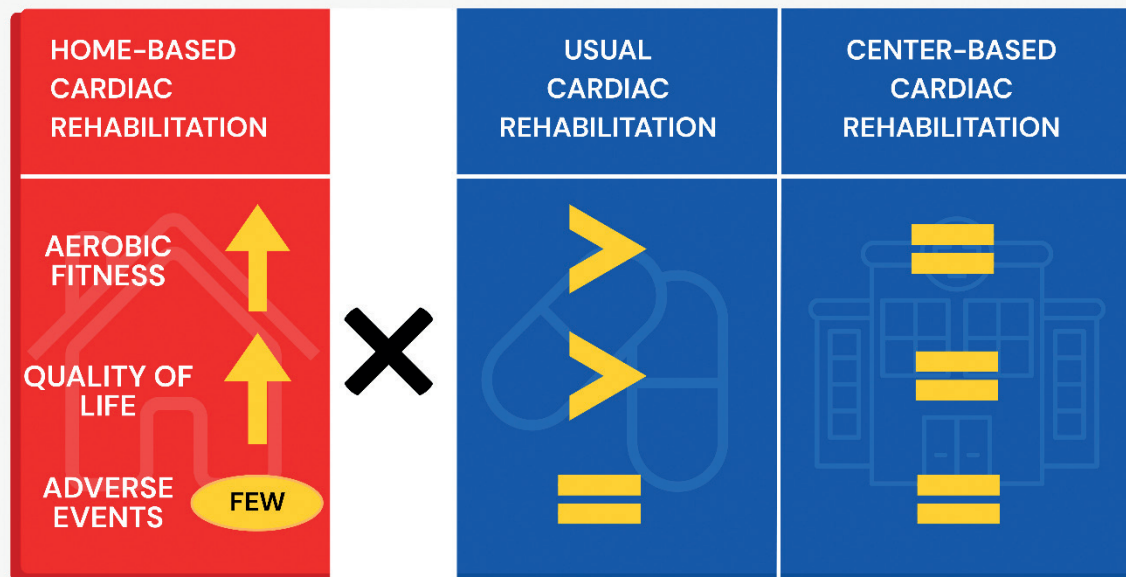
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Central Illustration: Home-Based Vs. Usual and Center-Based Cardiac Rehabilitation: Effects on Aerobic Fitness and Quality of Life

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uptake OR cardiorespiratory fitness OR 6 minutes test ; quality of life = quality of life) and the term “home-based CR”; the terms “anxiety”, “depression”, and “cancer” were excluded. The following filters were also applied: randomized controlled clinical trials, adult population, and humans.

Only studies that met the following criteria were included: randomized controlled trial (RCT) design; implementation of the HOME-CR focused on physical exercise; inclusion of adults, older adults, or both with heart failure or coronary artery disease; and assessment of at least one primary outcome (aerobic fitness or quality of life). RCTs with interventions lasting more than 1 year and those involving home-based rehabilitation alongside other non-home-based rehabilitation models were excluded.

After screening titles, abstracts, and full texts, the RCTs accepted for review were analyzed in full, and the following data were extracted: study data (author, year, and country), population (age range, sex, and clinical condition), experimental design (CR models and number of participants in each group), HOME-CR (type of supervision, monitoring, and contact with participants during the intervention), exercise protocol (intervention duration, weekly frequency, and type of training [aerobic or aerobic plus resistance]), and characteristics of aerobic training (modality, duration, and intensity). For USUAL-CR and CENTER-CR, respectively, the types of guidance provided and training protocols used were analyzed. Regarding primary outcomes, the method used to measure aerobic fitness was extracted (direct or indirect measurement of peak oxygen consumption, peak metabolic equivalent, or distance covered in the 6-minute walk test),

whereas the questionnaire used to evaluate quality of life was recorded.

To evaluate the results, significant changes in the outcome between pre- and post-HOME-CR were verified in each RCT. Right after, we assessed whether this change differed significantly from that observed with USUAL-CR, CENTER-CR, or both within the same study.

Results

Figure 1 presents the detailed flowchart of study selection.

The searches for aerobic fitness and quality of life identified 77 and 66 RCTs, respectively, totaling 143 RCTs. After removing duplicates, 99 RCTs studies remained. Title screening excluded 27 RCTs, and abstract screening excluded 18 RCTs that did not meet the inclusion criteria. As a result, 54 full texts were read and 31 RCTs were excluded. Therefore, the final review included 23 RCTs.

Characteristics of the included RCTs

Table 1 presents data from the 23 RCTs included in the review.⁹⁻³¹ The studies were published between 2000 and 2024, mostly (n = 15, 65%) in the last 10 years, and conducted in different countries, mainly in Europe (n = 12) and Asia (n = 6). None of the studies was conducted in South America.

Eight studies included only adults,^{9,12,14,16,18,23,26,30} three only older adults,^{19,25,31} and the remaining included adults and older adults.^{10,11,13,15,17,20-22,24,27-29} All RCTs involved females, and one was conducted exclusively with females.¹⁵

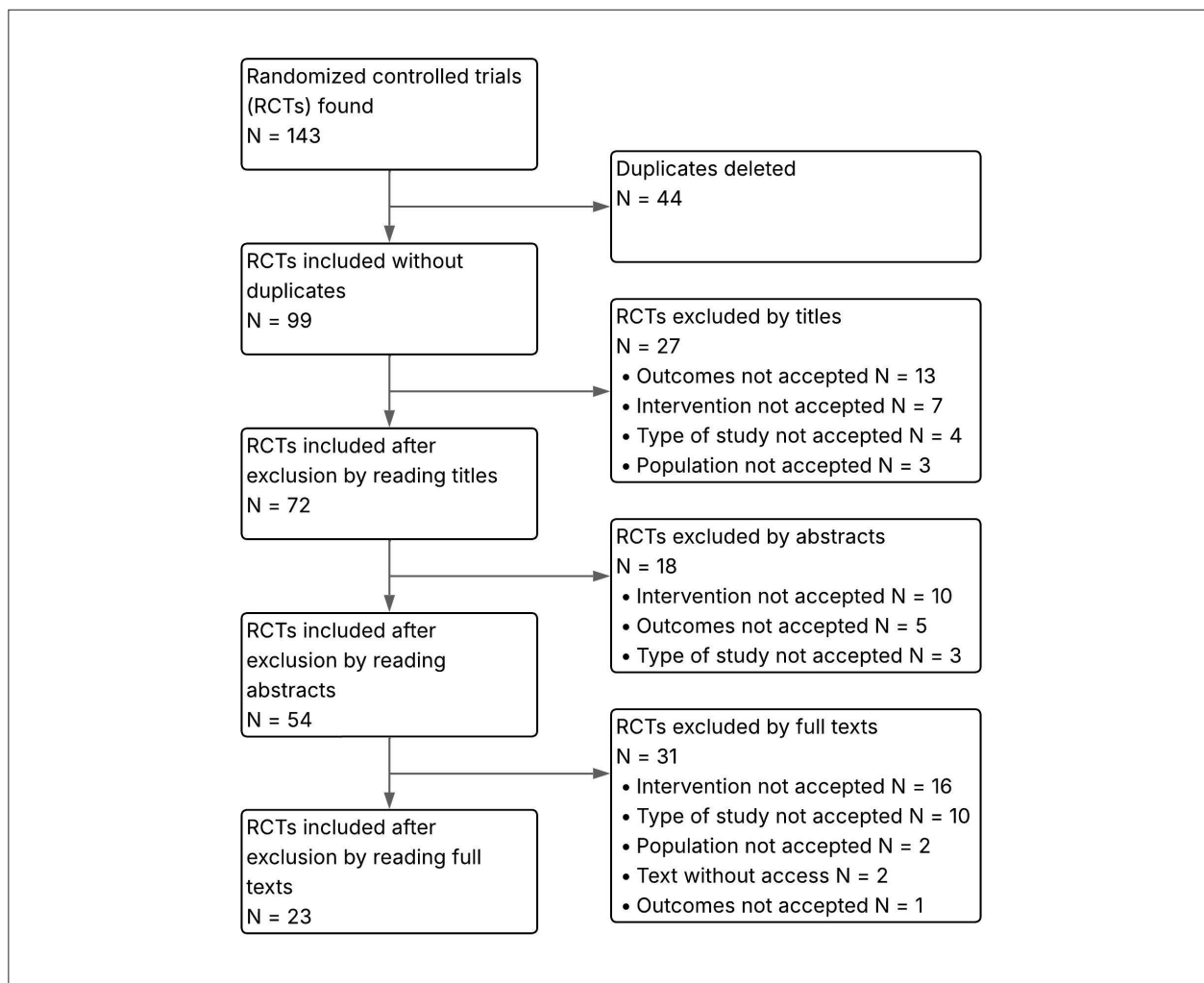


Figure 1 – Flowchart of study selection

However, in the total sample, only 24% of the participants were females. Thirteen studies evaluated only patients with coronary artery disease,^{9-12,15,17,18,20-22,25,29,30} six only patients with heart failure,^{14,16,24,26-28} and four included both conditions.^{13,19,23,31}

Twelve RCTs^{14,18-20,22-24,27-31} compared HOME-CR only with USUAL-CR, eight^{9,10,12,15-17,25,26} compared it only with CENTER-CR, and three^{11,13,21} included HOME-CR, USUAL-CR, and CENTER-CR. Thus, the studies allowed for 15 comparisons between HOME-CR and USUAL-CR and 11 comparisons between HOME-CR and CENTER-CR. Overall, 1,057 individuals participated in HOME-CR, 609 in USUAL-CR, and 632 in CENTER-CR.

Characteristics of the interventions

USUAL-CR consisted only of traditional care recommendations, such as regular medical appointments and counseling on lifestyle changes (e.g., smoking cessation, healthy eating, and stress self-management), and information about the heart disease of the patient, psychosocial

intervention, and continuing pharmacological treatment. Six RCTs^{13,14,18,19,22,23} also encouraged participants to maintain their physical activity levels or perform exercises independently, but without a structured exercise program.

CENTER-CR followed traditional cardiovascular rehabilitation protocols, with training modalities, duration, weekly frequency, and intensity similar to those of HOME-CR. The only difference was the place where training was conducted (i.e., clinical center vs. home).

HOME-CR varied across studies. Three RCTs conducted face-to-face supervision at the home of participants,^{19,25,29} while the others used only remote methods. Of those using remote delivery, eight conducted synchronous supervision during exercise sessions.^{9,16-18,26-28,30} Among them, seven monitored heart rate and ECG during the sessions,^{9,17,18,26-28,30} while one also measured arterial blood pressure.²⁷ Hwang et al.¹⁶ used synchronous video calls via an app. All RCTs included some form of contact with participants: most (n = 20) used only remote contact (phone calls or messaging apps), and three^{19,21,25} used remote and in-person contact.

Table 1 – Description of the studies, population, and cardiovascular rehabilitation models.

Study	Country	Age group	Sex	Clinical condition	N HOME-CR	N USUAL-CR	N CENTER-CR
Aamot et al. ⁹	Norway	Adults	MF	CAD	28	-	34
Arthur et al. ¹⁰	Canada	Adults and older adults	MF	CAD	120	-	122
Avila et al. ¹¹	Belgium	Adults and older adults	MF	CAD	30	30	30
Batalik et al. ¹²	Czech Republic	Adults	MF	CAD	28	-	28
Brubaker et al. ¹³	USA	Adults and older adults	MF	CAD, HF, and VD	16	15	17
Chen et al. ¹⁴	Taiwan	Adults	MF	HF	19	18	-
Grace et al. ¹⁵	Canada	Adults and older adults	F	CAD	55	-	59
Hwang et al. ¹⁶	Australia	Adults	MF	HF	24	-	29
Kraal et al. ¹⁷	The Netherlands	Adults and older adults	MF	CAD	29	-	26
Lee et al. ¹⁸	South Korea	Adults	MF	CAD	26	29	-
Li et al. ¹⁹	China	Older adults	MF	CAD, HF, and Arrhythmia	37	40	-
Li et al. ²⁰	China	Adults and older adults	MF	CAD	40	40	-
Marchionni et al. ²¹	Italy	Adults and older adults	MF	CAD	90	90	90
Moholdt et al. ²²	Norway	Adults and older adults	MF	CAD	14	16	-
Nabutovsky et al. ²³	Israel	Adults	MF	CAD and HF	45	24	-
Nagatomi et al. ²⁴	Japan	Adults and older adults	MF	HF	15	15	-
Oerkild et al. ²⁵	Denmark	Older adults	MF	CAD	36	-	39
Piotrowicz et al. ²⁶	Poland	Adults	MF	HF	77	-	75
Piotrowicz et al. ²⁷	Poland	Adults and older adults	MF	HF	77	34	-
Piotrowicz et al. ²⁸	Poland	Adults and older adults	MF	HF	77	75	-
Senuzun et al. ²⁹	Turkey	Adults and older adults	MF	CAD	30	30	-
Skobel et al. ³⁰	Germany, Great Britain, and Spain	Adults	MF	CAD	55	63	-
Snoek et al. ³¹	The Netherlands, Denmark, Spain, Switzerland, and France	Older adults	MF	CAD, HF, and VD	89	90	-

N: number of individuals; *HOME-CR*: home-based cardiac rehabilitation; *USUAL-CR*: usual cardiac rehabilitation; *CENTER-CR*: center-based cardiac rehabilitation; *CAD*: coronary artery disease; *HF*: heart failure; *VD*: valvular diseases; *MF*: male and female; *F*: female.

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The frequency of contacts was daily (1 RCT),²⁷ weekly (11 RCTs),^{9,11,12,17-20,23,24,26,31} or every two weeks (6 RCTs).^{10,13,14,21,25,29}

Table 2 describes the exercise protocols employed during HOME-CR. All studies included aerobic training, and walking was the most common modality (19 RCTs),^{9,10,12-15,17-20,22,24-31} followed by cycle ergometer (12 RCTs),^{9,12-15,17,21,22,24,25,30,31} Six RCTs also included strength training.^{16,19,22-24,30} Intervention duration ranged from 8 to 48 weeks, with a frequency of 2 to 6 sessions per week. Aerobic sessions lasted between 10

and 60 minutes. Intensity varied from very light to moderate in 9 RCTs^{13,16,19,20,23-25,30,31} and reached vigorous levels in 12 RCTs.^{9-12,14,17,18,21,22,26-28}

Effects of HOME-CR

The effects of HOME-CR are presented in Table 3. Aerobic fitness was assessed in 22 studies as follows: 16 RCTs directly measured using a cardiopulmonary exercise test,^{9-12,14,15,17,21-23,25,26,28-31} 2 RCTs estimated via maximal tests,^{13,18} and 8

Table 2 – Exercise protocols employed in the home-based CR.

Study	Intervention period (weeks)	Weekly frequency (days)	Modality	Aerobic training duration (min)	Aerobic training intensity*
Aamot et al. ⁹	12	2	HIIT, cycle ergometer, walking, running, and ski cross country	45	HIIT; M-V
Arthur et al. ¹⁰	24	5	Walking	40	M-V
Avila et al. ¹¹	12	-	Aerobic (unspecified)	-	V
Batalik et al. ¹²	12	3	Cycle ergometer and walking	60	V
Brubaker et al. ¹³	12	3 to 5	Cycle ergometer and walking	30 to 40	VL-M
Chen et al. ¹⁴	12	3	Cycle ergometer, walking, and running	30	L-V
Grace et al. ¹⁵	24	-	Cycle ergometer and walking	-	-
Hwang et al. ¹⁶	12	2	Aerobic (unspecified) and strength	20	L-M
Kraal et al. ¹⁷	12	2 to 3	Cycle ergometer and walking	45 to 60	M-V
Lee et al. ¹⁸	12	3 to 5	Walking	30	M-V
Li et al. ¹⁹	12	5	Walking and strength	30 to 40	VL-L
Li et al. ²⁰	24	-	Walking	15 to 40	L-M
Marchionni et al. ²¹	8	3	Cycle ergometer	30	M-V
Moholdt et al. ²²	24	3	HIIT, cycle ergometer, walking, running, ski cross country, and strength	38	HIIT; M-V
Nabutovsky et al. ²³	48	-	Aerobic (unspecified) and strength	-	M
Nagatomi et al. ²⁴	12	3 to 5	Cycle ergometer, walking, and strength	30 to 40	L-M
Oerkild et al. ²⁵	12	6	Cycle ergometer and walking	30	L-M
Piotrowicz et al. ²⁶	8	3	Walking	30	M-V
Piotrowicz et al. ²⁷	8	5	Walking	15 to 45	M-V
Piotrowicz et al. ²⁸	8	3	Walking	10 to 30	M-V
Senuzun et al. ²⁹	12	3	Walking	45 to 60	-
Skobel et al. ³⁰	24	2 to 3	Cycle ergometer, walking, and strength	30 to 60	L-M
Snoek et al. ³¹	24	5	Cycle ergometer and walking	30	M

HIIT: high intensity interval training; VL: very light; L: light; M: moderate; V: vigorous. Intensity classified based on American College of Sports Medicine (37).

RCTs evaluated using the 6MWT.^{14,16,19,20,24-26,28} Comparisons between pre- and post-HOME-CR data showed that aerobic fitness increased significantly in 19 RCTs.^{9-12,14,15,17-21,23-27,29-31} Moreover, this increase was greater than that observed with USUAL-CR in 12^{11,14,18-21,23,24,27,29-31} of the 14 RCTs that performed this comparison and similar to the increase obtained with CENTER-CR in 10 RCTs.^{9-13,16,17,21,25,26}

Quality of life was assessed using the Short-Form Health Survey 36 in eight RCTs,^{10-12,19,26-28,31} the Minnesota Living with Heart Failure Questionnaire in three RCTs,^{14,16,20} and the MacNew in three RCTs.^{9,17,22} The other RCTs used the 12-item Short-Form Health Survey,²⁵ the EuroQol Five-

Dimension Questionnaire,^{16,30} the Sickness Impact Profile,²¹ the Patient-Reported Outcomes Measurement Information System Global-10,²³ and the Hospital Anxiety and Depression Scale.³⁰ Quality of life improved in 12 of the 18 RCTs that assessed this outcome.^{9,10,12,14,16-18,20-22,26,27} Furthermore, this improvement was greater than that observed with USUAL-CR in five RCTs^{14,18,20,21,27} and similar to^{9,11,12,16,17,21,25,26} or greater¹⁰ than that observed with CENTER-CR in nine RCTs.

Fourteen RCTs assessed adverse events, including symptoms, hospitalizations, surgeries, and cardiac-related deaths. In five of these studies,^{9,12,19,26,27} no adverse events occurred. In the remaining studies, the incidence of adverse events was low and

Table 3 – Effects of home-based cardiac rehabilitation (HOME-CR) on aerobic fitness and quality of life and comparison with usual (USUAL-CR) and center-based (CENTER-CR) cardiac rehabilitation.

Study	Effects on aerobic fitness	Comparison	Effects on quality of life	Comparison
Aamot et al. ⁹	↑	= CENTER-CR	↑	= CENTER-CR
Arthur et al. ¹⁰	↑	= CENTER-CR	↑	> CENTER-CR
Avila et al. ¹¹	↑	> USUAL-CR; = CENTER-CR	↔	= USUAL-CR = CENTER-CR
Batalik et al. ¹²	↑	= CENTER-CR	↑	= CENTER-CR
Brubaker et al. ¹³	↔	= USUAL-CR; = CENTER-CR	-	-
Chen et al. ¹⁴	↑	> USUAL-CR	↑	> USUAL-CR
Grace et al. ¹⁵	↑	< CENTER-CR	-	-
Hwang et al. ¹⁶	↔	= CENTER-CR	↑	= CENTER-CR
Kraal et al. ¹⁷	↑	= CENTER-CR	↑	= CENTER-CR
Lee et al. ¹⁸	↑	> USUAL-CR	↑	> USUAL-CR
Li et al. ¹⁹	↑	> USUAL-CR	↔	= USUAL-CR
Li et al. ²⁰	↑	> USUAL-CR	↑	> USUAL-CR
Marchionni et al. ²¹	↑	> USUAL-CR; = CENTER-CR	↑	> USUAL-CR; = CENTER-CR
Moholdt et al. ²²	↔	= USUAL-CR	↑	= USUAL-CR
Nabutovsky et al. ²³	↑	> USUAL-CR	↔	= USUAL-CR
Nagatomi et al. ²⁴	↑	> USUAL-CR	-	-
Oerkild et al. ²⁵	↑	= CENTER-CR	↔	= CENTER-CR
Piotrowicz et al. ²⁶	↑	= CENTER-CR	↑	= CENTER-CR
Piotrowicz et al. ²⁷	↑	> USUAL-CR	↑	> USUAL-CR
Piotrowicz et al. ²⁸	-	-	↔	= USUAL-CR
Senuzun et al. ²⁹	↑	> USUAL-CR	-	-
Skobel et al. ³⁰	↑	> USUAL-CR	↔	= USUAL-CR
Snoek et al. ³¹	↑	> USUAL-CR	↔	= USUAL-CR

↑: increase; ↔: no change; =: equal effect; >: greater effect; <: lower effect; USUAL-CR: usual cardiac rehabilitation; CENTER-CR: center-based cardiac rehabilitation.

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ranged from 1% to 13%. Similar rates were found in five of the six RCTs^{22-24,30,31} that reported adverse events with HOME-CR and compared the incidence with USUAL-CR, whereas one RCT reported a lower incidence.²¹ The incidence was also similar across four of the five RCTs that compared adverse events between HOME-CR and CENTER-CR.^{9,12,25,26}

Discussion

This systematic review analyzed high-quality studies (RCTs) to assess the evidence regarding the effects of HOME-CR on aerobic fitness, quality of life, and risk of adverse events, and compare these effects with those of USUAL-CR and CENTER-CR. The main findings indicate that HOME-CR improves aerobic fitness and quality of life more effectively than USUAL-CR and similarly to CENTER-CR. Additionally, its risk profile is comparable to that of USUAL-CR and CENTER-CR.

Regarding the effects of HOME-CR on aerobic fitness, nearly all studies (87%) reported improvements in measured or estimated aerobic capacity. These improvements may reflect the expected cardiovascular benefits of aerobic training, including increased peak stroke volume, cardiac output, and muscle vasodilation, resulting in greater blood flow and oxygen delivery to active muscles. Furthermore, aerobic training enhances muscle oxidative capacity, increasing the ability to extract oxygen.³²⁻³⁷ Altogether, these cardiovascular and muscular adaptations support the observed increase in peak oxygen consumption.^{38,39} This physiological rationale also explains the smaller improvements seen with USUAL-CR, as this CR model does not include structured aerobic training. In contrast, the improvements in aerobic fitness achieved by HOME-CR were similar to those obtained with CENTER-CR, which employed the same structured aerobic training.

The improvements in quality of life observed with HOME-CR can be attributed to multiple physical and psychosocial mechanisms modulated by exercise training. Aerobic exercise positively affects various physiological systems, including the cardiovascular, musculoskeletal, and endocrine,^{37,39} which enhances overall physical function and, consequently, the physical domain of quality of life. In parallel, aerobic training contributes to psycho-emotional improvements (e.g., enhanced mood and reduced anxiety and stress);^{37,40,41} thus, improving the emotional dimension of quality of life. In addition, improved aerobic fitness may reduce fatigue, increase vitality, and enhance self-awareness, self-confidence, and self-efficacy,^{37,42,43} contributing to overall quality of life. The fact that CENTER-CR also included aerobic training may explain the similar improvements in quality of life found in HOME-CR and CENTER-CR. Conversely, the absence of structured aerobic exercise in USUAL-CR may account for the more limited impact, while the emphasis on healthy lifestyle counseling and behavior change may explain the moderate improvements observed in this group.⁴⁴

An important concern regarding HOME-CR is its potential risk, particularly the possibility of severe acute cardiac events occurring away from immediate medical support. However, this review found a low incidence of adverse events (36% of RCTs evaluating this outcome reported no events). In the remaining studies, the incidence was low and similar to, or

even lower than, that observed in USUAL-CR, despite the lack of structured exercise in the latter. These findings may reflect the careful planning and execution of HOME-CR programs, which were in line with the current recommendations for this intervention and included appropriate exercise prescription, monitoring, and regular contact with participants even when conducted remotely.^{4,32,33}

It is interesting to highlight that all HOME-CR programs incorporated aerobic training, which is the primary type of exercise recommended for CR^{4,32,33} due to its well-documented benefits for cardiovascular function and cardiovascular risk reduction.³⁴ Nevertheless, while various aerobic training modalities were employed, walking was the most commonly used, which aligns with its known cardiovascular benefits, low risk, ease of implementation, and high potential for adherence.^{35,36} especially in remotely supervised settings. Considering the training load, most HOME-CR programs employed a frequency of 3 to 5 sessions per week of light to moderate intensity (30 to 60 minutes per session). In most studies (65%), the total weekly training volume reached at least 150 minutes, consistent with international recommendations for CR.^{4,32,33} Moreover, some HOME-CR programs included strength and aerobic training, as recommended for global health maintenance.³⁴ Therefore, exercise protocols recommended in CR guidelines can be safely and effectively applied in the home setting, yield clear benefits, and have a low risk. Supervision can also be conducted remotely, as observed in most of the included studies, via synchronous or asynchronous interactions every one to two weeks, as recommended.^{4,32,33}

Despite the clinical relevance of CR and the practical advantages of home-based implementation, this review identified only 23 high-quality studies in one of the main health science databases, underscoring the need for further investigation. Moreover, most studies were recent (published within the last 10 years), possibly due to recent technological advances that have enabled more precise and safe remote supervision and monitoring of exercise programs.⁴⁵ Although nearly all RCTs were conducted in Europe and Asia (i.e., high-income countries), cardiovascular diseases affect the global population and are even more prevalent and lethal in low- and middle-income countries^{6,7} in which cost-effective strategies are essential. The study by Turk-Adawi et al.⁵ found that exercise-based CR offered a better cost-effectiveness ratio than other treatments, such as coronary artery bypass grafting, percutaneous coronary intervention, or pharmacotherapy. Furthermore, the costs of HOME-CR are lower than CENTER-CR.⁴⁶ Therefore, there is an urgent need to develop, implement, and study HOME-CR in low- and middle-income countries, including Brazil.

This review has limitations that must be acknowledged. First, the study design has intrinsic limitations: as a narrative systematic review, it is constrained by the available literature and does not provide quantitative pooled estimates. However, this format allowed for a broader contextual discussion of the heterogeneous findings. Specific methodological limitations also included the following: the search was conducted in a single database that is the leading database for health-related research; inclusion was restricted to studies with a maximum

duration of one year because longer studies are scarce and long-term interventions may reduce adherence; and studies involving other cardiovascular conditions were excluded because the included diseases (coronary artery disease and heart failure) are the most prevalent. Regarding outcomes, this review was limited to aerobic fitness and quality of life, and future studies should explore additional outcomes.

Conclusion

The Central Figure summarizes the main findings of this study. In conclusion, exercise-based CR performed in home settings improves aerobic fitness and quality of life in adults and older adults with coronary artery disease or heart failure. Furthermore, its effects are superior to USUAL-CR and comparable to CENTER-CR. Importantly, this intervention had a lower incidence of severe adverse events than USUAL-CR and CENTER-CR. The benefits of HOME-CR identified in this review can be achieved after three to six months of CR programs primarily based on aerobic training, conducted in accordance with CR guidelines, and remotely supervised every one to two weeks.

Author Contributions

Conception and design of the research, analysis and interpretation of the data, writing of the manuscript and critical revision of the manuscript for intellectual content: Mota CT, Forjaz CLM; acquisition of data: Mota CT.

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Study Association

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Ethics Approval and Consent to Participate

This article does not contain any studies with human participants or animals performed by any of the authors.

Use of Artificial Intelligence

The authors did not use any artificial intelligence tools in the development of this work.

Availability of Research Data

The underlying content of the research text is contained within the manuscript.

Review Article

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