Exercise Prescription and Cardiac Rehabilitation
New Cardiovascular Horizons 2016

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Nothing to disclose
Cardiovascular Disease is an inflammatory disease
Data demonstrate that contemporary cardiac rehabilitation (CR) programs reduce cardiovascular risk and event rates, foster healthy behaviors, and promote active lifestyles.¹,²


Accordingly, every recent major evidence-based guideline from the American Heart Association (AHA) and the American College of Cardiology Foundation regarding the management and prevention of coronary heart disease provides a class 1 level recommendation for referral to a CR program.\(^3,4\)

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Cardiac Rehab: Who

- recent myocardial infarction (MI) or acute coronary syndrome
- chronic stable angina
- heart failure
- S/P CABG, PCI, Valve or transplant
Cardiac Rehab: Who

• Despite the wealth of evidence supporting the proven benefits of CR programs, the services are greatly underutilized.

• Of eligible patients, only 14% to 35% of heart attack survivors and 31% of patients after CABG participate in CR programs.\textsuperscript{5,6}


Systolic Heart Failure

- **Now Class I Indication for CR**
- **No difference in mortality but improvement in other parameters.**²⁰
- **Very Underutilized**

Other Groups that Benefit
Heart Failure
With Preserved Ejection Fraction

• Not covered

• Studies show a functional improvement

Diabetes Mellitus

• The rising epidemic of diabetes mellitus has been attributed to the growing prevalence of obesity and overweight.

• Beneficial effects of exercise training include improved glycemic control, reduction of body fat and body mass index, reduced hypoglycemic medication requirement, and improved exercise capacity.¹⁵

Pulmonary Arterial Hypertension

• Not Covered

• Studies show a significant functional benefit

Congenital Heart Disease

- Not Covered

- Historically, conservative restriction in physical activity had been imposed on individuals with congenital heart disease.

- 90% of patients survive to adulthood. Participation in physical activity and exercise is now recommended in American and European guidelines, although evidence has been limited and based primarily on pediatric populations.\(^{27,28}\)

- Recent data on adults with CHD show QOL and increased Treadmill Time.\(^{30}\)

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Peripheral Arterial Disease

- Not Covered.

- Exercise training has a well-established role in patients with peripheral arterial disease, specifically those with claudication.

- In the American College of Cardiology/AHA 2005 Practice Guidelines for the Management of Patients with Peripheral Arterial Disease, supervised exercise training was given a class I recommendation, and unsupervised training received a class IIb recommendation.\(^{32}\)

Epidemiology of peripheral arterial disease (PAD)

- Epidemiology of peripheral arterial disease (PAD)

- PAD affects 12%–14% of the general population and its prevalence increases with age affecting up to 20% of patients over the age of 75 (Hiatt et al 1995).

- Coexistent coronary artery disease (CAD) and cerebrovascular disease (CVD) are highly prevalent in patients with PAD particularly in the elderly population.
Epidemiology of peripheral arterial disease (PAD)

- Recent data from the Reduction of Atherothrombosis for Continued Health registry presented at the American College of Cardiology Annual Scientific Sessions (Bhatt 2005) showed that among 7013 patients with symptomatic PAD, polyvascular disease was present in 63%.
Epidemiology of peripheral arterial disease (PAD)

- Furthermore, patients over the age of 50 and with PAD in an academic, hospital-based geriatric practice have a 68% and 42% incidence of coexistent CAD and stroke respectively (Ness and Aronow 1999).
### Benefit Table

<table>
<thead>
<tr>
<th>Lower BP</th>
<th>Exercise</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lower Cholesterol</td>
<td>Quitting Smoking</td>
</tr>
<tr>
<td>Lower Blood Sugars</td>
<td>Statins</td>
</tr>
<tr>
<td>Lose Weight</td>
<td>Cilostazol</td>
</tr>
<tr>
<td>Quit Smoking</td>
<td></td>
</tr>
<tr>
<td>OAPs</td>
<td></td>
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</tbody>
</table>

Patients with critical rest limb ischemia or severe progressive claudication need to be treated with revascularization to minimize the chance of limb loss, reduce symptoms, and improve quality of life.
How do I make my legs not hurt?

- Back pain
- Head cold
- Neck pain
- Joint pain
- Arthritis
- Anxiety/depression
- Stomach upset
- Headache
- Recurring pain
- Insomnia

It’s not that easy
EXERCISE
Home Based
What is Not Exercise

- Having a busy job
  (i.e. running around at work)

- Chasing after the kids or grandkids

- Going for a walk (Age dependent)
Moab 50K
Suffering is good for you and can be beautiful
EXERCISE
How?

Heart Rate Guided
Intensity Guided
Very focused
Take Home Points

- Get your s/p MI, CABG, Valve, Cardiac Transplant Patients to Cardiac Rehab.
- Don’t forget Chronic Angina and Chronic Systolic CHF.
- For everyone else, teach them HOW to exercise at home.
- Lead by example.
Thank you
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