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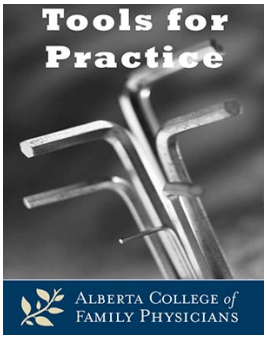

Exercise and Cardiovascular Disease: Getting to the heart of the matter

Clinical Question: How effective is exercise in reducing cardiovascular disease?

Bottom Line: In patients with cardiovascular disease (CVD), exercise may reduce the risk of dying from CVD for one in 32 people at 48 months and heart failure admissions for one in 14 heart failure patients at 27 months. It is cost effective and improves quality of life.

Evidence:

- Randomized controlled trial (RCT) of 101 men with stable angina, randomized to single vessel percutaneous coronary intervention (PCI) or exercise bike (targeting 70% symptom-limited maximum heart rate for 20 minutes daily plus 60 minutes group session weekly).[1] At 12 months:
  - CVD events (CVD death, stroke, myocardial infarction, bypass, additional PCI, new angina hospitalization) significantly lower in bicycle group: 30% PCI versus 12% bicycle, Number Needed to Treat (NNT)=6.
  - Cost: Exercise $3,708 versus PCI $6,086.
- Systematic review of RCTs of exercise-based cardiac rehabilitation:[2]
  - Systematic review (47 RCTs, 10,794 patients) in coronary heart disease found significant relative reductions in trials >12 months:
    - 13% for total mortality (NNT=59 at 33 months).[2,3]
    - 26% for CVD mortality (NNT=32 at 48 months).[2,3]
    - Other outcomes not statistically significantly different.[2,3]
    - 7/10 RCTs examining quality of life found improvement with exercise.[3]
  - Systematic review (33 RCTs, 4,740 patients) in heart failure found relative reductions in:
    - 39% for heart failure admissions (NNT=14 at 27 months).[2,4]
    - 11/19 RCTs examining quality of life found improvement with exercise.[4]

        - Exercise was cost effective.[4]
- Another systematic review found similar benefits.[5]
    - Also reduced risk of reinfarction: Odds Ratio 0.53 (95% Confidence Interval 0.38-0.76).[5]
- Systematic review in primary prevention: No RCTs identified.[6]

Context:

- Not possible to blind trials, and blinding of outcome assessors is rare.[3,4] Losses to follow-up are high (example: 21-48%).[3]
- Indirect comparisons suggest CVD benefits of exercise are similar to individual drugs.[7]
- For mortality, fitness level appears more important than body weight.[8]
- Cohort data suggests unfit individuals who become fit see reductions in mortality.[9,10]
- Guidelines recommend and cohort data support at least 150 minutes of moderate to high intensity exercise per week, or 30-60 minutes most days of the week (includes brisk walking).[11,12]

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