

# Therapeutics Initiative

Better prescribing. Better health.

## Physical activity is medicine: Prescribe it

Inactivity is a modifiable risk factor for chronic disease and, according to the World Health Organization, the fourth leading risk factor for death worldwide.<sup>1,2</sup> Exercise has demonstrated benefits for dozens of chronic diseases, yet 80% of Canadians do not meet physical activity guidelines.<sup>3</sup>

Clinicians may feel they lack time or ability to address the common barriers to prescribing exercise,<sup>1</sup> and exercise prescriptions (ExRx) are not taught in most medical curricula.<sup>4</sup> This Letter presents systematic review evidence about exercise prescriptions in **primary care**, and suggests some practical ways to employ ExRx in your practice.

### Defining exercise that improves health

Recent Canadian movement guidelines recommend at least 2 sessions of resistance training per week, plus 150 minutes of moderate to vigorous physical activity.<sup>5</sup> **Moderate-intensity aerobic activity** (e.g. fast walking, swimming, snow shoeing) makes breathing harder than normal: one can talk, but not sing. **Vigorous activity** increases heart rate and makes it difficult to say more than a few words without needing to catch one's breath. This can be achieved in fast team sports (e.g. soccer, basketball, hockey), fast cycling, jogging or running, swimming laps, or uphill climbing (e.g. stair climbing, hiking, cross-country skiing).

### Evidence from systematic reviews

We searched for systematic reviews (SRs) of controlled trials of interventions to prescribe exercise in **primary care settings** for adults with or without chronic disease. Experimental interventions studied in trials include writing an exercise prescription (ExRx) and comparable simple interventions such as advice or counselling, or prescribing a free pass to a recreation program (versus no ExRx or standard primary care). Outcomes assessed were mostly physical activity levels. There is much less experimental evidence from primary care about improvements in clinically important outcomes or other outcomes important to patients.

We identified 7 relevant systematic reviews.<sup>6-12</sup> Most of the underlying clinical trials ranged from 2 to 12 months, but 2 SRs included studies with over 12 months of follow-up. Five SRs included meta-analyses; 4 of 5 found a positive effect of an ExRx (or equivalent) on physical activity levels. The remaining 2 of 7 SRs found mixed results, as they reviewed studies of various different interventions.

These systematic reviews generally found that exercise counselling is **modestly effective at increasing physical activity**. For example, a

Name \_\_\_\_\_ Date \_\_\_\_\_

Indication:

Type of activity:

Frequency (days/wk): \_\_\_\_\_ Intensity:  
• light  
• moderate  
• intense

Duration (minutes): \_\_\_\_\_

MD/NP Signature \_\_\_\_\_ Licence \_\_\_\_\_

SR of 15 trials involving 8,745 people found a number needed to treat (NNT) of 12 (95% CI 7-33) for 1 sedentary adult to achieve internationally recommended physical activity at 12 months.<sup>10</sup> The same SR identified 3 trials in which exercise referrals (e.g. to a community centre or walking program) were no more effective than recommendations directly from a primary care doctor or nurse. Neither patient choice of the type of exercise (self-directed) nor physician-prescribed exercise has been shown preferable to increase activity. There is no evidence that recommending any specific type of exercise leads to better adherence.<sup>7</sup>

Because the underlying clinical trials studied so many different interventions (e.g. writing an ExRx in the clinic, a reminder phone call from a nurse, or handing out information in a counselling session) head-to-head comparisons of such interventions are not possible. Available evidence is also subject to biases arising from incomplete blinding of investigators, subjective outcome reporting (e.g. self-reported physical activity levels), and loss of participants to follow-up.

### Can exercise prescriptions cause harm?

Two key issues to consider are exercise-induced cardiovascular events and musculoskeletal injury from falls. The risk of exercise-triggered CV events may be highest in sedentary people, but this can be mitigated by clinically appropriate screening or investigations before initiating an exercise program.<sup>13</sup> People at low CV or metabolic risk gain little from screening before recommending exercise.

Most trials of exercise interventions did not report musculoskeletal injuries and falls due to exercise. When reported, incidence was similar in the intervention and control groups. A consistent message from research studies is that the very low risks of an exercise program should be weighed against the clinically important disadvantages of remaining sedentary.<sup>14</sup>



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## Some exercise is better than none

To achieve substantial health benefits, including prevention of chronic diseases or premature death, at least 150 minutes per week of moderate to vigorous physical activity is recommended.<sup>2,14</sup> However, people who do little or no exercise can improve their health by small changes in behaviour, such as substituting light-intensity activity for sitting time.<sup>13</sup> U.S. investigators concluded: “there is no threshold that must be exceeded before benefits begin to accrue.”<sup>14</sup>

The United States National Health and Nutrition Examination Survey (NHANES) measured physical activity from 2003 to 2006 in 4,840 adults aged > 40 (mean age 57, 53% women) who wore an accelerometer for 7 days. During mean follow-up of 10 years, the investigators found that “increasing moderate to vigorous physical activity by 10, 20, or 30 minutes per day was associated with a 6.9%, 13.0%, and 16.9% decrease in the number of deaths per year, respectively.”<sup>15</sup>

## Do patients want us to recommend exercise?

Clinicians may have different responses to this question, but asking our patients might yield surprising or gratifying answers.

## Prescribing physical activity in primary care

Prescribers can offer simple encouragement or more comprehensive interventions incorporating specific counselling and an individualized ExRx. Common barriers to activity include lack of motivation, insufficient time, pain, or loneliness. Helping people to change entrenched behaviours is not easy. Behavioural expert BJ Fogg’s simple model focuses on 3 factors:<sup>16</sup>

- Start simple
- Find a time when physical activity fits
- Remind yourself to do it

**Then celebrate success and repeat.**

## References

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The draft of this Therapeutics Letter was reviewed by multiple experts and primary care clinicians in order to correct any inaccuracies and to ensure that the information is concise and relevant to clinicians.

## 5A framework is more comprehensive

**Ask:** Determine the patient’s current activity level: “*What activities do you like, and how much are you doing them?*” This helps evaluate motivation, and identify activities that are safe and enjoyable for the patient. Remember: “*If it’s not fun, it’s not sustainable.*”

**Advise:** Physical activity according to Canadian guidelines.<sup>5</sup>

**Agree:** Formulate individualized goals in discussion and collaboration with the patient. Record the agreed goals as an ExRx.

**Assist:** Provide resources (online, handouts, etc.) or referrals (if needed) to other health care or exercise professionals. For some patient resources to encourage activity see: [www.ti.ubc.ca/letter137](http://www.ti.ubc.ca/letter137)

**Arrange:** Schedule **activity follow-ups**.

## Conclusions

- Physical inactivity is a major but modifiable risk factor for chronic disease.
- Exercise is medicine. Clinicians should routinely recommend and monitor physical activity options with their patients.
- Even small increases in activity can improve health.
- **In primary care, recommending exercise is good. Writing an exercise prescription to increase physical activity is better.**

### What is an exercise (activity) prescription?

An ExRx resembles a drug Rx, but substitutes:

- **Type of activity:** e.g. uphill walking, rowing, skating
- **Intensity of activity:** e.g. gentle walking, moderate swimming, vigorous cycling
- **Dose:** how much per session, e.g. minutes, steps, distance
- **Frequency:** how often, e.g. daily, twice a day
- **Duration, repeats & review:** when?

**Write the indication and follow-up** to reinforce the message, e.g. “*Walk briskly and every day for at least 30 minutes to reduce blood pressure and lower blood sugar. Let’s reassess your progress in 4 weeks.*”

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