

Exercise: an essential evidence-based medicine

Despite all the evidence, doctors do not regularly prescribe physical activity and exercise

The Gold Coast 2018 Commonwealth Games are a celebration of sporting excellence. Over 4000 elite athletes from 70 countries will compete in 18 sports and seven para-sports. The extraordinary performances of these athletes will be the culmination of long term dedicated training programs. Many of the next generation of elite Australian sportsmen and women will be inspired by these athletes and para-athletes and will passionately commit to specialised training and exercise regimes to pursue their sporting dreams. Sadly, there is no evidence, at a population level, that spectators enjoying the performances of highly trained athletes will increase their own physical activity and exercise patterns long term.¹

Evidence—practice gap

Physical inactivity is the fourth leading cause of morbidity and mortality worldwide.² Regular physical activity is highly beneficial for the primary, secondary and tertiary management of many common chronic conditions. There is considerable evidence for the benefits of physical activity for cardiovascular disease, diabetes, obesity, musculoskeletal conditions, some cancers, mental health and dementia.³ Yet there remains a large evidence—practice gap between physicians' knowledge of the contribution of physical inactivity to chronic disease and routine effective assessment and prescription of physical activity.

Twenty of the non-pharmacological treatments listed in the Royal Australian College of General Practitioners (RACGP) *Handbook of non-drug interventions* recommend evidence-based exercise interventions.⁴ For some chronic conditions, specific exercise prescription is at least as effective as drug therapy, such as for the prevention of type 2 diabetes and the treatment of depression.⁴

Australia's success in reducing smoking rates provides an interesting benchmark for addressing physical inactivity. Physicians routinely ask patients about smoking and record smoking status, in accordance with the RACGP smoking, nutrition, alcohol and physical activity guidelines.⁵ Patients who smoke are given smoking cessation advice and are either assisted with behaviour modification and reviewed personally by their physician or referred for expert counselling. Conversely, most physicians do not regularly assess or prescribe physical activity or specific exercises. Even when exercise is advised by physicians, the advice is often not specific or in depth, and simple evidence-based behaviour modification techniques are not routinely used.⁶

Physician exercise behaviour and exercise prescription

Clinician attitudes and willingness towards physical activity prescription appear to be heavily influenced by

personal experiences of physical activity and exercise. It has been consistently shown that physically active clinicians are more likely to provide physical activity counselling to their patients. A systematic review found that physicians and nurses with higher physical activity levels and positive attitudes towards physical activity were more likely to promote physical activity to patients.⁷ Lobelo and de Quevedo reported that physically active physicians and other health care providers are 1.4 to 5.7 times more likely to provide physical activity counselling to their patients.⁸ Similarly, medical students who regularly engage in vigorous exercise have a more positive attitude to counselling future patients about exercise. This has been reported for medical students in Australia,⁹ Canada¹⁰ and the United States.¹¹ Conversely, medical students who do not meet the minimum physical activity guidelines tend to place a lower value on physical activity and exercise prescription to patients. Worryingly, physical activity levels tend to decrease during medical training and through residency.¹¹

Institution-based studies (in university medical schools and health care facilities) have been conducted to encourage medical students and physicians to increase their personal physical activity levels.^{12,13} These interventions had good voluntary participation rates given they were additional activities for already busy students and clinicians. Physical activity increased in the intervention groups compared with the controls, with improvements in quality of life, burnout, blood pressure and high density lipoprotein cholesterol levels. All interventions were relatively low cost to the institutions and medical students reported improved confidence in physical activity counselling.

The need for training

One of the major barriers, identified by clinicians, to prescribing physical activity and specific exercise for patients, is a lack of undergraduate training at medical schools. In the United Kingdom, students tend to underestimate the risks of physical inactivity and be less aware of the physical activity guidelines (compared with other lifestyle behaviours such as alcohol consumption). Nearly half the students did not feel confident about providing physical activity advice to patients.¹⁴ In 2016, a group of eminent physicians and exercise scientists wrote to the UK General Medical Council and Medical Schools Council warning that the lack of training at UK medical schools about the impact of physical activity on health resulted in most doctors being ill-equipped to tackle physical inactivity. They called for "the introduction of evidence-based lifestyle education, including basic training in nutrition and the impact of physical activity on health and chronic disease into all medical curricula". In addition, they suggested that "all of

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Britain's 250 000 doctors should also receive the same education and training".¹⁵

Programs that have the best evidence for demonstrated improvements in medical student knowledge, skills and confidence in prescribing physical activity and exercise include the following components: opportunities for students to address their own physical activity behaviour; opportunities to practice physical activity counselling in either simulated encounters or with patients; and integration of physical activity counselling into existing programs that address behaviour change.¹⁶

In 2016, the Canadian Academy of Sport and Exercise Medicine published a position statement on physical activity prescription,¹⁷ which has been endorsed by the Australasian College of Sports and Exercise Physicians and Sports Doctors Australia. The statement provides an evidence-based, best practice guide for sport and exercise medicine physicians and primary care physicians, and emphasises the vital role that physicians need to play. Physicians should ask about physical activity at each consultation, just as they do for other chronic disease risk factors such as smoking or alcohol consumption. Patients who achieve 150 minutes of moderate to vigorous physical activity per week have a risk reduction of 25–50% for most major chronic diseases. For physically inactive patients, brief advice, including a written exercise prescription, should be given. If more time is available or can be negotiated with a return visit, motivational interviewing techniques can be used as for any other health behaviour intervention. Goals need to be specific and patient progress followed on a regular basis. Physicians can apply the 5As approach:

- Ask — about physical activity at every consultation.
- Assess — days per week and minutes per day of at least moderate physical activity.
- Advise — gradual increase to achieve at least 150 minutes of moderate to vigorous physical activity per week.
- Assist — written specific exercise prescription.
- Arrange — referral (if needed) and follow-up.

Healthy patients can safely be advised to gradually increase their physical activity towards the 150 minutes per week goal. Patients with stable asymptomatic chronic disease can also safely be encouraged to gradually increase their physical activity. Patients considered to be at higher risk (unstable or multiple chronic conditions) should be referred to a sports and exercise physician or their relevant specialist physician.

Exercise is an effective evidence-based medicine. Specific exercise regimens should be prescribed for specific

Key recommendations for assessment and prescription of physical activity and exercise as medicine

- Physicians should view physical inactivity as a major modifiable risk factor for chronic disease.
- All clinicians should routinely assess and advise their patients regarding physical activity, aiming for at least 150 minutes of moderate to vigorous physical activity per week.
- Exercise is an effective evidence-based medicine. All clinicians should consider if a specific exercise prescription is required for their patient's specific condition, and prescribe or refer.
- Physicians should unequivocally incorporate physical activity into their own daily routine, for their own health benefit, and to become an exercise role model, more confident in prescribing exercise to their patients. ◆

conditions (such as osteoarthritis, some cancers, etc). The list of conditions with proven benefit for targeted exercise as therapy continues to increase. Undergraduate, postgraduate and continuing professional education needs to incorporate this. Physicians who do not currently feel confident in exercise prescription for specific conditions should refer to skilled allied health practitioners, including accredited exercise physiologists and physiotherapists.

Conclusion

The benefits of physical activity for the prevention and treatment of many chronic diseases is well established. For some chronic conditions, structured exercise interventions are at least as effective as drug therapy.

Physically active physicians and medical students are more likely to prescribe exercise to their patients. Medical schools, health care facilities and professional bodies should provide opportunities and supported programs to increase and maintain the physical activity of clinicians and medical students. The lack of undergraduate and post graduate training in physical activity and exercise prescription must be addressed in order to increase the knowledge, confidence and skills of physicians in prescribing exercise as medicine to their patients (Box).

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