with the most recent iteration published in 2018.<sup>2</sup> e PAG serves as a valuable tool for clinicians to help guide their patients on specier commendations regarding frequency, duration, and type of physical activity one should participate in to achieve or maintain optimal health.

e guidelines listed in TABLE 12 can serve as a foundation for exercise prescription in healthy adults. When considering special populations such as people older than 65 years of age, pregnant and postpartum women, and those with chronic healthcare conditions, appropriate modi cations to these guidelines are made.

Older adults (older than 65 years of age) should be cognizant of various physical or tness level limitations that may preclude their ability to reach the above-noted guidelines. <sup>21,22</sup> In addition to aerobic and strength training, older adults bene t from adding balance exercises to their weekly regimen. <sup>23</sup>

In women who are pregnant or postpartum, the PAG is still at least 150 minutes of moderate aerobic activity spread throughout the week. Women in this cohort should maintain close follow-up with their healthcare providers in the event any modi cations to their exercise programs need to be made.

Adults with chronic health conditions should follow the PAG in TABLE 1<sup>2</sup> but modify their exercise program under the direction of their healthcare provider and/or exercise specialist.<sup>21</sup> If those with chronic health conditions are unable to meet the PAG for healthy adults owing to various medical or physical limitations, they should be as physicallt

TABLE 3. Description of the academic and certifying or licensing requirements of exercise specialists

Title	Academic requirements	Certifying/licensing organization
Exercise physiologist <sup>38</sup>	4-year bachelor's degree, usually in exercise science, kinesiology or related eld. Completing a 1-to-2-year master's program in exercise physiology usually required for obtaining research or clinical opportunities. 2-to-3-year exercise physiology PhD degree typically required for academic and independent research positions.	No of cial certifying or licensing organizations exist that regulate the practice of exercise physiology. However, the American Society of Exercise Physiologists (ASEP) and American College of Sports Medicine (ACSM) offer Exercise Physiologist certications that may be required by some employers.
Strength and conditioning specialist <sup>39</sup>	4-year bachelor's degree in any subject is required to sit for the Certi ed Strength and Conditioning Specialist (CSCS) certi cation exam. Certi cation in cardiopulmonary resuscitation (CPR) and automated external de brillation (AED) is also required. Must complete a number of continuing education credits every 2 years as de ned by the NSCA.	National Strength and Conditioning Association (NSCA)
exa8.004(e81uicitation (CPR) and automated extethebrillation (AED) isust	r)-17.884 <b>₹96</b>	

is a referral to a physical therapist or athletic trainer for injury rehabilitation, an exercise physiologist for cardiac rehabilitation, or a strength and conditioning coach or personal trainer to help design a progressive resistance training program, there are professionals available to the needs and conditions of any patient. equalications and licensing requirements for each exercise specialist are included in TABLE 3.

It is important to recognize that patients can be referred to rehabilitation or exercise professionals in hospital set-

tings, independent clinics (eg, rehabilitation, wellness), and commercial settings. e simplest approach in making this connection is for the physician to rst utilize shared decision-making to identify the best setting to refer the patient to. Once the setting has been determined, either the physician or the patient should ask the facility manager to assist with nding the appropriate trainer. Trainers should be instructed to provide occasional feedback to the physician regarding patient progression and health status. is information can then

be entered into the patient's medical records. Hospitals and independent clinics may provide an additional layer of safety because the patient is being trained within a clinical setting under the watchful eye of other healthcare providers.

Lastly, it is critical to recognize the roles of each professional involved in the physician-rehabilitation- tness pathway, which are succinctly summarized in TABLE 2. It is important for physicians to understand and to further educate themselves on the exercise prescription principles previously described in this section to be better prepared to disseminate this information when counseling patients.

## CONCLUSION

Physical activity and exercise play critically important roles in preventing and treating chronic disease. Family physicians are well positioned to discuss physical activity with patients, provide general counseling on physical activity prescriptions using the FITT-P principle, and refer patients to rehabilitation or exercise specialists within the community when appropriate. I

## REFERENCES

- Physical Activity: Why It Matters. Centers for Disease Control and Prevention. Updated May 13, 2020. Accessed October 26, 2020. https://www.cdc.gov/physicalactivity/about-physical-activity/why-it-matters.html
- US Department of Health and Human Services.
   , 2nd ed. Washington, DC: US Department of Health and Human Services. 2018.
- Meyerhardt JA, Giovannucci EL, Holmes MD, et al. Physical activity and survival after colorectal cancer diagnosis. 2006;24(22):3527-3534.
- Kirkman DL, Edwards DG, Lennon-Edwards S. Exercise as an adjunct therapy in chronic kidney disease. 2014;33(4):1-8.
- Mendelson M, Bailly S, Marillier M, et al. Obstructive sleep apnea syndrome, objectively measured physical activity and exercise training interventions: a systematic review and meta-analysis. . . . 2018;9:73.
- Bennell K, Hinman R. Exercise as a treatment for osteoarthritis. .. 2005;17(5):634-640.
- Pescatello LS, Buchner DM, Jakicic JM, et al; 2018 Physical Activity Guidelines Advisory Committee. Physical activity to prevent and treat hypertension: a systematic review. 2019;51(6):1314-1323.
- Winzer EB, Woitek F, Linke A. Physical activity in the prevention and treatment of coronary artery disease.
   . 2018;7(4):e007725.
- Umpierre D, Ribeiro PAB, Schaan BD, Ribeiro JP. Volume of supervised exercise training impacts glycaemic control in patients with type 2 diabetes: a systematic review with meta-regression analysis.
   Diabetes Prevention Program Research Group.
   10 Diabetes Prevention Program Research Group.
- Flack KD, Ufholz K, Johnson L, Fitzgerald JS, Roemmich JN. Energy compensation in response to aerobic exercise training in overweight adults. 2018;315(4):R619-R626.
- Exercise Is Medicine Fact Sheet. American College of Sports Medicine. 2019. Accessed October 27, 2020. https://www.exerciseismedicine.org/assets/page\_documents/ EIM%20Fact%20Sheet.pdf
- National Center for Health Statistics: Exercise or Physical Activity. Centers for Disease Control and Prevention. May 11, 2020. Accessed October 26, 2020. https://www.cdc.gov/nchs/fastats/exercise.htm
- Örrow G, Kinmonth AL, Sanderson S, Sutton S. E ectiveness of physical activity promotion based in primary care: systematic review and meta-analysis of randomised controlled trials. . . . 2012;344:e1389.
- 15. Abramson S, Stein J, Schaufele M, Frates E, Rogan S. Personal exercise habits and

- counseling practices of primary care physicians: a national survey.
- Ahmed NÚ, Delgado M, Saxena A. Trends and disparities in the prevalence of physicians' counseling on exercise among the U.S. adult population, 2000-2010.