

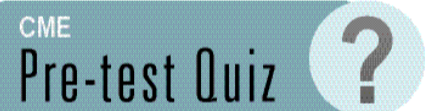


## ‘Preventing Aging’—What Strategies can Physicians Advise?

### ABSTRACT

The Canadian population continues to age, and therefore, promoting healthy aging is essential. Physicians play an important role in counselling patients on how they can optimize their health. Despite the range of societal myths and fads, the 4 pillars of health are the strategies that have been shown by evidence to promote healthy aging. In the clinical setting, it is critical for physicians to advise patients on these 4 pillars: a balanced diet, a range of physical activities, maintaining relationships, and utilizing the brain’s cognitive capacities all promote physical, mental, social, and emotional wellness. Although aging itself is unavoidable, these lifestyle behaviours can support patients in experiencing aging as a positive, fulfilling, and meaningful part of their lives.

**KEYWORDS:** Health promotion, aging, nutrition, exercise, cognition, social engagement



The Canadian population continues to age, and by 2030, nearly 1 in 4 Canadians will be over 65 years old.<sup>1</sup> As a result, there is an increasing need to address common issues seen in the elderly. It is well-known that aging alone increases one’s risks for a variety of illnesses, including cardiovascular and cerebrovascular disease, infections, dementia, pain, and more.<sup>2</sup> When these illnesses occur in the elderly, they are also more likely to be prolonged and serious, and can even be fatal. While there are no strategies that can effectively ‘prevent’ the population from aging, there are numerous interventions that can optimize health as patients age. In a society where fads and marketing have made it difficult to determine ‘what really works and what does not’, physicians play a major role in counseling patients about the lifestyle interventions that have been proven (i.e. are evidence-based) to promote healthy aging.<sup>3</sup>

The ‘four pillars of aging’, as shown in Figure 1, are cognitive activity, physical activity, nutrition, and social engagement. There is a wealth of evidence to support that



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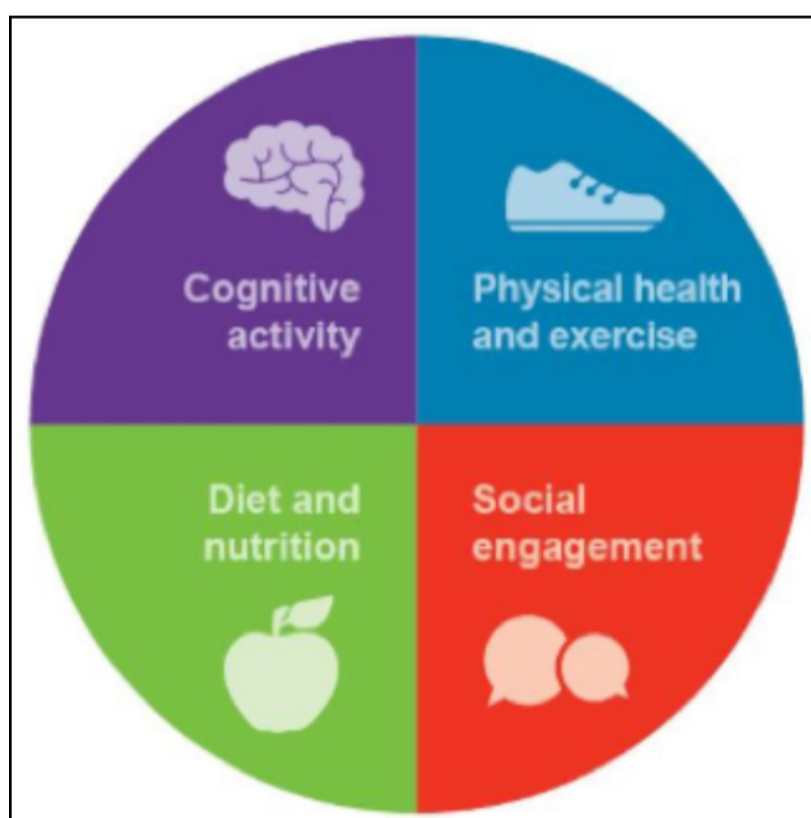


counselling patients on strategies related to these pillars form the foundation for healthy aging, and can decrease morbidity and mortality associated with increasing age.<sup>2</sup>

Cognitive stimulation—the process by which brain functions such as memory, language, executive functioning, organizing, etc.—are activated—is essential in promoting healthy aging. Evidence shows that as individuals engage in activities such as word searches, playing music, puzzles, memory-activators, etc., neuroplasticity occurs.<sup>4</sup> Essentially, neurons can form new connections, and brain matter is preserved—a stark contrast to the changes seen in dementia, where it is observed that a decrease in grey matter and brain shrinkage occurs.<sup>5</sup> This is a hopeful message that physicians can relay to

patients—although patients without dementia may have changes in brain matter on imaging, cognitive decline is not necessarily related to age alone. If patients 'stimulate' their brain, they can truly 'keep it young and working'. A simple analogy to use with patients is that the brain is like a muscle—the more they use its power, the stronger it becomes. Figure 2 lists a variety of tasks that

**Figure 1: The Four Pillars of Aging**



Taken from <https://publichealth.wustl.edu/exercise-your-body-exercise-your-brain/healthy-aging-four-pillars/>

**Figure 2: Examples of Cognitive Activities that can be Suggested to Patients**

- word searches and cross-word puzzles
- word scrambles
- sudoku
- memory games (ex. match the cards)
- solitaire
- math puzzles
- riddles and brain teasers; tongue twisters
- Tetris
- physical puzzles
- jigsaw
- Lego
- Rubix cube
- playing an instrument
- mazes
- colouring books
- spot the differences
- reading a novel
- writing poems (or even writing in a journal)
- learning a new song or skill



can be suggested to patients. Please note that this list is not exhaustive, but merely represents some ideas that can be discussed. The physician ought to encourage patients to think about similar activities they enjoy, or want to try, to stimulate their brains.

There is no doubt that nutrition plays a critical role in healthy aging. From the time of development in the womb, adequate nutrition is of the utmost importance. From an aging perspective, both under and over-nutrition are harmful. Elderly patients frequently report decreased appetite, problems with dentition or swallowing, loneliness, lack of finances, etc.—all leading to decreased food consumption.<sup>2</sup> At the same time, a lifetime of dietary habits for some patients may have consisted of nutritional imbalances—all of which can lead to (or exasperate) chronic illnesses in the elderly.<sup>5</sup> What is important to remember is that food is not 'inherently good or bad'—it is the quality and quantity of food that physicians should counsel on. An in-depth description of nutritional advice based on evidence – and debunking myths—is beyond the scope of this article. However, there are simple 'back to the basics' tips that physicians should counsel patients on with regards to their dietary patterns.

In terms of nutritional intake, physicians ought to advise patients to follow a diet that consists of

regular meals and snacks, and not going without prolonged periods of time without eating or drinking. Overall, balance and moderation truly are key. If weight loss is indicated, a restrictive diet should not be advised. Rather, the focus of optimal nutrition should be for patients to consume recommended amounts of crucial vitamins and minerals in their diet. Ideally, the emphasis should not be on the actual weight of the patient, but rather, overall health and functioning (unless weight must be critically addressed, such as in morbid obesity or sarcopenia, etc.). It is critical to remember that while weight does play a role in the development of illnesses and risk factors, the number (and even body mass index, or BMI) alone cannot determine health – it is a combination of factors including nutritional intake, activity, muscle mass and strength, weight, genetics, social habits, etc. that truly define health.<sup>6</sup>

Patients may ask the physician about common fad diets, such as the 'keto diet', 'paleo', 'intermittent fasting', etc. The simple answer is that these have not been proven to prevent or delay aging in the long-term, while ensuring a balance of the macronutrients and micronutrients do.<sup>7</sup> Macronutrients such as carbohydrates, fats, and protein are all essential for the brain and the body. Similarly, an adequate intake of vitamins



and minerals is important for various bodily functions and processes. There is not a 'one size fits all approach' to meal planning. Physicians can provide resources to patients about how to incorporate different foods into their meals, so as to meet their daily requirements (ex. the Dietitians of Canada, Canada's Food Guide, Eat Right Ontario, etc.). A referral to a dietitian can also be made to provide more in-depth education about this. Figure 3 is taken from the National Institute of Aging (USA). The tips included on this poster are useful discussion points.

Although most nutritional needs should ideally be met through the diet, if there is concern about deficits, physicians can recommend supplemental vitamins and minerals. However, this must be done with the understanding that patients should consume enough in their diet, and simply compliment their intake with a supplement (i.e. one should not depend on a 'pill' to provide their entire needs in the place of eating).<sup>6</sup> For example, patients with low calcium intake should be advised to take a calcium supplement of 500mg a day, and

Figure 3: Eating Well for Seniors

**USDA** 

**10 tips**  
Nutrition Education Series

**choosing healthy meals as you get older**

**10 healthy eating tips for people age 65+**

Making healthy food choices is a smart thing to do—no matter how old you are! Your body changes through your 60s, 70s, 80s, and beyond. Food provides nutrients you need as you age. Use these tips to choose foods for better health at each stage of life.

**1 drink plenty of liquids**  
With age, you may lose some of your sense of thirst. Drink water often. Low-fat or fat-free milk or 100% juice also helps you stay hydrated. Limit beverages that have lots of added sugars or salt. *Learn which liquids are better choices.*

**2 make eating a social event**  
Meals are more enjoyable when you eat with others. Invite a friend to join you or take part in a potluck at least twice a week. A senior center or place of worship may offer meals that are shared with others. There are many ways to *make mealtimes pleasing.*

**3 plan healthy meals**  
Find trusted nutrition information from [ChooseMyPlate.gov](http://ChooseMyPlate.gov) and the National Institute on Aging. Get advice on what to

**4 know how much to eat**  
Learn to recognize *how much to eat* so you can control portion size. MyPlate's *SuperTracker* shows amounts of food you need. When eating out, pack part of your meal to eat later. One restaurant dish might be enough for two meals or more.

**5 vary your vegetables**  
Include a variety of *different colored vegetables to brighten your plate.* Most vegetables are a low-calorie source of nutrients. Vegetables are also a good source of fiber.

**6 eat for your teeth and gums**  
Many people find that their *teeth and gums change* as they age. People with dental problems sometimes find it hard to chew fruits, vegetables, or meats. Don't miss out on needed nutrients! Eating softer foods can help. Try cooked or canned foods like unsweetened fruit, low-sodium soups, or canned tuna.

**7 use herbs and spices**  
Foods may seem to lose their flavor as you age. If favorite dishes taste different, it may not be the cook! *Maybe your sense of smell, sense of taste, or both have changed.* Medicines may also change how foods taste. Add flavor to your meals with herbs and spices.

**8 keep food safe**  
*Don't take a chance with your health.* A food-related illness can be life threatening for an older person. Throw out food that might not be safe. *Avoid certain foods* that are always risky for an older person, such as unpasteurized dairy

**9 read the Nutrition Facts label**  
Make the right choices when buying food. Pay attention to *important nutrients to know* as well as calories, fats, sodium, and the rest of the *Nutrition Facts label.* Ask your doctor if there are ingredients and nutrients you might need to limit or to increase.

**10 ask your doctor about vitamins or supplements**  
Food is the best way to get nutrients you need. *Should you take vitamins* or other pills or powders with herbs and minerals? These are called dietary supplements. Your doctor will know if you need them. More may not be better. Some can interfere with your medicines or affect your medical conditions.

**NIH** National Institute on Aging

United States Department of Agriculture  
Center for Nutrition Policy and Promotion  
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Go to [www.ChooseMyPlate.gov](http://www.ChooseMyPlate.gov) and [www.nia.nih.gov/health/topics/nutrition](http://www.nia.nih.gov/health/topics/nutrition) for more information.  
USDA is an equal opportunity provider and employer.

Taken from <https://content.govdelivery.com/accounts/USDACNPP/bulletins/10ef663>



all elderly patients should take a vitamin D supplement of 1000-2000 IU a day. These are both critical for optimal bone health. Similar to questions about dietary 'fads', patients will also approach physicians about supplements (ex. omega 3 fatty acids) or natural products (ex. turmeric) that they

have been marketed to decrease inflammation, prevent illnesses, etc. Again, a full review of this topic is beyond the scope of the article; however, it is important to remember that these claims are usually not evidence-based, do not show effects in the long-term, and may have side effects. As was mentioned before, the best way to meet one's nutritional needs is through the diet. In patients who are struggling to meet their dietary needs (i.e. because of poor dentition or dysphagia, lack of appetite, etc.), special diets, referrals to speech-language pathologists, a geriatrician, dietitian, etc. may be important. Supplemental drinks or foods with added protein or caloric content (such as Boost or Ensure) may also be recommended or indicated.

Physical activity is well-known to have numerous benefits across the lifespan. The positive effects of exercise range from physical to mental—Figure 4 is a great infographic to share with patients. Along with the reduction in risks associated with diseases like diabetes, certain cancers, heart attacks, etc., physical activity also improves stress-management, promotes relaxation, enhances mental health, and increases self-esteem. Furthermore, research strongly supports that elderly adults who engage in physical activity have improved quality of life.<sup>7</sup>

Figure 4: Exercise Infographic



Taken from <https://bjsm.bmj.com/content/51/19/1441>



It is important to remember that each individual has a different ability to engage in exercises; as a result, physical activity advice must be tailored to specific patients. Again, a full review of how to perform exercise counselling is beyond the scope of this article; however, it is critical to remember that patients comorbidities (ex. osteoporosis, cardiovascular concerns, patients taking certain medications, etc.) should be adequately assessed prior to starting any physical activity.<sup>8</sup> Physicians should also help patients explore the various activities they can engage in, and advise patients that they should focus on aerobic, strength, and balance training. Different activities for each category

exist; hence, it is critical to have an ongoing conversation with patients about the ranges of things they can try. For example, aerobic activity can range from going up and down stairs to jogging. Balance training activities include yoga and dancing, while strength training can include weight-lifting—but can also be something as simple as carrying shopping bags.<sup>9</sup> A patient-centered approach is therefore essential, as patients are more likely to start and continue these health behaviours if they are involved in formulating their health goals.<sup>10,11</sup> Incorporating physical activity into the elderly patient's life is an excellent way to make exercise feasible, enjoyable, safe, and long-lasting. A referral to a physiotherapist, exercise specialist, or occupational therapist may also be of use.

The final pillar of healthy aging is social engagement, and refers to the fact that as humans, we need relationships to thrive.<sup>3</sup> Social isolation is known to have numerous adverse effects, including poor nutrition, cognitive decline, an increased risk for falls, poor mental health, and more. Elderly patients are at risk for loneliness, with certain populations being at more risk than others (ex. those that live alone, do not go to work, do not volunteer, have chronic health conditions, etc.).<sup>12</sup> Encouraging

**Figure 5: Social Engagement**



Taken from <http://www.withseniorsinmind.org/blog>





## SUMMARY OF KEY POINTS

- 1) Although aging is unavoidable, patients can engage in lifestyle habits and behaviours that promote healthy aging and improve quality of life
- 2) Optimal nutritional intake and physical activity positively impact mental, emotional, and physical health throughout the lifespan
- 3) Engaging in social relationships, as well as cognitive stimulation, improves the self-esteem life-satisfaction of elderly patients

elderly patients both to maintain – and develop new—relationships is an essential role of the physician. When discussing social engagement, physicians should ask patients how they spend their days, what activities they engage in, who they spend time with, how often they go out and what they do, etc. Individuals with strong social support networks report increased quality of life as they age, as opposed to those without these connections; these patients are also less likely to develop cognitive decline and dementia.<sup>1</sup> Relationships can range from familial ties, to friends at a local religious organization, to neighbourhood children. Elderly patients should also be encouraged to become active members of their communities by volunteering at libraries, food banks, schools, and more. This instills within the patient a sense of importance, connection, and satisfaction. When possible, attending a social group or workshops not only

offers opportunities for social engagement, but can also provide cognitive stimulation and physical activity as well.<sup>13</sup> Figure 5 has a depiction of how elderly patients can maintain social relationships, regardless of their cognitive or physical limitations. Referrals to community groups, support networks, etc. can also help patients find social activities they are interested in, and patients should be supported in attending new groups and developing new hobbies.

In summary, physicians are in an optimal position to counsel patients about strategies that promote healthy aging.<sup>2</sup> Although aging can be associated with various illnesses and increased risks, it need not be viewed in a negative light. Rather, the emphasis with patients should be about embracing that they have accomplished their dreams, overcome challenges, and gained experiences—and can still continue to do so, in addition to being wise

and active participants in their communities.<sup>13</sup> While aging can bring along impaired physical, mental, and emotional health, many of these risks and/or their complications can be minimized if patients engage in healthy lifestyle habits and develop positive coping tools.<sup>7</sup> Therefore, physicians ought to discuss interventions that promote healthy aging, focussing on the four pillars of health: cognitive stimulation, nutrition, physical activity, and social engagement. Helping patients understand that these aspects of healthy living can positively influence their aging experience improves health, self-esteem, and quality of life<sup>1,12</sup>—and can make 'aging' an enjoyable journey.

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## CLINICAL PEARLS

- 1) The four pillars of health that promote healthy aging throughout the lifespan are nutritional intake, physical activity, cognitive stimulation, and social engagement. Physicians need to counsel patients on strategies that address these four pillars
- 2) Chronic under and over-nutrition are both harmful to health. Physicians should therefore provide advice to patients on how to eat a balanced diet that provides essential vitamins, minerals, and macronutrients
- 3) Cognitive stimulation can involve activities such as word searches, memory games, playing a musical instrument, mazes, and more. Evidence supports that these activities promote neuroplasticity and can prevent the development of dementia
- 4) Attending groups and workshops provides social engagement opportunities for elderly patients, which allows them to contribute to the community, develop social skills, and maintain a sense of human connectedness