

INTRODUCTION

RODRIGO SABIO, PASCUAL VALDEZ

Cardiovascular diseases (CVD), mainly ischemic heart disease and cerebrovascular accident (CVA), are the main cause of death worldwide and each year more people die from CVD than from any other cause^{1,2}. These data are also present in Latin America where CVD represents the first cause of mortality in order of frequency, representing 31% of deaths³. On the other hand, stroke is the leading cause of disability worldwide⁴.

According to the Global Burden of Disease Study (GBD) 2019, in the evaluation of the period from 1990 to 2019, it is evident that the prevalence of CVD has practically doubled, from 271 million cases in 1990 to 523 million in 2019, and the number of deaths from CVD increased steadily from 12.1 million in 1990, reaching 18.6 million in 2019⁵. Global metrics for disability-adjusted life years (DALYs) and lives lost also increased significantly, and years lived with disability doubled from 17.7 million to 34.4 million during that period⁵.

These data underscore the imperative for a paradigm shift, wherein health promotion and cardiovascular prevention take on a central role in health policies. On the other hand, within healthcare institutions, it appears appropriate to enhance the involvement of healthcare professionals, not only in the timely detection and treatment of cardiovascular risk factors but also in the promotion of healthy habits and lifestyle changes for the prevention of CVD.

While intervention strategies are contingent on public policies geared towards making "choosing a healthy lifestyle the easiest option" at the population level, health professionals also play a crucial role in recommending and guiding modifications in lifestyle and the adoption of heart-healthy habits. From this perspective, spending time during the internist's consultation to promote the acquisition of these habits would be advisable for all individuals, regardless of their cardiovascular risk.

During the consultation, when pharmacological treatments for the prevention of CVD are prescribed, medical instructions is usually precisely detailed (dosage, administration methods, etc.). However, when it comes to delineating lifestyle modifications, there is often a tendency to provide less guidance on particular aspects (e.g., quantity and type of daily or weekly physical activity, nutritional recommendations, etc.), that may not truly reflect a

clinical impact, nor lead to sustained changes over time. Conversely, a multidisciplinary approach that incorporates non-medical members of the health team proved to be an effective strategy in managing cardiovascular risk factors and preventing CVD⁶.

In primary prevention, the goal is to intervene with individuals who have cardiovascular risk factors but have not yet developed the disease. As 90% of cardiovascular events are attributed to modifiable risk factors directly tied to behavior, interventions at this stage have demonstrated significant utility in controlling cardiovascular risk factors⁷. On the other hand, an optimal approach to prevent cardiovascular disease in the community should extend beyond merely preventing cardiovascular events in patients with risk factors. It should also expand and guide preventive measures concerning the development of these factors, known as primary prevention or the promotion of cardiovascular health⁷. In these latter aspects, particular emphasis will be placed on developing guidelines issued in different chapters with the aim of serving as a practical tool for decision-making when indicating lifestyle modifications for CVD prevention.

The different sections will address topics that include nutrition, physical activity, sedentary lifestyle, obesity, smoking, alcohol consumption, sleep, stress, environmental problems related to CVD and specific conditions in women. Each topic is developed with a brief epidemiological introduction, current state of knowledge, risks, and recommendations with a clinical approach.

This document includes a section addressing the initiation of CVD promotion and prevention measures at an early age, encompassing childhood and adolescence, while also addressing epigenetic aspects. Recognizing that habits are established early in life, achieving significant changes with an impact on CVD control needs the inclusion of health promotion strategies that start in childhood and persist throughout an individual's life^{7,8}.

Furthermore, a dedicated chapter on social determinants in CVD has been included. This is crucial as certain social factors, such as a low socioeconomic level, can modify cardiovascular risk and should be considered by internists when making individualized decisions.

Various scientific societies and international organizations have developed guidelines and recommendations

addressing different facets of CVD prevention⁹⁻¹¹. In 2010, the American Heart Association (AHA) introduced the concept of “ideal cardiovascular health,” aiming to assess the cardiovascular health of a population based on ideal values of 7 modifiable cardiovascular risk factors and healthy behaviors. These seven crucial points, known as Life’s Simple Seven (LS7), encompassed abstinence from smoking, physical activity, a healthy diet, optimal blood pressure levels, normal total cholesterol, absence of diabetes mellitus, ideal body mass index, and finally, the absence of clinical cardiovascular disease¹². The score derived from this metric not only evaluates the cardiovascular health of a specific population but also exhibits an inverse relationship with the incidence of cardiovascular disease. Recently, this score has been updated by incorporating a new parameter –adequate sleep– and introducing other minor modifications to the previous variables, resulting in a total of eight essential points in this metric¹³.

It is important to mention that both cardiovascular risk factors and healthy habits are common to other non-communicable diseases, such as cancer. Therefore, cardiovascular health promotion based on these lifestyle modifications and healthy habits will also yield improvements in other chronic diseases.

A study using data from the Nurses’ Health Study (1980-2014; n = 78,865) and the Health Professionals Follow-up Study (1986-2014, n = 44,354) estimated that life expectancy at the age of 50 was 29 years for women and 25.5 years for men who adopted zero low-risk lifestyle factors. In contrast, for those who adopted all 5 low-risk factors, a life expectancy at the age of 50 was projected to be 43.1 years for women and 37.6 years for men. Projected life expectancy at the age of 50 was on average 14 years longer among American women with 5 low-risk factors, compared to those without low-risk factors; for men, the difference was 12.2 years¹⁴.

This document will not address pharmacological treatment in CVD prevention, nor will it elaborate on established cardiovascular risk factors such as high blood pressure, diabetes mellitus, or dyslipidemia as specific chapters. Instead, it focuses on heart-healthy habits that impact on the prevention of their development. Due to the significance and disease burden of high blood pressure, the International Forum of Internal Medicine (FIMI) produced another set of specific recommendations on this matter¹⁵.

For the development of this consensus, the directors selected topics and presented them to the FIMI reference group, who approved them and provided additional thematic suggestions, ultimately approving the current index.

Subsequently, authors of these chapters were selected based on expertise in their respective areas (each group had a director, a secretary, and authors). Writing criteria were established. Each group conducted a literature

search in PubMed and selected relevant articles according to their judgment. Once the chapter was drafted, it was assigned to a group of reviewers who either accepted it with or without content modifications. These changes were then sent back to the authors, who incorporated them into the original text. In a second stage, the complete material with consolidated chapters was sent to all authors and authorities of the scientific societies within FIMI for their review and suggestions. Afterwards, the entire document was reviewed and edited by four external reviewers (who did not participate in drafting the original document). The final approval and closure took place at an in-person event in the Argentine Patagonia with the presence of all chapter directors (Summit in the city of El Calafate, November 2022).

References

1. GBD 2017 Mortality Collaborators. Global, regional, and national age-sex-specific mortality and life expectancy, 1950-2017: a systematic analysis for the Global Burden of Disease Study 2017. *Lancet* 2018; 392: 1684-735.
2. World Health Organization. Cardiovascular diseases: Facts and figures. In: [https://www.who.int/es/news-room/factsheets/detail/cardiovascular-diseases-\(cvds\)](https://www.who.int/es/news-room/factsheets/detail/cardiovascular-diseases-(cvds)); consulted October 2022.
3. Lopez-Jaramillo P, Joseph P, Lopez-Lopez JP, et al. Risk factors, cardiovascular disease, and mortality in South America: a PURE substudy. *Eur Heart J* 2022; 43: 2841-51.
4. GBD 2019 Stroke Collaborators. Global, regional, and national burden of stroke and its risk factors, 1990-2019: a systematic analysis for the Global Burden of Disease Study 2019. *Lancet Neurol* 2021; 20: 795-820.
5. Roth GA, Mensah GA, Johnson CO, et al. Global Burden of Cardiovascular Diseases and Risk Factors, 1990-2019: Update from the GBD 2019 Study. *J Am Coll Cardiol* 2020 22; 76: 2982-3021.
6. Anand TN, Joseph LM, Geetha AV, Prabhakaran D, Jeemon P. Task sharing with non-physician health-care workers for management of blood pressure in low-income and middle-income countries: a systematic review and meta-analysis. *Lancet Global Health* 2019; 7: e761-e71.
7. Castellano Vázquez JM, Fernández Alvira JM, Fuster V. Primordial prevention: paramount in cardiovascular prevention. *Rev Esp Cardiol (Engl Ed)* 2020; 73: 194-6.
8. Jacobs DR Jr, Woo JG, Sinaiko AR, et al. Childhood cardiovascular risk factors and adult cardiovascular events. *N Engl J Med* 2022; 386: 1877-88.
9. Piepoli MF, Abreu A, Albus C, et al. Update on cardiovascular prevention in clinical practice: A position paper of the European Association of Preventive Cardiology of the European Society of Cardiology. *Eur J Prev Cardiol* 2020; 27: 181-205.
10. Campbell NRC, Ordunez P, Giraldo G, et al. WHO HEARTS: A Global Program to Reduce Cardiovascular Disease Burden: Experience Implementation in the Americas and Opportunities in Canada. *Can J Cardiol* 2021; 37: 744-55.
11. Arnett DK, Blumenthal RS, Albert MA, et al. 2019 ACC/AHA Guideline on the Primary Prevention of Cardiovascular Disease: A Report of the American College

- of Cardiology/American Heart Association Task Force on Clinical Practice Guidelines. *Circulation* 2019; 140: e596-e646.
12. Lloyd-Jones DM, Hong Y, Labarthe D, et al. American Heart Association Strategic Planning Task Force and Statistics Committee. Defining and setting national goals for cardiovascular health promotion and disease reduction: the American Heart Association's strategic Impact Goal through 2020 and beyond. *Circulation* 2010; 121: 586-613.
 13. Lloyd-Jones DM, Allen NB, Anderson CAM, et al. Life's Essential 8: Updating and Enhancing the American Heart Association's Construct of Cardiovascular Health: A Presidential Advisory from the American Heart Association. *Circulation* 2022; 146: e18-e43.
 14. Li Y, Pan A, Wang DD, et al. Impact of healthy lifestyle factors on life expectations in the US population. *Circulation* 2018; 138: 345-55.
 15. Sabio R, Valdez P, Abuabara Turbay Y, et al. Latin American recommendations for the management of arterial hypertension in adults (RELAHTA 2). *Rev Virtual Soc Parag Med Int* 2019; 6:86-123