



Physical activity for adults: Physical Activity Guidelines for the Brazilian Population

Atividade física para adultos: Guia de Atividade Física para a População Brasileira

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ABSTRACT

In 2020, the Brazilian Health Ministry in partnership with the Federal University of Pelotas, Rio Grande do Sul selected researchers for the elaboration of the Brazilian Physical Activity Guide. The objective of this article was to present the methods used as well as the results of the Brazilian Physical Activity Guide for adults from 18 to 59 years of age. The construction of the guide was based on four guiding questions: What, when, why and how to practice physical activity? To answer these questions, two main strategies were adopted: review of scientific evidence and "listening" to different strategic groups. From the procedures performed, it is recommended that adults accumulate between 150 and 300 minutes of physical activity per week of moderate intensity and / or between 75 and 150 minutes per week of vigorous intensity, regardless of the type (aerobics or muscle strengthening). Among the identified benefits, the reduction of mortality due to chronic diseases, improvement in mental health, in social and emotional aspects stands out, (e.g., interaction with other people, contact with local culture etc.) and emotional (e.g., self-esteem, feeling of well-being etc.). In addition, the recommendations were not restricted to the aforementioned outcomes, we sought to consider the specificities and singularities of the adult population in different regions of Brazil. The guide also presents messages to overcome the main barriers of physical activity, and the existing support networks to help Brazilian adults to have a more physically active life.

Keywords: Health planning guidelines; Health promotion; Health policy; Disease prevention; Exercise.

RESUMO

Em 2020, o Ministério da Saúde, em parceria com a Universidade Federal de Pelotas, Rio Grande do Sul, selecionou pesquisadores e pesquisadoras para a elaboração do Guia de Atividade Física para a População Brasileira. O objetivo deste artigo foi apresentar os métodos utilizados, bem como os resultados do Guia de Atividade Física para a População Brasileira (Guia) para adultos de 18 a 59 anos de idade. A base para construção do Guia se deu a partir de quatro perguntas norteadoras: O quê, quando, por que e como praticar atividade física (AF)? Para responder essas questões, duas estratégias principais foram adotadas: revisão das evidências científicas e a "escuta" de diferentes grupos estratégicos. A partir dos procedimentos realizados, recomenda-se que os adultos acumulem entre 150 e 300 minutos de AF por semana com intensidade moderada e/ou entre 75 e 150 minutos por semana de intensidade vigorosa. Dentre os benefícios identificados, destaca-se a redução de mortalidade por doenças crônicas, melhoria na saúde mental, nos aspectos sociais (e.g. interação com outras pessoas, contato com a cultura local etc.) e emocionais (e.g. autoestima, sensação de bem-estar etc.). Além disso, as recomendações não ficaram restritas aos desfechos supracitados, buscou-se considerar as especificidades e singularidades da população adulta nas diferentes regiões do Brasil, destacando que a AF está envolvida em movimentos populares, sociais e culturais. No Guia também são apresentadas mensagens para superar as principais barreiras da AF, e as redes de apoio existentes para auxiliar a população adulta a ter uma vida fisicamente mais ativa.

Palavras-chave: Diretrizes para o planejamento em saúde; Promoção da saúde; Política de saúde; Prevenção de doenças; Exercício físico.



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Introduction

The reduction in demands for physical activities (PA) and the increased time spent in sedentary behavior have contributed to the occurrence of chronic non-communicable diseases (NCDs), such as hypertension, diabetes, cancer, and obesity, which have important repercussions on longevity, quality of life, and social costs arising from this scenario^{1,2}. Specifically in Brazil, the prevalence of people over 18 years old who do not meet the recommendations for PA practice is 40.3%, of which 32.1% are men, and 47.5% are women³.

PA is present in getting to and from places, in free time (leisure), at work or study, and/or in household chores. Its practice contributes to the health promotion, prevention, and treatment of NCDs, considering that the scientific literature has consistently shown that a physically active life can bring several benefits, including physical, physiological, spiritual, psychological, and social^{4,5}. The expanded understanding of PA recognizes its importance for human development as a social right and also from the right to the city⁶.

The World Health Organization (WHO) recommends the practice of PA in different domains (getting to and from places, in free time, at work or study and/or in household chores) through its guidelines^{7,8}. However, considering the diversity and complexity of PA practice factors, such as environmental, cultural, regional, demographic, and social^{7,9}, the WHO has encouraged the development of guides with recommendations and guidelines specific for each country.

Brazil has made several efforts to promote PA¹⁰ at the municipal level (e.g., Exercise Guidance Service, *Academia da Cidade* Program, *Academia Carioca*), state-level (e.g.: *Agita São Paulo* Program), and federal level (e.g., *Academia da Saúde* Program, PA-Related epidemiological Surveillance System^{3,11,12}). In 2020, the Ministry of Health, in partnership with the Federal University of Pelotas (Rio Grande do Sul), prepared the Physical Activity Guidelines for the Brazilian Population, here named simply as Guide, with the participation of researchers from all over the country selected by public notice and organized in different working groups (WG). The purpose of this article was to present a synthesis of the methods and strategies used and the results of the Guide for adults aged 18 to 59 years old.

Methods

The elaboration of the Guide's chapter referring to adults was grounded on four guiding questions: what,

when, why, and how to practice PA? In addition to these questions, aspects related to safety and risk reduction during PA practice, guidelines for individuals with NCDs (hypertension, diabetes, and asthma), sedentary behavior (as a cross-cutting theme), and existing support networks to help adults to adopt a more physically active life were considered. More detailed information on all processes carried out will be available in the technical report released by the Health Department¹³ together with the Physical Activity Guidelines for the Brazilian Population.

The WG that worked in the adult chapter was composed of nine Physical Education professionals (coordinator, member of the scientific committee, and seven researchers) and a physical therapist (member of the Ministry of Health). The WG activities (Figure 1) took place from May to December 2020, based on periodic remote meetings held to direct actions focused on two strategies: scientific literature review and "listening." Periodically, the results were discussed with all members of the eight WGs and then shared with a group that included all eight WG coordinators, the scientific committee, and members of the Ministry of Health. After completing the work, the prepared material was submitted to public consultation (<https://aps.saude.gov.br/noticia/9516>). All comments received were debated and revised, thus obtaining the final result version of the Guide, which was sent to the Ministry of Health, responsible for editing the Guide.

Methodological procedures of the literature review process

Scoping reviews were developed, seeking to map the relevant scientific literature on the subject. Four topics were listed to be reviewed to answer the guiding questions: type and dose recommendations for PA according to their benefits; practice preferences of the Brazilian population; barriers and facilitators; support network for PA practice. At least two researchers reviewed each topic and jointly searched, analyzed, and synthesized the available information.

For the preparation of type and dose recommendations of PA for the adult population, elements based on PECO (Population, Exposure, Comparison, and Outcomes) were established, according to the procedure carried out by the WHO⁸ in the preparation of its Physical Activity Guidelines. It considered Population: adults aged between 18 and 59 years old; Exposure: volume, frequency, duration, or intensity of PA; Compari-

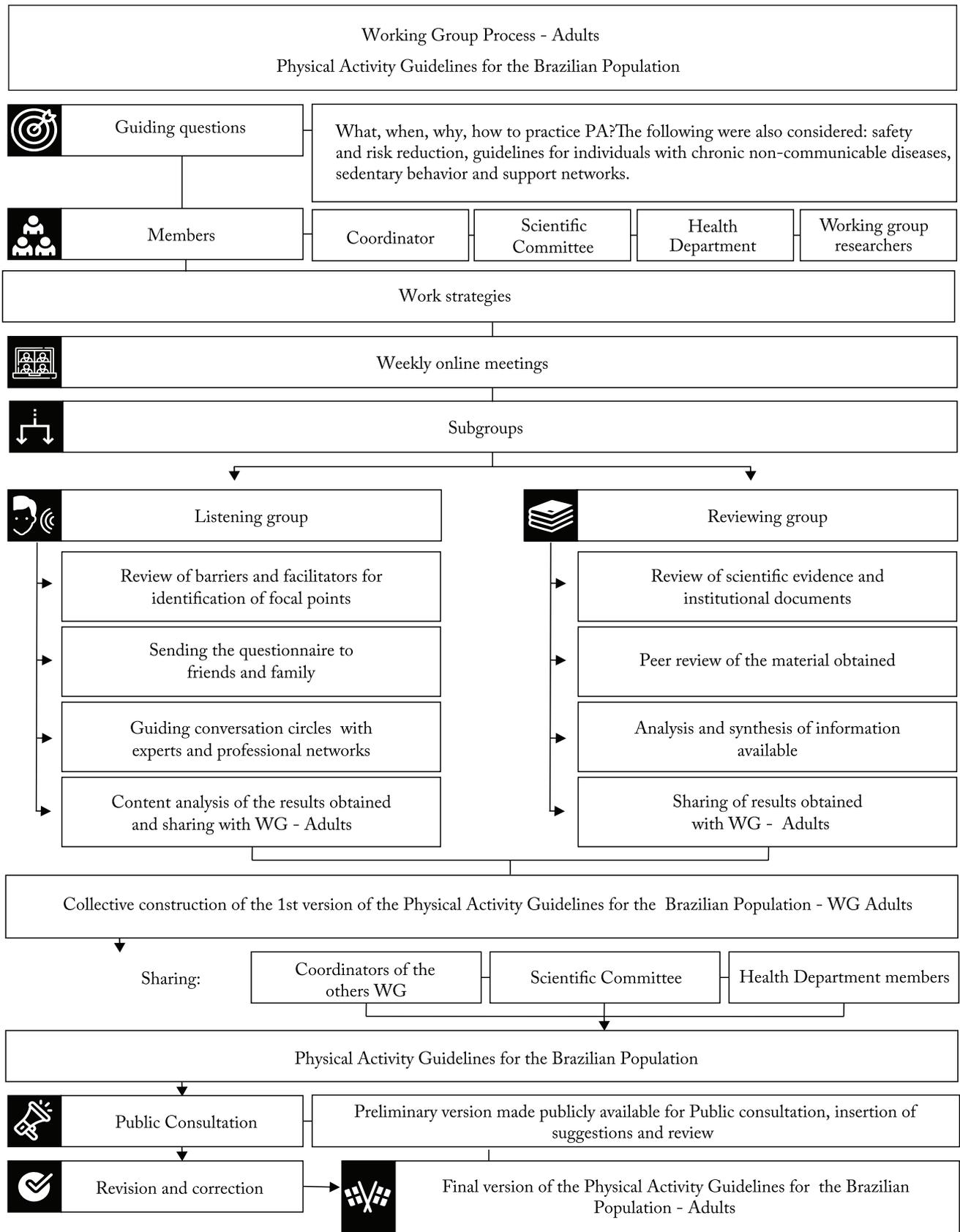


Figure 1 – Process of the working group which developed the chapter for adults on the Physical Activity Guidelines for the Brazilian Population. WG = Working Group.

son: no PA or lower volume, duration, frequency or the intensity of PA; Outcomes: mortality from all causes or specific causes, the incidence of cardiovascular disease, cancer or type 2 diabetes mellitus, adiposity/prevention of weight gain, mental health (e.g., depressive symptoms, anxiety symptoms, stress), cognitive aspects (e.g., dementia, cognition), quality and duration of sleep, the incidence of hypertension and health-related quality of life. In addition, national guidelines from different countries were also consulted.

Considering the little specificity regarding the dose needed for muscle strengthening exercises, in addition to articles and PA guidelines from other countries, the guidelines of renowned national and international health institutions for healthy adults¹¹, hypertensive¹⁴, diabetic¹⁵, obese¹⁶, and asthmatics¹⁷, which are the priority groups for the Ministry of Health, have been reviewed.

Scientific studies published in indexed journals and national surveys carried out by the federal government agencies were reviewed to identify the preferences of PA practices of the Brazilian population²².

In order to identify barriers and facilitators for the practice of PA by the adult population, the PA promotion guidelines from several countries were reviewed, as well as the National Sport Diagnosis²², the National Human Development Report - Movement is Life: Physical Activity and Sports for Everyone, 2017⁶, the Global Action Plan on Physical Activity 2018-2030²³, the publications available on the United Nations website regarding the Sustainable Development Goals and the Centers for Disease Control and Prevention. Based on these documents, barriers and the messages to overcome them were identified and grouped into three categories: personal, environmental, and activity characteristics. Then, an electronic form was built for WG adequacy evaluation of each message about the barrier category. The instrument was also used for raising suggestions for adjustments and/or a new wording for the messages. It was also possible to include new messages to overcome the barriers identified from the “listening” procedures, taking place in parallel.

The national institutional websites of the Ministries of Health, Citizenship, and Education were used to identify support networks for the practice of PA in adult life. In addition, the S System Services, a group of non-governmental institutions that provide services of public interest in different professional categories were also consulted. This system includes the Social Service for Industry (SESI), National Service for Industrial

Apprenticeship (SENAI), National Trade Social Service (SESC), and the Brazilian Service of Micro and Small Size Companies Support (SEBRAE).

Methodological procedures of the “listening” process

The “listening” procedures consisted of giving voice to social actors from different segments to democratize the construction of the knowledge process necessary for the preparation of the Guide. It also aimed to understand how individuals from certain groups will recognize and act on the social determinants of health to improve individual and collective health by adopting a physically active lifestyle.

The procedures adopted for the “listening” were premised on recognizing the values and principles present in the National Health Promotion Policy regarding solidarity, happiness, ethics, respect for diversity, and social inclusion, among others. The “listening” process was carried out with three strategic groups: (i) people close and family members of the WG, in order to have a sample similar to the profile of the general population, aiming to capture their expectations and needs regarding the Guide, (ii) PA area specialists, and (iii) professional networks and organized groups directly involved in the PA area.

An online questionnaire was used to obtain information from the general population and specialists. Furthermore, conversation circles were held for the specialists to deepen the elements presented in the online form.

The online questionnaire for the general population and specialists samples was developed based on a brief literature review, seeking to gather information on facilitators, barriers, and strategies to overcome barriers that influence PA practice and the type of information that was intended to be included in the Guide. It was decided to elaborate open questions in order to minimize the influence of answers by pre-established alternatives. In addition, demographic data and information about the PA level were also included. The questions to capture the participants’ experience differed according to the participants’ PA level, obtaining different information for each profile – inactive or physically active.

To gather information, each WG member shared a questionnaire through the WhatsApp messaging application (WhatsApp LLC, Facebook, USA) to five to 10 adults from their social cycle. These participants were instructed to answer the questionnaire and not

to forward the link to other people. The WG sought to explore different profiles in their social circle and family members.

For the “listening” of the specialists, the WG surveyed specialists from different areas related to the promotion of PA. Based on the indications, the specialists were classified into seven areas: PA and Leisure; PA and Environment; PA at Work; Epidemiology of PA; Management of PA Programs; Physical Education Professionals in Health; Digital Influencing Health Professionals. New invitations were made for those areas where there were not at least two to three confirmed specialists. The members of the WG made the invitation to the specialists.

An interview and conversation circles were carried out. The interview happened due to the specialist’s lack of availability to participate in the times and days defined for the conversation circles. These meetings were held online through the Google Meet platform (Google LLC. USA). All participants accepted the confidentiality agreement and allowed the sessions to be recorded. In all conversation circles and the interview with specialists, one of the WG members was appointed to be the moderator, and the invitation to participate was extended to other members. The qualitative analysis of the results of the conversation circles is available in the technical report of the Guide. The same script was followed in all conversation circles. First, with the welcome and acknowledgment for their participation. A brief personal presentation of those present was then made. Subsequently, the moderator contextualized the proposal for creating the Guide and proposed the following questions for discussion: (a) What strategies can people adopt to achieve a more physically active lifestyle? (b) What strategies can people use to reduce barriers to PA? (c) How to promote PA in different environments and scenarios such as work and others?

They were also asked to reflect on some messages that could be used in the Guide as a slogan representing the Guide’s identity. These were the messages prepared by the members of the WG, based on the revised material: “Doing any PA is better than none!”, “PA and sports are life!”, “Move: small efforts bring great benefits to life!”. The aim was to unveil the different thematic possibilities about PA so that the recommendations for adults had a greater chance of dialoguing with the multiple and distinct realities in the Brazilian territory.

On the “listening” of the professional networks, four conversation circles were held with: the Movement for Active Mobility, the Sports for Social Change Network, the Brazilian Quality of Life Association, and the Federal Council of Physical Education. The conversation circles with professional networks were developed by the following script: 1) presentation of guiding questions; 2) specific questions developed by the Domains WG on the definition of the term to be used for the domain: “PA in transportation” or “PA in displacement.” Furthermore, they were asked what they expected to find in a PA Guide for the Brazilian population.

Results

Regarding the online form for relatives and people close to the WG members, the final sample had 102 participants and 38 specialists, 55.3% men and 44.7% women. Regarding the distribution according to the regions of the country, there was a predominance of specialists from the Southeast region (55.3%), followed by South (21%), Northeast (10.5%), North (5.3%), Midwest (5.3%) and the Brazil-Uruguay Border (2.6%).

Regarding the scoping review, 35 scientific studies (longitudinal, systematic reviews with and without meta-analysis and experimental studies, including controlled clinical trials), 21 PA Guides from other countries, and 18 documents from national and international institutions were used to understand the types and the doses of PA to provide benefits for adults. In addition, four scientific epidemiological studies were used (two based on the Surveillance of Risk Factors for Non-communicable Chronic Diseases – VIGITEL 2006 to 2012, one based on data from the National Health Survey – PNS 2013, and another representative of the population of Florianópolis). Finally, the *Diesporte 2016*²² report was also used to identify the PA practice preferences of Brazilian adults. All studies were cited in the Technical Report, made available by the Ministry of Health¹³.

Based on the procedures performed, examples of PA were listed, as described in Figure 2. The main benefits of PA for adults are shown in Figure 3. PA guidelines for Brazilian adults are presented in Figure 4. Finally, the messages to overcome the main barriers identified for PA practice are shown in Figure 5.

Regarding safety, risk reduction during PA practice, and guidance for individuals with the NCDs it is worth highlighting that the recommendation to be physically

Suggested physical activities for Brazilian adults	
	Walking, running, cycling, rowing, skating or skateboarding in your free time or commuting.
	Do muscle strengthening at the gym, park, beach, club or at home, using gym equipment, rubber bands, household items or with your own body weight.
	Practice sports such as soccer, volleyball, tennis, handball, basketball, or others of your choice.
	Practice water sports activities such as water aerobics, swimming, water polo, surfing or other activities of your choice.
	Dance, whatever the rhythm: axé, samba, forró, funk, rap, samba de gafieira, ballroom dances, vaneirão, frevo, catira, other traditional dances from your region or any other type of dance of your choice.
	Practice martial arts such as judo, jiu-jitsu, boxing, capoeira, tae-kwon-do, karate or others of your choice.
	Practice yoga, circular dance, biodanza, Tai Chi Chuan, Pilates or other practices of your choice.
	There are still many other types of physical activities that you can try until you find the one you enjoy the most. The important thing is to practice.

Figure 2 – Physical activities suggestions for adults.

active is relatively safe for the majority of the population. The concern with injuries or health problems should not prevent the practice of PA. For those with high blood pressure, diabetes (excessive blood sugar), or obesity, the recommendation is to start with low effort and for shorter periods (low intensity and short duration) and slowly increase intensity or duration as capacities increase.

Discussion

The construction of the Guide involved the action of the General Coordination of Physical Activity Promotion and Intersectional Actions of the Ministry of Health and the Federal University of Pelotas, Rio Grande do Sul. Together with researchers from all over Brazil, they gathered evidence and information that could impact the level of PA for the Brazilian population. A point to be highlighted is that the elaboration

of the Guide was not restricted to classic outcomes or information about the recommended dose of PA. Furthermore, it sought to create tools that could contribute to the creation of a public policy agenda for the promotion of PA in different political spheres, thus guaranteeing the Brazilian population the right to have a physically active life.

In addition to the literature scoping reviews, “listening” was used with specialists from different areas of PA, with a sample of the population and by public consultation. The Ministry of Health had already adopted this strategy to prepare other guides, for example, the Dietary Guidelines for the Brazilian Population²⁴.

In order to identify the best PA options, a review was carried out on the preferences and types of PA most practiced by the Brazilian population. It was possible to evidence that walking, running, and weight

Benefits of regular physical activity for adults	
	Preventing and reducing mortality by several chronic diseases such as high blood pressure, diabetes (high blood sugar levels), heart diseases and some types of cancer (breast, stomach and intestinal).
	Helping weight control, which improves not just your health but also your relationship with your body
	Reducing symptoms of asthma.
	Reducing the overall usage of medicine.
	Reducing stress and symptoms of anxiety and depression.
	Improving your sleep.
	Promoting your human development and wellbeing, which helps you to enjoy a more fulfilling and better
	Promoting pleasure, relaxation, enjoyment and liveliness.
	Helping social inclusion, creating and strengthening social relationships, bonds and solidarity
	Remembering and keeping alive several aspects of the local culture.

Figure 3 – Benefits of regular physical activity for adults.

training are the types of PA most frequently performed by Brazilians¹³. Other types of PA related to the culture of each location, such as popular dances, were also included, aiming to contemplate the regional and cultural differences existing in Brazil.

Regarding recommendations of PA dose for adults, the literature review recommends that adults accumulate between 150 and 300 minutes of moderate-intensity PA per week. The point to be highlighted is that the weekly volume can be reached with different PAs,

and not only with aerobic activities as recommended by the WHO guidelines⁷. This change is justified by the growing amount of evidence indicating the beneficial effects of different types of PA on health^{5,25}. It is also noteworthy that, when it is not possible to reach the recommended dose, the practice of lower dose and intensity PAs is still encouraged. This message converges with the primary objective of the Guide, which is to encourage people to become more physically active. On the other hand, given the uncertainty regard-

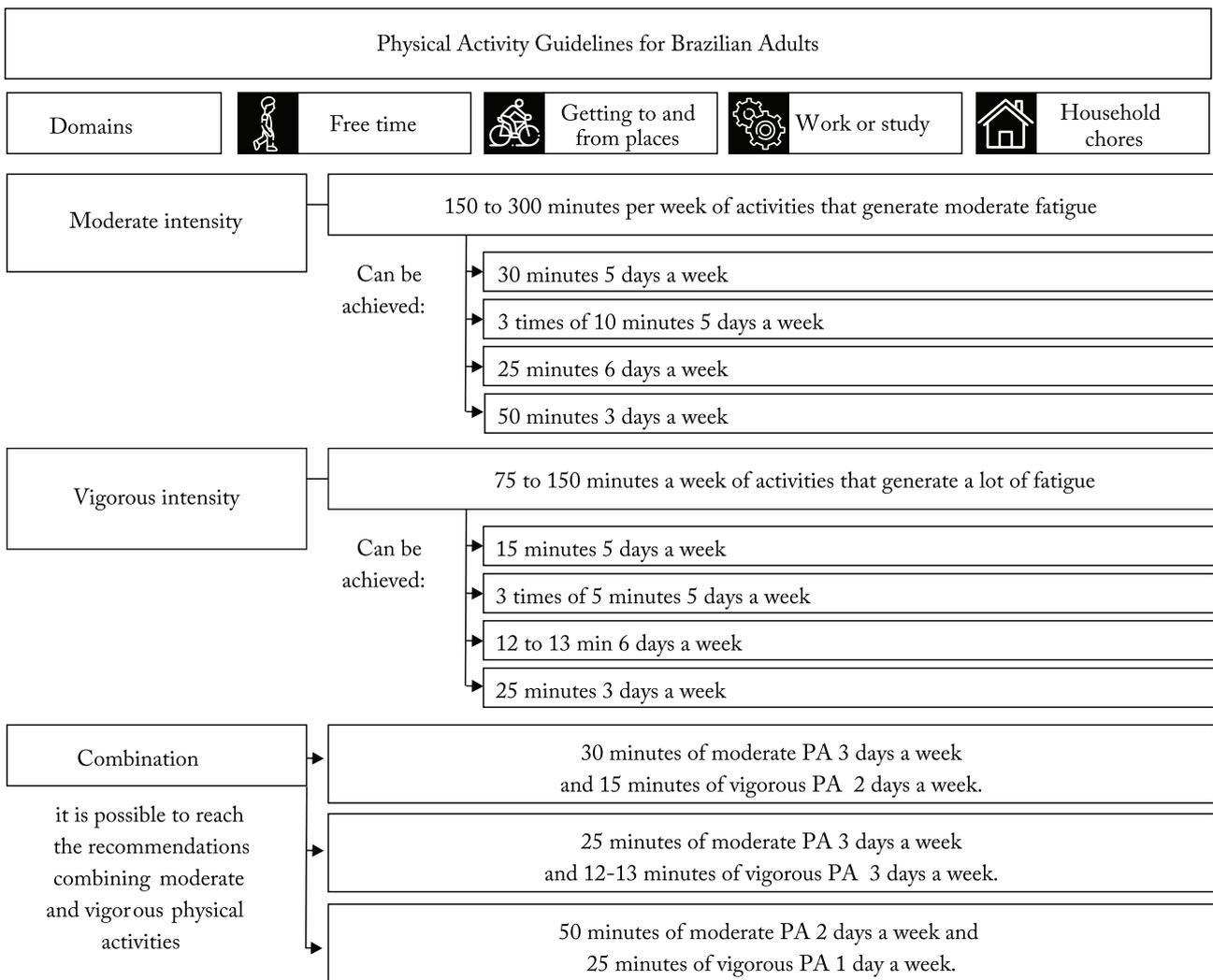


Figure 4 – Physical Activity Guidelines for Brazilian Adults. PA = Physical activity.

ing the health effects of excessive PA practice, as well as the Guide’s focus on encouraging physically inactive people to become active, it was decided to maintain the WHO recommendation for moderate-intensity PA up to 300 minutes and vigorous-intensity PA up to 150 minutes per week⁷.

The current Guide’s recommendations regarding the intensity, duration, and type of PA do not fundamentally differ from those presented by the WHO. It is believed that one of the milestones of Guide is to show that it is possible to stay active with a vast range of activities, creating many possibilities in the diverse national characteristics.

The Guide was designed for adults start and/or maintain the practice of PA. After knowing the Guide’s contents, it is expected that each adult can be their own agent of change, recognizing the personal factors of

behavior change and the social determinants involved in it. It is also expected that the Guide can contribute to the dissemination of information and mobilization of peers and citizen actions to carry out recommendations, based on participation and social control in actions, programs, and policies to promote PA.

Although the Guide was created directly for the population, professionals and managers from different sectors who work with PA can also benefit from its information. Particularly within the scope of the Brazilian Unified Health System (BUHS), additional documents will be available to support managers and health professionals on the insertion of the Guide in the performance of health actions, programs, and policies²⁶.

The use of the Guide by managers and public agents is relevant. Despite the evidence on reducing physical inactivity being reasonably strong with successful exam-

Barriers and facilitators for the practice of physical activity	
	In some cases, time and willingness may be less, but how about trying? It is important to start with a type of physical activity that you enjoy and feel good about. And once you start, you'll feel more willing and it can become a habit.
	Planning to practice physical activities is a good start. Identify moments in your routine with the greatest possibility to do some physical activity 
	Trying out different types of physical activities to find the one(s) that most suits you is important and, with that, you can also obtain health benefits.
	It is possible to do physical activity at home, many online activities are available, finding the one you like will motivate you. Make sure it is offered by a qualified professional. 
	You can start slowly with the physical activities you can do in your routine and keep building them up. The short periods of physical activity added together help you reach the weekly recommendation.
	How about practicing physical activity with family or friends? Having company can be an important factor in starting and maintaining physical activity 
	Exchanging experiences with family and friends, on how to incorporate and maintain physical activity in their daily routine, will contribute to everyone's practice. Experiences can be shared in person and/or online.
	Seeking supportive people for physical activities practiced in groups, for example, running, walking, cycling, in addition to helping to start physical activity, is a way of getting to know people. 
	How about a new look at your neighborhood and locations close to your home, as well as at your own workplaces and schools, based on what we present in the Guidelines? Possibly there are opportunities to start and/or continue physical activity
	Physical activity is included in many popular and cultural movements. Get to know them in your community. They can help you get started and stay physically active. 
	Community programs for physical activity and sports exist in many places in Brazil, you can find those closest to you at Basic Health Units, community centers, associations, courts and parks and at the city hall.
	Have you ever thought about how physical activity can be integrated into everyday life? For example, when climbing stairs, walking, cycling, skating in short stretches, and not just in gyms or specific services at a certain time. Performing physical activities on the move can help you get started and stay active. 
	Whenever you remember, get up and take a short walk. At work, instead of calling, try to go to your colleague.
	Track your progress (photos, exams, physical evaluation, feeling of fatigue, among others) without extreme demands, you can use your cell phone or other technological resource you have to monitor your physical activity (e.g.: step count, heart rate). 
	Starting and progressing slowly is valid for any type of activity. There is no need to exaggerate. The increase in the number of days, time and effort (frequency, duration and intensity) should be gradual.

Figure 5 – Barriers to physical activity and messages to overcome them, identified from listening procedures and literature review.

ples, the implementation of action plans has had few resources. Therefore, consistent, well-funded policy changes are needed²⁷. Guide information can support policies, environments, and opportunities²⁸ and foster discussions and actions regarding public policies to promote PA²⁹.

In Brazil, considering the Guide's alignment with the BUHS principles and guidelines, the implications for the public policy agenda permeate actions ranging from communication to monitoring and evaluating the implementation of the recommendations. To achieve this, fostering and investing in the promotion of PA based on what is recommended in the Guide, should be a synergistic responsibility of the three spheres of government, mainly considering the financing of programs and actions. The Guide provides short, medium, and extended subsidies to develop, enhance and expand interventions to promote PA in different contexts. These paths need to be integrated into the agenda of both attention and health surveillance and health planning and education, allowing the development of structural assistance, training, monitoring, and evaluation actions.

The Guide's implementation will contribute to implementing strategic care lines in the BUHS (e.g., NCDs), opening paths for the qualification of health care and health information and indicators for management. This alignment enhances the visibility and praxis of the theme for managers and health professionals. This approach can be a facilitator for more robust investments in intersectoral and interprofessional policies³⁰.

Within the scope of national research, the Guide can contribute to inducing research on the topic since only a tiny fraction of global research on PA and sedentary behavior was carried out in low- and middle-income countries such as Brazil. This point is important, given the differences in the structure of societies – their norms and cultural standards – between Brazil and the countries in which the main researches in the world were carried out²⁹. The Guide can also promote inducing policies of development agencies to assess and produce essential knowledge for PA and health area in Brazil.

In conclusion, the Guide is an essential milestone for promoting PA for adults in Brazil by dialoguing with evidence supporting the prevention and control of NCDs and with elements of the Brazilian reality, preferences, barriers, and others. The current approach denotes a broader vision and provides subsidies for the population to seek a more physically active life. The Guide can also support PA promotion actions, programs, and policies in different contexts and sectors.

Conflict of interest

The authors declare no conflict of interest.

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Author Contributions

All authors participated in the initial design of the study, data collection, analysis, writing, critical review of the text, and approved the final version.

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