



# Physical activity in health promotion: medical students training during remote teaching

Atividade física na promoção da saúde: formação de estudantes de medicina durante ensino remoto

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## ABSTRACT

During the COVID-19 pandemic, both the lockdown and the temporary closure of gyms had an impact on people's daily lives, including the practice of physical activity (PA). This is essential for good health, so we should encourage it. Medical students, with limited time and a lack of curricular encouragement for PA, tend to underestimate its importance. The following report seeks to describe the experiences and impact of the subject 'Physical Activity in Health Promotion' at a higher education institution in remote teaching, its relationship with illnesses and discussions on health policies. A positive impact on students and their families was clearly noted in class. Patients' adherence to PA is related to the stimulus provided by the professional through lifestyle-oriented therapeutic lines. Therefore, since medical schools' curricula is invaluable, the effects of PA on individuals should be valued. The subject was a good example of the importance and success of raising awareness among future doctors while they are still undergraduates.

**Keywords:** Online education; Medical education; Physical exercises.

## RESUMO

*Na pandemia de COVID-19, tanto o isolamento quanto o fechamento temporário das academias impactaram no cotidiano das pessoas, incluindo na prática de atividade física (AF). Essa é essencial para a saúde, por isso, devemos incentivá-la. Estudantes de Medicina com tempo escasso e falta de estímulo curricular para AF, tendem a subestimar sua importância. O seguinte relato busca descrever vivências e impactos da disciplina "Atividade Física na Promoção da Saúde" em uma instituição de ensino superior no ensino remoto, sua relação com enfermidades e discussões sobre políticas de saúde. Foi perceptível impacto positivo para estudantes e familiares. A adesão dos pacientes à AF está relacionada ao estímulo despertado pelo profissional pelas linhas terapêuticas voltadas ao estilo de vida. Assim, sendo o currículo das escolas médicas inestimável, deve-se valorizar os efeitos da AF para os indivíduos. A disciplina foi um bom exemplo da importância e êxito resultante da conscientização do futuro médico ainda em graduação.*

**Palavras-chave:** Educação on-line; Educação médica; Exercícios físicos.

## Introduction

At the end of 2019, cases of a highly transmissible and deadly respiratory disease emerged in China, which was referred as COVID-19. The infection is caused by the SARS-CoV-2 etiologic agent, a virus with high mutable rates that had promptly spread worldwide<sup>1</sup>. On January 30, 2020, thus, the World Health Organization officially confirmed the disease outbreak as a Public Health Emergency of International Concern<sup>2</sup>.

In Brazil, the first COVID-19 case was confirmed in February of the same year, unleashing the planning of public health measures to prevent the virus spread<sup>3</sup>. Thereby, measures were adopted aiming to reduce the contact among individuals<sup>3</sup>, as examples the social isolation, the mandatory use of face masks, the prohibition

of events and the temporary closure of schools, universities and gyms as they are places of agglomeration.

The impacts of drastic reduction in social contact on individuals have been diverse, standing out the increase in the prevalence of mental illnesses, such as anxiety and depression<sup>4</sup>, and the serious decrease in physical activity (PA)<sup>5</sup>. The latter was responsible for problems also seen during the period, since, when practiced regularly, it is related to improvements in several aspects of the organism. In addition, there are benefits for the prevention and control of non-communicable diseases<sup>6</sup>, reduction in the risk of developing depression<sup>7</sup>, anxiety and cognitive decline, promotion of well-being and developing academic skills<sup>8</sup>.

Therefore, lacking encouragement to continue

practicing PA on a daily routine, there was an increase in sedentarism rates<sup>9</sup>. Focusing on individuals who already stand out on poor PA practice levels, such as medical students (MS)<sup>10</sup>, it is comprehensible that the isolation was a factor that could have potentiated the physical inactivity for them. Moreover, the reduced time and the low number of subjects related specifically to PA with an emphasis on health in the medical schools' curricula is noteworthy<sup>11</sup>. This is serious, as not maintaining a physically active life, has correlated to a smaller susceptibility to adequately valuing PA as a determining factor for improvement in future patients.

In the context of teaching still in remote system, together with the presence of low appreciation of PA practice, especially among MS, this report aims to describe experiences and impacts on the daily life and health of students of the Medicine course of a Higher Education Institution, in addition to their families, throughout the subject 'Physical Activity in Health Promotion', which took place during the first semester of 2021.

## Methods

In 2021, the elective subject 'Physical Activity in Health Promotion' was offered in the undergraduate course in Medicine at an Higher Education Institution. As a consequence of the pandemic scenario in which it was inserted, the course was taught remotely via the 'Google Meet' virtual meeting platform. Besides that, several digital resources were used to the exchange materials and activities between students and professor, such as the digital classroom 'Google Classroom', 'WhatsApp' and the social network 'Instagram'. Additionally, the presence of scientific databases that are references to the production of syllabus and supplementary material is highlighted, in special the 'Physical Activity Guide for the Brazilian Population – Ministry of Health'<sup>12</sup> and many high-quality scientific publications.

The subject's syllabus included the 'study of the PA and its benefits to health', as well as 'sports practice to the maintain and improve fitness performance and preserve health'. It had as its main focus provide support to the MS on the importance and benefits of regular practice and counseling of PA in health care. Its total class load was 30 hours, divided into 15 hours synchronous and 15 hours asynchronous, in programmatic units. As it was a remote teaching period, none of the activities were performed in person. As it was an elective subject, the MS enrolled were individuals that actively had in-

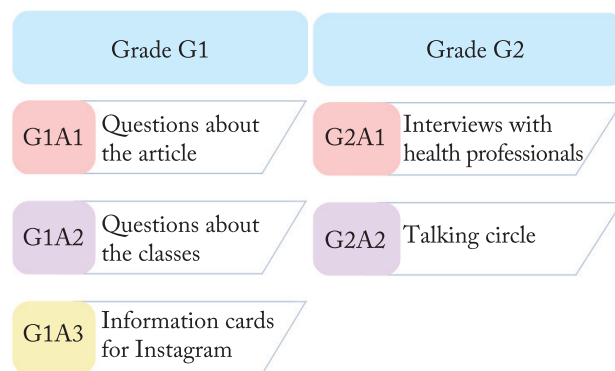
terest in joining it, resulting in 34 registrations.

During the expository synchronous lectures, the contents were presented theoretically, since there was a reduction in the class load that prevented practical activities to be carried out. Besides that, everyday applications of PA effects were incorporated, as well as practical examples of these through reports of previous activities performed by the professor, who has a degree in Physical Education and a complementary academic training focused on health and PA, in addition to a doctorate in immunology and parasitology and a master's degree in biochemistry.

Themes such as the effects of PA practicing on the human organism, prevention and treatment of diseases and discussion of public health policies were also covered during the subject. To turn the classes more productive, scientific articles were read throughout the whole subject, in a way that the students could amplify their view of the importance of PA practicing, as well as its effects on the human body.

In order to better absorb the knowledge, five assignments were developed, three of them concerning the first grade of the subject and the others being part of the second one, as shown in Figure 1. The assessments happened dynamically, requiring in-depth study of the topics. Each assignment, according to its own methods and assessment technique, had as a common interest to encourage the practice and prescription of PA, as well as develop knowledge about its importance.

The Grade 1 of Activity 1 (G1A1) consisted in the elaboration of close-ended questions (5 alternatives) and open-ended questions about the article 'Physical Activity learning by medical students: the current picture in Brazil'<sup>11</sup>, being worked the importance of



**Figure 1** – Division of activities for composition of grades for the 1<sup>st</sup> bimester (G1) and 2<sup>nd</sup> bimester (G2).

G1 = grade of 1<sup>st</sup> bimester; G2 = grade of 2<sup>nd</sup> bimester; A = activity; Questions = close-ended questions with 05 alternatives and/or open-ended questions.

studying PA with a health focus from the beginning of medical training through to the professional career. The purpose of this activity was to stimulate the critical thinking about the most recurrent questions surrounding PA in everyday medical practice. Following the methodology of developing questions, Grade 1 of Activity 2 G1A2 was based on the content presented in the dialogued classes on 'Google Meet'.

Grade 1 of Activity 3 (G1A3), in turn, consisted of the cooperative work of student groups to elaborate information cards on the benefits of PA for the prevention and/or treatment of an illness chosen by each group. They had as reference scientific articles about each chosen theme, and an 'Instagram' post format was used for posting on the class profile. The activity had two main purposes, the first one being the dissemination of knowledge about the importance of PA to the community, enabling it to reach a broader audience than just MS. In addition, encourage students to develop contents on social media that, in the future, could be used to publicize their work, thus generating knowledge about the importance of a professional image.

Grade 2 of Activity 1 (G2A1) consisted of online interviews with health professionals, using questionnaires provided by the professor. The questions sought to determine presence and work of Physical Education Professionals (PEP) in healthcare units, besides understand the interviewees' knowledge about PA. During the discussion between the students in a subsequent class, it was concluded that there is a lack of PEP in the healthcare system, despite the interviewees comprehending the importance of them for the treatment and prevention of illnesses. Additionally, most of these professionals, even though recognizing the importance of PEP, they do not have a clear basic knowledge of the competencies of these professionals in the health scope.

Finally, Grade 2 of Activity 2 (G2A2) was the main method used to assess the real impact of the subject on the students' perceptions. It happens because this activity consisted of a talking circle, in which the relevance of PA practice in the everyday life was discussed, as well as the impacts of the subject experienced by the academics. Therefore, the repercussions of the subject on its participants could be properly evaluated.

## Results

In general, the results presented evolved over the three modules of the subject: Module I (health approach, PA,

physical exercise, basic notions on physical assessment, the need for medical counseling on PA to patients and the need for integrative work on PA); Module II (types of physical exercise, basic knowledge on the energetic pathways and the adaptations of acute and regular practice of physical exercise); Module III (correlation between PA and chronic non-communicable diseases, cancer, autoimmune diseases, transplants and allergies).

During the discussions, the aim was to modify the students' thinking about the underestimation of the effects granted by PA. The comprehension sought go beyond aesthetic idealizations, raising political, social and public health issues. The impacts related to physical and mental health focused on the MS, showing that the practice of PA correlates with the improvement on health, prevention of diseases and a better academic performance. This cognitive improvement is confirmed by Nazlieva et al<sup>13</sup>, who establishes that 76.1% of the scientists believe that PA has positive effects on human cognition.

In general, the importance of subjects focused on PA in higher education courses was emphasized, in special in the Medicine course, since the knowledge acquired from the classes has impact not only on the students' lives, but will also be presented in their decisions adopted to patients. This shows as a beneficial factor for social transformation based on a change in the paradigm related to PA, as well as being a tool for promoting populational health.

In this sense, based on the modules covered in this subject, the evolution of the themes and discussion regarding preconception related to PA and the realization that the PA practice can act not only in prophylactically but also in a therapeutic way was notable. Awareness of the practice of PA as a pillar for improving quality of life was raised, with benefits since the disease prophylaxis until significant positive impacts on the severity of inflammatory, autoimmune and neoplastic diseases. In addition, the primordial role of medical professional awareness was clarified as a determinant in the inclusion of PA practice in the patient management, a factor which, along with the others, constitute a multidisciplinary and beneficial approach to healthcare.

## Discussion

The practice of PA is essential for health promotion, and its adherence is related to multiple aspects. As an encourager, it is highlightable the presence and development in higher education courses, especially Medicine, since it motivates health professionals to take

their learned conceptions to professional practices<sup>14</sup>. The professional's counseling, of therapeutic guidelines based on lifestyle change and adapting habits to include PA in daily life is responsible for raising the commitment to the PA practice.

Thereby, this brings into question the MS education in Brazil, which still lack in subjects that address the role of PA in health promotion. In this way, even though the role of PA as fundamental to health is clear, the professional capacitation of doctors to recommend it encounters difficulties due to some factors: lack of proper incentives, shallow knowledge, and a self-perception of discomfort at not being physically active or for being overweight<sup>14</sup>.

In general, it is worth mention that the Brazilian medical training is lacking of guidelines during formation that address the importance of PA and the current need of PA and health in the medical practice since undergraduation. This issue was brought to light by Bortolini et al<sup>11</sup>, which analyzed the presence of curricular components related to PA in undergraduate medical courses, resulting in data that showed a decline from 2015 to 2019 in quantity of these courses that actually pursue subject about PA and health, respectively changing from 10.8% to 6.7%. This work has shown that such a current and important theme in medical training is practically not found in the formation of most MS in Brazil.

However, although studies look for an elucidation of the role of PA and its benefits to physical and mental health, it is still stigmatized by society, associated sometimes to aesthetic standards and being devalued in terms to its role as a support on health and quality of life<sup>14</sup>. Thus, even though studies present and discuss the multiple effects of PA, not only positively contributing to improve the physical conditioning and health professionals, but also to the development of a better academic performance, its underestimation is still a reality.

Therefore, the subject was successful and achieved its expectations, since the students could actively learn about the benefits of practice of PA, both in the individual scenario and in the future patients' lives. The importance of raising awareness among MS already from the undergraduation is notable, given its impact on the quantity and quality of counseling of PA practice from the future professionals to patients.

### Conflicts of interest

The authors declare no conflict of interest.

### Contribution of the authors

Barros MLS: Conceptualization; Methodology; Data analysis; Research; Project administration; Design of the data presentation; Writing of the original manuscript; Writing – revision and edition; Approval of the final version of the manuscript. Rodrigues NER: Design of the data presentation; Writing of the original manuscript; Approval of the final version of the manuscript. Bortolini MJS: Conceptualization; Methodology; Research; Tools availability; Data curation; Supervision; Project administration; Writing – revision and edition; Approval of the final version of the manuscript.

### Declaration regarding the use of artificial intelligence tools in the article writing process

The manuscript did not use artificial intelligence tools for its preparation.

### Availability of research data and other materials

The contents underlying the research text are contained in the manuscript.

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