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Good hygienic-sanitary practices in anthropometric routine in the (post-) COVID-19 pandemic

Boas práticas higiênico-sanitárias na rotina antropométrica na (pós-) pandemia da COVID-19

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Abstract – The COVID-19 pandemic has affected several human activities such as anthropometrics measures practices, from the clinical and research fields to the teaching field. Given the lack of effective vaccines and/or drugs against COVID-19, the World Health Organization (WHO) has recommended taking measures to prevent and cope with the disease. These recommendations were subsequently endorsed by the International Society for the Advancement of Kinanthropometry (ISAK), with adaptations to anthropometric routines, which were made to enable comprehensive application in several anthropometry segments. This point of view aims to emphasize and contribute to security considerations about anthropometric routines in the post-COVID-19 world. It is herein understood that the biosafety protocol presented under this point of view to enable the return and continuation of anthropometric activities, worldwide, regardless of professional training/ qualification/ performance, with respect to life and communities, may also have recurring application to fight other respiratory pathogens with similar potential to turn into pandemics in the future. Demonstrative videos presenting these recommendations, based on this point of view, should be developed to help reinforcing the good hygienic-sanitary practices to be adopted by anthropometry professionals who carry out human body measurements.

Keywords: Anthropometry; COVID-19; Epidemiology; Pandemic; Precaution.

Resumo – *A pandemia da COVID-19 afetou diversas atividades humanas, tais como práticas de medições antropométricas, desde o campo clínico e de pesquisa até o campo do ensino. Dada a falta de vacinas e/ou medicamentos eficazes contra a COVID-19, a Organização Mundial da Saúde (OMS) recomendou medidas de prevenção e enfrentamento da doença. Essas recomendações foram posteriormente endossadas pela Sociedade Internacional para o Avanço da Cineantropometria/ International Society for the Advancement of Kinanthropometry (ISAK), com adaptações às rotinas antropométricas, que complementamos para aplicação abrangente nos diversos segmentos de atuação da antropometria. Este ponto de vista visa enfatizar e contribuir às considerações de segurança das rotinas antropométricas em um mundo pós-COVID-19. Entende-se aqui que o protocolo de biossegurança apresentado neste ponto de vista para retorno e continuidade das atividades antropométricas, no mundo inteiro, independentemente da formação/ capacitação/ atuação profissional, no que diz respeito à vida e às comunidades, também pode ter aplicação recorrente no combate a outros patógenos respiratórios semelhantes para se transformarem em pandemias no futuro. Sugere-se o desenvolvimento de vídeos demonstrativos das recomendações deste ponto de vista para reforçar as boas práticas higiênico-sanitárias a serem adotadas pelos profissionais da antropometria na realização das medições do corpo humano.*

Palavras-chave: *Antropometria; COVID-19; Epidemiologia; Pandemia; Precaução.*

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INTRODUCTION

The first outbreak of Coronavirus Disease 2019 (COVID-19) - that presented clinical spectrum ranging from asymptomatic infections or few symptoms (e.g., cough, hard time breathing, sore throat, fever, among other clinical manifestations; asymptomatic carriers have epidemiological importance, since they are potential transmitters) to severe conditions (patients who may need ventilatory support) -, caused by Severe Acute Respiratory Syndrome Coronavirus-2 (SARS-CoV-2), was reported in Wuhan City, Hubei province, in the People's Republic of China, on December 31st, 2019[1]. SARS-CoV-2 is a new human coronavirus strain (HCoVs) that had not been previously identified in humans. However, the "zoonotic overflow" phenomenon, which is common to most viruses, has enabled a coronavirus strain capable of affecting bats (similar to most coronaviruses) to mutate and infect humans. This mutation was a natural process, rather than a process induced by man[1]. Other six strains have already been identified, namely: HCoV-229E, HCoV-OC43, HCoV-NL63, HCoV-HKU1, SARS-COV and MERS-COV. One month later, on January 2020, the disease was declared a Public Health Emergency of International Concern and, subsequently, on March 11th, 2020, it was declared a pandemic by the World Health Organization (WHO)[1]. One year later, on March 11th, 2021, there have been almost 2.6 million deaths from the COVID-19 virus and cases confirmed worldwide (223 countries, areas or territories) had surpassed 117 million, with multiple SARS-CoV-2 variants are circulating globally (e.g., in the United Kingdom, known as 20I/501Y.V1, VOC 202012/01, or B.1.1.7; in South Africa, known as 20H/501Y.V2 or B.1.351, emerged independently of B.1.1.7; and in Brazil, known as P.1)[2]. It is worth emphasizing that, before the first pandemic peak, underreporting for both conditions had already been estimated in China, Italy, Iran, South Korea, France, Spain, Germany and the United States of America (USA)[3], and, for the all the year 2020, in Brazil[4], second in number of COVID-19-related cases confirmed and deaths worldwide in March 2021[1].

Information about SARS-CoV-2 incubation period, forms and risks of transmission (including asymptomatic patients), which may vary depending on factors such as environment, occupation level, contact time and use of facial coverings using, as well as about its potential to affect several organs and human body tissues, have been previously described in the literature[5–9].

Given the lack of effective vaccines or drugs against COVID-19, WHO[10] has recommended taking several essential measures focused on preventing and coping with this disease in order to mitigate the effects of the viral epidemic; among them, one finds: regularly washing one's hands with soap and water or using alcohol-based sanitizer (70%); avoiding smoking, touching one's eyes, nose and mouth, as well as shaking hands, kissing or hugging; adopting a good respiratory practice for protection in case of coughing and sneezing (e.g., covering one's nose and mouth with disposable tissue or, in the lack of it, with the forearm); remaining at least one meter away from anyone who is coughing or sneezing; constantly cleaning and disinfecting objects for personal use; avoiding agglomerations; keeping the environments ventilated (windows and doors open); using medical, non-medical or reusable face masks by following good use, removal and disposal practices, as well as properly cleaning one's hands before

and after mask removal (Table 1); and following updated recommendations by WHO or by competent local and national health authorities.

Table 1. How to wear medical and non-medical or reusable masks safely.

Do's
Wash your hands before touching the mask
Inspect the mask for tears or holes
Find the top side, where the metal piece or stiff edge is (medical mask)
Ensure the colored-side faces outwards (medical mask)
Place the metal pierce or stiff edge over your nose (medical mask)
Cover your mouth, nose, and chin
Adjust the mask to your face without leaving gaps on the sides
Avoid touching the mask
Clean your hands before removing the mask
Remove the mask by the straps behind the ears or head
Keep the mask away from your face and surfaces while removing it
Store the non-medical or reusable mask in a clean plastic, resealable bag if it is not dirty or wet and you plan to re-use it
Remove the non-medical mask or reusable by the straps when taking it out the bag
Wash the non-medical fabric or reusable mask in soap or detergent, preferably with hot water, at least once a day
Discard the medical mask immediately after use preferably into a closed bin
Wash your hands after discarding the mask
Don'ts
Do not use a mask that looks damaged, dirty, wet or damp
Do not wear a loose mask
Do not wear the mask only over mouth or nose
Do not touch the front of the mask
Do not remove the mask to talk to someone or do other things that would require touching the mask
Do not remove the mask where there are people within 1 metre
Do not leave your used mask within the reach of others
Do not use a mask that is difficult to breathe through
Do not share your mask with others
Do not re-use the medical mask

Note. Information adapted from World Health Organization (WHO)[10].

The COVID-19 pandemic has affected the routine of a series of human activities such as the traditional practice of anthropometric measurements carried out by health and sports professionals in a wide variety of contexts, from the clinical and research fields to the teaching field. This issue has led the International Society for the Advancement of Kinanthropometry (ISAK) - whose purpose is to create and maintain an international network of professionals who are constantly updated, from the practical and scientific viewpoint, in anthropometric measurement of excellence[11] - to endorse WHO's recommendations (as shown in the previous paragraph), with adaptations to the anthropometric routine[12].

Accordingly, the conscious adoption of precautionary measures during the COVID-19 pandemic requires immediate and rigorous change of behavior[13] by all, including thousands of anthropometrists worldwide, who follow the International Anthropometry Accreditation Scheme (IAAS)[11], and other professionals from different knowledge and activity fields (research, clinical practice, teaching, among others), regardless of ISAK's training. These changes are necessary due to conditions involved in the anthropometric routine, such as the proximity and physical contact between the avaliator and the evaluated

subject. Thus, this point of view aims to emphasizing and contributing to security considerations about anthropometric routines in a post-COVID-19 world and, therefore, help to overcoming this epidemiological crisis.

ANTHROPOMETRIC MEASUREMENTS IN POST-COVID-19

Safety measures to be applied at the time to take anthropometric measurements in the post-COVID-19 world to help preventing and controlling infections resulting from respiratory diseases are shown in Table 2. These measures must be implemented by all professionals working in the anthropometric routine in order to avoid or reduce microorganism transmission during any anthropometric activity as much as possible.

Sharing foodstuffs, office supplies, books and printed matter, among other objects for personal use - other than the ones used in anthropometric measurements - should be strongly avoided and alternatives should be implemented. Furthermore, one should not talk while consuming food and drinks outside the home, except with facial coverings, since respiratory droplets (Flügge droplets) and aerosol particles get dispersed in the environment and on different surfaces[5], which can contaminate everyone in the place, with no exception, a risk which the WHO and the Centers for Disease Control and Prevention (CDC) recognize.

Table 2. Safety considerations for everyone involved during the processes of anthropometric measurements in the post-COVID-19 world.

Items	Recommendations
1	Wash your hands and wear a disposable pair of gloves exclusive to each subject
2	Wear facial mask (preferentially with filtering, e.g., N95, PFF2, among others)
3	Wear disposable shoe covers or remain barefoot
4	Do not use external adornments below the elbows
5	Keep your nails trimmed and transparent; do not use artificial nails
6	Ask the subject to come with the clothes needed for measurement already on
7	Clean the markings on the subject and the pencil or marker with water-alcohol gel (70%)
8	Clean the instruments with water-alcohol gel (70%) after each measurement
9	Meet items 1 and 5 (assistant) if you have contact with instruments/ subjects
10	Assure room cleaning/ disinfection* by qualified professionals
11	Disinfect the dressing room*, which must always be used by one individual at a time
12	Follow the instructions of each country to hold meetings
13	Have a room capable of allowing the separation of 2m^2 between individuals**/ for each pair of students***

Note. Information adapted from International Society for the Advancement of Kinanthropometry[12] and from World Health Organization[10,14]. Subject: measured person. Assistant: person who assists helping the avaliator to measure to subjects. *: After the subject was measured and after each session of the day. **: Theoretical part. ***: Practical part.

The use of medical/non-medical or reusable masks and face shields, or even protective goggles, for long periods-of-time can damage the skin (e.g., contact or delayed pressure urticaria, xerosis, among others)[15]. Thus, everyone involved in anthropometric measurements in the post-COVID-19 world may be susceptible to skin issues after sequential and daily hours of social interaction in person, although simple preventive measures can be adopted, namely: moisturizer application to slightly dry skin; creams to dry skin or gels to acneic or oily skin, before putting the personal protective equipment (PPE) on and correctly using it[15]. It is necessary to consult a dermatologist for further clarification.

Other individuals who directly or indirectly (service providers, collaborators and material suppliers) participate in anthropometric measurement processes should also be taken into consideration at the time to implement good hygienic-sanitary practices highlighted before the so-called "new normal" of the post-COVID-19 pandemic. Special attention should be given to individuals considered to be more susceptible to contagion and/or symptomatic[1]. However, everyone, with no exception, should take into consideration their own health record or contact with symptomatic (e.g., fever, tiredness, headache, dry cough, sore throat, breathing issues, loss of taste or smell, among others) or COVID-19-infected persons in the last 14 days prior to any anthropometric activity, as well as their place of origin and/or transit while there is still risk of contamination with COVID-19.

The (re)learning of measures focused on preventing, controlling and mitigating or eliminating COVID-19 transmission risks can be, from now on, recurrently used as tool against any other respiratory pathogens with potential to spread and lead to future and worse pandemics among humans, that they cannot be avoided, according to WHO[2]. In addition, these recommendations must still be followed regardless of the development of effective vaccines against COVID-19. This effectiveness depends on a number of factors such as vaccine's effectiveness level itself, logistical aspects of vaccine manufacturing, distribution and application, as well as on the time taken by the human body to produce adequate immune response[2]. Therefore, all collective and individual efforts necessary to face this global challenge must be considered a biosafety protocol for the return and continuation of anthropometric activities with maximum security, as well as with respect for life and communities.

FINAL COMMENTS

The biosafety protocol presented in this point of view must be used by everyone involved in anthropometric measurement practices in the post-COVID-19 pandemic worldwide, regardless of training/ qualification/ professional performance. In addition, all the rules in force, and their updates, implemented by local health authorities must be followed with, without exception. Likewise, individuals accounting for collecting anthropometric data, in different fields of activity (research, clinical practice, teaching, among others), must instruct and educate all involved parts about the recommended hygienic-sanitary practices to be put in place, both before and during any anthropometric procedure. The ISAK has issued COVID-19 guidelines for anthropometrists in its multiple official communication spaces, such as information magazine (ISAK Newsletter), website[16] and official social media channels like Facebook (ISAK Global), Instagram (@isakglobal), Twitter (@ISAKGlobal), YouTube (ISAK Global) and LinkedIN (ISAKGlobal). Likewise, other public/ private institutions/ organizations/ agencies acting in the anthropometry field should also do so on a regular basis, while humanity waits for something that would end the SARS-CoV-2 pandemic (for example, effective and safe vaccine capable of providing long-term protection, preferably based on an entire dosage regimen - there are currently many potential candidates under development). In the worst-case scenario, it may not happen just like it happened to other viruses that have become endemic. Society has learned to live with them throughout human history.

Finally, demonstrative videos combining hygienic-sanitary care types addressed through this point of view, based on safe technical application (from marking anatomical reference points to taking anthropometric measurements), should be developed by technically trained professionals, since they can be useful tools to help reinforcing good hygienic-sanitary practices to be adopted by anthropometry professionals at the time to take human body measurements. Most importantly, we acknowledge the efforts of all health workers who have remained on the front lines against the COVID-19 pandemic, as well as the irreparable loss of lives.

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Ethical approval

This article did not use data collected from humans and represents a scientific opinion of literature. This study was written in accordance with the standards set by the Declaration of Helsinki.

Conflict of interest statement

The authors have no conflict of interests to declare.

Author Contributions

Conceived and designed the experiments: VSS, IS and PLS. Performed the experiments: VSS, IS and PLS. Analyzed the data: VSS, IS and PLS. Contributed reagents/materials/analysis tools: VSS, IS and PLS. Wrote the paper: VSS, IS and PLS. All authors read and approved the final version of the manuscript.

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