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Recommendations for Exercise Testing in Sports Medicine during the Current Pandemic Situation (SARS-CoV-2 / COVID-19)

Empfehlungen zur Durchführung ergometrischer Belastungsuntersuchungen in der Sportmedizin während der jetzigen Pandemiesituation (SARS-CoV-2 / COVID-19)

STATEMENT

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As part of the infection control response to the SARS-CoV-2 pandemic, several measures are necessary during exercise testing in Sports Medicine which all aim at preventing risk to our patients and colleagues and contribute generally to the reduction of contact required in the public sector. This article serves as a Guideline for action, describing the contents and implementation of these measures. Basically, the public and hospital-specific guidelines must be adhered to on site. Due to the developing status of knowledge concerning this new disease, these recommendations may be valid only for a short period. They will be revised as things develop or by 01.08.2020 at the latest.

SARS-CoV-2 is one member of the species SARS-associated corona viruses, it is a contained RNA virus with an unsegmented genome (monopartite), i. e. only a single nucleic acid molecule (here RNA) surrounded by a capsid. It is sensitive to disinfectants and physical measures like heating and drying.

The main transmission of SARS-CoV-2 is by droplets arising from coughing and sneezing and contracted by the person opposite via the mucosae of the nose, mouth and possibly the eyes; contact infections are also possible.

Exercise leads to increased ventilation of the test person and to the release of droplets, aerosol and sweat. Sweat does not contain corona viruses. Studies to date on SARS-CoV-2 show that mechanically-generated aerosols contain SARS-CoV-2 viruses. Thus transmission in ambient air or on surfaces appears to be possible (2, 6). But the fact that viruses are present does not permit a conclusion that contagion occurs. The main route of transmission is by droplet. Whether transmission via aerosols is also possible has not yet been convincingly demonstrated. It does not, at least, appear to be a major mode of transmission. The Robert Koch-Institut (RKI) points out, however, that these studies do not present the usual modes of transmission. In a commentary by the U. S. National Academies of Sciences in early April 2020, it is assumed that transmission via exhalation of SARS-CoV-2 is possible (4). The RKI cites two other studies (1, 5) in which the ambient air around COVID-19 patients with considerable virus burden in the respiratory tract was examined, but no proof of SARS-CoV-2 was found.

According to the RKI (Status 16.4.2020), it is not yet possible to definitively estimate the risk of transmission of SARS-CoV-2 via the exhaled breath of infected persons. The RKI concludes that "transmission of SARS-CoV-2 via aerosols in normal social dealings cannot be ruled out".

Risk Evaluation

1. Main modes of transmission are coughing and sneezing by infected patients via droplet infection
2. Transmission of SARS-CoV-2 via aerosols is theoretically possible but in reality rather unlikely. Only procedures like intubation or drainage are listed as aerosol-producing procedures in all Guidelines. Ergometry is not mentioned.
3. Major risk reduction can be attained by isolation of sick or symptomatic patients
4. Transmission of SARS-CoV-2 in the medical sector must be prevented by effective protective measures.

Recommended Measures

1) Indication for Exercise Testing

Basically in the current situation of the SARS-CoV-2 pandemic, the indication for exercise testing must be made carefully. A check of the indication should be oriented to three indication groups:

Group A)
- Clarification of complaints, especially of exercise-dependent symptoms, as well as part of diagnostics and in therapy decision-making.
- Recommendation: Ergometry with a clear indication can be performed heeding the recommended protective measures.

Group B)
- Exercise tolerance diagnostics in high-performance, popular and leisure sports ("sport fitness"), additionally medical examinations as part of prevention check-ups, evaluation of occupational fitness and writing of expert opinions.
- Recommendation: Ergometry should basically be subjected to an individual benefit-risk evaluation to determine benefit to the health of the tested person. It should not be refused for elite athletes who require the examination for their licenses.

Group C)
- Primary Performance Diagnostics (PD) in high-performance, popular and leisure sports to measure endurance capacity and manage training.
- Recommendation: At the moment, the indication for this group should be made carefully and very conservatively. A switch to outdoor ›

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field tests in sports fields authorized officially for use appears possible for this indication in small groups with a max. of 5 persons.

2) Clarification of a Given Suspected Disease and Preliminary Information for Patients

All patients receive information, prior to the examination date if possible, that a test can only be performed when all of the following conditions are met:

- No symptoms of a SARS-CoV infection or other virus infection currently or in the past 14 days (fever, general feeling of sickness, headache or pain in the extremities, cough, dyspnea, sore throat, impaired sense of taste and/or smell).
- No proof of a SARS-CoV-2 infection in the past 14 days.
- In the past 14 days no contact with a person who tested positive for SARS-CoV-2.

If information prior to the test is not possible, the patient should be posted to a separate waiting area, if possible, and should first fill out a questionnaire on risk and symptom evaluation and be seen by a doctor before undergoing further examinations.

Additional measurement of forehead temperature using an infrarot thermometer is recommended.

Patients are to be informed ahead of time that they will be given a simple mouth/nose mask (MNS) which they must wear while they are in the outpatient clinic. Whether the MNS must be worn during ergometry should be individually decided. Since the MNS loses its protective effect during longer exercise (after 10-15 min) due to dampness and may also lead to breathing impediment, a basic recommendation for wear during ergometry does not appear practicable. In the anticipated short tests lasting up to 10-15 min, in less stress-tolerant patients (indication group A) and if tolerated by the patient, use of an MNS is recommended even during ergometry.

3) Distance Regulations

With the exception of personnel directly conducting the ergometry, the distance regulation of 2.0 m must be maintained. The presence of other persons (family members, parents, trainers, etc.) in the ergometry room is not permitted. The responsible physician may decide on exceptions. In general, the procedures, including appointment slots, must be so organized that the distance regulation can be maintained without problems.

4) Wearing of Protective Clothing / Disinfection of Equipment and Room Ventilation during Ergometry

- In accordance with hospital requirements, the person performing the ergometry usually wears an MNS, whereby a particle-filtering FFP-2 mask is considered appropriate at some centers. A uniform, protective goggles or a visor which must be disinfected after every ergometry, and as usual, wearing of disposable gloves.
- Equipment touched by the examiner and patient, such as the ergometer, blood pressure cuff, table/shelf surfaces, etc. must be cleaned after each use with a surface disinfectant.
- The ergometry room should optimally be actively ventilated, but at least well-aired between two tests. The time interval between the individual ergometric tests must be so set that the room can be aired for at least 20min between tests.

The personnel involved must be familiar with the use of protective clothing and hygiene measures and appropriately trained; this applies to field tests as well.

5) Nomination of Hygiene Officer

A Hygiene Officer must be explicitly nominated for each department. Coordination with the corresponding in-house/local requirements must be made with the hospital's Hygiene Department.

Validity: until 31/07/2020

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