

**HOME RESPIRATORY
PHYSIOTHERAPY FOR ADULTS
COVID19+ OR SUSPECT CASES**

Translation of Italian document in April 2, 2020



FOREWORD

This document proposes a preventive physiotherapy to general practitioners and to ADULT patients who have a positive diagnosis to Coronavirus (SARS-COV-2) who are asymptomatic or displaying low level symptoms, who are currently on home quarantine, hoping to improve their conditions, and having only the support of their family doctor. This method can be beneficial also to those who, not having a positive diagnosis, are still manifesting symptoms during their quarantine.

This method is NOT BASED ON SCIENTIFIC DATA for COVID19 patients, but only on a REASONABLE THEORY, built on the respiratory characteristics of the patients who are hospitalised, as described by medical colleagues.

THIS DOES NOT PREVENT CONTAGION but it should help slow down the progression of the disease and eventually stop it (so-called secondary prevention), producing in any case positive results on thoracic and pulmonary range.

THIS DOES NOT SUBSTITUTE THE THERAPY as prescribed by the general practitioner, but it goes together with it.

INTRODUCTION

Patients who are positive, asymptomatic or with low level symptoms, could benefit from a “preventive” respiratory physiotherapy, with cycles of positive pressure exhaling and exercising the respiratory muscles (PEP/MRT), and cycles of deep, slow, resistive inhaling (with impedance) and posture (different positions). This kind of physiotherapy has been used for years, with good results, by patients with chronic obstructive pulmonary pathologies, Cystic Fibrosis, and while recuperating after thoracic or cardiac surgery. In order to practice this kind of physiotherapy some specific equipment is used, like masks, mouthpieces, promoters. At this time it might be too difficult to obtain them, due to the high number of hospital patients in need of them, because of their scarcity in warehouses, and because of the difficulties in their distribution and home delivery on short notice. Luckily, these exercises can be done, carefully, without the equipment described above, but with objects that can be found in your home (especially if your city is in lockdown).

THERAPY DESCRIPTION

This method induces negative and positive pressure in the respiratory system, which allow the alveoli and the smaller airways to remain open , by actively employing those areas of the lungs that are not receiving enough air. Furthermore, it keeps the respiratory muscles in good shape, which is certainly useful in the case of a worsening of the clinical situation. To sum up, the ultimate goal is to improve the resilience and volume of the respiratory system.

The therapy holds no risks for the patients: the pressures that are generated in the lungs are never too strong and cannot cause trauma, nor elicit inflammatory responses, also, whereas the patient were to feel fatigued, it is possible to stop the therapy and go back to it later, lowering the impedance of the equipment used and/or the frequency of the sessions.

Each session consists of 10 cycles of “exhaling” therapy alternated to 10 cycles of “inhaling” therapy.

EQUIPMENT NEEDED

You will need:

- a small tube, like a drinking straw (5mm diameter, 25cm long) – from here on out called “*straw*”;



- a small bottle (half litre/ 50cl) or another container like a jar or a glass, as tall as 20cm – from here on out called “*small bottle*”.

ADVISED, but not essential:

- a flexible tube (1cm diameter, possibly 80 cm long) – from here on out called “*tube*”;



- a large bottle (1.5 litres) or an equivalent container tall and narrow – from here on out called “*bottle*”.

Before beginning, you will need to draw lines, with a permanent marker, all along the length of the bottles, 1cm apart on the *small bottle* and 2cm apart on the *bottle*.

EXHALING THERAPY

During the exhaling phase you will inhale freely through your nose or mouth, holding your breath for 3 seconds (you can count in your head “one mississippi, two mississippi, three mississippi), and then exhale steadily, holding your nose, with your mouth wrapped around on a system which generates an impedance to your breathing, made with a tube and a container filled with water. You need to repeat the exercise 10 times.

The best combination for this are the *tube* and the 1.5 litre *bottle*. You can fill it with water up to the middle mark, then you can insert the *tube* all the way down to the bottom. You will exhale through the *tube*, generating a steady flow of bubbles in the water. The higher the level of the water inside the *bottle*, the higher the impedance, and the higher the effort to exhale, therefore it is useful to test your system before the first session, using the marks to fill the bottle with

more or less water, and exhaling into it so to find the right exhaling impedance for you: you need to feel the resistance of the water, but you should not get fatigued, because that can lead to a negative experience and outcome. Once you



have found the right water level for you, make a note of it and start your regular sessions. You can change water level even between sessions, if you feel that the resistance is too high (you get fatigued) or too low (you don't feel the resistance at all).



If you cannot find a *tube*, you can use a *straw*, which generates a measure or impedance in itself, together with the *small bottle*. The technique is exactly the same as above, and it also requires your testing of the water level according to how fatigued you get.



INHALING THERAPY

In this phase you will only use the *straw*, you will hold your nose, you will wrap your mouth around the straw and inhale steadily through it as deeply as you can. You will then hold your breath for 3 seconds (counting one mississippi, two mississippi, three mississippi) before exhaling freely through your nose and mouth. This exercise can incite a short coughing fit, most of all in patients who are suffering from other respiratory diseases or in smokers. This cough should be encouraged and not stifled, since it helps your lungs get rid of phlegm, which should be minimal in previously healthy COVID19 patients and non-smokers. At the end of the exhaling phase and having allowed the cough to calm down, you can take a break, breathing normally, before starting the next exercise. The inhaling exercise is to be done for 3 times.



POSTURES

These exercises help the ventilation of your lungs, especially the lobes which are normally not helped by gravity. In order to make sure that the improvement includes all areas of both sides of the lungs, it is preferable to change your posture every 2 cycles:

Cycles 1 and 2: erect torso (standing or sitting);



Cycles 3 and 4: right lateral decubitus (lying on your right side);



Cycles 5 and 6: left lateral decubitus (lying on your left side);



Cycles 7 and 8: supine position (lying on your back);



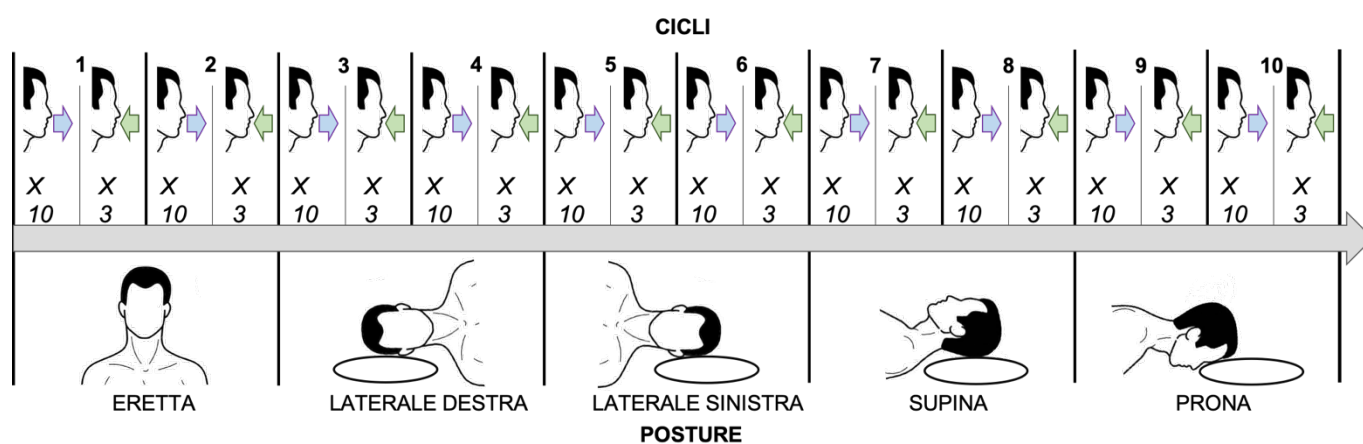
Cycles 9 and 10: prone position (lying on your stomach);



this must be done considering the general conditions of the patient and their ability to assume these positions.

SESSION PLAN:

The time necessary to go through an entire therapy session, consisting of 10 exhaling cycles and 10 inhaling cycles, varies according to the respiration and resilience of the patient, and it takes on average 15 minutes. The following chart shows all the actions, the cycles and the postures in a sequential order.

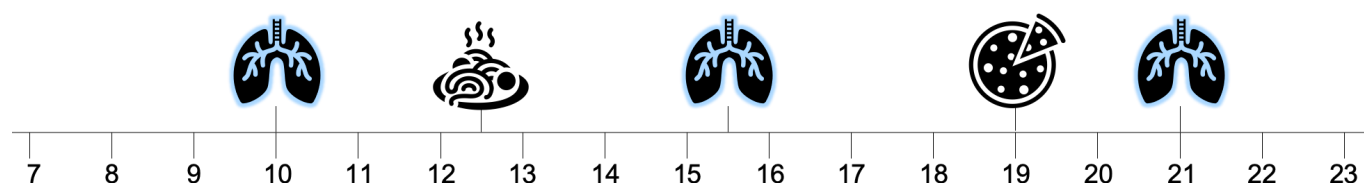


SESSIONS

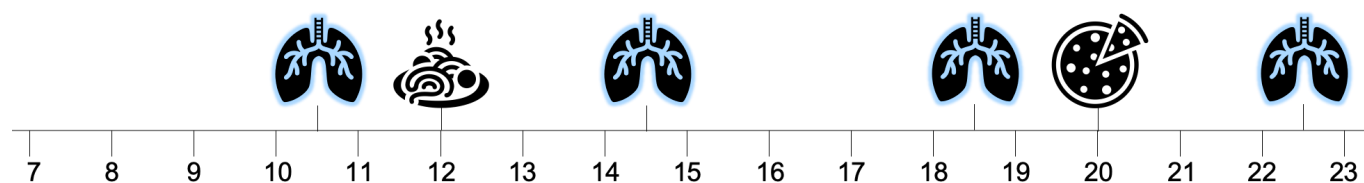
The treatment begins with 4 sessions of 10 cycles per day. The number of sessions can be increased by one session per day if the clinical conditions (like fatigue and other symptoms) allow it, up to a maximum of 6 daily sessions, which takes a big effort. Generally speaking you need to avoid fatigue, so, in case you do feel fatigued, you need to decrease the number of sessions down to 3 per day, or you can decrease the water level in the bottle. Since a continuous increase in fatigue is a sign of a deteriorating clinical situation, in these cases you need to alert your family doctor.

The timetable of the sessions is customisable, keeping in mind that they should be done away from meals. This is an EXAMPLE:

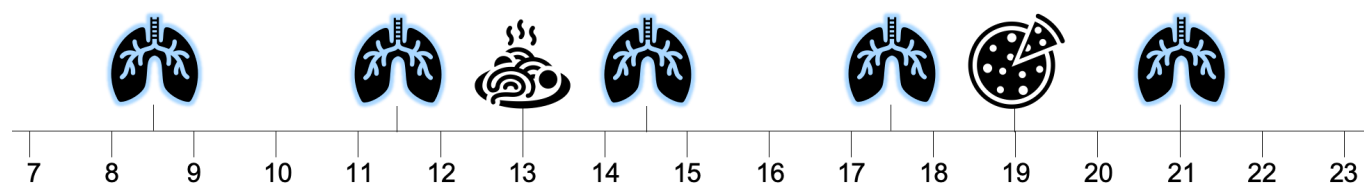
3 sessions – 10:00, 15:30, 21:00 (lunch at 12:30, dinner at 19);



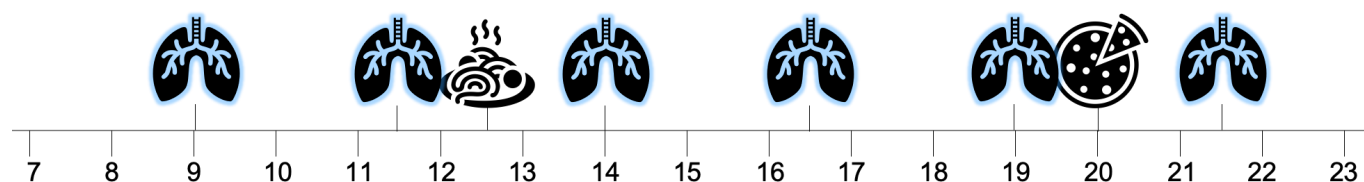
4 sessions – 10:30, 14:30, 18:30, 22:30 (lunch at 12, dinner at 20);



5 sessions – 8:30, 11:30, 14:30; 17:30, 21:00 (lunch at 13, dinner at 19);



6 sessions – 9:00, 11:30, 14:00; 16:30, 19:00, 21:30 (lunch at 12:30, dinner at 20);



It is advised to follow the treatment every day until the double negative result of the COVID19 test.

ADVICE

All tubes, straws, small bottles and large bottles are to be considered absolutely PERSONAL and should never be exchanged, even between people who are both COVID+ (keep in mind there are other diseases). You should always disinfect them all after each session with a solution of disinfectant in water (hypochlorite or similar) and in any case washed with warm water and soap. Otherwise, you can use new ones each time.

It is important during your quarantine and isolation, due to diminished physical activity, to limit as much as possible lying in bed or on the couch, and to do some aerobic exercises on top of the respiratory therapy; it is enough to run or to jump on the spot.

SOME COMMENTS

In the end, since this therapy DOES NO HARM, but instead it IMPROVES the respiratory dynamics, it IMPROVES muscle strength and it is FREE, we would like to recommend it to every patient who is COVID19 positive or is a self-isolating suspect, after consulting with their general practitioner/family doctor. I would like to encourage my medical colleagues, who approve the reasoning and the goal behind this therapy, to advise physiotherapy to those patients who are willing to do it, and to propose it to all patients in self-isolation.

You can find an explanatory video on these respiratory techniques here:

<https://www.tizianatonelli.it/esercizi-per-respirare-meglio/264-ft-respiratoria-preventiva-domiciliare-covid19-sospetti>

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