GUIDELINES COVID-19

ORTHOPAEDIC PHYSIOTHERAPY TUTORIAL FOR CAREGIVERS

Due to the pandemic, sessions of orthopaedic physiotherapy are limited in number and sometimes halted. However their regularity is key in neuromuscular disorders to keep muscles and joints smooth, to alleviate pain and to slow down the progression of muscle contractures, the objective being to preserve motor abilities as much as possible.

A session of orthopaedic care

1 session, 7 main principles

1. Do no trigger pain.
2. Respect joint ranges of motion. Maintain existing ranges of motion without aiming at reducing contractures.
3. Repeat the maneuver 5 to 6 times unforcefully.
4. Plan timely breaks in order to take into account fatigability.
5. Do not apply too marked a resistance on the patient's motions given the excessive fragility of bones and muscles.
7. Remain playful!

Where to install the patient?

On a physiotherapy table, in a bed (preferably not too soft), or a gym mattress placed on the floor (if so, take care of the caregiver's back).



Which duration for a session?

The session must last at least 30 minutes if possible.

How often in a week?

As much/far as possible, try to maintain the same frequency of sessions as in ordinary time.

How is the session organized?

Phase 1 – Respiratory exercise

Based on the respiratory capacities and autonomy of the patient, the program starts with exercices of controled, directed breathing:

• the patient inflates the abdomen and the thorax while breathing in,

• then, if possible, he/she breathes out by retracting the abdomen (if not applicable, he/she will achieves a passive expiration thanks to the elastic properties of inspiration).

Phase 2 – Joint and muscle relaxation

Perform ordinary massage, stroke massage, mild kneading of muscles, moderate stretching of painful contractured zones, mainly in the neck region (trapezius muscles) and other zones if needed.

Phase 3 – Passive mobilisations

• The patient lets himself/herself mobilized but should remain alert.

• The caregiver mobilizes the main joints, respecting their current range of motion, unforcefully and without triggering pain: shoulders, knees, wrists, fingers (including the thumb-index pinch), sides (in case of scoliosis (see picture), hips, knees, ankles and toes.

Mobilisation and stretching. Muscles and tendons are gently stretched by motions exerted by the physiotherapist thus enhancing muscle flexibility.

• Avoid manipulating/mobilizing the neck in case of tracheostomy, or when cervical vertebrae are painful or supposedly fragile!

Phase 4 – Stretching muscles which tend to shorten

The caregiver will stretch:

- limb **muscles** (forearm, arm, thigh, leg) down to finger and toe tips, back, neck, jaw and pectoralis;
- **joints** of fingers, space between index and thumb, elbows, hips (extended), knees, ankles.

Contractures enabling the preservation of some degree of autonomy must be respected: bring the hand to the mouth (elbow contracture), preserved ambulation (pes equinus)…

Elbow stretching must be cautious since the contracture helps the patient to bring his/her hand to the mouth.

Stretching pectoralis muscles is recommended for a better breathing and to avoid closure of the rib cage and shoulder over-rotation.

Stretching the elbow in adults where mobilisations meet the same rules of no-pain and respect of ranges of motion.

Mobilizing the wrist in an adult

What is flexum? This term means contracture in a flexed position. The joint cannot reach full extension and remains more or less flexed at rest.

Stretching lower limbs in practice

Stretch to prevent genu flexum and contractures of hamstrings

Hamstring muscles are thigh muscles allowing hip extension and knee flexion. Such contractures limit hip flexion and result in back pain.

Posture belts are not always necessary (as shown on the picture) but one should keep in mind to place the ipsilateral hip and leg in a flat position!

Stretching in order to combat hip flexum

- Fighting against hip contractures is helpful to maintain a good standing and sitting position, and to avoid pain and exaggeration of the natural spine curvature (hyperlordosis).
- Hip stretching can be performed in a supine or prone position.

Beware, this maneuver is contra-indicated in case of hip dislocation!

Stretching / softenning

This maneuver is performed provided the spine has not been operated (arthrodesis, surgically place internal devices).

⏩ Phase 5 – Active mobilisation and customized physical activity

- To achieve active or assisted-active mobilisation, ask the patient to contract muscles that retain some motor ability and have some functional usefulness (elbow flexion, thumb-index pinch, quadriceps muscle in the high…).
- The caregiver can exert a gentle resistance to the motion itself, based on the patient's abilities. Be careful though to fatigue and excessive resistance.

Active mobilisation can rely on recreational physical activities taking into account, of course, motor and cardiac functions of the patient.

Positioning in the wheelchair

A good positioning in the wheelchair helps prevent and treat orthopaedic complications. It helps slow down or manage the occurrence of orthopaedic deformities.

An appropriate posture is also key to:

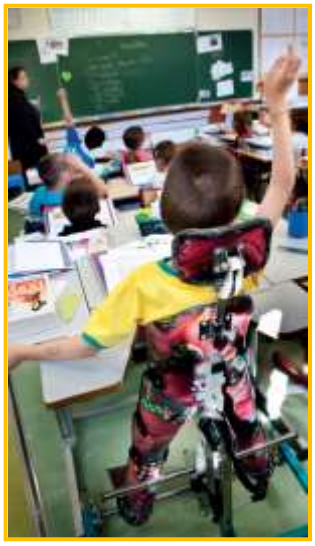
- prevent and limit discomfort, pain and sores,
- preserve or improve motor functional abilities,
- optimize activities, autonomy and social integration,
- facilitate breathing and intestinal transit.

Verticalization

Verticalization must be practiced daily, provided genu and hip flexum are not prominent, fixed and/or painful. It is combined as much as possible with a playful activity.

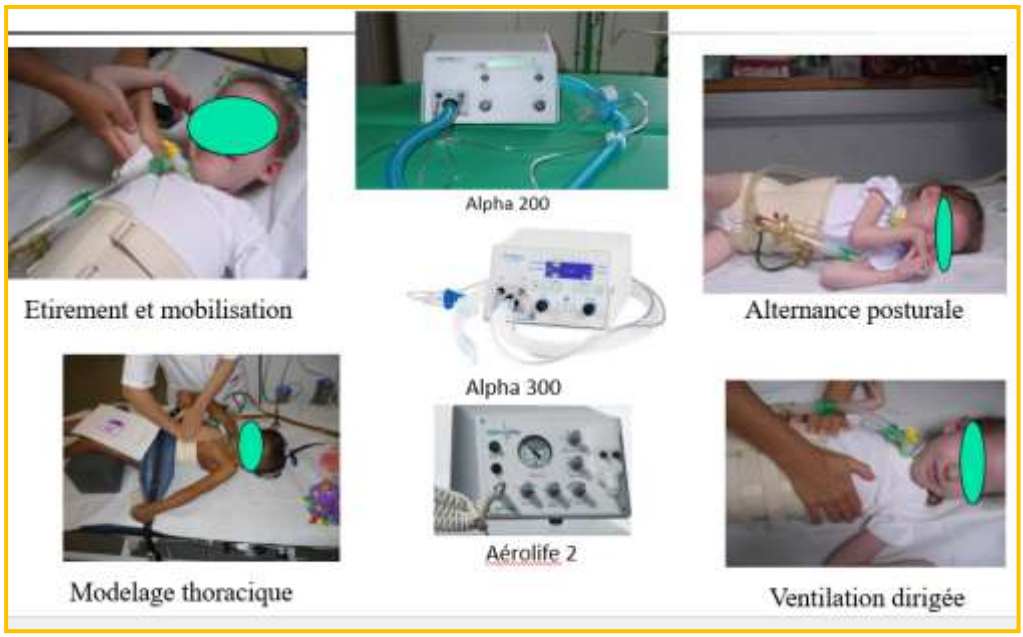
How?

- with or without any orthopaedic device (orthoses),
- in a standing frame, or in a wheelchair enabling multi-positioning and/or standing).



Do not forget (if applicable) hyperinsufflations with intermittent positive pressure devices

Hyperinsufflations are essential to mobilize the thorax and for cough assistance.



Warning

This practical note was designed in the exceptional context of the Covid-19 pandemic. The information contained inside it does not substitute to the regular recommendations made by your physiotherapist, attending physician or neuromuscular multidisciplinary team.

Writers

- **Christian Devaux, kinésithérapeute-conseil, Direction des Actions Médicales, AFM-Téléthon**
- **Sylvie Marion, rédactrice médicale, Myoinfo, Direction des Actions Médicales, AFM-Téléthon**
- **Dr Jon Andoni Urtizberea, Institut de Myologie, Paris**

Rewriters

- **Pr Vincent Tiffreau, chef du Service de Médecine Physique et de Réadaptation, CHRU de Lille**
- **Dr Guy Letellier, médecin de médecine physique et réadaptation, Établissement de Santé pour Enfants et Adolescents de la région Nantaise (ESEAN)**
- **Dr Sandrine Segovia-Kueny, directrice des Actions Médicales, AFM-Téléthon**