Therapy for severely-affected patients

Both in the home care environment and in in-patient care, you will come across severely-affected patients who are mobilised far too infrequently. The therapy is given to the patient in a lying position, in and on the bed. There is virtually no eye-level communication; instead, communication is literally across the patient, from above to below. This is clearly not done out of any bad faith. The fear of “doing something wrong”, causing pain to the patient or overburdening them is generally the primary concern.

Appropriate therapy and care of severely-affected patients in their home is an increasingly important subject. Progress in medical technology means that survival rates for severely ill or severely injured people are rising dramatically. From neonatology to geriatrics, highly-developed systems for maintaining life are able to save patients in a critical condition and to significantly prolong their life span. Patients affected by craniocerebral trauma, heart attacks and strokes, along with people suffering with chronic diseases, increasingly need long-term, intensive medical support, sometimes outside the hospital setting. This has led to a new and challenging field of work for the various health care professions. Care, respiratory therapy, physiotherapy, ergotherapy and speech therapy all need to adapt their content and refocus. The joint efforts of the professions and disciplines involved is to safeguard and improve the quality of life of those affected. Modern devices, adapted to the needs of severely-affected patients, such as the THERA-Trainer tigo and the THERA-Trainer balo, offer...
THERA-Trainer balo provides security
therapists efficient options for optimising their treatment concepts, from the intensive care ward through to the home environment.

New pathways via device-based therapy

The complexity and interaction of the symptoms in severely-affected patients calls for up-to-date and specialist knowledge from all those involved in the therapy process. Symptoms such as spasticity, contractions, dysphagia and respiratory dependence can be avoided or alleviated with early mobilisation and verticalisation.

Mobilisation and activation using the cycling movement trainer THERA-Trainer tigo is not just reserved for conscious and mildly-affected patients. The cardiovascular system and metabolic processes can be stimulated using the THERA-Trainer tigo, even in patients in a vegetative state, via passive or assisted training, while flexibility can be maintained or improved.

Full physiological verticalisation, i.e. standing upright, can only be achieved in a standing position. Physiological, biomechanically beneficial standing requires the body’s centre of gravity to be along the plumb line in the lower spinal area. The further a body part deviates from the plumb line, the more gravity is placed on bones, cartilage, ligaments, tendons and musculature. We only use the term verticalisation to refer to someone who is brought into the vertical position (on the plumb line to the centre of gravity) from head to foot. However, this is only possible if the pelvic girdle is kept dynamically stable in a wide-angled position. This dynamic stabilisation is achieved most readily in a standing position. Mobilisation at the bedside is therefore not “proper” verticalisation, since it is only when the severely-affected patient is fully upright that they get the necessary biomechanical support to be able to learn adequate torso and head control.

In severely-affected patients with deficient head and torso control, and with a lack of tone in the lower extremities, therapeutic straightening into the standing position can only be achieved with difficulty unless suitable aids are used. Achieving early verticalisation using a flexibly-adjustable standing device is therefore recommended. A rigid standing device, without scope to support the patient’s individual and current joint flexibility via flexible knee and pelvic supports, is of little use. The THERA-Trainer balo offers therapists, care staff and suitably-trained family members the opportunity to carry out efficient, gentle standing training without the fear of falling upsetting the patient. The option of being able to work statically, as a simple aid to standing, or dynamically as a balance trainer enables the patient to adapt their training situation to their daily condition and/or training progress.

Twenty years ago, Pat Davies called for daily standing for severely-affected patients, starting in the intensive care ward [1].
Scientific studies [3][4] and new rehabilitation concepts [5][6] show that passive mobilisation at and/or in the hospital bed is not sufficient to smooth the path back to active participation in society. Mobilisation out of the bed into a standing position is becoming increasingly important in the treatment of severely-affected patients, both inside and outside the hospital setting.

**The earlier the better! Standing in intensive care**

In recent years, an increase in the importance of early-intervention therapeutic measures has been observed. Studies relating to intensive care medicine show that an early start to therapeutic interventions can prevent immobility, becoming bedridden and sensory deprivation [7][8][3]. A randomised controlled study in mechanically ventilated patients in the intensive care ward [9] shows that a combination of interrupting sedation and simultaneously starting ergotherapeutic and physiotherapeutic treatment in the early phase leads to a better outcome than the usual standard care in the intensive care ward.

Severely disabled patients who are fully dependent on outside assistance are mobilised out of bed at the earliest opportunity, activated and brought into a standing position. Early mobilisation is possible even with intubated and mechanically ventilated patients [10]. These simple therapeutic measures in the earliest days of mechanical ventilation can thus reduce the delirium period and lead to better functional outcomes when the patient is discharged [11][9].

**Standing for persons in a vegetative state**

Vegetative state is one of the least well-understood medical phenomena. The range of different diagnoses and definitions of vegetative state leads to confusion and misdiagnosis [4], while the extent of the remaining abilities is underestimated, inaccurate prognoses are offered and important opportunities for rehabilitation missed [12][13]. Studies of rehabilitation medicine [14][15][16] show that, for patients in a vegetative state, remission of symptoms can be achieved through appropriate therapy, even after a number of years, or the development of serious secondary symptoms can be reduced or prevented. In addition to the basic understanding of vegetative state as a “menschenmögliche Seinsweise” (“humanly possible state of being”) [17], in the therapeutic setting the diagnosis of vegetative state should not be considered as final, but rather as a process in which functional capacities can be regained. Studies of vegetative state [4] emphasise that optimising the patient’s position into a vertical position leads to a better outcome in diagnostics and therapy. A therapy device such as the THERA-Trainer balo which can be flexibly used here both for diagnostics and for an individually adapted treatment concept. ▶
Using a tilting table is not recommended

Moving severely-affected patients into a vertical position with a tilting table is not recommended. At first sight, a tilting table may appear to be more practical, particularly for people in vegetative state. Verticalisation is easier and it appears to be low-risk for the therapist and less demanding. But if a patient is moved into an upright position using a tilting table, is it reasonable to refer to this as verticalisation? Standing upright aligned on a plumb line from head to foot through the centre of gravity is definitively not achievable using a tilting table. The same goes for wheelchairs with a function allowing the patient to stand up. But there are many other arguments in favour of using the THERA-Trainer balo rather than a tilting table.

Moving someone into a standing position from a lying position without bending the hips and knees can cause anxiety and insecurity [2]. The patient presses their weight backwards against the supporting surface of the table, since they commonly have the feeling that the table has already tipped too far forwards, even though the patient is not yet in a vertical position. This therefore significantly increases plantar flexion of the feet and clawing of the toes in flexion (plantar flexion). The ostensibly positive effect of standing (see above) is negated, and the result is extension mass movements in the lower extremities [2][1].

By contrast, verticalisation using the THERA-Trainer balo enables standing up from a sitting position with hip and knee flexion. Perception-impaired patients can prepare themselves better for standing up into a vertical position. The tray unit with stomach cushion also offers a holding-point. Moreover, the tray creates a visual restriction, thereby reducing the patient’s fear of falling.

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