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turnall® system

benefits of automatic lateral repositioning

- **Prevention of pressure ulcers**
- **Workflow optimization**
- **Release resources**

Levabo®... a turn in **The right** direction

LEVABO® medical

Why and what is the complications of **immobility**

A healthy, mobile person turns several times an hour while he / she sleeps.
This movement relieves pressure, stimulates the body, improves circulation, and prevents problems associated with immobility.

Immobilized people who do not turn or reposition often enough have a significant risk of developing pressure ulcers (most often on the buttocks, sacrum, hips and heels - also known as decubitus), kidney and bladder infections,lung / respiratory infections and several other implications, including:

- Pneumonia
- Venous stasis
- Thrombosis
- Embolism
- Stone formation
- Urinary tract infection (kidney and bladder)
- Muscle wasting
- Bone demineralization
- Atelectasis

Any of these problems associated with immobility can have serious consequences for the person. The Turn All® System addresses these issues through its ability to provide frequent repositioning, and static positioning while improving comfort, independence, control and quality of life.

Immobility is the most important risk factor that predisposes the individual to the development of pressure ulcers, and therefore interventions to combat this risk must first and foremost focus on mobility.

Use of 30º positioning and a 3 hour relocation cycle has been shown to make a statistically significant difference in the incidence of pressure ulcers compared to standard care and would prevent approximately three quarters of pressure ulcers. (3)

Traditional prevention methods by **manual** repositioning **versus** **automatic** repositioning

The traditional way to avoid the formation of pressure ulcers is for a family member, caregiver, or institutional worker to regularly turn the patient (it is recommended that this be done every two hours) and stabilize the patient in a new position to relieve tissue compression and restore blood flow. This has to be done around the clock, and unfortunately this manual process has a significant number of disadvantages that include:

1. **The immobilized** patient is awakened at night by the repositioning process
2. **Caregivers**, family members or institutional staff may suffer serious back injuries from the lifting effort
3. **Caregivers** or family members must be present 24 hours a day and this can lead to severe insomnia and severe emotional stress
4. **In institutional** settings, the need to frequently immobilized patients expensive, both financially and in terms of staff time consumption
5. **The patient** may be in a home environment where family members are unable to physically give the necessary regular turn
6. **If there is no** support at home, it may be necessary to relocate patients to a place that leads to loss of privacy, dignity and inability to create a life other than institutional living.

In the automated repositioning process, the patient is placed on his back in the middle of the bed.

When the Turn All® lifts one side evenly and quietly, the outer part of the mattress is lifted up on one side and forms a "wing" that supports the body in its entire length from the ankle to the shoulder.

A slight lifting of the opposite side of the mattress is done to prevent slipping and shear forces that may increase the potential for developing pressure ulcers, this provides support and reassurance for the patient.

The patient is carefully rocked by the structure of the mattress to prevent pressure ulcers. Any pressure transmitted to this side by the user is distributed along the entire body.

When Turn All® reverses the rotation, the higher "wing" is lowered so that the mattress is in a horizontal position.

Turn All® then automatically switches to the other side to complete the cycle.

turn all® system

For which medical conditions is Turn All® 30° lateral repositioning recommended:

- Spinal cord injuries causing paraplegia and quadriplegia (with or without ventilator)
- Muscular dystrophy and multiple sclerosis
- Severe head injuries and stroke
- Severe respiratory ailments such as chronic obstructive pulmonary disease
- Immobility due to aging
- Cancer
- Guillain Barre Syndrome
- AIDS
- Coma
- Amputations
- Osteomyelitis
- Degenerative disk disease, post-spinal fusion and laminectomy
- Rheumatoid Arthritis
- ALS
- Any other condition where turning assistance is required

Benefits for **patients**

The features of the Turn All® System provide a number of important benefits for immobilized bed users such as:

- **The automated** repositioning process allows for more frequent repositioning to address pathophysiological events associated with immobility. Also referred to as kinetic therapy, this reversal not only provides pressure relief to prevent or treat pressure ulcers, but it can also produce, for example, a dramatic reduction in the incidence of respiratory problems and urinary tract and bladder infections (9).
- **Significantly** better sleep quality, as the patient does not have to be turned manually at night, and is not woken by Turn All® when the patient is turned. This creates better mental clarity, better health and an improved lifestyle, free from dependence on caregivers at night (5).
- **The possibility** of living in the home instead of an institution
- **Pain reduction** - Even heavy patients are positioned gently
- **Better blood circulation** Turn All® can still reposition when the torso is in the raised position up to 20°. This is a significant benefit for people who receive tube feeding.
- **Prevention** or reduction of gastroesophageal reflux
- **Better respiration** and release of upper respiratory tract and oral secretion (6).(7).(8).
- Reduction in spasticity and abnormal muscle tone - improved comfort
- **Improved** bowel regularity
- No dehydration and subsequent electrolyte balance, as Turn All® does not create heat
- **Side support system:** Slight lifting of the mattress, on the opposite side of the primary lifting side, provides support and reassurance as well as decreases the risk of shear.

Benefits for **institutions**

There are a number of significant benefits accruing to institutions as a result of investing in Turn All®. These include:

- **Increased productivity** of nurses and auxiliary staff by reducing the amount of manual turning of patients required. This allows employees to spend their time more efficiently and productively in the care of their patients
- **An effective** way to treat or avoid pressure ulcers and other complications of immobility
- **Equipment** can be used with existing beds, Turn All® can be integrated into any care bed with removable mattress.
  The installation itself is simple, can be performed by the caregiver and takes a few minutes.
- **A method** of protecting healthcare professionals from debilitating back, neck and shoulder injuries (caused by moving or turning patients), leading to significant absenteeism from work and the associated costs of sick days, workers' claims and the hiring of replacement workers.(10).
- **Reduced** staff turnover, reduces the cost of recruitment, employment and training and by using more expensive temps.

Benefits for **home-based** caregivers

The physical and mental tasks associated with caring for immobilized persons can place a significant burden on spouses, parents, etc.

The physical requirements for manual reversal of an immobile person often mean that family members will not be able to provide the required assistance through age and / or weakness. This results in institutionalization of the family member.

Turn All® is designed with the caregiver in mind and provides significant benefits along with the ability to provide a significantly better quality of home-based care.

Turn All® automatically rotates the bed user at night, eliminating the need for the caregiver to get up every two hours.

Sleep deprivation is significantly reduced, thus reducing the caregiver's physical and mental fatigue. There is a reduced need to manually rotate or relocate the user and thus a reduced chance of the caregiver developing neck, shoulder or back injuries.(10).

Cost benefits for the **healthcare industry**

For an industry struggling to control its costs, Turn All offers significant savings by focusing on a strategy to prevent problems before they occur. It offers:

- Significantly reduced direct medical expenses associated with repeated hospitalizations to treat pressure ulcers and other complications of immobility such as bladder and respiratory infections. It is estimated that pressure ulcer prevention is 9-10 times cheaper than treatment - Dealey Report (2012)

- Support for a de-institutionalization strategy that makes it possible to move chronically immobilized patients from hospitals back to their homes (or to assisted living environments)

- Avoid expensive readmissions from pressure ulcers or other systemic complications

- A method of reducing the length of hospital stays for specific groups of patients. Treatment of critically ill patients with kinetic therapy has been shown to reduce intensive care by 24 percent. The movement helps reduce the risk of infection and complications from pneumonia and other respiratory problems affecting approx. 20 percent of intensive care patients.

- A 1987 study published in the journal Stroke found that the risk of infection for patients with stroke placed on normal hospital beds was 2.9 times greater than a study group of patients placed on automatic reversal systems.
  (Stroke 18, No. 3 May -June, 1987).

- Significantly reduced costs of claims for nursing staff and support staff injured during repositioning or transfer of immobilized patients. A survey conducted by the Workers' Compensation Board in British Columbia in 1996 found that manual lifting, transfer or relocation of residents (without the help of mechanical helpers) was responsible for 63% of all back, neck and shoulder injuries.

- Significantly reduced time lost by nursing and support staff from neck, back and shoulder injuries. Reduces finding problems replacement staff.

- Significantly reduces the number of employees involved in turning patients (especially at night). This will reduce the cost and do it enable staff to focus on delivering a significant higher quality of care.

More on **benefits**

- **Extensive pressure relief**
- **Prevention of pressure injuries / wounds**
- **Treatment of existing pressure injuries / wounds**
- **No sleep disorders**
- **Low noise level**
- **Even heavy patients are carefully positioned**
- **Gentle positioning even for patients in pain**
- **Side support system: Slight lifting of the mattress, on the opposite side of the primary lifting side, provides support and security as well as reduces the risk of shear**
- **Better blood circulation.**

Sleep

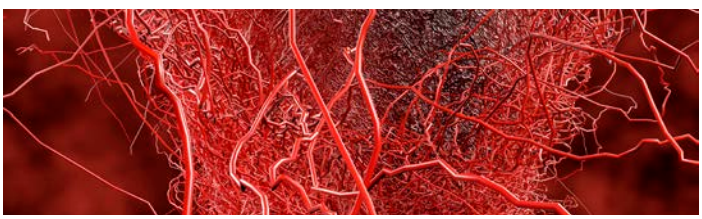
With the Turn All® System, there are no sleep disorders of patients as they are repositioned quietly and gently.

The Turn All® System eliminates the need to turn patients manually at night, saving staff resources. The user gets an even repositioning throughout the night, which provides better sleep quality, which in turn leads to increased profits during the day.(5).

Although the role of sleep in physiological and psychological relationships remains incompletely understood, the problem of sleep deprivation in critical sick patients well known. In intensive care units, frequent procedures, psychological and environmental factors can make sleep virtually impossible. Some of the organic consequences of sleep deprivation, such as decreased lymphocyte and granulocyte function and increased catabolism, may interfere with the patient's recovery. Because of these considerations, healthy sleep appears to be of therapeutic benefit to the patient. It is a typical problem whether to prioritize pressure relief or sleep, both are essential for rehabilitation, with the Turn All System the problem is solved, the Turn All® System solves both tasks.

Blood circulation

Many patients who suffer from an inability to move or turn develop pressure ulcers in those areas of the body where there is no sufficient blood is supplied to these areas. This is due to circulatory weakness that results in capillary closure.



Lateral repositioning up to specific degrees can be beneficial in reducing the pressure on local areas such as larger bone protrusions, as lateral repositioning can reduce the pressure on patients' bodies and increase capillary circulation (blood flow). (11).

Pain

Gentle positioning even for patients in pain

Mobility

Provides early mobility to critically ill patients whose condition or instability prevents the implementation of other forms of mobility. Early intervention reduces hospital stays.

Prevention of lung complications

Improving oxygen levels in patients. Although reversal systems were originally designed to prevent and treat pressure ulcers, the reversal action has been shown to mobilize lung secretions, thereby relieving pulmonary obstruction, a serious complication often found in patients who cannot reverse themselves.
Ventilator-associated pneumonia
Vollman (2010) reviewed the results of four prospective randomized trials and two retrospective analyzes and concluded that early use of CLRT (Continuous Lateral Reposition Therapy) in patients with comatose or immobile patients reduced the incidence of lower respiratory tract infection including pneumonia. first 7-14 days of intensive care.(6). (7). (8).

Sensory stimulation

Many people with different diagnoses depend on mobility in order not to stiffen muscles or joints, others have reduced surface / depth sensitivity. For these people, turning at night will be crucial for as well-functioning a body as possible during the day with the least possible pain or restriction of movement. For some, regular turning will help improve the brain's interpretation of stimuli, as regular turning at night results in a calm and balanced stimulation of the skin's receptors, providing increased calm to the nervous system and brain.

Nutrition

It has also been observed that many patients treated with automatic lateral repositioning achieved an increased level of emotional and physical well-being. This resulted in better eating habits with an increase in nutritional intake, leading to faster improvement in pressure ulcer healing.

ROI - return of **investment**

Pressure ulcers and repositioning

In kroner and øre, pressure ulcers are therefore expensive in an already financially pressured healthcare system. According to American studies, the average cost of a pressure ulcer that has arisen during hospitalization has been set at a low of DKK 250,000 (1). There are no recent figures on what pressure ulcers cost Danish society, but a Danish study estimated in 2013 that the costs ran up to approx. 1.3 billion (2). In 2015, it is estimated that one pressure ulcer in Denmark costs DKK 200,000. 90% of this amount goes to care time.

Frequent repositioning in 30° lateral positioning is more cost effective than less frequent repositioning in standard 90° position through reduced turnaround care time and better patient outcomes (Moore et al 2011).

A randomized controlled trial demonstrated the effectiveness of repositioning patients every three hours overnight using a 30 ° incline compared to patients repositioned every six hours overnight but camped 90 ° laterally on each repositioning. (Moore et al. 2013). (3).

Pressure ulcers are so expensive to treat that if the Turn All® system prevents just one category 1 pressure ulcer, then the system has paid for itself.

If you want to calculate your own costs for pressure ulcers then try Levabo Calculator at:
www.levabo.dk/wp-content/uploads/2018/08/Prevention-VS-Treament-GB-Calc.pdf

If you have patients who need to be repositioned regularly in about 15-20 minutes, every other hour of the day, 3-4 hours of care time has been saved. In such a scenario, the system is paid for in approx. 10 days.

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Emily Haesler (Ed.). EPUAP/NPIAP/PPPIA: 2019.

(5). Quality of sleep in the medical department. Article in The British journal of clinical practice · July 1992.
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of Kinetic Therapy on Pulmonary Complications. American Journal of Critical Care, 13(5): 376-382

(10). Proper Positioning of Clients A Risk for Caregivers. by Guy Fragala, PhD, PE, CSP, Maren Fragala, MS, and Livia Pontani-Bailey, MA, RN, COHN-S, ARM.

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Guidelines:
Both EPUAP and NICE recommend 30° lateral side position in preference to the 90° side position when positioning .(4)

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