

# Sleep Positioning: POSITIONING Isn't Just for *Wheelchairs Anymore*

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## WE CHANGE OUR BODY POSTURE AND

position frequently throughout the day depending on our level of comfort or the task we are performing. People with physical disabilities, and specifically those with severe motor impairment, may not be able to change their body posture or position independently. People who use wheelchairs often lack the ability to move in and out of a variety of postures while they sit because of muscle weakness, muscle spasticity, paralysis, poor coordination or balance. As a result, they may sit in static, habitual, often asymmetrical postures, which can negatively impact their health, comfort and ability to function. Many wheelchair users need special supports in their seating system to help them maintain a more aligned posture and to provide the stability they lack in order to use their arms or head for function.

Proper positioning has long been recognized as an important consideration when evaluating and recommending seating systems for wheelchairs. However, clinicians are beginning to realize the importance of looking at a person's posture throughout their 24-hour day. Twenty-four hour postural management is an approach that looks at all of the different positions and supportive equipment a person with severe motor impairment assumes and uses throughout their 24-hour day. The approach tries to optimize postural alignment as much as possible in all environments, including nighttime. A 24-hour positioning evaluation examines how a person is positioned in their wheelchair, in bed and during alternative daytime positioning. A child with cerebral palsy, for example, may have a very appropriate seating system in a manual wheelchair, which helps to maintain their spine and hip joints in neutral alignment. However, if that same child only spends six hours a day in their wheelchair, that leaves 18 more hours in other positions — oftentimes, destructive postures that place them at risk for orthopedic complications.

So, just what is sleep positioning? Sleep positioning is the specific therapeutic positioning of a person's body during sleep. Sleep positioning has three main goals:

- To improve the quality and duration of sleep,
- To promote health and maintain safety during sleep, and
- To prevent or lessen the development of orthopedic deformities.

Many individuals with physical disabilities have a difficult time sleeping due to an inability to change their position, abnormal muscle tone and movement, discomfort or pain, or because of difficulties with breathing or swallowing. This leads to poor sleep quality and duration – essentially sleep deprivation – for both the disabled individual and their caregiver. Restorative sleep is essential for people with physical disabilities in order to help repair soft tissue trauma that may have occurred during the day (from abnormal postures and spasticity), to optimize immune system functioning, to promote normal growth in

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## ... Wheelchairs Anymore

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children, and to maximize cognitive and physical performance during the daytime.

### **To promote health and maintain safety during sleep**

Some individuals with motor impairment also have significant health problems, and they require frequent attention during the night to keep them safe. For some individuals, basic physiological mechanisms, such as breathing and swallowing, are influenced by body posture and movement, as well as body position with respect to gravitational forces. Some individuals are even at risk of becoming entangled in bed covers or pillows because of uncontrolled movement patterns, leading to possible asphyxia.

### **To prevent or lessen the development of orthopedic deformities**

Additionally, many individuals with neuromuscular problems are at risk of developing pressure sores, loss of joint range of motion, and orthopedic deformities such as scoliosis and hip dislocation, which may lead to costly surgical interventions. Many of these persons spend much of their day and night in

destructive, asymmetrical postures, which actually facilitate the development of orthopedic deformities and associated health complications.

For example, Mark is developing a lateral scoliosis. When positioned in his wheelchair in his custom seating system, his scoliosis is about 20 degrees. When first placed in bed, his curvature is about the same. After a short period of time, however, as Mark's muscle tone kicks in, his scoliosis is pulled into 45 degrees, and this is where his spine remains for the next 10 hours. It is no wonder his scoliosis is progressing.

The concept of therapeutic positioning during the daytime is widely accepted. Many types of wheelchairs, seating systems and other pieces of adaptive equipment are used in order to help individuals with motor impairment maintain symmetrical, stable postures during the day, both to help them function, but also to help prevent orthopedic complications. However, these same individuals may be spending 8 to 12 hours a day in bed, lying in asymmetrical,



**LEFT: THIS IS HOW ASHLEY IS POSITIONED AT NIGHT WITH PILLOWS TO FALL ASLEEP.**

**MIDDLE: THIS IS THE DESTRUCTIVE SLEEP POSTURE SHE ENDS UP IN FOR MOST OF THE NIGHT, PROMOTING A RIGHT CONVEX C-CURVE SCOLIOSIS AND WINDSWEPT HIP DEFORMITY**



**RIGHT: EXCELLENT ALIGNMENT ACHIEVED USING A SLEEP POSITIONING SYSTEM. SLEEPING IN THIS POSTURE 9-10 HOURS/NIGHT MAY HELP MINIMIZE SCOLIOSIS AND HIP DEFORMITY.**

**ASHLEY IS NOW SLEEPING WELL IN HER NEW SLEEP POSITIONING SYSTEM, MAINTAINING NEUTRAL JOINT ALIGNMENT WHILE ALSO STAYING COMFORTABLE ALL NIGHT LONG.**

destructive postures, which can negate the benefits of good positioning during the daytime. Therapeutic positioning during sleep can be especially effective because the person is not performing tasks that may increase muscle tone and abnormal movement patterns. Sleep positioning can therefore be a vital component in the overall 24-hour postural management and care of individuals with severe motor impairment.

### ***So how do I position someone during sleep?***

Many families have already tried pillows of all shapes and sizes during sleep. For many clients, pillows can actually be hazardous if the client may have difficulty turning and lifting the face and, as a result, can lead to suffocation. Pillows are not generally adequate to block movement. One commercial option is the Dreama sleep positioning system by Jenx (distributed by Patterson Medical in the United States, [www.pattersonmedical.com/app.aspx?cmd=getProduct&key=IF\\_97001](http://www.pattersonmedical.com/app.aspx?cmd=getProduct&key=IF_97001)). Some companies, such as Aspen Seating, make custom molded solutions. In one of their products a wedge is placed under the trunk to elevate the head and trunk as needed, such as in clients prone to reflux to minimize choking and aspiration risk. This wedge is then attached to another wedge that is placed under the knees with troughs for the legs. Many clients lack hip and knee extension range, so when they are placed in supine, the legs tend to fall to one side. This leads to the too common posture seen in wheelchair seating referred to as the windswept position. If a wedge is placed under the legs so the hips and knees can be flexed, the legs remain in a neutral position relative to the hips. Aspen Seating will also custom mold a positioning system called the Recumbent Sleep Orthosis to support the entire body in either supine or sidelying.

### ***Won't keeping a person in just one position all night long be detrimental?***

A study was completed on children and sleep. Typical children made more than 50 positional changes a night during sleep, many of them large changes such as stomach to side. Children with cerebral palsy made only three positional changes a night and these were minor, such as flexing a limb. If a client is not moving during the night, then let's make sure their primary posture is a good one.

In summary, the primary goal of sleep positioning is usually to help a person maintain a stable, symmetrical, comfortable sleeping position throughout the night in order to:

- Increase health and safety during sleep by maintaining positions that prevent aspiration, choking and/or positional apnea, for clients at risk, allowing for safe swallowing and optimal respiration throughout the night,
- Increase safety during sleep by preventing persons from becoming entangled in bed covers or pillows, for those at risk,
- Help maintain joint range of motion and reduce the risk of developing orthopedic deformities by increasing the number of hours the person spends in symmetrical, therapeutic postures,
- Decrease joint stiffness and pain, which results from sleeping in asymmetrical postures,
- Minimize pressure areas on the body during sleep in order to improve comfort and sleep duration, as well as to decrease the risk of pressure sores for persons at risk, and
- Improve the duration and quality of sleep, in order to promote optimum body system functioning and health, and improved physical and cognitive performance during the day.

If young children who are at high risk for orthopedic deformities receive 24-hour postural management, long term orthopedic losses would be reduced over those of young children who only receive seating intervention in a wheelchair base.

Don't forget to evaluate their posture during sleep when evaluating clients for positioning. Sleep positioning can make as much of a difference as wheelchair positioning for many clients. ➤

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