



Seating & Positioning: Options & Benefits

B Y B E N M A T T L I N

In her 23 years as a C5 incomplete quad, Natalie Alden has known pressure sores. A professional advocate and investigator with the Advocacy Center for Persons with Disabilities, in Jacksonville, Fla., she doesn't have time to lie around in bed waiting for sores to heal. So she takes a variety of precautions — from nutrition supplements to expensive seat cushions — with mixed results.

But now, she says, "I'm in the best shape I've ever been, in terms of not worrying about pressure areas."

The secret of her success? Her current seating system, she says, deserves much of the credit. "I have a Permobil — with power tilt and recline."

Tilt and recline aren't new, of course. Most wheelchair makers offer them. But what is new is the growing body of research that confirms the myriad benefits of these and other advanced seating options.

And at the same time, manufacturers are coming up with more efficient, enhanced features to meet a ballooning demand.

Many Benefits

"Power seat functions ... have a variety of medical purposes above and beyond changing someone's position," notes Brad Dicianno, M.D., an assistant professor at the University of Pittsburgh Medical Center's Department of Physical Medicine and Rehabilitation. "Pressure relief, while important, is only one of the many medical purposes."

Dr. Dicianno is a member of the



Rhonda Clark stands in her Permobil for several reasons — including to rise with others at church.

pain, and reducing or delaying secondary complications from long-term wheelchair use," the report concluded.

Standing

Some experts recommend going further to yield maximum benefits. "Standing can be even better for pressure redistribution," offers Amy Meyer, a physical therapist at Permobil, the Swedish wheelchair manufacturer with U.S. operations based in Lebanon, Tenn.

Meyer acknowledges it's not objectively proven yet, but she believes in standing for several reasons. "Using tilt and recline does distribute your body weight over a larger surface area than just sitting upright on your bottom, but you still have pressure along your sitting surfaces," she says. "When you stand, however, the bulk of your weight moves to your feet, leaving your sitting surfaces nearly free of pressure."

Meyer points out that standing is also more doable on a regular basis than tilting or reclining. "You can't really interrupt your life to suddenly look up at the ceiling," she says. "Standing can make you more productive while redistributing your pressure better."

Shearing Reduction

Other recent advances include low-shear reclining backrests. "Traditionally, recline has come with a shearing risk," explains Meyer, referring to the destructive, and sometimes painful, slipping and rubbing that can occur as a backrest tips back. "Now there's advanced technology that allows you to maintain your back

Rehabilitation Engineering Society of North America, an interdisciplinary non-profit think tank. In April 2008, RESNA issued a report that laid out some of these medical benefits. Tilt, recline and elevating leg rests, the study found, "may be useful and medically necessary to address issues related to postural alignment, function, physiology, transfers and biomechanical issues, contractures or orthopedic deformities, edema, spasticity, pressure management, comfort, or dynamic movement."

Translation: They can be good for "sitting tolerance and overall quality of life by increasing function and reducing

position while reclining, which minimizes that shearing risk.”

Principally, these new backs have cushions that are not Velcroed on but attach with a flexible plastic band that can slide up and down the back shell. “The shearing occurs between the cushion and the back hardware, not between the person’s skin and the backrest,” says Meyer.

Other innovations include sideways and forward tilting, known as lateral and anterior, respectively. Combined, they make up what Meyer calls “rotational” tilting. The idea is, the more directions you lean, the better for pressure relief.

Permobil is one of the few chair-makers to offer these options. But it’s not the only one.

Options

Chief among the stand-up competitors are Levo and Redman.

Levo, a subsidiary of the Brooklyn Park, Minn.-based Dane Technologies, offers pediatric and adult standing chairs, in powered and manual configurations. The top-of-the-line model has a mid-wheel-drive base for easy maneuverability indoors that automatically transforms to a four-wheel-drive base for rugged outdoor driving.

“The Levo can climb curbs,” says Delbert Gear, a T6 retiree in Nekoosa, Wis. “The large front wheels grab the curb and pull the chair right up!” (Levo clarifies by saying the chair can scale up to 4-inch curbs.)

Nevertheless, Gear found the Levo chair’s top speed of 6.2 mph too slow — and went instead for rival standing-chair-maker Redman. Based in Tucson, Ariz, Redman Power Chairs offer a top speed of 8.7 mph, the fastest of all standing wheelchairs (though of course you should go slower when standing).

“If I’m going someplace, especially when it’s cold outside, I want to get there quickly,” says Gear. “Plus I prefer the way my Redman chair maneuvers.”

Gear is not alone in praising Redman’s ease of use. “It has tremendous flexibility,” asserts Charles Webb, a C5 quad attorney in Sarasota, Fla.

His primary Redman chair (he has several) offers tilt, recline, elevating leg rests and standing. But what’s unique, says Webb, is that he can “run two or three of them at the same time, so I can

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create all kinds of different positions. And I don’t have to go directly from sitting to standing. I can do partial positions. So I can shift my weight any way I want, easily and conveniently.” (Partial standing is possible with Levo chairs, too.)

Sam Redman, the manufacturer’s national sales manager, calls one effect a “standing tilt.” “There’s more than one way to tilt,” he observes. “The norm is tilt-in-space” — tipping back on a central axis, with a rigid angle between the seat pan and the back — “but we take a different approach.”

Webb says changing positions in Redman chairs is so natural and simple he does it all day long. “On average, I adjust every 45 minutes,” Webb estimates.

As a result, his edema has been eliminated and his osteoporosis greatly improved. He’s had no pressure sores since he started using Redman chairs, either, and feels benefits to his urinary tract, bowels, and overall stamina. “It is amazing what this does,” he says. “Everything in my body functions substantially better.”

Standing Not for You?

If standing isn’t for you, Pride Mobility’s Quantum Rehab offers a variety of other high-tech seating options. “Besides tilt and recline, and recline only, we have a power elevating seat which can be used with tilt or recline or both,” says Megan Kutch, a sales manager at the Exeter, Pa.-based manufacturer.

Quantum’s four-point mounting system makes its 10-inch elevating-seat option more stable than those based on a

single pedestal, Kutch affirms.

It also offers an assortment of leg rests. “We have swing-away, manual elevating and power elevating, as well as a power articulating foot platform,” says Kutch.

Configuring options requires input from a physical or occupational therapist, as with most brands. If you put Quantum’s Super-Low TRU-Balance Lift & Tilt seating system on its Q6000Z power base, for instance, you’ll find that the lowest seat height available is 18 inches.

One option you can fudge, however, is the seat size. Quantum Rehab chairs are expandable in both breadth and depth.

Service and Maintenance

Quantum Rehab chairs are available through most high-end power-chair dealers. Levo and Permobil dealerships might be harder to find, but both maintain a nationwide network and can offer assistance through their customer service hotlines. Redman chairs are sold factory direct only, though it’s still recommended you have a seating professional take careful measurements beforehand. Redman also maintains a 24-hour technical-assistance hotline and authorized service technicians from coast-to-coast.

Many of these chair makers are open to personal requests and custom-tailored solutions. Rhonda Clarke, a Nashville-based greeter at a children’s hospital, who has CP, says Permobil lowered her seat pan and customized her footrests to make transferring herself to and from bed easier.

“The chair has opened up so many doors!” she says. “I went from standing for therapeutic reasons in a stationary stander to standing any time in my busy day, for personal and functional reasons. The first time I was able to stand up in church with everybody else, I cried!”

Resources

- Permobil, 800/736-0925; www.permobilus.com
- Levo USA, 888/538-6872; www.levousa.com
- Redman Power Chair, 800/727-6684; www.redmanpowerchair.com
- Quantum Rehab/Pride Mobility Products, 800/800-8586; www.pride-mobility.com

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