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Innovations for Daily Living

Mobility

Back in 1994, there was a very short-lived TV series called "M.A.N.T.I.S." It featured a brilliant scientist with paraplegia who created "futuristic" high tech mobility aids to augment his lost body functions and become a crime fighting superhero. Don't expect to be leaping tall buildings any time soon, but the "future" may be closer than you think.

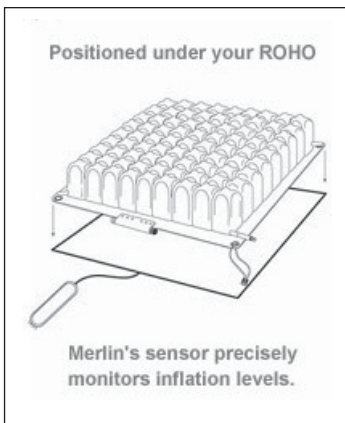
Honda Motor Company (yes, maker of cars, trucks and the ASIMO Robot) has created a currently unnamed prototype "walking aid device" meant to aid people with walking problems such as those associated with lower levels of paraplegia. The form-fitting device is designed to be tightly worn around the waist with extensions from the waist to the legs. It aids in walking by providing power assist to rotate hip joints and force lower limb movements.



Now, I am not suggesting that this device is going to eliminate your need for wheelchair, but you may soon see it in rehabilitation centers to determine what, if any, use it will have for individuals with SCI.

Skin Care

Many individuals with SCI utilize a dry floatation (air) cushion for wheelchair seating. If you use such a cushion, you have worked with a professional who used a pressure mapping system to properly inflate your cushion. You should consult a professional whenever you get a new wheelchair or cushion because properly inflated air cushions are relatively effective at minimizing pressure areas.



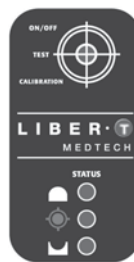
ROHO's Merlin™ Proximity Sensor

However, the major drawback of an air cushion is maintaining proper inflation level over time. If you have too little or too much air in your cushion, you have a higher risk for skin damage. You are almost certain to have skin damage if you lack the sensation to realize that your cushion has gone flat.

I have found two products that have finally been introduced to monitor inflation levels for air cushions. The ROHO Group, maker of the ROHO Cushion, has

introduced the MerlinTM Proximity Sensor. This flat pad is fixed via Velcro to the underside of your ROHO cushion. The sensor is calibrated at the time you are pressure mapped by a professional seating specialist. Merlin wakes every 10 minutes to make sure your ROHO cushion's inflation level has not changed. An audible alarm will sound if any adjustment is needed.

The i-Pressure cushion sensor is also designed to monitor air pressure and reports cushion inflation level. The i-Pressure is connected to the valve stem on the cushion (Multi-chamber cushions require a sensor on each valve) and is also calibrated by a professional. Once calibrated, the sensor monitors the air pressure and sounds an alarm when the cushion becomes under or over inflated.



i-Pressure

Wheelchair Technology

I am sure that most of you have heard of those off-road wheelchairs. Some manual chairs include the Beast, Trekinetic K-2, and the Boma - all are pretty cool in their on right. Some all-terrain power wheelchairs include the X4-Extreme, Predator, and the TankChair, which is the mega-monster that the name implies. Now, there is a new meaning to "power" for all of you xtreme wheelchair users. German wheelchair maker, Otto Bock, has introduced the SuperFour. It is a gas/electric hybrid similar to hybrid cars. The SuperFour has an automatic tilt seat system and operate this 4-wheel drive outdoor vehicle using a joystick similar to joysticks commonly used by power wheelchair users. When the batteries are drained from all of your all-terrain fun, a gas engine kicks in to keep the fun going while also recharging the vehicle batteries.



SuperFour

The SuperFour has a top speed of over 9 mph, a range of about 124 miles, and handles 40 percent inclines. With all that power, you can bet that the roll bar cage along with the sweep-over canopy and windshield will be valued safety features. OK. I admit that the SuperFour probably should not be under the heading of "Wheelchair Technology" as it is technically an "outdoor vehicle." However, it is built for all of you daring thrill seekers who might feel "confined" to your current wheelchair.

Bluetooth is a short-range wireless technology. It connects multiple voice and data devices and enables users to enjoy a variety of wireless applications such as printing or faxing as well as hands-free operation of devices such as cell phones.

Infrared (IR) is another form of wireless technology. IR is a light signal that is commonly used in the remote control operation of audio, video and other electronic equipment.

Both Bluetooth and IR technology are used to enhance independence of many individuals with disabilities. In fact, you probably have more than one remote control for your electronic equipment, and you may use Bluetooth for your cell phone and computer operation.

Pride Mobility, manufacturer of the Jazzy and Quantum lines of scooters and power wheelchairs, has impressed me by integrating BOTH Bluetooth and IR technologies into their Q-Logic Drive Control System. It has many useful features. One is a programmable timer for regularly scheduling an alarm to remind you to do pressure relief. The Q-Logic Drive Control System allows users to also program both Bluetooth



Q-Logic Drive Control

and IR functions into its operating system. This means you can remotely control your electronics, computer's mouse, and most of your other wireless devices the same way that you operate your power wheelchair via joystick, head controls, or other user controller.

Bladder Management

If you have not heard it already, doctors usually recommended that individuals with SCI drink at least 64 ounces of water per day. However, some people simply find it difficult to remember to drink the proper amount of fluids, or they are too busy to keep track of their daily water consumption.



Help is here! HydraCoach has introduced the world's first interactive water bottle. It features a hydration monitor that calculates your personal hydration needs, tracks your real-time fluid consumption, paces you throughout the day, and motivates you to achieve and maintain optimal hydration.

Of course, you may need a leg bag emptier even if you do not need to increase your fluid intake. You have probably seen power leg bag emptiers such as the HydroFlush Mini, ASL Low Voltage Power Leg Bag Emptier, Freedom Flow, and the Electric Leg Bag Emptier 2 to name a few. These emptiers are commonly wired into a power supply (often the power wheelchair batteries) and attached to the leg bag. A push button is mounted on the wheelchair where the user can press for an electronic valve release of urine from the leg bag.

Freedom Flow

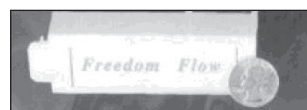
You may have also seen a manual leg bag emptier such as the JB-3. It is similar to power emptiers in the way it is mounted on your wheelchair, but the leg bag is emptied by manually pulling on a cable instead of pressing a

button or flipping a switch.

Although either power or manual leg bag emptiers might work for you, I prefer something a bit more modern. How about wireless? Oh, yea! Say "goodbye" to those wires with the soon-to-be-available Freedom Flow II. It has three main parts:

1. A small rectangular tube clamping unit with internal rechargeable battery;
2. A switch (different types of switches such as a puff switch are available); and
3. A battery charger for recharging clamping unit.

The small unit easily slips onto the drain tube at the bottom of your leg bag. The separate operating switch is positioned on your wheelchair wherever you can best operate it. The rechargeable unit will last about a week on a single overnight charge.



Freedom Flow

Conclusion

Here you have my list of cool technologies that I hope you find as interesting as I did. I found these products and more by simply searching the Internet, and I bet that you will almost certainly find other gadgets, gizmos, and other products that you find personally interesting.

However, the point of this article is to find something useful in every day life. I have given you a few items that I think might be useful for some individuals with SCI. I encourage you to search now. Hopefully, you will find useful things for your every day life.

Resources

www.i-pressure.com

<http://conceptdg.com>

www.hydracoach.com

www.rohoinc.com/medical/merlin.jsp

www.ottobock.com/cps/rde/xchg/ob_com_en/hs.xsl/1314.html

www.ubergizmo.com/15/archives/2007/10/honda_robotics_used_for_rehab.html

www.pridemobility.com/insidepride/Press_Releases/2006/080406b/080406b.html
