

gizmo

THE TETRA SOCIETY OF NORTH AMERICA: CUSTOM ASSISTIVE DEVICES

Brilliant Tetra project can save lives

VANCOUVER: A Tetra project could increase road safety for every man, woman and child using a wheelchair.

“TetraLites” tackle a particular vulnerability faced by anyone in a wheelchair: being lower than other pedestrians, motorists tend not to notice wheelchairs at intersections.

The design features three rows of 15 LED lights, in Plexiglas tubes, which mount to the sides and rear of a wheelchair or can be set vertically like a flagpole. They draw a negligible amount from powerchair batteries, or can be connected to rechargeable batteries for use on a manual chair.

The brilliant idea came from volunteer Brian Johnson, following a conversation with 31-year-old Eric Molendyk, a Tetra employee in Vancouver, who was struck by a car at an intersection on his way to work in November 2008.

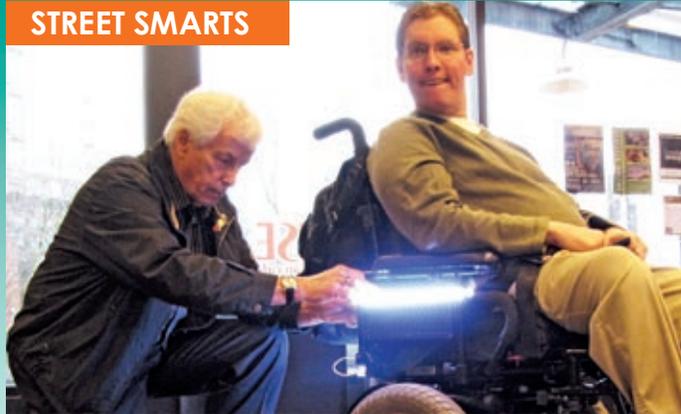
“The next thing I know is I’m on the ground and disorientated.”

“It was raining but not pouring, and the sun was already up, so there were no visibility problems,” he said. “I was wearing a poncho with a yellow reflective strip across the chest and had reflective panels on my chair.

“The problem is drivers are trying to use the crossing to make their turn. They are watching the oncoming traffic more than the crossing.”

He remembers pushing the button and waiting for the walk sign, then observing there were no other pedestrians in the crosswalk—but not the car hitting him.

STREET SMARTS



VISIBILITY EQUALS SAFETY: VOLUNTEER BRIAN JOHNSON TESTING HIS BRILLIANT DESIGN FOR WHEELCHAIR ROAD SAFETY WITH ERIC MOLENDYKE. INSET: ERIC SUFFERED A RANGE OF INJURIES WHEN STRUCK BY A DRIVER WHO DID NOT SEE HIM CROSSING THE ROAD.

“The next thing I know is I’m on the ground and disorientated. I had searing pain in my left knee, and was sure I had busted my leg. I was not aware of where my chair was. I remember someone saying my head was bleeding.”

He spent the rest of the day in hospital receiving stitches and being X-rayed, processes that required multiple transfers. “When you have cerebral palsy, when you are in pain or stressed, your muscles get tighter, and that was creating more pain in my knee. They were concerned because I don’t walk, my legs don’t have the same bone density.”

Although there were no broken bones, Molendyk still suffers swelling and circulation problems in his left foot. It turned out that he had been struck by a couple driving a Mercedes. The tearful driver subsequently told Molendyk she just hadn’t seen him.

Johnson said the lights can be attached to the sides of a wheelchair or in the form of a vertical flagpole, can produce the whole colour spectrum, and be set to strobe. “I’ve not spoken to a wheelchair user who doesn’t want them. They can save a life.”

The lights are bright enough to let someone see their way out of a pitch black room but make no noticeable impact on the wheelchair’s battery life, said Johnson. “I think everyone should have these lights on their chair. If it makes a motorist slow down for just one second, they can save a life.”

Find an Assistive Device

GO

SEARCH OUR CATALOGUE OF UNIQUE INVENTIONS

Anyone coming to the Tetra Society website can now search a database of more than 875 inspirational assistive devices.

These projects highlight the ingenuity of Tetra volunteers who devise custom devices to overcome challenges faced by people with disabilities. They also show clients and health professionals what is possible and enable volunteers to share technical details.

Like searching for an item on eBay or Amazon, a user can browse through a large field of projects or pinpoint a specific area.

It doesn’t show everything Tetra has achieved over the years — an estimated 5,000 projects — but it is a strong sampling that will continue to grow.

“I am constantly amazed by the ingenuity of our volunteers,” said Tetra’s national program coordinator Pat Tweedie. “Tetra volunteers can devise items that put a whole range of daily activities within reach.

“The website is an amazing source of ideas,” she said. “Every single one is a success story. These projects change lives.”

Songs in the key of life

ABBOTSFORD: It's not unusual for Tetra volunteers to be asked to make keyholders, but this project was a little different.

As the name suggests, a keyholder is a shape — usually plastic — that attaches to a key, making it an easier shape for someone with reduced dexterity. Volunteer John Connor was asked to enable a quadriplegic lady, with no hand grip at all, to manipulate the key to her apartment.

He came up with an ingenious system, where the client slips her hand into an aluminum gripper which holds the key at the correct angle for the lock — although it's not quite as simple as that.

"When she goes into her place, the lock is set at wheelchair height on a little pedestal. There's a stanchion around 30 inches off the ground, which is on the left hand side. Someone would normally drive up to it, reach over to the lock and open the door.

"She can't do that because she can't reach across her body. But she can back up so the lock is on her right side."

The project has aluminum sides that go over the client's hand like a glove, which can be adjusted by a Velcro strap — the client pulls on a black buckle to get the fit right.

Connor bolted a length of brass to the aluminum, held constant at the correct angle by a nail. The key itself is attached to this, with an extra hole drilled into it so it's held in two places.

He attached a lanyard to the device, so the client can wear it around her neck, and retrieve it at a moment's notice.

"It just worked out nicely," he said. "I went to see her, came home, and made this thing up without the locking nails. She tried it, told me it worked fine, then I completed it. Some projects take a while and several attempts, but this worked out first time."

While working on the project, Connor also repaired a cutting board with an attached, pivoting knife. He re-glued the wood base and sanded it smooth.



Shake-up so you can shape up.

GTA CHAPTERS: Tetra's Glenn Barnes is outraged that Greater Toronto Area rec centres don't cater for people with disabilities — and he's out to change that.

Barnes, quadriplegic since a diving accident at age 23, knows how important exercise equipment is for anyone with a disability who's trying to keep a healthy and positive outlook.

"We're looking at four million people living in the GTA, and around 15% of that number are people with disabilities," he said. "And we don't have any suitable exercise equipment."

"We've got a rehab centre with a big recreation facility in the northeast of Toronto. I went there when I got out of rehab, but it was a case of three-and-a-half hours travelling for a one-hour workout. It didn't make much sense."

"There are rec centres, but exercise equipment for people with disabilities does not exist."

Barnes, Tetra's Ontario marketing and fundraising coordinator, is out to raise funds and the political will to equip fitness centres to be accessible to all. He'd like to install 10 pieces of equipment by summer, although he's aware there are some bureaucratic hoops to get through first.

The plan is for each rec centre to offer users with disabilities:

- Arm bike: A tabletop or self-standing item that allows a seated user to pedal with his or her arms.
- Uppertone gym: Wheel-in exercise machinery designed by a C4-C5 quadriplegic to allow around a dozen different upper body exercises
- Equalizer: A similar weight-training machine designed with a wheelchair user in mind, offering a different set of exercises

Although the equipment is commercially available, Tetra volunteers come into the picture because of the need to create specialized hand grips for people lacking dexterity, to make minor modifications to the equipment such as raising or lowering certain features to make them more accessible, and to build A-frames to hold the arm bikes, explained Glenn.

A very similar project came about in Vancouver's North Shore communities, instigated by Brian Bell, now aged 50.

"I broke my neck in a mountain bike accident in 1998, did my time in GF Strong Rehab Hospital, and realized there was no place I could go to exercise on the North Shore," he said. "I started raising money to get different pieces of equipment in 2001."

The first piece of equipment, an arm bike, went into a rec centre later that year. Equipment, modified by Tetra volunteers, subsequently began appearing in centres throughout the community, culminating in a lift that enables people to transfer from wheelchairs to a swimming pool. There were also physical changes to buildings to make them more accommodating to people with disabilities, including an accessible patio, door openers and an awning alongside disabled parking stalls.

"Everyone can see the positive side of making recreation centres more inclusive," Bell said. "People can do physiotherapy there. Lots of people who've had strokes are coming in, and a lot of seniors, too. People are visiting the facilities that weren't using them before."

"The great benefit of all this is inclusion. People are getting the freedom to exercise, but it's also a platform for interaction between able-bodied and disabled people. People can now see people in wheelchairs are no different."

Bell formed and directs a group called Interfit, which aims to increase exercise and outdoor leisure opportunities for people with disabilities. For more info see: www.interfit.ca.

PHOTOS (ABOVE): BRIAN BELL, IN NORTH VANCOUVER, BEING PUT THROUGH HIS PACES ON ADAPTIVE GYM EQUIPMENT — WHICH REALLY SHOULD ALSO BE AVAILABLE IN TORONTO, SAYS TETRA'S GLENN BARNES.

What a difference a simple device can make.

VANCOUVER: It's all too easy to focus on the ingenuity of Tetra devices and overlook the difference they make to people's lives.

Heather McCain, 31, of Vancouver uses three life changing Tetra projects to come to terms with her disability and mitigate the constant pain she endures. She has six different types of arthritis, stemming from damage to her joints caused by a rare genetic condition, Ehlers-Danlos syndrome. Her joints are hypermobile. As she puts it, "if I turn a door handle, my wrist can go all the way around."

McCain had been unaware of this growing up — even though it had been written on her medical record at some point. Had someone thought to tell her, she could have worn splints and tried to minimize the damage she was doing to her body.

The arthritis began at age 17, and over the next few years she went from extreme sports to life in a wheelchair — and into depression. All of which McCain, Buddhist since 18, comes to terms with through meditation and mindfulness, a calm awareness of internal and external events.

"My lifestyle came to a crashing halt," she said. "I was not a person that could sit still for a second. With meditation I was able to find stillness in myself."

Western medicine is gradually becoming attuned to the health benefits of meditation, no matter what spiritual or secular tradition it comes under, and McCain thinks everyone with a disability can use the practice to come to terms with the obstacles they face.

Fittingly, her first Tetra project was a meditation bench, completed 2007. It was sized to allow easy transfers and designed to provide leg and foot support, without which McCain would further damage her knees and lose circulation in her feet.

She could have stayed put in her wheelchair at meditation class, but observed "you're used to the noises of your own wheelchair, but it's not until you are in a quiet room that you are aware of how noisy it is, and I didn't want to disturb people."

When not in use, the bench becomes an easy-to-reach place to feed her cat.

McCain's second project, completed 2008, was the creation of splints attached to her wheelchair to provide support to her lower legs, preventing her knee joints from twisting backwards.

"It's a simple project, but it's made the biggest difference. It had been so painful before, every day, but now with these shin splints in place, supporting my legs, I don't have to think about it."

Later in 2008, volunteers created a wheelchair lap tray with a difference. While most lap trays hold items such as food, drinks and books, this design is purely to let McCain rest her arms, reducing strain on her shoulders.

"Because of the osteoarthritis in my collarbones, I have to support my arms or else they become too painful to use. The wheelchair armrests are designed to rest your elbows on from time to time. No one sits with their arms that wide apart."

Before the tray was created, McCain's arms would frequently become so painful she had headrest switches installed in her chair as an



HEATHER MCCAIN WITH TETRA VOLUNTEERS HARRY HARDY (LEFT) AND BRIAN JOHNSON.

alternate means of steering it. The tray can fold neatly out of the way for ease of transfers, but it is easily reachable and presents no danger of dragging on the floor when McCain is "using her wheelchair as an ATV."

McCain has nothing but praise for the Tetra volunteers, saying: "They are there to help you. So is the medical field, but they are more interested in what you have and tend not to see you as a person. Tetra volunteers are interested in more than just the project."

McCain operates her own non-profit, Citizens for Accessible Neighbourhoods, which gives information about services and opportunities for people with disabilities. Visit the site at www.canbc.org.

Staying dry in the rain, and cool in the sun

WINDSOR: Canada's weather extremes can be a challenge for wheelchair users.

Rain, snow and sunshine each pose their own challenge, as Sharon Lumsden, of Windsor, Ontario knows too well.

Lumsden, coordinator of the Windsor Tetra chapter, and friend Debbie Fotynuk, are each having a retractable wheelchair canopy made to keep them dry when it's wet and shaded when it's hot. These will fold away on the back of the chair when not needed, but can be pulled into place to provide shelter at a moment's notice.

"It's not just for our comfort," said Lumsden, the canopy will cover the joystick, too. If you get water into the controls of the chair it won't work anymore and you're stranded.

"The design has two tubes on the back of the chair, and when it folds down it's like a convertible's top. We asked for neon colours because we wanted people in cars to see us."

Although she's been coordinator of the Windsor chapter for more than seven years, this is the first project Lumsden has requested for herself.

The chapter is also working on a project for a janitor who needs to carry cleaning supplies on his wheelchair, some adaptive cutlery for people with disabilities using a neighbourhood workshop, and a wheelchair lap tray.

"It's all the everyday things that people need," said Lumsden. "It's not rocket science, but it makes a big difference to people. It allows people to get on with everyday needs that people take for granted."

CHAPTER AND VERSE ON TETRA'S NEWEST COORDINATOR

PRINCE GEORGE: Generous sponsorship from a professional organization has enabled Tetra to appoint an inspirational new coordinator.

Megan Winia, 19, has taken over the Prince George chapter, which had been operated by Simon Rose. Her appointment was made possible by a grant from the Applied Science Technologists & Technicians of British Columbia.

Two Prince George volunteers were recently transferred out of the area by work, leaving one remaining, so Winia needs to do some re-building. Young, and brimming with enthusiasm and confidence, she's undeterred at the prospect of hard work.

Winia, who is studying human resources at the University of Northern BC as she feels making employment possible for people with disabilities starts with those doing the hiring, has been legally blind since age seven.

"I had a cyst grow on my optic nerve that cut the blood flow off," she said. "My neurosurgeon at Children's Hospital in Vancouver told my parents he'd never seen that happen on someone so young in all his years of practice.

"I lost my vision over two years. My parents' attitude has not been to worry about things — deal with it when it happens and then let it go. So when I lost my sight they said it wouldn't stop me doing things.

"I would still go snowmobiling and quad bike riding with my dad. When I was younger I would drive the boat when we went fishing. I still go fishing, and I still drive the boat — he gives me directions."

Winia learned new ways of doing things — taking a slightly different approach to school — and got on with the process of growing up. Before long she had learned her way around Prince George and could go into town alone.

She said: "I don't know if I was lucky or not, being so young. I didn't lose my independence, because when you're seven you don't have that much independence. I just gained it in a different way."

A screen reader and a scanner enable her to keep up with the written word, and she's arranging to make PowerPoint presentations to promote Tetra. She aims to mix a personal approach with social media to reach out to her community.

Contact the Prince George chapter by email at tetrapg@shaw.ca or phone 250-617-6054.

Abbotsford/Mission, BC
John Connor
info@tetrasociety.org
604-820-0568

Armstrong, BC
Gary Arbuckle
arbuckle@sunwave.net
250-546-6449

Cranbrook/ East Kootenay, BC
Russ Kinghorn
Russ.Kinghorn@kinghornsystems.com
250-426-2158

Creston, BC
Andre Hebert
kayaker2@telus.net
250-866-5518

Fort St. John, BC
Perry Leonfellner
leonfellner@yahoo.ca
250-264-2192

Kamloops, BC
Ralph Adams
tetrakam@telus.net
250-828-0558

Kelowna, BC
Murray Peart
murray@peartengineering.com
250-870-1933

Nanaimo, BC
Martyn Kinsella-Jones
martynkjones@gmail.com
250-722-4668

Prince George, BC
Megan Winia
tetrapg@shaw.ca
250-617-6054

Prince Rupert, BC
Contact head office
info@tetrasociety.org
1-877-688-8762

Salt Spring Island, BC
Derek Emmerson
demmerson@shaw.ca
250-537-9351

Trail/Castlegar, BC
Jim Rees
jmrees@shaw.ca
250-364-1878

Vancouver, BC
Pat Tweedie
ptweedie@tetrasociety.org
1-877-688-8762

Vernon, BC
Contact head office
info@tetrasociety.org
1-877-688-8762

Victoria, BC
Jill Dobrinsky
jad@uvic.ca
250-588-0449

Whistler, BC
Hugh Tollett
info@whistlerforthedisabled.com
1-877-688-8762

Calgary, AB
Kim Beckers
tetracalg@yahoo.com
403-259-5783

Edmonton, AB
Mike Otto
mike@mikeotto.ca
780-977-6453

Lethbridge, AB
Chris Schamber
hatesnow@quaddesign.ca
403-381-7450

Medicine Hat, AB
Maxine Tindall
tinker046@hotmail.com
403-488-1322

Red Deer, AB
Jim Stone
jstone05@telus.net
403-438-0172

Regina, SK
Terri Sleeva
tetraregina@sasktel.net
306-545-7378

Saskatoon, SK
Contact head office
info@tetrasociety.org
1-877-688-8762

Winnipeg, MB
Contact head office
info@tetrasociety.org
1-877-688-8762

Guelph, ON
Leanne Conrad
tetraguelph@gmail.com
519-836-6656

Hamilton-Halton, ON
Sylvia Baliko
sbaliko1@sympatico.ca
905-319-2843

Kingston, ON
Adam Kubacki
adamkubacki@gmail.com
613-539-8754

London, ON
Wilma McIntyre
tetralondon@rogers.com
519-453-5005

North Eastern Ontario, ON
George Ewen
metalmuncher49@gmail.com
1-877-688-8762

Ottawa, ON
Contact head office
info@tetrasociety.org
1-877-688-8762

Peel Region, ON
Matthew Fleet
Matthew.fleet@sympatico.ca
905-814-8789

Metro Toronto, ON
Susan Coates
susan.a.coates@gmail.com
416-766-2278

York Region, ON
Susan Coates
susan.a.coates@gmail.com
416-766-2278

Trenton, ON
Gary Richard
grichard@reach.net
613-398-0505

Windsor, ON
Sharon Lumsden
windsortetra@sympatico.ca
519-735-8763

Montréal, QC
Contact head office
info@tetrasociety.org
1-877-688-8762

Fredericton, NB
Christine Plourde
cplourde@craworld.com
506-462-7662

Antigonish, NS
Cyril MacGillivray
Cyril.macgillivray@strait.ednet.ns.ca
902-870-3054

Halifax, NS
Audrey Peake
tetralhalifax@ns.sympatico.ca
902-860-1995

St. Johns, NL
Dr. Leonard Lye
llye@engr.mun.ca
709-753-0733

Los Angeles, CA
Dr. Sam Landsberger
slandsb@exchange.calstatela.edu
1-877-688-8762

San Diego, CA
Peter Newman
pcnewman@earthlink.net
858-232-4038

San Francisco, CA
Lana Zolman
mzotman@yahoo.com
415-661-6650

Salt Lake City, UT
Kent Remund
kremund@gmail.com
801-887-9537

Cincinnati, OH
Christopher Kubik
coordinator@may-we-help.org
513-248-4045

Columbus, OH
Russ Weir
weir.russ.linda@att.net
1-877-688-8762

TETRA SOCIETY OF NORTH AMERICA

Have an idea for a project? Want to know what's possible? Want to overcome a barrier?

Here's how to reach us...

T: 604-688-6464 / 1-877-688-8762 (toll-free)

F: 604-688-6463

E: info@tetrasociety.org

www.TetraSociety.org



Tetra Society
of North America