

# gizmo

THE TETRA SOCIETY OF NORTH AMERICA: CUSTOM ASSISTIVE DEVICES



FLYING THE FLAG:  
GERRY WURTAK'S  
BIKE TRAILER.

## Let's work together

**REGINA:** Tetra projects for people with disabilities are a triumph of the community coming together to provide improved access.

Frequently, people donate materials required for Tetra devices once they hear the volunteer's purpose, as was recently the case in a project undertaken by Regina chapter volunteer Gerry Wurtak.

He was asked to create a bike trailer for two-year-old Phalyn Schnieder, who has no muscle function due to mitochondrial disease.

"I was at a garage sale and found a child's bike trailer – I was pleased because it was way cheaper than on kijiji or usedregina.com – and was in the process of buying it when the lady asked me what I was going to do with it," Wurtak recalled. He told the vendor that he "made things for people with disabilities" as a volunteer for the Tetra society.

"She ripped the price off and said 'You can have it.'"

Meanwhile, Regina's Rainbow Youth Centre, donated a child's car seat to Phalyn's grandmother Lorraine Schnieder, who had requested the Tetra bicycle project so the youngster could enjoy family outings with her eight-year-old brother.

Wurtak welded and bolted brackets to hold the car seat, and made a sunshade that will flip out of the way during transfers and lock into place when the trailer is ready to go. As a final touch, he spray-painted the trailer pink.

Lorraine Schnieder said: "The trailer is amazing. It's added some variety to their life, something they can do with Phalyn."

Wurtak, who spent around three weeks working on the project, says his payment came from seeing the youngster having such a great time when she used the trailer.

"The little girl sat in the trailer and her face changed right away. Dad picked up the bike and took her out for a short ride, and the next week they went for a two-hour ride around the park. Watching how much this little girl loves the bike trailer is the reward – you are always hoping you are helping make someone's life a little bit easier."

In fall 2009, *Gizmo* featured an innovative Wurtak design for a three-in-one child-carrier which converts between a bike trailer, running stroller and sled. This has subsequently inspired many similar projects.

It was seeing this project detailed in the *Regina Leader Post* that alerted Lorraine Schnieder to the existence of Tetra.

## Volunteers Shine at Silver Anniversary Event

**VANCOUVER:** An event to celebrate Tetra's 25th anniversary put the spotlight on the volunteers that enable individuals with disabilities to overcome everyday barriers.

The Tetra Society of North America is a charity which, through volunteer-led chapters across Canada and the US, recruits engineers and technicians to create 'gizmos' for people with disabilities.

The Vancouver, BC, chapter hosted its 2012 Gizmo Awards at the Sheraton Wall Centre Hotel, Vancouver in early October, bringing together volunteers, clients, supporters and examples of the devices that make so much difference to people's lives.

The event highlighted five ingenious and inspirational Tetra projects from across Metro Vancouver, chosen by a panel of Tetra volunteers, and also celebrated the charity's most prolific and longest serving volunteers.

"These inventors are invaluable to people with disabilities," said Tetra executive director Duane Geddes. "Their innovations create new possibilities for greatly improved quality of life."

**TETRA 25**

Celebrating quality of life for 25 years.

## Sleigh and the family Stone

**RED DEER:** A Tetra volunteer designed a cart for a teenager with cerebral palsy that can offer year-round enjoyment.

Jim Stone, of the Red Deer, Alberta chapter, devised a cart that is pulled behind a bicycle during the warmer months and then, when there is snow on the ground, the wheels are replaced by skis and it becomes a dog sled.

Stone came up with a design based on the frame and wheels from an old wheelchair, and a child's car booster seat – for the added support required by the client, 19-year-old Lavona Switner.

“They wanted to have it so it can also be pulled behind a dog,” said Stone. “I got long enough skis so someone can stand on the back with brakes.

“I got 180-cm skis which attach to the metal frame with four quarter-inch pins. You take them out and the sled runners come off and it's back to being a cart.”

He said the frame, mostly aluminum, is particularly light. Although he offered the client and her family the option of larger wheels, these would have required fenders and posed the possibility that Lavona's arm could get entangled in the spokes.

The completed project was powder coated blue. “It's a beautiful finish, which makes it look like it's just come out of the factory,” explained Stone – a service donated by longtime Tetra supporter Ben Venneman of The Olds Ironworks.

“I watched the client's mom take her out in it,” he continued. “I saw how much it meant to both of them. I got paid in spades, at that moment. It was very special.

“When you see a child or a teenager who cannot otherwise leave their wheelchair, there is always something that inspires you to come up with a solution that helps them out of their chair to go for a bike ride.”

Stone has been making the most of the late summer months to work on another sled project, this time for the Aspire Special Needs Resource Centre in Red Deer.

# IT'S A ROLLER COASTER RIDE WITH TETRA'S LA CHAPTER

Life should be fun for everyone, but another aspect of this is the social side.”



**LOS ANGELES:** Play is the way children learn about themselves and their environment – everything from manual dexterity to how to interact with others.

While there are adaptive toys on the market, outdoor playground equipment is not designed with accessibility in mind. It's something Tetra's Los Angeles coordinator Dr. Sam Landsberger, who teaches both kinesiology and mechanical engineering at Cal State L.A., wants to change.

Under Landsberger's guidance, kinesiology students, who want to become occupational and physical therapists, and engineering students have been designing playground equipment for the campus-based Ninos Y Padres Daycare for children with disabilities. This includes two versions of a coordination-enhancing “whack-a-mole” game, a collapsible water park, a slide – complete with an adapted climbing wall – and a roller coaster.

“We try to challenge them physically and to get social together and play,” said Landsberger, who noted the biggest hit at a June open house was the roller coaster. “It's good to have a little dynamic experience.”

The roller coaster uses a short length of full-size track and a car that can fit an adult. Helpers hoist the car, complete with a supportive child's car seat and five-point harness, to the head-height starting point and let it roll down and then back under its own momentum.

“You are strapped in and facing straight down – it's as scary as hell to be facing down and let go. Life should be fun for everyone, but another aspect of this is the social side.

These play projects are all interactive,” Landsberger stated.

But the play equipment is only half of the output of Landsberger's Hands-on Experience in Rehabilitation Engineering (HERE) lab. His students also design projects for an on-campus physical therapy facility, the Mobility Center. They also created projects including a pressure-sore relieving wheelchair seat cushion, with inflatable compartments, for the Veterans Affairs Center of Long Beach, and a low-cost, lightweight, rowing shell for an adaptive rowing group.

Student Amy Laurin, who is HERE lab co-coordinator, said a lot more thought has gone into the playground equipment than might immediately be apparent.

“For instance, the ‘whack-a-mole’ is designed so that students stand on either side of a clear Plexiglas screen. It's really designed to get children with autism and Asperger's syndrome, who have a hard time with eye contact, to interact with other people when they are knocking the ball back and forth.

“We're getting experience developing something – drawing it out and building it by hand.”

Dr. Landsberger sees the end result of getting students involved in Tetra projects as: “A stream of students that want to make a difference with their engineering training. They also learn to work with a client, and these projects give them something to talk about at a job interview.”



**PHOTOS:** THIS “WHACK-A-MOLE” GAME (ABOVE) AND ROLLER COASTER (TOP) ARE DESIGNED AS FUN WAYS OF GETTING CHILDREN WITH DISABILITIES TO INTERACT.



# FIND A TETRA CLUB ON YOUR CAMPUS



The four-year GTA "Youth in Transition" project will see self-sustaining student Tetra clubs established at nine post-secondary institutions, pairing students who would benefit from assistive devices with volunteer students who will design and build them. The clubs will connect students with a variety of backgrounds and skills.

So far, four student coordinators are in place:

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At the time of printing, there are vacancies for coordinators at Humber South, Ryerson, Seneca, Sherridan College Oakville and York University. If you, or anyone you know, might be able to establish Tetra groups at these institutions, or have any other questions, please contact Patty Trost at 905-891-6363 or [tetracoordinator@bell.net](mailto:tetracoordinator@bell.net)

## TETRA ON CAMPUS

# Degrees of freedom



**TETRA PACK:** LAUNCHING GTA CAMPUS CLUBS. SEEN HERE ARE (FROM LEFT) DIVIA HOBSON, KITA NAVALYAL, GLENN BARNES, DANIELLE TROST AND PATTY TROST.

**GREATER TORONTO AREA:** Students at universities and colleges in the GTA this Fall have the opportunity of joining Tetra clubs to make their schools more accessible for people with disabilities.

The GTA "Youth in Transition" project will stretch over four years and involves colleges with hundreds of thousands students, said Tetra's Ontario coordinator, Glenn Barnes. Students will shape and drive Tetra clubs on nine campuses across the region, working closely with engineering departments to design and fabricate 'gizmos' that overcome barriers.

"We are trying to get this onto the curriculum so students are building devices for other students," said Barnes. "At the same time, Tetra will be building relationships in the school with faculty and different student groups, utilizing diverse skills including marketing and fundraising, as well as reaching out to students with disabilities.

Barnes has been aided by St. John's (NL) Tetra coordinator Dr. Leonard Lye, associ-

ate dean of the Faculty of Engineering and Applied Science at Memorial University of Newfoundland. Last year Dr. Lye presented a paper, *Incorporating Real-Life Open-Ended Design Projects in a First Year Design Course*, to the Canadian Engineering Education Association Conference, based on his experiences challenging students with Tetra projects.

The GTA "Youth in Transition" project is based on this demand by engineering departments for real world teaching opportunities, and on Tetra's own research into meeting the needs of students with disabilities, which got underway in 2008 with campus Tetra clubs formed in four Canadian cities – Vancouver, Calgary, Toronto and St. John's.

The key difference in the 2012 incarnation of "Youth in Transition" is that Barnes has landed the funding to establish Tetra clubs that will become self-perpetuating, working with campus engineering departments.

Thanks to a generous grant from the Ontario Trillium Foundation, the GTA clubs will receive four years of nurturing. The project, which began in January, is still in year one.

"We are taking the best practices of the national project and building the concept into a more definable area – the GTA," said Barnes. "The first year of the project is dedicated to outreach, building relationships with faculty. We're spending the time out there making presentations. We really need to build our presence on the ground before we start creating Tetra projects.

"We will be going into classes and talking to 200-600 students about the clubs, and asking if they know any students with disabilities, because this is something they should know about."

Barnes said the clubs will start producing projects in 2013. The most immediate concern has been getting a coordinator in place to lead each of the nine clubs.

Day-to-day operations are being overseen by Youth in Transition project coordinator Patty Trost, who has been working with disability services groups, seeking referrals, and engineering staff to include the design and build of Tetra projects into their curriculum.

"This is a long-term project to create self-sustaining programs. The success of this project will be measured on how sustainable it is," Trost said.

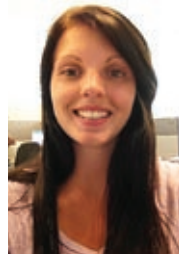
"It's such an exciting project, and so worthwhile. I had a meeting with an engineering professor the other day who used such an interesting word to describe this – he said it was such a 'noble' initiative," she said.

"The biggest challenge has been to recruit student coordinators, and our goal right now is to have a club in every school by the end of December 2012."

## HUMBER'S TETRA CLUB

### YOUTH GET CONNECTED

GTA "Youth in Transition" coordinator Danielle Trost is currently registering and building a Tetra club on the Humber North campus of Toronto's Humber College.



**DANIELLE TROST**

The 22-year-old social work student has been working on the Tetra group since February, "trying to get the word out," and get everything ready to officially register the group in September 2012.

"I've been making a few presentations, and communicating with Disability Services," she detailed. "Then with engineering students and people identified as needing a gizmo, and anyone else who wants to be told.

"I received a lot of emails from students really excited about the project, asking how they could be involved. It's been great to connect with these kids. There will be a lot of first-year students hearing about this for the first time.

"When people hear about Tetra their reaction is so cool – they are totally excited about the concept. They want to be part of this awesome idea.

"Disability Services were excited when they heard about the Tetra club."

# TETRA ROUND-UP

**PHONE PLAN:** TETRA'S BILL CASWELL CAME UP WITH THIS CELL PHONE HOLDER SO THIS TEENAGER COULD KEEP IN TOUCH.



## HANGING ON THE TELEPHONE

**CALGARY:** Once again a low tech Tetra innovation is allowing an individual with a disability to make use of an electronic gadget – a bent-to-shape coat hanger transformed into a wheelchair cell phone mount.

Tetra was approached by the parents of a 16-year-old with cerebral palsy, who lacked the hand function required to hold his cell phone. Calgary chapter volunteer Bill Caswell put himself forward to devise a phone holder.

“I decided to use coat hanger wire to create a holster the phone can slip into,” he said. “I measured his phone the best I could, did tracings on scraps of paper, and made a wooden version of his cell phone.

“I bent the wire with pliers to fit this wooden form – it has to be a little bit loose so the phone can slide in and out. There was a bit of welding to hold it together. It’s attached to a quarter-inch diameter rod bent into shape to fit into the side of his wheelchair.”

The whole assembly was sprayed matte black to give it a professional appearance. Caswell says his any-colour-you-want-so-long-as-it’s-black aesthetic is to match wheelchair paint schemes, as most wheelchairs are sort of matte.

He is quietly proud of rapidly coming up with a solution that met the client’s needs without requiring any subsequent alterations. The client goes to a mainstream school, with friends and interests that take him out of home – but he is no longer out of touch with his parents.

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