

# gizmo

THE TETRA SOCIETY OF NORTH AMERICA: CUSTOM ASSISTIVE DEVICES



## ROCK-A-BYE BABY IN YOUR TETRA CRIB

**BABY I LOVE YOU:** NEW MOM JESSICA, BABY REMY AND TETRA'S ADAPTED CRIB.

**KELOWNA:** A roll-under crib with swing-out doors has put parenthood within reach for Jessica Vliegthart.

She is one of a rapidly growing number of moms with disabilities – to judge by the jump in adaptive crib requests handled by Tetra volunteers nationally.

Jessica, 32, from Kamloops is as inspirational as any other new mom. In her youth she worked as both a ranch hand and forest firefighter in British Columbia and the Northwest Territories. In August 2004, five days before her 21st birthday, she suffered broken ribs and a spinal cord injury in a truck accident at the scene of a fire.

After rehabbing at Vancouver's GF Strong, she came back as a wheelchair athlete, first in track and field, winning four medals at the 2007 Canadian championships. That year she joined the Canadian wheelchair basketball team, winning bronze at the 2010 World Championships, silver the following year in Mexico, and retiring from international sport after the 2012 Paralympics in London.

While on the road with the national basketball team, Jessica was busy studying law. After graduating from the University of Victoria, she now works as a personal injury lawyer in Kamloops.

Her newest challenge is caring for six-month old Remy, who was born last August.

"It's not that motherhood was my lifetime dream, but I would have been shocked and dismayed if I'd not been able to have children," she said. "It's a natural process – one of the stages of life."

She contacted the Tetra Society to request a modified crib. The project went to Ean Price who coordinates Tetra activities in the north and central Okanagan.

Volunteers Alf Leimertn, chair of Okanagan College's Construction Trades Department, and woodworker Les Ebl eagerly took on the challenge. They were inspired by a crib created by Calgary volunteers, but the modifications to Jessica's Ikea crib are their own design, said Ean.

### TETRA SOCIETY OF NORTH AMERICA

THE TETRA SOCIETY OF NORTH AMERICA ASSISTS PEOPLE WITH DISABILITIES TO ACHIEVE INDEPENDENT AND FULFILLING LIVES THROUGH THE CREATION OF CUSTOM ASSISTIVE DEVICES. TODAY WE OPERATE CHAPTERS ACROSS CANADA AND INTO THE US, WITH VOLUNTEER ENGINEERS AND TECHNICIANS READY TO MAKE MOSTLY LOW-TECH TRANSFORMATIONS TO DAILY ITEMS.

"It was quite a challenge because the legs on the original crib were short, and they had to raise them so a wheelchair could roll under.

"The volunteers added hinges and latches so it would open up at the front in the style of a barn door. It was all about safety – what type of paint they were using, and making sure that the latches would hold a rambunctious toddler."

The completed crib was delivered just before Christmas and baby Remy moved right in.

"We are quite strict – the crib is for sleep," said Jessica. "It's not a playpen. He goes in and knows he's got to sleep.

"And he is napping! The crib's amazing. It allows me to be independent, especially when my husband is at work.

"Parenthood is great – I'm really enjoying it. It's not as hard some make it out to be. Everything comes naturally. Of course, you do have to accept your life is going to change and just roll with it."

At press time, Tetra's Edmonton and Toronto chapters were about to start crib modifications, and Hamilton volunteers have just delivered a crib and an adaptive change table to separate addresses.

## EATING OFF A BAKING TRAY IS OKAY WHEN IT'S A TABLE TOP

**EDMONTON:** Plastic PVC piping and a baking tray were transformed into a folding, wheelchair-accessible table.

The request came in from 75-year-old Robert Defrain who wanted to eat independently in his powerchair from where he could watch TV.

“Robert, who has post-polio syndrome, has been in a wheelchair since his 20s,” explained Tetra volunteer Dan Twaites.

“As he grew older he suffered a curvature in his spine and was required to use a suction machine to keep his airways clear.”

Dan explained that Robert needed to eat near the suction machine, which is in the corner of the room, but still be close enough to the kitchen, and in front of the TV.

“I couldn’t find a suitable TV table because of the width and height requirement. It was easier to build custom,” he noted.

The table came together quickly by creating two “U-shaped” legs that bolt together crossways, with an attached tabletop created from a re-purposed baking tray. It is a secure and sturdy table when in use, with the edges of the baking tray forming a natural ridge to keep things from falling to the floor.

“I was thinking of using a cutting board or a plastic tray at first, but a baking tray weighed less and was just as strong – it can take a loading of more than five pounds,” said Dan.



**PIPE DREAMS:** PVC PIPE AND A BAKING TRAY FORM THIS ACCESSIBLE TABLE.



**PICTURE PERFECT:** CODY TRESIERRA SHOWING HOW OIL AND ACRYLIC PAINTS ADHERE TO HIS TETRA-DESIGNED VERTICAL PALETTE.

## Easy Access Palette is A WORK OF ART

**VANCOUVER:** Acclaimed artist Cody Tresierra, a high-level tetraplegic, turned to Tetra when he wanted help with attention to detail.

A leading Canadian mouth-painter Cody, 55, has been creating vibrant artwork for more than 30 years. But he’s recently been finding it difficult to mix colours for fine work, particularly when painting faces.

“I’d have a flat palette below the bottom of the picture,” said Cody. “That’s fine for the most part when you are doing a landscape or an abstract, but when you are trying to match colours or paint finer detail you really need to have the palette up where you are working.”

He explained: “You need to be able to see the colours better. When you mix paint below the bottom of the picture you think they look close, but when you put them onto the canvas you can see they are way off.

“If you mix paint at the same height as you are painting the light is the same and you are not having to bring your head backwards and forwards. And that’s getting much harder on my neck because my muscles are getting weaker.

“I’m getting old! It’s hard to put my head down, mix, and lift my head up to paint.”

Cody turned to fine art during rehab after becoming paralyzed from the neck down in a car accident at age 19. He had previously worked with wood and metals, but painting was a new skill which soon gave his life purpose: he’s now a fulltime artist who paints every day he’s in the house.

A featured member of Mouth and Foot Painting Artists Canada, Cody’s work is displayed across the country. He sells his calendars and greetings cards and takes private commissions, dividing his painting time between producing commercial work and more playful pieces just for fun. A picture may take anything from two days to a full month to complete.



In order to mix paints and match colours at picture height he had taken to sticking strips of masking tape directly onto the canvas. But that was awkward, particularly as the work had to be fully dry before taping.

So he asked Tetra for help and longstanding volunteer Dave Doman was tasked to devise an accessible solution.

“He knew what he wanted, which was to bring the palette as close as possible to the painting so there was a minimal amount of movement required to get the paint onto the brush and then onto the painting,” said Dave.

The solution was a palette built from peg-board, which hangs vertically in front of the painting. It’s on a system that can be tracked right across the canvass from side to side and locked into place, where he needs it, Dave said.

“Oil paint is like glue. You can put it on something that’s vertical – it doesn’t slip down the painting, after all.”

Cody, who doesn’t paint in watercolour, uses the vertical palette with oils and acrylics, saying it allows him to get on with detailed work and hopefully move to a freer style of art.

“It’s particularly useful when you have painted a person and you’re trying to get their face just right. I want to free up and paint looser again. It’s about capturing a feeling. You never stop learning.”

# Stroller Project Takes Children to Vital Medical Appointments



**OTTAWA:** Jennifer Gilhuis needed a way to take her two children to vital medical appointments by herself.

Mathew, who is seven, and his eight-year-old sister, Rachel, both have a rare genetic disorder, sanfilippo syndrome, and need to be transported in large, specialized strollers.

“They are missing the enzyme that breaks down sugars,” said Jennifer. “They are building up sugars in all the cells in their bodies, which degenerates the cells, leading, in time, to death. There is no cure.

“I take them to multiple clinics, and it’s difficult for me to get around with them both – I am not able to push two strollers at the same time.

“When they were young I could use a tandem stroller and later a jogging stroller, but they outgrew these. They don’t make double strollers for children their size, and I looked for a double wheelchair but was unable to find one,” Jennifer added.

“They have trouble sitting up, so they need to be in a stroller with attachments to keep them upright. These are bulky!”

Staff at the Children’s Hospital of Eastern Ontario in Ottawa recommended that Jennifer contact the city’s Tetra coordinator Paul Marriage.

Paul said he considered various options, but it was clear from the get-go that it would be unwieldy to attach two children’s strollers side-by-side. The resulting unit would be difficult to maneuver and would not fit through doorways.

They needed to arrange the strollers one in front of the other. Paul initially thought about extending the handles of one to go around the second stroller, but dismissed this as unworkable.

Then he and volunteer John Patchell arrived at a “bolt-on solution,” said Paul: “John found a way to put brackets on the front of one stroller and the rear of the other so you could snap them together. Simple, but very clever!”

“There is a yoke between the two, attached to each stroller with cotter pins. The system holds them together securely – you can steer

in any direction and take sharp corners – but when she doesn’t need to connect the strollers she takes out the cotter pins, and the brackets go into a stroller basket.”

This simple device allows Jennifer and her husband, who both work fulltime, to manage their busy schedules to keep their children at vital medical sessions.

“Right now these strollers are the only way I can get around with the children,” continued Jennifer. “Because their condition is palliative these appointments are vital for life.

“I know there is no cure, but we make medical appointments to improve their health and make them comfortable,” she said. “The attachment that Tetra made is really important for me.”

## PUMP ALARM GETS TO THE HEART OF THE MATTER

**TORONTO:** A musician in his late 60s with acquired deafness asked Tetra for a heart pump alarm.

Guitarist James Hamilton’s heart pump runs on batteries during the day and is plugged into the wall at night. It only provides a 30-minute backup in case of a power outage, so the client’s wife had to listen for the alarm.

Tetra volunteer Steven McGie was not able to – nor did he want to – open up the recharger unit, so he made a device that would listen for the alarm and then trigger a vibrating pillow – a commercially available massage pillow – to wake James.

“We triggered the alarm and he got a guitar tuner app that told me what frequency the tone was. This was vital – I had to know the frequency to know what the device needed to hear.

“I got a microcontroller, a tiny computer. An attached microphone listens to all the sound being made, and the microcontroller analyses the frequencies. There’s some complex math involved but it takes sound signals and breaks them down.”



**SLEEP SAFE:** BUCKLE-DOWN CANVAS SIDES AND WOOD FRAME MAKE THIS THE PLACE FOR A SAFE NIGHT’S SLEEP.

## TETRA BUILDS SAFE PLACE TO SLEEP

**CALGARY:** Tetra volunteer Brian Graham is building safe, secure and comfortable beds for children that would otherwise be unable to get through the night without risk of harm.

In December he finished a beautiful project with a wood frame and washable canvas sides for a five-year-old boy with Pitt Hopkins syndrome, a rare genetic disorder that causes intellectual disability and developmental delay, breathing problems and recurrent seizures.

The youngster, who is unaware of consequences to his actions, required a bed with secure, washable sides that would not trap his fingers or arms.

“It needed to be more than a bed, with room for his toys and space for mom or dad to crawl in and lie down with him,” said Brian.

He built a wooden frame, stained to match bedroom furniture, which was generously completed with canvas sides by Allan Pedersen, owner of Alberta Tent & Awning.

“The client covered the cost of the materials – canvas, buckles and zippers – and Allan donated four days of labour. He had the bed in his shop and whenever he had some free time they would work on it. He deserves a lot of credit for this project,” Brian added.

The canvas side panels latch securely enough for nighttime use, but can be folded away during the day to allow airflow.

This unique project was followed by a similar request for a metal-framed bed for a 13-year-old autistic girl.

“She will throw her back hard against the wall of the bed. The screws had come loose and it was falling apart,” said Brian.

“We welded a steel frame with three-quarter-inch, pre-finished birch plywood with two hinged gates with wooden dowels. An upholsterer is going to sew vinyl-covered foam mats to the inside walls so it’s safe for her.”

Without time to rest he will then be building bed No. 3, another wood-and-canvas project.



**ON THE BUTTON:** BOBBY TOM WITH HIS TETRA-MODIFIED MICROWAVE.

## COOKIN' GOOD WITH TETRA

**PRINCE GEORGE:** Sometimes the simplest solutions have the greatest impact – a dollar store raised sticker makes a microwave accessible.

Chapter coordinator Nadine Lindstrom was initially contacted by Bobby Tom, 65, of Prince George, who has been legally blind since he was injured falling from a moving pick-up truck as a young man. Living by himself, he needed help operating a microwave.

Nadine's volunteer Bruce Cox painted and stuck a button into the centre of the microwave key pad.

"The button and the paint came from the dollar store," said Nadine. "It was a simple project, but it allows him to operate his microwave. I think it's a great solution. I wish I was as creative as the volunteers."

The Prince George team is currently working on a project to enable a 53-year-old man with no hand function to get back fishing. He wants to be able to cast and then reel in fish from his boat, said Nadine.

They are looking into a waist-mounted holder and arm attachments to guide the rod.

## Tetra *thanks!*

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## TETRA SOCIETY OF NORTH AMERICA

**DEDICATED TO ASSISTING PEOPLE WITH DISABILITIES TO ACHIEVE AN INDEPENDENT AND FULFILLING LIFE, ONE ASSISTIVE DEVICE AT A TIME**

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