



Cranial Technologies clinician Mary Kay McGuire takes a good look at the fit of André Chaboyer's DOC Band. Julie Fabiszak/Staff Photographer

## Cranial therapy

Technology help improves toddler's head shape

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**F**or 23-month-old André Chaboyer, it all started in utero.

That's where the Canadian toddler's battle with plagiocephaly likely began, since he shared cramped womb space with his twin sister Lesly and his soft, developing skull gave way to harder objects, like mom's skeleton.

"He was pushed up under my ribs for a month," said his mother Raina Paulson.

Plagiocephaly is Greek for "oblique head" since, when viewed from above, many infants with the condition literally have a parallelogram-shaped head. Although some physicians say plagiocephaly is purely a cosmetic problem, most believe it can cause facial deformities if left untreated.

"He had a funny head," Paulson said. "This is not what we wanted for him."



Cranial Technologies clinician Mary Kay McGuire, right, points out to Raina Paulson how the flat part of her son, André's head, is filling out to a more normal shape. Paulson is holding a cast taken of André's head at the start of this round of his treatment. Julie Fabiszak/Staff Photographer

André's parents have spent thousands of dollars and traversed thousands of miles seeking treatment for their son and finally ended up at Cranial Technologies in Glenview. André is one of 35,000 children around the world who have been treated with a DOC Band, a flexible helmet that guides the growing head back into the proper shape.

"He's really changed," occupational therapist Mary Kay McGuire said at a recent check-up, as she compared André's current head shape with an older plaster cast. "See how he's looking so much rounder?"

### **Naturally flexible**

An infant's skull bones are naturally soft and flexible, allowing for easier passage through the birth canal, and many newborns have abnormal head shapes that round out with time. For some babies, however, the condition persists and can worsen, even leading to significant asymmetry of the eye sockets, forehead and ears.

The Back to Sleep campaign, which encourages putting baby on it back to sleep at night, has been extremely successful in reducing the incidence of Sudden Infant Death Syndrome (SIDS). However, an unintended consequence has been a rise in plagiocephaly cases since more babies are being placed on their backs at night and during naps. Since the skull develops in the direction of least resistance, laying a baby back on a mattress or car seat for too long can affect head shape.

"The skull grows where there is the least pressure," McGuire said. About one in every 30 to 50 babies has plagiocephaly and the risk is higher in multiple births and premature babies, a dramatic increase probably caused by the Back to Sleep campaign, according to the American Academy of Pediatrics.

The odds were stacked against André from the start.

Not only is he a twin, but he was also born premature, which meant his skull was even softer than that of most newborns. In addition, André has torticollis, a shortening of the neck muscle on his right side. The torticollis pulled his right ear down toward his shoulder and caused him to tilt his head up to the left when laid on his back to sleep.

"He laid like that for months and months with no intervention," Paulson said. "Of course his head went flat."

André's pediatrician at home in Winnipeg, Manitoba didn't notice his strange head shape, nor that one ear, one eye socket and one shoulder were all higher than the other. Raina Paulson and Marcel Chaboyer finally took their son to a specialist, concerned also about the long lump on the right side of his head that Paulson said looks like a rib.

## Diagnosis

"I thought they were going to tell me I was crazy, but he was diagnosed as having a severe case of plagiocephaly," Paulson said. "My family was all saying he looked fine, but after he was diagnosed they said, 'Yeah, we noticed, but we didn't want to say anything.'"

When caught early on, plagiocephaly can sometimes be corrected by using repositioning techniques to keep a baby from always laying on the same side. This works best in young infants, however, and André was already eight months old. So his parents went to a Winnipeg company for another type of helmet, but stopped after five weeks of treatment because it never fit correctly.



These photos show an infant with a classic plagiocephaly deformity before the DOC Band treatment and after. The left photo is the before picture, the right one is the after picture.

"He had welts and cuts and it wasn't reshaping," said Paulson, who was constantly adjusting the helmet to try to soothe her screaming son. "It was the worst thing I ever went through."

Determined not to give up, however, Paulson discovered the DOC Band treatment online and booked an appointment at a clinic in Calgary, Alberta. André barely notices the DOC helmet, which he wears 23 hours a day.

"When he first got it, I'd hear him play with the Velcro at night when he was supposed to be sleeping," Paulson said. "But now he's fine."

## Insurance issues

A round of treatment with the DOC Band costs \$3,000, including casting, the helmet and follow-up fittings. Although about 80 percent of cases are covered by insurance, André's Manitoba health care plan wouldn't pay for the band. His parents are appealing the decision, but meanwhile they've been scrambling for funds to cover the cost of treatment and airfare.

"My parents had a fundraiser," Paulson said. "We used all of the credit cards."

While the DOC Band André got in Calgary made a significant difference in reshaping his head, he grew out of it before the process was completed since he didn't start until he was 14 months old (the optimum age for treatment is between three and six months).

When it came time for the second round of treatment, begun when André was 21 months, his parents realized it was actually cheaper to fly to Chicago instead of Calgary, so they started their international clinic visits.

On a rainy Monday in late July, Raina Paulson arrived breathless at the clinic, pushing André in a stroller with the luggage tags still attached. They had been up at 4 a.m. to get to the airport, flown to Chicago and caught a taxi to Glenview in time for André's 11 a.m. appointment.

McGuire met the two in a treatment room and noted André's progress. She then took the helmet, covered with Thomas the Tank Engine stickers, to a back room to trim the back and the sides, where it was becoming tight.

Most strangers don't comment on the helmet when André is out in public, but there are always a few who do.

"Usually people think they know what the helmet is for," Paulson said, as André roamed happily about the room and she pulled snacks out of a backpack. "They say, 'Oh, he falls down' and I have to correct them."

### **Good to go**

After McGuire adjusted the helmet one more time, André was good to go until his next appointment. He has four more appointments, scheduled every three weeks, and then his parents hope his plagiocephaly will be corrected. André is also undergoing physical therapy for his torticollis.

"He might not be completely symmetrical, because after the age of 2 the brain growth slows down and that's what actually drives the correction in the band," Paulson said. "We're hoping he goes through big growth in the next couple of months."

About 20 percent of children need a second band, according to McGuire.

"Sometimes they grow out of it before we achieve the symmetry we're looking for," she said.

Paulson and Chaboyer have indefinitely postponed their wedding so they can pay for André's treatment and they say it's worth it.

"I couldn't accept the idea of him growing up and saying, 'Did you do everything you could?'" Paulson said. "And what would I say? 'No, we went to Niagara Falls to get married, instead.'"

Since André's torticollis and plagiocephaly go hand-in-hand, treating both is leading to increased range of motion for the boy and will also prevent deformity.

"Even if it just was cosmetic, I would still have tried to repair it," Paulson said. "You don't leave a kid with messed-up teeth if you can get him braces."

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## Schedule tummy time for infants

Even though the rise in plagiocephaly (having a parallelogram-shaped head) cases is associated with the Back to Sleep campaign to prevent SIDS, parents still should put their babies to sleep on their backs, according to the American Academy of Pediatrics (AAP).

However, the baby doesn't always have to be on her back. In fact, the full title of the AAP campaign is "Back to Sleep-Tummy to Play."

If she's not sleeping, the supervised child should be on her side or stomach to relieve constant pressure on the head. Placing an infant on her tummy also causes her to develop strength through the neck and arms.

Not all infants like tummy time, but Cranial Technologies of Glenview recommends the following activities to increase tummy time and reduce the risk of plagiocephaly. Also, be sure to limit time in swings, bouncy chairs, car seats or anyplace that places constant pressure on a baby's head.

### **\* Newborn to two months**

Place the baby on his stomach. If he needs help lifting his head, use a rolled towel under his chest or put him over your leg. You can also lay your baby on your chest to cuddle while encouraging a head lift.

### **\* Three to five months**

Place the baby on her stomach and introduce toys and mirrors to encourage weight shifting, reaching and interaction with the environment.

### **\* Six to nine months**

Try lifting the baby up like an airplane while supporting only his hips or waist. Or rest him on your bent legs and move your legs up and down, to help him develop full body strength.

***---Stephanie Fosnight***