



Herald-Citizen Photos/Ty Kernea

Maddie Jean Dishman tries out her new walker, designed by TTU mechanical engineering students, Tuesday at Theraplay in Cookeville.

# BIG STEPS FOR MADDIE



Theraplay owner Christine Taylor helps Maddie Jean Dishman get adjusted in her new walker as TTU mechanical engineering students John Adcox and Brett Steigerwaldt observe.

By **LINDSAY McREYNOLDS**  
HERALD-CITIZEN staff

A handful of people stood and watched Tuesday morning as 2-year-old Maddie Jean Dishman of Monterey walked without the assistance of her therapist or her mother.

Maddie, who has been diagnosed with CHARGE syndrome and cannot balance on her own, used a pint-sized walker modified for her by three mechanical engineering students in a dynamics and machinery class taught by Tennessee Tech University professor Stephen Canfield.

TTU junior students Timmy Smith, John Adcox and Brett Steigerwaldt worked for about two months developing a walker for Maddie after selecting her from a list of projects coordinated by the Tennessee Early Intervention System housed at TTU and paid for by an Early Intervention Mechanical Engineering grant, according to

Kim Correll of Tennessee Early Intervention.

Maddie's mother, Nicole, explained that Maddie has been diagnosed with CHARGE, a birth defect that affects the eyes, heart, ears, growth and development.

"She was born without all of her esophagus and no nasal passages," Nicole explained. "She has hearing loss. We don't know to what degree she can hear."

Since she was born, Maddie has undergone a lot in a short amount of time including 26 surgical procedures, but she's constantly making steps, her mother said.

Maddie was previously fed through a feeding tube after her esophagus was repaired. But that feeding tube was removed last December, and now Maddie can eat and drink on her own.

Her ears, however, are a different story.

# MADDIE | Having her walk on her own is ultimate goal

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Nicole said Maddie was born without all six semicircular canals in her ears, something that affects her balance and is common for kids with CHARGE.

"Balance is the only thing keeping her from walking," Nicole said. "She tries pretty hard. She just loses her balance too easy."

That's where TTU students stepped in to help.

The Tennessee Early Intervention System coordinated the project for a walker for Maddie with mechanical engineering professor Stephen Canfield, who regularly calls on students to conduct these types of projects.

The students met Maddie and her family and got to work.

"Once we met, we knew what to

build to meet her needs," Steigerwaldt said. "When we first met her, she'd throw her head back to go backwards. With the locking wheels, it forces her to have to turn around.

"We slaved away at it, drawing it to scale," Steigerwaldt continued. "There was no way we weren't going to complete it."

And on Tuesday, when Steigerwaldt, Adcox and Smith presented the walker to Maddie and her mom, she was certainly impressed.

"I'm very impressed with it," Nicole said. "It's not at all what I expected."

Maddie seemed impressed too as she lunged after her toys and learned to maneuver in her new walker.

Therapist Christine Taylor said that Maddie may one day be able

*"We slaved away at it, drawing it to scale. There was no way we weren't going to complete it."*

—Brett Steigerwaldt

to walk on her own if she keeps her vision.

Taylor owns the Theraplay business on South Jefferson that focuses on therapy for special needs kids and developmental play, where Maddie goes once a week for physical therapy and also where she received her new walker Tuesday.

