

SureStep SMO Case Study

The GAITRite Electronic Walkway is being used to evaluate the efficacy of SureStep SMOs. We have seen an improvement in gait parameters and stability in many of our patients. One of our patients, Kane, was 20 months old when we evaluated him for SureStep SMOs. He was taking independent steps, but not with much consistency and was very unstable. He came into our office to walk on the GAITRite on two occasions: after one week in the SMOs and after seven weeks in the SMOs. Some of our significant findings were:

- Increased Step/Stride Length
- Increased Velocity
- Decreased Base of Support
- Better Balance
- Overall more mature gait pattern

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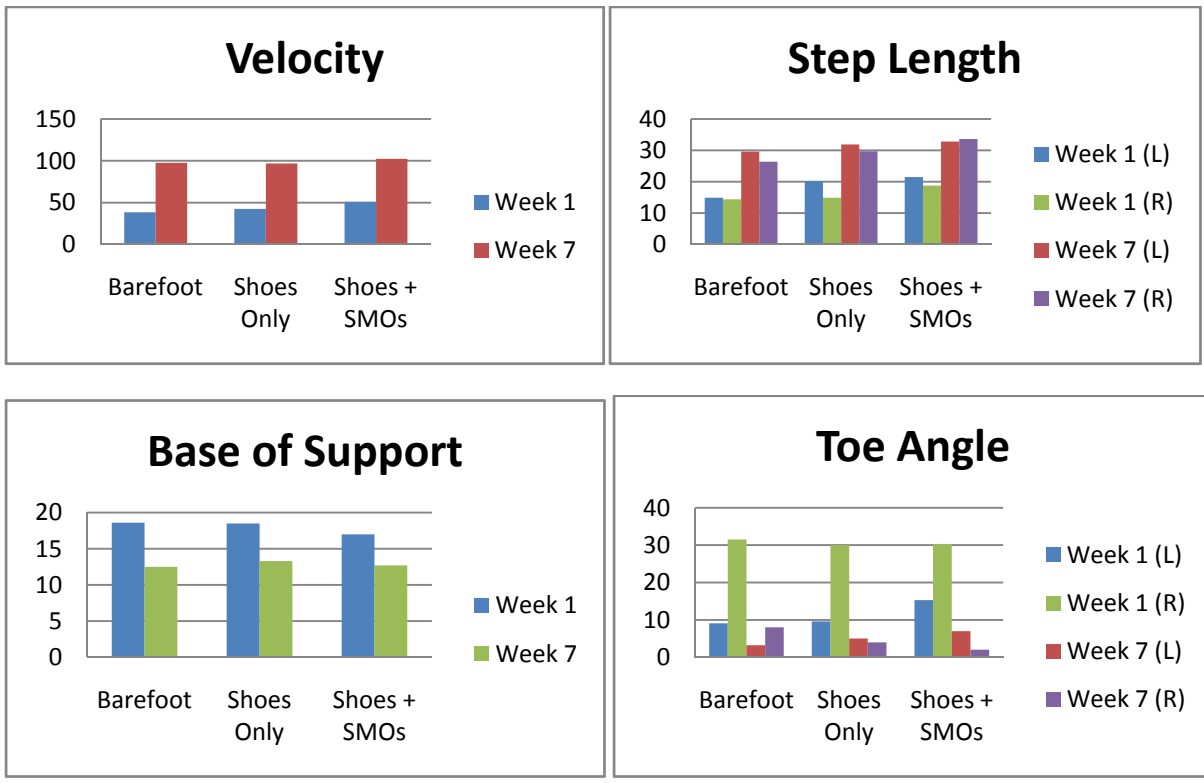
Kane came into our office and walked on the GAITRite on two different occasions: After one week in the SMOs and After seven weeks in the SMOs. He walked Barefoot, in Shoes Only and in Shoes + SMOs each time. There was an increase in velocity with the SMOs each time, with over 100% increase from Week 1 to Week 7 in each condition. Step Length increased bilaterally with the SMOs, with over 50% increase from Week 1 to Week 7 in each condition. His Base of Support decreased with the use of the SMOs and decreased over 25% from Week 1 to Week 7 in each condition. His toe angle decreased bilaterally with the use of the SMOs. At Week 7, his toe angle was within normal limits bilaterally. All of these are signs of greater stability and a more mature gait pattern.

The GAITRite also prints the overall gait pattern and center of pressure. His gait pattern significantly improved with the use of the SMOs in both Week 1 and Week 7. We also saw a big improvement from Week 1 to Week 7. His center of pressure line was much smoother with the SMOs, from condition to condition and from Week 1 to Week 7. We use the center of pressure line to evaluate how stable and balanced the patient is when walking.

Overall, Kane improved significantly in only 6 weeks of wearing the SureStep SMOs. You can see some of his data and pictures by following this [link](#). We also had the opportunity to follow Kane weekly with video. He is now running, kicking a ball and working on some small stairs independently. After being in the SMOs for 3 ½ months, he is close to being discharged from physical therapy, as he has reached all of his age appropriate milestones. Please follow this [link](#) to watch his progress.

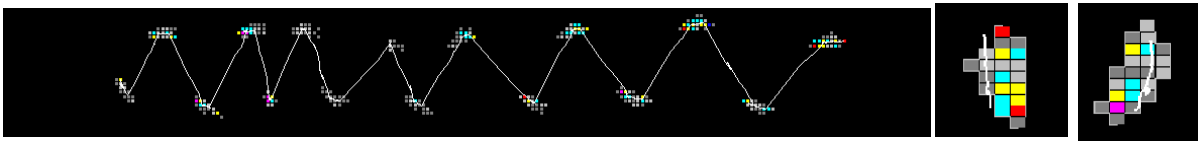
"Kane really made fast progress once he started wearing the SureSteps. He progresses from his first steps to a heel toe mature gait in a very short time. They really made a difference for him." – Kane's Physical Therapist

"I was amazed at how quickly Kane adjusted to wearing the braces. I never imagined he would be walking just a couple weeks after receiving them. We call our son 'Superman' and refer to these braces as his 'Super Shoes'. It gives us a way to make putting them on each day a little more fun. We are forever grateful for them!" – Kane's mom



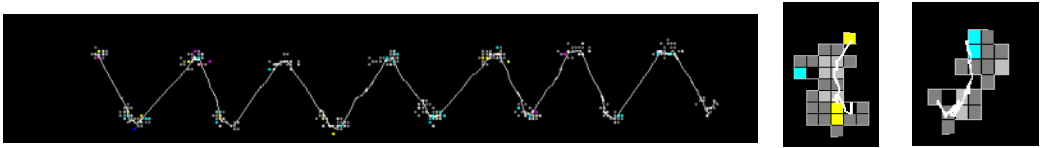
The overall footfall pattern pictures are oriented left to right and are like looking down on the mat from above. The individual footfall pictures are one right and one left foot from the given walk. The white line is center of pressure and tells us how his foot came down on the mat and where his weight line is while he is walking. We look for that line to be smooth and near the center of his foot. When the line is not smooth, that tells us that he may have some instability and not be walking with an efficient gait pattern.

Barefoot Week 1



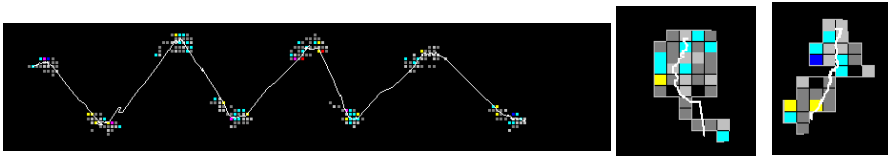
*Very wide base of support, Short step lengths, Center of pressure line is on the outside of his foot and his entire arch is contacting the mat (which is an indication that he is pronating).

Shoes Only Week 1



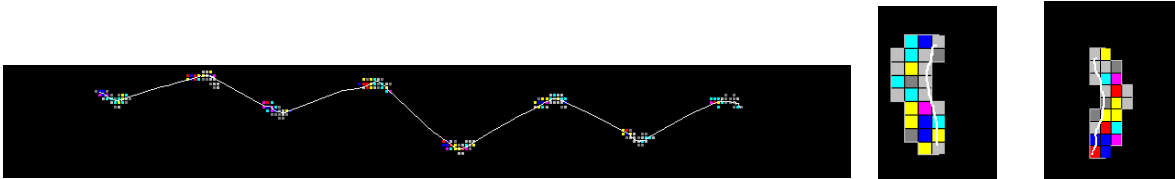
*Wide base of support, Short step lengths, Center of pressure line is not smooth.

Shoes + SMOs Week 1



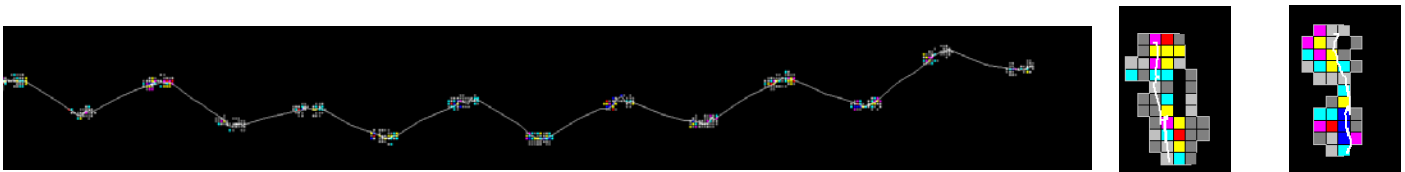
*Wide base of support. Longer step lengths than without the SMOs. Center of pressure line is more toward the center of his foot, but still a little jagged. He was definitely more stable with the SMOs on versus without, but he still had some instability and needed some time to work on his gait pattern.

Barefoot Week 7



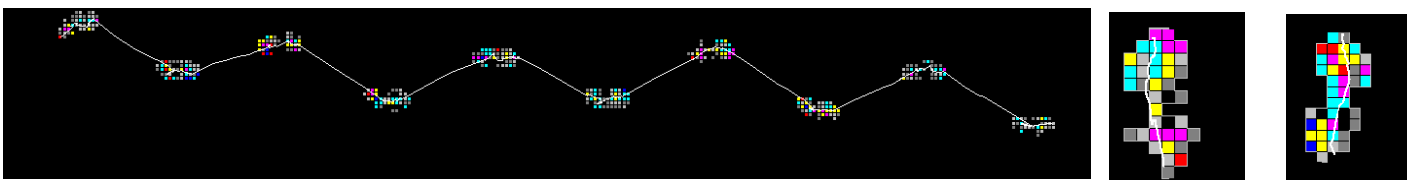
*Narrower base of support than in Week 1. Longer step lengths. He is still pronating, but we don't see his entire arch contacting the ground, which suggests that his muscles are starting to take over and work in a better alignment.

Shoes Only Week 7



*Narrower base of support. Longer step lengths. Center of pressure is more in the middle of his foot, and his center of pressure line is fairly smooth, but he still has some instability without the SMOs.

Shoes + SMOs Week 7



*Gait pattern looks very good overall. His center of pressure line is smooth and travels down the middle of his foot.

At this time, Kane is still benefiting greatly from the SureStep SMOs. He continues to wear them daily and work on his gait pattern and gaining more gross motor skills.