

Scan to watch a Webinar featuring Officer Lorenz discussing the results of the tests discussed here.



USER PROFILE: KYLE LORENZ

Police Officer
Tucson Police Department
Tucson, Arizona

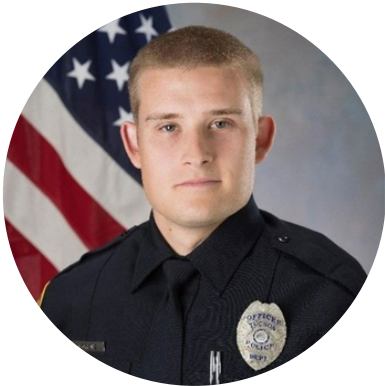
AT A GLANCE

PRE-DEVICE

- Wound Healing
- Prepare Leg for Prosthetic
- Strengthen Knee Motion
- Improve Hip Strength

POST-DEVICE

- Weight Shifting
- Improve Gait
- Improve Balance & Stability
- Improve Movement Patterns & Reaction Time



"TRAZER helps me focus on my whole body rather than just my leg. Seeing how I am progressing motivates me - and working on TRAZER helped identify the best shoes for the way I need to move."

KYLE LORENZ

Police Officer | Tucson, AZ

BACKGROUND

On February 9, 2023, while working a pedestrian hit and run case, Tucson Police Officer Kyle Lorenz was struck by an oncoming car. The injuries he sustained resulted in the lower leg amputation of his right leg.

Quick to adapt and determined to return to full-time duty, Officer Lorenz began Rehabilitation on April 12, 2023 before being fitted for his first prosthetic device.

SOLUTIONS

Referred to The PhysioShop by one of his attending nurses while in the hospital, Officer Lorenz began his work with therapists John Robert Klass, PT, DPT and Randy Cohen, PT, DPT, AT in April of 2023.

With an initial focus on preparing Officer Lorenz for his first device, the team focused on manual modalities to help his wound heal, strengthen his knee motion, and improve his hip strength.

Over the course of the following year, through multiple surgeries, multiple devices, and more than 20 significant adjustments, Officer Lorenz worked with his therapists leveraging the TRAZER System to improve his balance, stability, and overall mobility.

On September 11, 2023, just 7 months post-amputation, Officer Lorenz in full gear, participated in the "Never Forgotten Memorial Tower Challenge" climbing 2,071 steps representing the 110 stories of the World Trade Center Towers to honor the first responders who served and died on September 11, 2001.

RESULTS

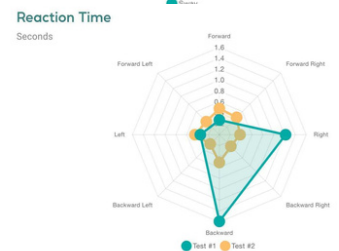
Balance & Stability

Postural sway in a tandem stance position reduced from 2.55 ft. to 0.74 ft. in 2.5 months.



Reaction Time

Reaction Time improved nearly 54% and Dynamic Reaction Time improved 42% over 6 months.



Endurance

Maximum endurance increased from 2 minutes to 6 minutes 47 seconds with significant improvement in speed, acceleration, deceleration, and reaction time over 6 months.

HIGHLIGHT:

1 X 30-MINUTE SESSION

3 PAIRS OF SHOES

70+% IMPROVEMENT

"It can take weeks, sometimes months, of painstaking trial-and-error to find the right shoes for balance and stability to accommodate how an individual moves. Using TRAZER we were able to do it in a single session and improve Kyle's performance significantly - by more than 70% in Speed and Dynamic Reaction Time alone."

Dr. John Robert Klass

THE PROCESS

Using the TRAZER STEADI Balance Assessment, a 5-step Balance Test consisting of progressively challenging tasks designed to assess a Users' ability to maintain balance per CDC guidelines, the Physio Shop Team had Officer Lorenz purchase three pairs of shoes he found comfortable. On December 8, 2023, the STEADI Balance Assessment was conducted 3 times using each pair of shoes.

Shoe 1



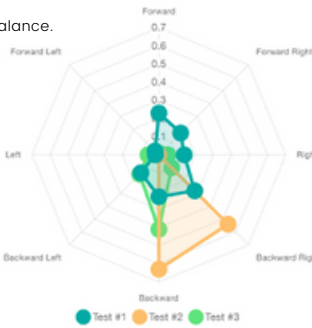
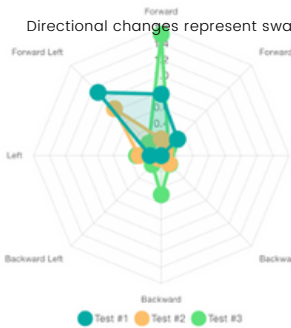
Shoe 2



Shoe 3



Directional changes represent sway in balance.



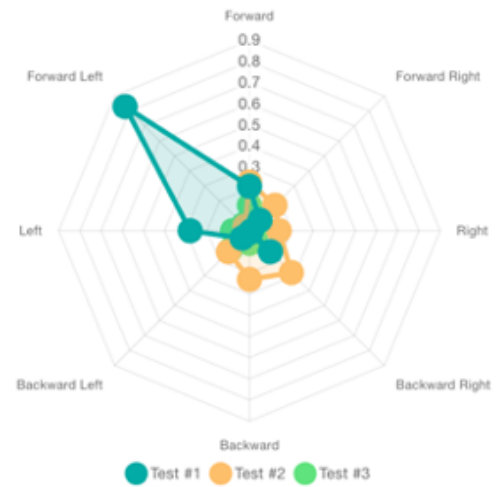
1 - DOUBLE LEG

2 - L SINGLE LEG

3 - R SINGLE LEG

4 - MODIFIED TANDEM

5 - TANDEM

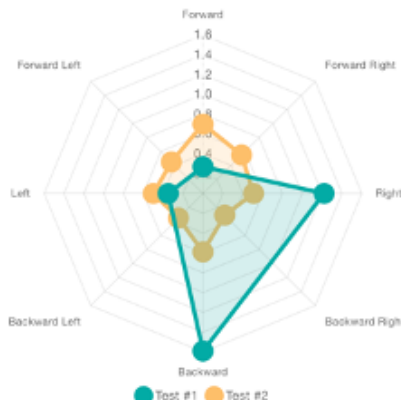


The above comparison represents the best results from each 3-test series to illustrate that Shoe 3 provided the greatest stability.

KEY FINDINGS

Once Officer Lorenz had shoes that provided proper stability, the results in his Rehabilitation efforts were significant. The comparison below from June 5, 2023 (Test 1) and December 18, 2023 (Test 2) of Officer Lorenz illustrates his improvement in Speed and Dynamic Reaction Time.

Officer Lorenz continues to progress using TRAZER in the ongoing process of his rehabilitation and strengthening to return to his pre-injury duties.



Step Summary

	Duration	Targets	Calories	Distance	Deceleration Index
Test #1	2:00	12.00	6.68	107.28 ft	1.85
Test #2	6:47	72.00	41.54	754.12 ft	0.85

Averages

	Reaction Time	Dynamic Reaction Time	Speed	Acceleration	Deceleration
Test #1	0.85 s	0.85 s	1.06 ft/s	1.68 ft/s ²	1.68 ft/s ²
Test #2	0.39 s	0.50 s	2.00 ft/s	3.25 ft/s ²	2.93 ft/s ²
Difference	-53.95 %	-42.00 %	+89.99 %	+93.16 %	+74.41 %