



Using SportsAT™ for Balance Assessments & Rehabilitation

PATIENT INFORMATION:

Client is an adult male, in mid fifties, and a former elite athlete. A severe downhill skiing accident left the client with a physical instability and postural condition consisting of weight distribution, balance and sway issues. The multiple spiral fractures of the right tibia and fibula, located at the level of the ski boot top, that resulted from the fall were fixated with three screws each. After recovery from surgery and later after removal of the screws, the client was clinically evaluated on both occasions with the following conditions:

- Structural shorter right leg
- Severe reduced maximum range of motion of the foot and the ankle (5 degrees eversion and inversion, 0 degrees dorsiflexion and 10 degrees plantar flexion)
- Partial tear of the peroneal tendons and adhesion formation between the scars and the underlying soft tissues and bone

TREATMENT:

Following removal of the six screws, the client underwent a treatment program to improve on weight distribution, balance and sway issues. Treatment consisted of the following:

- Muscle trigger point release (sacroiliac joint, shank, ankle and foot)
- Ankle, subtalar and mid-tarsal joint manipulations
- Acupressure of meridian points
- Scar tissue massage

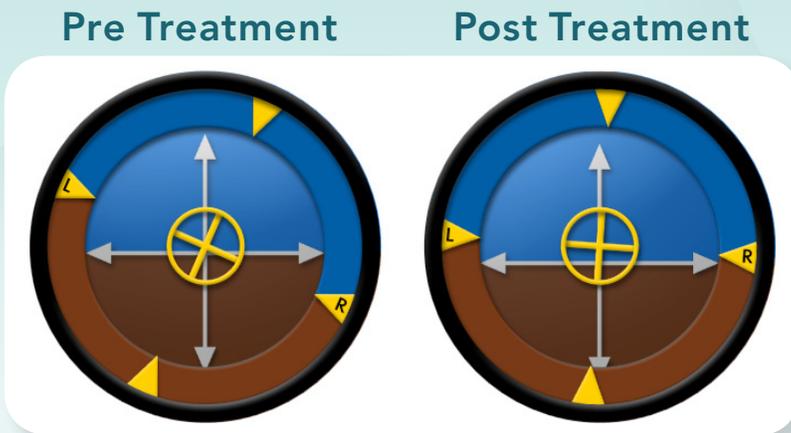
These in-clinic treatments performed once a week, and at-home exercises consisting of lower back, hip, and ankle stretching were completed 3 times a week.

TEST CONDITIONS:

A pre treatment and a 1-month post treatment assessment were completed using the SportsAT™ software. The patient was asked to stand on the MobileMat® standing still with two feet, in socks, for 30 seconds, arms hanging at side and eyes open.

TREATMENT OUTCOME EXPLANATION:

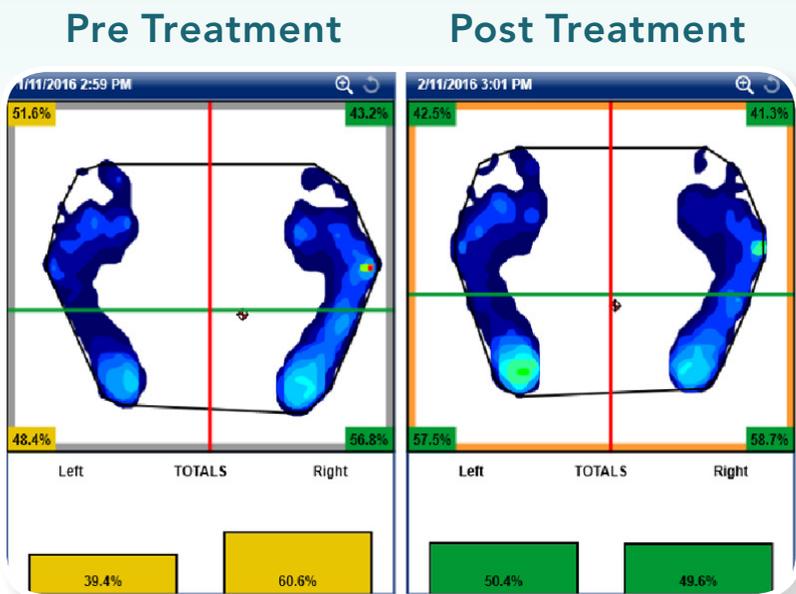
FIGURE 1: BALANCE COMPASS™



The post treatment **Balance Compass** (Figure 1) reveals a re-centering of the client.

Note the Balance Compass has rotated counter-clockwise (associated with a lateral shift in weight distribution) and shifted posterior (associated with a posterior shift in weight distribution).

FIGURE 2: WEIGHT DISTRIBUTION



Notice the reduction in asymmetries in Post Treatment **Weight Distribution** (Figure 2) between the two feet and the respective regions of the feet.

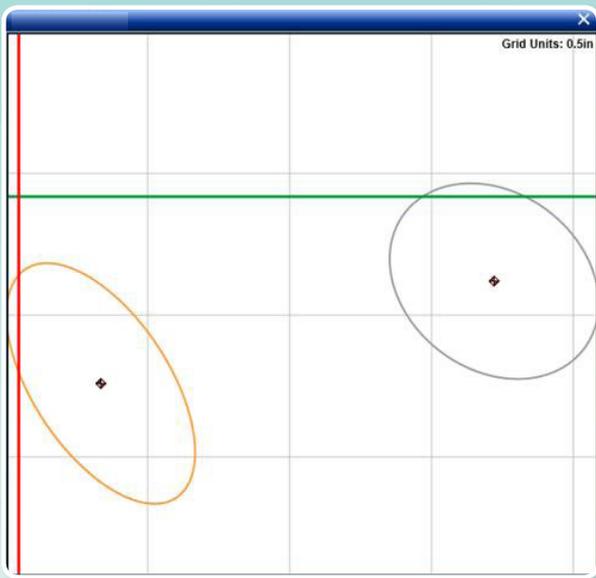
Pre treatment weight bearing demonstrates asymmetries between left (39.4%) vs. right (60.6%).

Post treatment demonstrates a more equal weight bearing distribution between the left (50.4%) and right (49.6%) feet.

CONCLUSION: The post treatment results reveal an improvement in weight distribution symmetry and balance between the two feet, and within the respective regions of the feet.

FIGURE 3: CoF POSITION & SWAY ELLIPSE

- Pre Treatment
- Post Treatment



Notice the average **Center of Force (CoF) Position** (red-white icon) in post treatment is located closer to the neutral position (intersection between the green horizontal and red vertical lines), while the sway ellipse was itself reduced in area.

TABLE 1: SUMMARY TABLE CoF & SWAY COMPARISONS: PRE, POST AND % DIFFERENCE

Summary			
Length of CoF Path (in):	9.99	9.85	-1.4%
95% Confidence Area (in ²):	0.39	0.36	-6.4%
Base of Support Area (in ²):	170.0	162.1	-4.7%
CoF Excursion F-B (in):	1.26	0.99	-21.8%
CoF Excursion L-R (in):	0.73	0.44	-39.4%
CoF Frame Variance (in):	0.0001	0.0001	-10.5%

The area of sway (95% confidence area) was reduced from 0.39 in² to 0.36 in². Likewise, the CoF excursion F-B was reduced from 1.26 in to 0.99 in and the L-R excursion reduced from 0.73 in to 0.44 in.

CONCLUSION: Post treatment quantifies and confirms the actual re-centering, improved balance and reduction in sway of the client. The end results reveal an improvement in balance and a reduction in sway for the client.

Disclaimer: The contents of this publication may be of interest to medical professionals or other health care providers. Such persons should exercise their own judgment in determining whether a particular product, treatment, therapy option, procedure, program or service is appropriate or legal for their practice or their patients.



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