

# BRC Gait Analysis Lab

## Gait Analysis for Performance

**Step 0**  
Initial Assessment

**Step 7**  
Hardware

**Step 6**  
Review Assessor

**Step 5**  
Strength, posture, leg stiffness

**Step 4**  
Flexibility and range of motion

**Step 3**  
dynamic posture assessment

**Step 2**  
static posture assessment

**Step 1**  
outdoor video recordings

**scheduling**  
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# Step 1

## outdoor video recordings

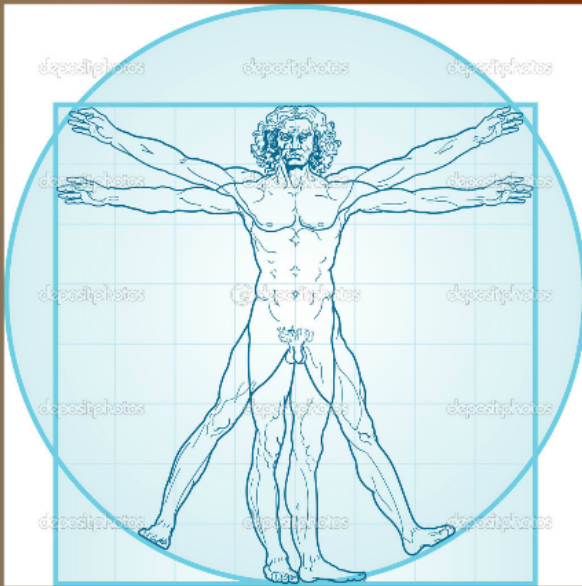


When it comes to analysing form for improved performance, capturing how one runs outdoors, as opposed to on the treadmill, becomes most important.

Participants in the Gait Analysis for Injury Prevention and Performance first meet at a track in Wellesley. The outdoor recordings will take 15-20 minutes, after which there is a short drive (5-8 minutes) to the lab room for the indoor recordings and measurements.

# Step 2

## static posture assessment

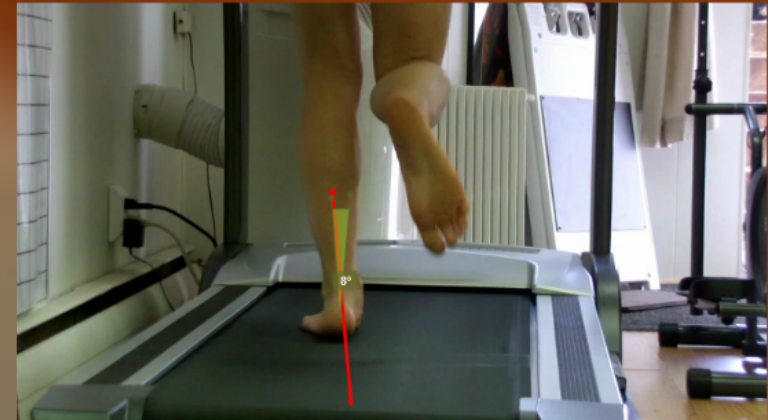


Running form, and how we move in general, is largely determined by posture. Soft-tissue imbalances or distortions adjust the positioning of our skeletal system and predetermine movement patterns. During this step several tests and measurements are done regarding posture and its effect on the lower body.

# Step 3

## dynamic posture assessment

Body movement patterns are next analyzed through basic movements, rotations and right to left comparisons of upper and lower body excursions.



# Step 4

## Flexibility and range of motion



In this step we begin the process of refining corrective actions. By simplifying attributes of the gait analysis to basic movement patterns while standing, sitting, or lying, we often learn where specifically we need to spend time relaxing, loosening, or lengthening soft tissue to allow for more balanced movement while running.

# Step 5

## Strength, power, leg stiffness



Through a series of body weight exercises, and through the use of the state-of-the-art Optogait system, comparative measures are made to identify areas in need of improvement. Areas addressed here are related to stride power, stride efficiency, muscle stiffness, and lower body elasticity.

# Step 6

## Review session

**Biomechanical Video Gait Analysis Results**

High walk for study on High Ankle Joint Flexion  
 - 100% of the study on High Ankle Joint Flexion  
 - 100% of the study on High Ankle Joint Flexion

Parameter	Value	Units	Normal Range	Comments
<b>General</b>				
Height	175	cm	160-190	
Weight	75	kg	60-100	
Age	35	yr	20-60	
Sex	M			
Activity	Walking			
Speed	1.2	m/s	1.0-1.5	
Stride Length	1.0	m	0.8-1.2	
Stride Time	0.83	s	0.7-0.9	
Stance Time	0.55	s	0.4-0.6	
Swing Time	0.28	s	0.2-0.3	
Double Support	0.10	s	0.0-0.15	
Step Length	0.5	m	0.4-0.6	
Step Time	0.42	s	0.3-0.5	
Step Angle	15	deg	10-20	
Step Width	0.1	m	0.0-0.2	
Step Height	0.05	m	0.0-0.1	
Step Frequency	1.2	steps/min	1.0-1.5	
Step Length Variability	0.05	m	0.0-0.1	
Step Time Variability	0.02	s	0.0-0.05	
Step Angle Variability	2	deg	0-5	
Step Width Variability	0.02	m	0.0-0.05	
Step Height Variability	0.01	m	0.0-0.02	
Step Frequency Variability	0.05	steps/min	0.0-0.1	
Step Length Correlation	0.95		0.9-1.0	
Step Time Correlation	0.95		0.9-1.0	
Step Angle Correlation	0.95		0.9-1.0	
Step Width Correlation	0.95		0.9-1.0	
Step Height Correlation	0.95		0.9-1.0	
Step Frequency Correlation	0.95		0.9-1.0	
Step Length Variability	0.05	m	0.0-0.1	
Step Time Variability	0.02	s	0.0-0.05	
Step Angle Variability	2	deg	0-5	
Step Width Variability	0.02	m	0.0-0.05	
Step Height Variability	0.01	m	0.0-0.02	
Step Frequency Variability	0.05	steps/min	0.0-0.1	
Step Length Correlation	0.95		0.9-1.0	
Step Time Correlation	0.95		0.9-1.0	
Step Angle Correlation	0.95		0.9-1.0	
Step Width Correlation	0.95		0.9-1.0	
Step Height Correlation	0.95		0.9-1.0	
Step Frequency Correlation	0.95		0.9-1.0	

7-10 business days after the recordings and measurements are completed, participants return for a 20-40 min session to review the video and test results.



# Step 7

## Homework

At the review session participants also receive their homework - a detailed outline of the recommended next steps, complete with pictures and videos where needed. Clients are urged to ask any and all questions as our goal is to have each runner leave with a clear idea of the tasks ahead.



**Being consistent with the recommended corrective actions is often the biggest barrier to ones success.**



Generally next steps involve new habits and routines that the runner can do on their own at home. In some cases, however, it is recommended to see a massage therapist, physical therapist, orthopedist, or other health practitioner. If this is the case we will direct you to the best fit for your based on the results of your analysis.

# clear idea of the tasks ahead



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# Step 8

## Check-in Sessions

Often times a 40-60 minute session is needed 6-12 weeks after the initial gait analysis. During this session additions to homecare, adjustments to exercises, or further suggestions are given based on the results of the homework and the effect this work has had on the gait.

# *scheduling*

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Feel free to contact us at:

[admin@bostonrunningcenter.com](mailto:admin@bostonrunningcenter.com)  
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