NORAXON




# 2D MARKERLESS

Noraxon's 2D Markerless Tracking engine, part of the MR4 software, operates on a PC and features angle tracking displayed on video, access to time series data for each angle, along with automated contact and event detection for gait, running, and return-to-sport analysis. This engine uses 1-4 cameras and is automatically synchronized, allowing for seamless integration.

Gait & Running

Jumping

Range of Motion

Lifting

Return To Sport

# POWERS RUNNING ASSESSMENT

Developed in partnership with Dr. Chris Powers, this add-on provides users with a simple method for analyzing running biomechanics utilizing 2D markerless tracking and Dr. Powers' established running assessment protocol and scoring system.



**Powers Running Assessment**

Patient
First Name
Last Name
Sex

Protocol
Powers
Male

Record
Name
Date Measured
Number of periods

Multi-Activity
8/9/2023 06:29
8

SCORE

LEFT

16.0

RIGHT

15.0

PARAMETERS

Crossover Sign
Anterior Pelvic Tilt
Knee Valgus
Lateral Trunk Lean
Knee Varus
Knee Forward of Toe
Hip Adduction
Forward Trunk Lean
Pelvic Drop
Limited Knee Flexion
Foot Pronation
Limited Hip Flexion

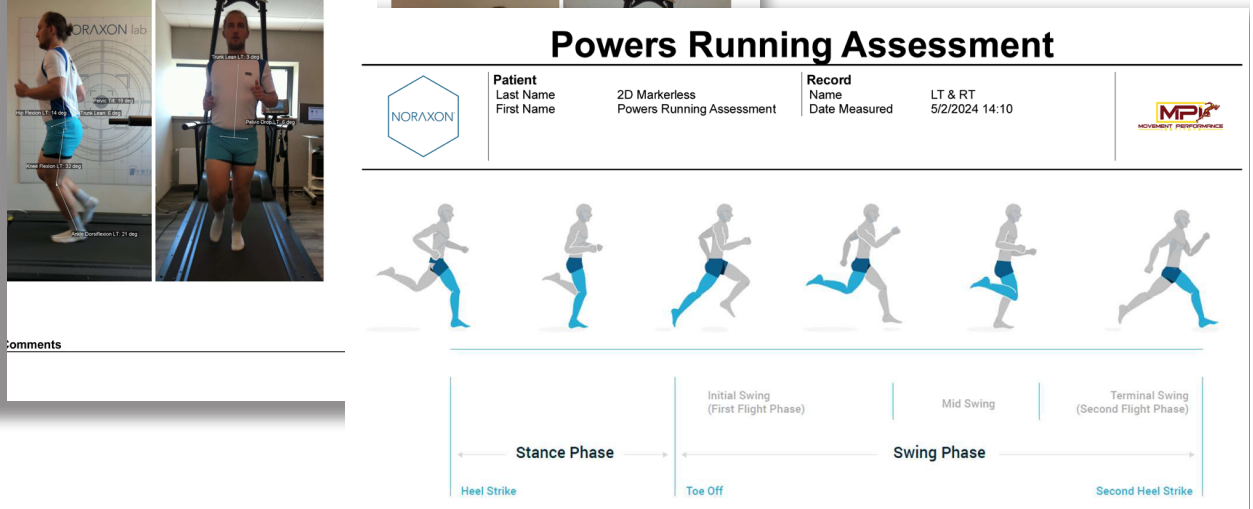
| | Left | Right |
|---|---|---|
| Crossover Sign | No | No |
| Knee Valgus | 4 deg | -1 deg |
| Knee Varus | 2 deg | 3 deg |
| Hip Adduction | 4 deg | 5 deg |
| Pelvic Drop | 2 deg | -3 deg |
| Foot Pronation | Yes | Yes |
| Limited Hip Flexion | 15 deg | 18 deg |
| Limited Knee Flexion | 33 deg | 32 deg |
| Forward Trunk Lean | 4 deg | 8 deg |
| Knee Forward of Toe | No | No |
| Lateral Trunk Lean | 4 deg | 4 deg |
| Anterior Pelvic Tilt | 21 deg | 20 deg |

VIDEO ANALYSIS

ex Max LT, 22.32 s
Sagital
Dorsal-Frontal

Ankle Dorsiflex Max RT, 7.68 s
Sagital
Dorsal-Frontal

Comments



**Powers Running Assessment**

NORAXON

Patient
Last Name
First Name

2D Markerless
Powers Running Assessment

Record
Name
Date Measured

LT & RT
5/2/2024 14:10

Initial Swing (First Flight Phase)
Mid Swing
Terminal Swing (Second Flight Phase)
Stance Phase
Swing Phase
Heel Strike
Toe Off
Second Heel Strike

RUNNING PHASE PARAMETERS

| | | |
|---|---|---|
| Stance Phase, % | Left | 44.1±1.8 |
| | Right | 40.6±1.0 |
| | Diff, % | -7.8 |
| Swing Phase, % | Left | 55.9±1.8 |
| | Right | 59.4±1.0 |
| | Diff, % | 6.2 |
| Total Flight Duration, ms | | 112±15 |
| Total Contact Duration, ms | | 623±12 |

RUNNING TEMPORAL PARAMETERS

| | | |
|---|---|---|
| Step Time, ms | Left | 372±7 |
| | Right | 363±13 |
| | Diff, % | -2.4 |
| Stride Time, ms | | 736±12 |
| Cadence, step/min | | 163±3 |

## Simplify your running analysis with:

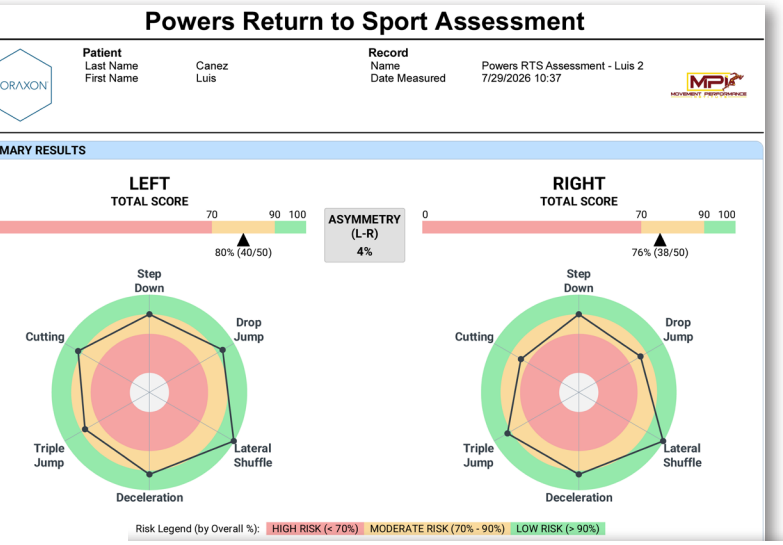
- Start to Finish Assessment in Minutes
- Guided Analysis
- Immediate Reports to Track Progress Over Time
- Complete Quality Control

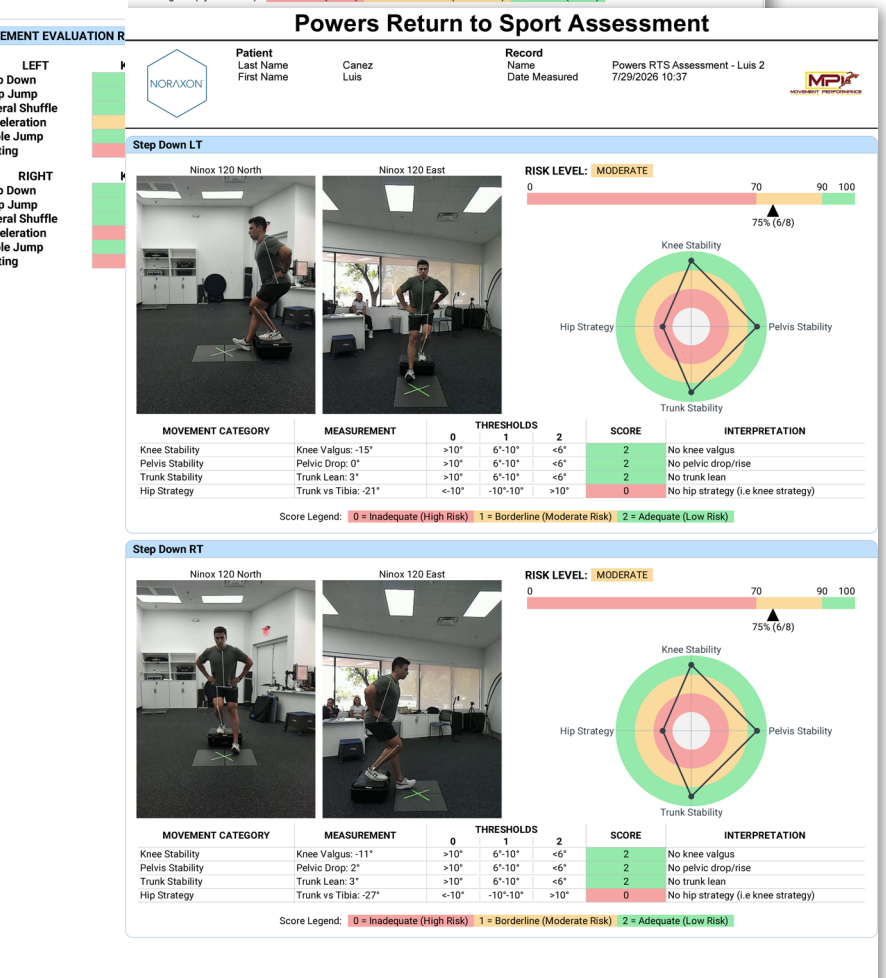


**Dr. Chris Powers**
PT, PhD, FASCM, FAPTA, Faculty at USC Division of Biokinesiology and Physical Therapy.

# POWERS RETURN TO SPORT

The assessment translates Dr. Christopher Powers' movement assessment methodology into a guided, clinic-friendly workflow that uses synchronized frontal and sagittal video to evaluate movement quality across a standardized series of athletic tasks with 2D markerless analysis.




## Simplify your movement analysis with:

- Automated 2D markerless tracking
- Guided capture with frontal and sagittal views
- Comprehensive report with summary scores and visuals

## Return to Sport Tasks Evaluated:

- Step Down
- Drop Jump
- Lateral Shuffle
- Deceleration
- Triple Jump
- Side-Step Cut

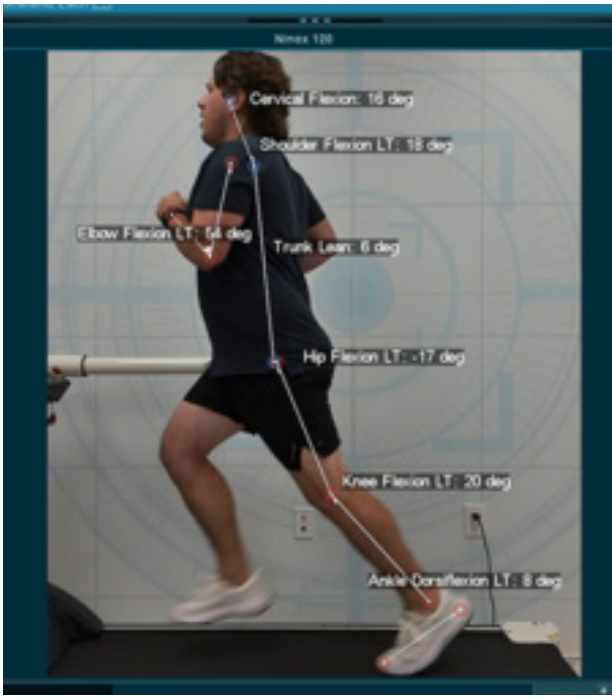
Dr Power's List of Publications

# Streamline Your Video Analysis

### Angles Overlaid on Video
Gain a deeper understanding of movement dynamics with joint and body angles seamlessly overlaid on video footage.

### Complete Angle Time Series Data
Monitor the evolution of body angles throughout an activity to effectively track progress and identify patterns.

### Automatic Contact & Event Detection
Utilize intelligent detection algorithms during walking, running, and functional activities to support the assessment of movement mechanics and identify opportunities for improvement.




With MR4's powerful 2D Markerless Tracking tools, it's easier than ever to expand your gait and functional movement assessment capabilities.

# NiNOX Video Cameras

The NiNOX high-speed video cameras from Noraxon enhance biomechanical analysis by providing synchronized video for reference and 2D markerless tracking. Easy to use and highly portable, these cameras are lightweight, durable, and stream real-time color video to a host computer via USB3.




**NiNOX™ 120**
Markerless tracking and reference video with exceptional clarity and detail.




**NiNOX™ 240c**
High-speed video with up to 240 frames per second.