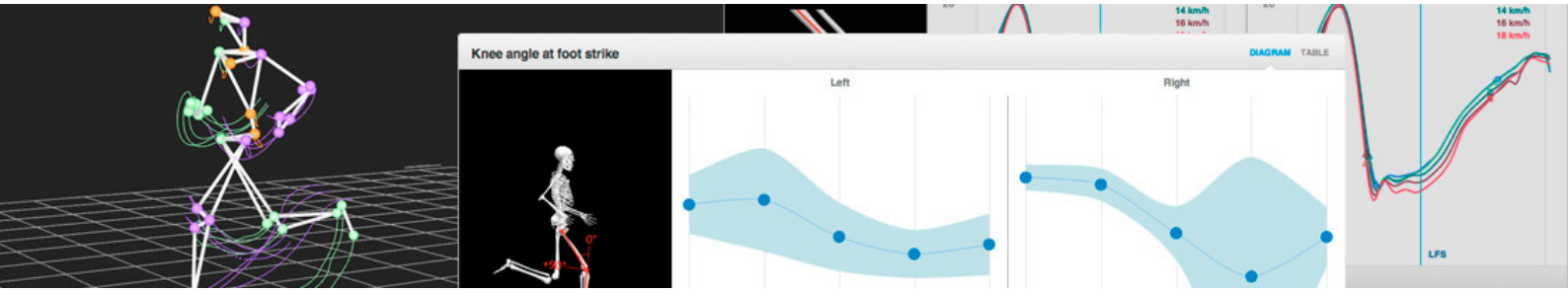
Running analysis
by Qualisys



Qualisys Full-Body Running analysis

Complete full-body running analysis system powered by motion capture

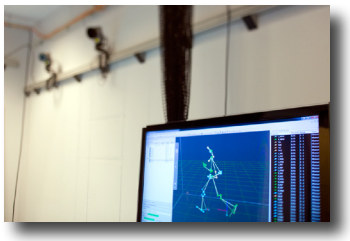
WHAT YOU GET

- 8–12 motion capture-camera system (depending on lab dimensions).
- Qualisys Track Manager software with PAF Running package.
- Full-body analysis in Visual3D.
- Web-based booking system for booking end-user.
- Analysis presented in web-based report.

Qualisys Running analysis is a complete solution for full-body running analysis. The system includes a high-end optical motion capture system, an advanced analysis process and a web application through which end-users can book sessions and access the final report.

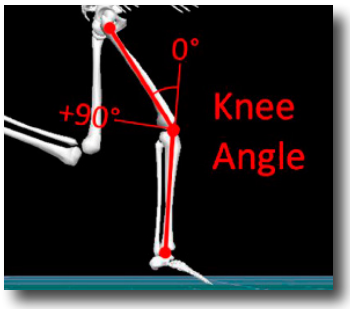
At Qualisys, we are passionate about running. We want to do what we can to help runners understand how their running technique can be improved as well as reducing injuries. Research shows that "…developing better running stride mechanics and neuromuscular control is shown to be effective in preventing injury" (Runners World).

We analyse the runner's technique using our motion capture system, recording every movement with great precision. Visual feedback is provided in a web-based report that shows a range of key parameters for good running technique, such as pelvic rotation, knee angle, ankle flexion and foot contact. It provides useful tips for things to consider in order to improve running posture and technique. We promote a holistic approach towards running and whole body functioning. The report also includes a training programme to strengthen specific muscles to help improve running technique.



Qualisys Track Manager, QTM, is Qualisys' main software for handling the motion capture process.

The main feature of the Oqus 3D marker-based cameras is the ability to calculate marker positions with high accuracy and speed.



Visual3D is advanced biomechanical software for managing and reporting optical 3D data.

Skilled staff and coaches guide and help the runners during the 60-minute visit.

FULL BODY - FULL CONCEPT

We have developed a system that helps runners develop their technique, which we call Full Body - Full Concept. FB – FC means that in order to be able to develop a good running technique, there are certain parameters that must be fulfilled in order to make proper changes in technique.

Firstly, a full-body analysis needs to be carried out, so that all the body's movements can be studied. When this analysis is complete, an assessment is made of what needs to be done. The first question is whether the body is able to perform the desirable technical adjustments. Qualisys Full-Body Running Analysis allows you to see how the body functions dynamically when running, thus enhancing the biomechanical functional analysis so that it specifically includes requirements for running. Any functional problems are rectified, and when this is done the body has a chance to make the desired technique changes.

When a body is given the opportunity to specifically function in the proper manner, many things fall naturally into place and the body starts to move in a beneficial way that reduces the risk of injury.

HOW IT WORKS - 60 MINUTES

The runner will meet an expert and a technical assistant and will have a total of 35 reflective markers attached to the body. The runner will be asked to run on a treadmill for 10-15 minutes at different speeds while the running motion is recorded. Speeds are selected based on performance level, anything from 10 to 26 km/h.

In the next stage, the runner receives technical advice that is necessary to help the body run in a manner that is optimal for the individual. To achieve a change in function or technique, a professional aid such as Qualisys Full Body - Full Concept is necessary in identifying the key point for achieving the desired changes as part of a process that aims to adapt a running style.

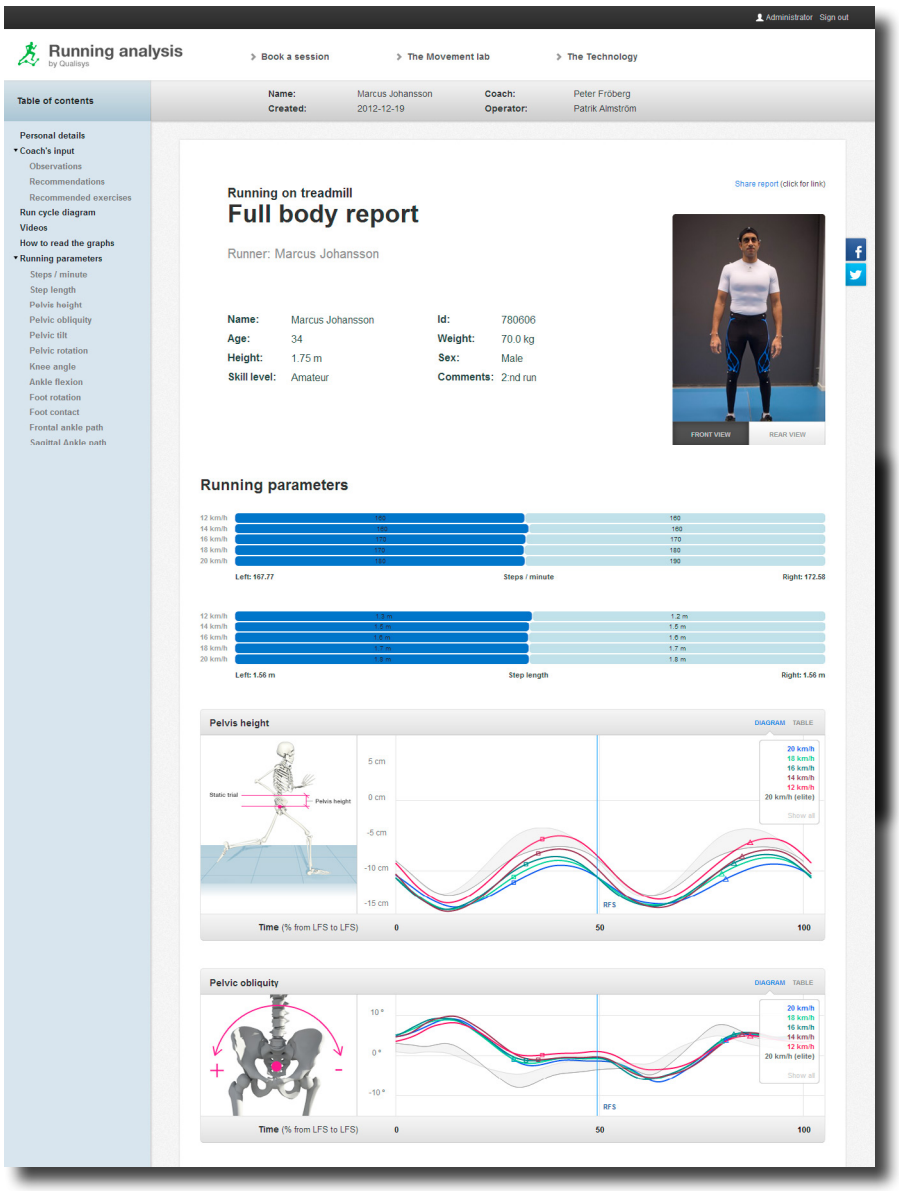
RESULTS - REPORT

The feedback the runner receives may include strength, mobility and/or technique advice, depending on what the analysis says. After finish running, the motion data will be analysed in a biomechanical analysis software that generates an biomechanical model.

After we have measured the runner, one of our experts will evaluate the results and compare them to our database of national elite runners. The runner receives training advice and recommendations for how to improve the running technique. The results will be provided in an extensive running report, which will be accessible via your online account.

FOLLOW-UP

Recommended is to book a new analysis within 3-5 months to get feedback on technique improvements since the previous session. Skilled coaches help to follow the recommendations and provide valuable advice.

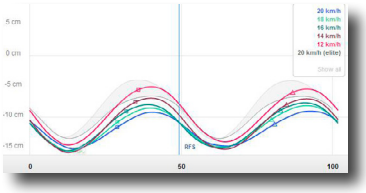


FULL BODY 3D RUNNING REPORT

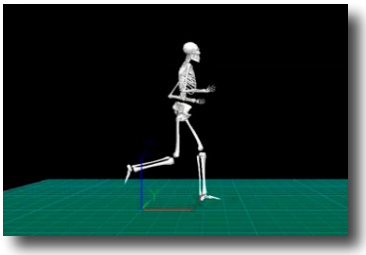
The runner will receive a cutting-edge running report that is created in HTML5 and accessible on the web. Runners can log in to their account to read it and share it with its friends. The report will not be public unless the individual hands out the direct link.

The report contains:

- Steps/min (cadence)
- Step length
- Contact time
- Flight time
- Pelvis height
- Pelvis obliquity
- Pelvis tilt
- Pelvis rotation
- Knee angle
- Ankle flexion
- Foot rotation
- Foot contact
- Frontal ankle path
- Sagittal ankle path
- Shoulder – pelvis flexion
- Shoulder pelvis lateral flex
- Shoulder pelvis rotation
- Elbow angle
- Elbow path
- Wrist path
- Contact, center of gravity



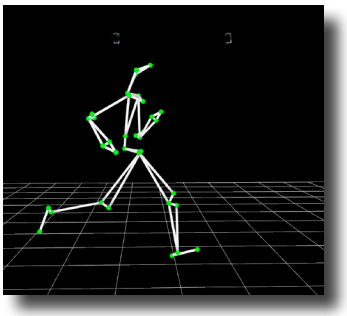
The graphs contain a comparison of your running biomechanics with that of our extensive database of uninjured elite runners.



Visualized data — the visualization of motion data, shown as a skeleton from two angles.

ADVANTAGES

- Full-body analysis that examines whole movements.
- Quick process and easy to use, from measurement to report.
- Based on the concept of a functioning body – not only results, reasons too.
- A complete solution, from bookings to reports and recommendations.
- The system can be used for other applications or measurements.
- Developed from a research-based approach and can also be used as such.
- Ongoing development with other external systems.



MOCAP TECHNOLOGY

The use of optical motion capture technology for objectively capturing and recording motion is now a widely accepted technique, in daily use by researchers and clinicians around the world.

The system captures your movements at 400 fps (frames per second) with an accuracy of more than 0.5 mm.

2014-05-22

Running Analysis workshop to demonstrate the concept

PACKAGE CONTENTS

Camera system	8–12 Oqus cameras	Complete optical motion capture system. Number of cameras adjusted to lab dimensions.
QTM	Automation Framework	User interface for clinical workflow in QTM.
	Client database	Enter client metadata directly into QTM.
	AIM file	Predefined AIM with marker names for quick marker identification.
	Marker placement guide	Printable PDF, easily viewable from QTM.
Visual3D	Pipeline	Visual3D pipeline that sets up kinematics, kinetics, forces and emg analysis.
	CMO	CMO file created automatically from QTM.
	Events	Automatic events using analysis pipeline. Manual editing possible if required.
	Report	Visual3D report.
*Report	Coach's input	Summary of observations, recommendations and conclusions by a trained coach.
	Recommended exercises	The report can include specific exercises recommended by the coach.
	Basic parameters	Cadence, step length, contact time and flight time.
	In-depth parameters	Interactive plots and tables with key running parameters.
*Booking system	Booking web pages	Pages for booking running sessions
	Invoice & Card payment	Finalise bookings by paying via invoice or Visa/Mastercard

** Requires website hosted by Qualisys.*

QUALISYS AB
Packhusgatan 6 · 411 13 Gothenburg · SWEDEN
Tel. +46 31 336 94 00 · Fax. +46 31 336 94 20
e-mail: sales@qualisys.com · www.qualisys.com