

# Sports Performance

Sports medicine and performance analyses go hand in hand with analyses aimed at preventing injury. While the protocols are often very similar, the analysis of sports related movements often entails analyzing a variety of highly dynamic movements. The magnitudes for angular velocities and accelerations associated with sports activities are often large and occur while translating through large fields of view.

Motion Analysis provides the tools for the Sports Medicine & Performance professional to perform accurate functional evaluations/analyses for clinical and research oriented purposes such as: Performance enhancement, injury prevention, return to activity, and the effects of orthopedic / athletic devices.

## Typical System Configuration

### SPORTS PERFORMANCE SYSTEM

- **8-16 Eagle or Hawk cameras**
- **Cortex**
- **Skeleton Builder**
- **KinTools RT**
- **OrthoTrak**
- **UE Trak**
- **Motion Composer**
- **SIMM**

Choosing the correct camera and number of cameras for your motion capture system is dependent on various factors including:

- Size of capture area
- Size of physical room
- Complexity of movement
- Speed of movement
- Current and future needs

Your Motion Analysis account representative will work with you to determine the best system configuration. Our systems integrate fully with EMG and forceplate data, as well as many other hardwares. Customers have full access to an SDK in order to develop their own software interfaces.

## Recommended Cameras

### Eagle Digital Camera

- Resolution of 1.3 million pixels
- 1-500 Hz selectable frame rates at full resolution
- Up to 2,000 frames per second at reduced resolutions
- High quality 35mm lenses for low optical distortion
- Built-in zoom provides more visual options
- 237 LED's for brighter and better light uniformity
- Four body mount points for variable positioning
- Software controlled electronic shutter
- Software controlled adjustable light output
- Separate zoom, iris and focus settings independent of ringlight

### Hawk Digital Camera

- Resolution of .3 million pixels
- 1- 200 Hz selectable frame rates
- C-Mount or Zoom lenses available
- 237 LED's for brighter and better light uniformity
- Four body mount points for variable positioning
- Software controlled electronic shutter
- Software controlled adjustable lightoutput
- Separate zoom, iris and focus settings independent of ringlight

## Recommended Software

**Cortex** - our core motion capture software comprises tracking, editing, scripting and modeling functions in a *single integrated package*.

**Skeleton Builder** - creates skeletons that are relatively simple, direct and fast calculations of segments (bones) that are defined and calculated from one marker center to another.

**KinTools RT** - a full-body, three-dimensional kinetics and kinematics analysis package .

**OrthoTrak** - a fully automated, three-dimensional, clinical gait measurement, evaluation and database management system.

**UE Trak** - calculates three-dimensional upper extremity kinematics for upper body movement measurement.

**Motion Composer** - tools for collating, integrating and presenting interactive motion capture data.

**SIMM** - create computer models of musculoskeletal structures.