INNOVATIVE POINT OF CARE PRODUCT
- 3D analysis of the knee, in a weight-bearing and dynamic condition
- 20min test – in the comfort of a clinical setting or imaging center

INDICATIONS FOR USE
for use in gait impairment as a result of:
- knee osteoarthritis
- ligament or meniscus injuries
- patellofemoral pain syndrome

The KneeKG™ system is a regulatory approved and validated medical device assessing patient’s knee functionalities and associated problems in a standardized, objective and non-invasive way.

It is intended to:
1. provide clinically meaningful endpoints to healthcare providers for personalizing and optimizing treatment plans;
2. allow clinical researchers to undergo larger population studies, reduce study costs, integrate motor tasks and provide consistent data, efficiently.

Accuracy per pathology: 82.8% for anterior cruciate ligament (ACL), 93% for knee osteoarthritis (OA) (with a sensitivity of 79% and specificity of 100%) and 94.4 % for patellofemoral pain syndrome (PFS).

KneeKG™ can be used in adult patients of all ages. For children under 18, KneeKG™ use is country-specific. Please contact Emovi.

1. As per letter received from FDA for market clearance K091000
3. KneeKG™’s validation was ensured through more than 14 peer reviewed publications;
4. KneeKG™ is reported in more than 25 peer reviewed publications covering surgeries, injuries, OA progression and rehabilitation
KneeKG™ is offered as a turnkey solution with nine (9) components:
- a knee exoskeleton system composed of: a harness, interchangeable arches (4) (extra small, small, medium, and large), a tibial and a femoral bars, velcro bands units (3) and velcro bands extension (2) (Fig. a and b),
- KneeKG™ software modules (4 modules),
- a computer (Fig. c),
- an infra-red camera (Fig. c)
- a cart (Fig. c),
- a set of position recording sensors,
- a set of guidance frames,
- a sacroiliac belt,
- comfort pads (100)

A printer, a printer tablet (cart), a video camera and a camera tripod can also be offered.

Available add-ons:
- KneeKG™ - OA reporting capabilities
- KneeKG™ - FI Fusion imaging (coming soon in 2012)

**IMMEDIATE REPORTING CAPABILITIES**

- EXAMPLE OF A REPORT FOR A KNEE OSTEARTHRITIS PATIENT WITH OA FUNCTION
INSTALLATION
REQUIREMENTS

KNEEKG™ IS DESIGNED TO MINIMIZE THE REQUIRED FLOOR SPACE AND MAXIMIZE FUNCTIONALITY.

- System footprint: 30in X 24in (.75m X 6m) Height: 66in (1.65m)
- Weight: 80lbs (36.2 Kg)
- Operating temperature: 10-40°C (50-100°F)

Requirements before installation:

- internet connection (Ethernet or Wi-Fi)
- 2 meters extension cord to move the system
- a conventional-commercial treadmill
- a printer shelf for the cart (optional) or a table for printer (if used)

Floor Plan requirements:

The minimum floor space is

- 4mx3,7m (13feetx12feet) when using a conventional treadmill;
- 4,5mx4,5m (15feetx15feet) when using an instrumented treadmill (with force plates)

Electrical requirements:

The 3 components listed below must be connected to a multi-outlet strip with surge and overload protector. KneeKG™ can operate with 120v and 240v outlet (15amp).

- the infra-red camera
- the All in one PC
- the printer

Lighting requirements:

The infra-red camera should never be oriented toward a window or mirror or shiny material.

INFORMATION AND QUESTIONS:

514-907-6296 from Monday to Friday, during normal EST business hours

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“The KneeKG™ system provides reliable movement analysis. This system has the potential to improve understanding of the biomechanical consequences of trauma or degenerative changes of the knee.”


KneeKG’s validation:


Charbonneau et al, "Towards the Use of 3D Motion Capture in Clinical Setting, From the Lab to Clinics", 3rd International Symposium on Advanced Biomaterial/Biomechanics, April 3-6, 2005


KneeKG’s uses in kneeOA research


Boivin, K. & al, « Détermination de paramètres biomécaniques sensible à la gonarthrose ou à son niveau de sévérité à partir d’un analyse de la cinématique dans le plan frontal à la marche. » 28e Journée de la recherche / Programme d’Orthopédie


Gaudreault, N. & al, "Can we identify workers at risk of developing knee OA using gait kinematic " International Conference on Prevention of Work-Related Musculoskeletal Disorders (PREMUS), Angers, France, August 2010


Peer reviewed publications on the use of KneeKG in fundamental research and clinical research

KneeKG’s uses in ACL injuries, rehabilitation (OA and ACL (post operative) models) and others


St-Onge, N. & al, «Effect of Ski Binding Parameters on Knee Biomechanics: A Three-Dimensional Computational Study». Medicine & Science in Sports & Exercise, 36(7), pp. 1218-25, 2004


Grimard, G. & al, «Knee Injury- Soccer» Clinical case slides at the American College of Sports Medicine (ACSM) annual meeting. Medicine & Science in Sports & Exercise, 43(5), pp. S120, 2011,


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