KNEEKG SYSTEM RESULTS COUPLED WITH THE EMOVI PORTAL SOLUTION KNEEKG APP+*

KneeKG®

KNEE | KINESIOGRAPHY

Case example: TOTAL KNEE ARTHROPLASTY

Patient: **Painful TKA**
Knee(s): **Right Knee**

Established diagnosis on file: Arthroplasty post-surgery
Reason of consultation: Unexplained pain after TKA
- *Ruled out possible common complications including infection, component malpositioning, instability, and nerve damage*

BIOMECHANICAL MARKERS: Results

Knee flexum at initial contact	Negative (3.9˚ of flexion)
Limited flexion excursion during loading	**Positive + (2.4˚ of flexion)**
Fixed flexion during stance	**Positive (9.9˚ of extension)**

IMPRESSION

A stiff knee gait pattern limiting efficient absorption of weight-bearing forces
- Heel strikes in a slightly flexed position but then fails to release the quadriceps eccentrically, locking back into hyperextension during stance
  - Increases stress on the patellofemoral articulation
  - Dynamic stiffness post TKA leads to poor long-term outcomes on the surgical knee and faster OA progression of the contralateral limb *(Zeni et al. Stiff Knee Gait May Increase Risk of Second Total Knee Arthoplasty. Journal of Orthopaedic Research. 2019 February; 37 (2): 397-402)*

THERAPEUTIC PROGRAM

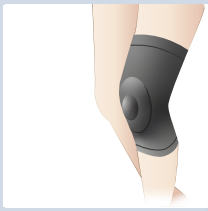
Patient was educated on their biomechanical dysfunctions
- Given TARGETED neuromuscular retraining exercises as a home program

Additional recommendation: Patellar sleeve to enhance proprioception and improve stabilization strategies

Therapeutic corrective: Exaggerated Extension
⇢ Concentric/eccentric control for absorption during loading

Therapeutic corrective: Exaggerated Extension
⇢ Knee hyperextension control at stance

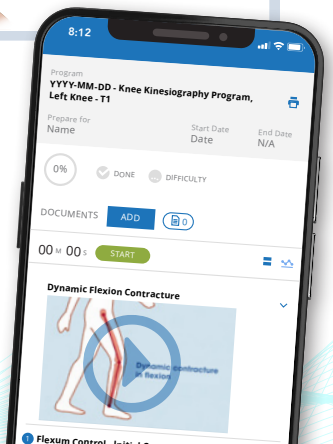
Type of knee brace: Patellar sleeve
⇢ Enhances proprioception



PATIENT SPECIFIC INFORMATION LEADS TO BETTER FUNCTIONAL OUTCOMES!

- **Addressed the objective biomechanical markers that increased stress on the joint**
- **Mitigated early degeneration of the prosthetic components**
- **Addressed OA progression on the contralateral limb**

Personalized program available for your patient via an online platform with detailed explanations and videos to educate the patient on how to restore their function



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KNEE KINESIOGRAPHY

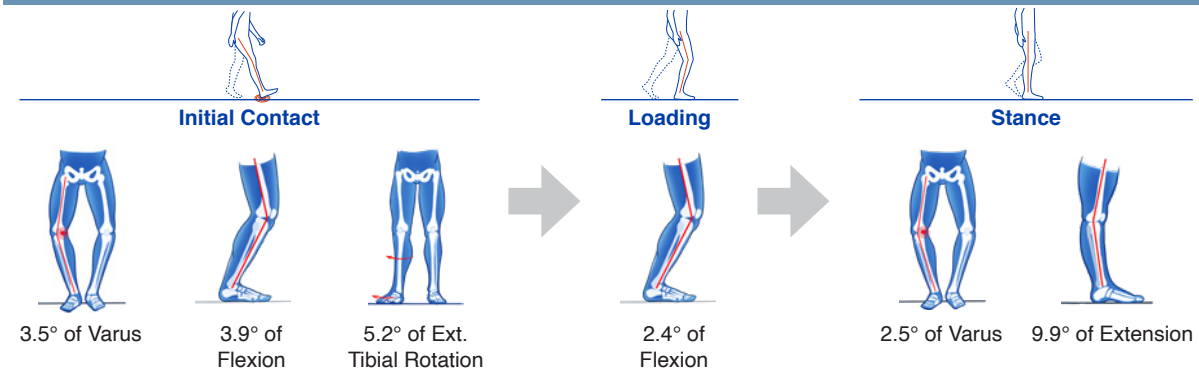
Patient name:
KneeKG Patient ID: 00123
Right knee - Comfortable walking (1.7 m/h)

KneeKG® OA Report

Date: YYYY-MM-DD
KneeKG evaluator

Presence of mechanical risk factors linked to knee OA	**Results YYYY-MM-DD**
Medial compartment and femoparatellar compartment	
Varus thrust during loading [1-4]	Negative
Varus functional lower limb alignment [100]	Negative (Neutral 0.7°)
Varus alignment at initial contact [101]	**Positive** (Varus 3.5°)
Varus alignment during stance [101]	**Positive** (Varus 2.5°)
Lateral compartment and femoropatellar compartment	
Valgus thrust during loading [3]	Negative
Valgus functional lower limb alignment [102, 104]	Negative (Neutral 0.7°)
Valgus alignment at initial contact [103,105]	Negative (Varus 3.5°)
Valgus alignment during stance [103,105]	Negative (Varus 2.5°)
Femoropatellar compartment	
Knee flexum at initial contact [15]	Negative (3.9° of flexion)
External tibial rotation at initial contact [16-18]	**Positive** (5.2°)
General	
Tibia internally rotated in relation to the femur during loading [20,21]	Negative
Body Mass Index (BMI) > 25 [9,22,23,34]	**N/A**
Presence of mechanical factors linked with knee OA during gait	
Knee in extension at initial contact [24]	Negative (flexion 3.9°)
Limited flexion excursion during loading [25-30]	**Positive +** (2.4° of flexion)
Fixed flexion during stance [28]	**Positive** (9.9° of extension)
Decreased maximum flexion during swing [25,29-32]	Negative (64.0°)
Decreased sagittal plane range of motion [25,33]	Negative (67.6°)

PATIENT SPECIFIC DYNAMIC ALIGNMENT



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The KneeKG™ system is FDA (510k) cleared, Health Canada licensed and CE Marked, to assess the 3D motion of the knee of patients who have impaired movement functions of an orthopaedic cause.
* Because this information does not purport to constitute any diagnostic or therapeutic statement with regard to any individual medical case, each patient must be examined and advised individually, and this information does not replace the need for such examination and/or advice in whole or in part. Emovi does not practice medicine. Each physician should exercise his or her own independent judgment in the diagnosis and treatment of an individual patient, and this information does not purport to replace the comprehensive training physicians have received.