
Ongoing Research Work

No.	Name of research	Type	Investigating institution	Country	Level of evidence
1	Biomechanical therapy for osteoarthritis of the knee: a randomized controlled trial (BIOTOK)	Double blind RCT	University of Bern	Switzerland	Level I
2	A prospective, randomized double-armed efficacy evaluation of AposTherapy for the treatment of knee osteoarthritis	Double blind RCT	NYU	US	Level I
3	The effect of AposTherapy on pain and function in Knee Osteoarthritis population. A randomized controlled trial	Double blind RCT	Montefiore Medical Center	US	Level I
4	The effect of AposTherapy on biomechanical properties in patients with knee osteoarthritis	Prospective, single cohort study	HSS	US	Level II

Research work in review

No.	Name of paper	Type	Journal name	Country	Level of evidence
1	A biomechanical therapy program for patients after Total Knee Arthroplasty – A randomized controlled trial (Preliminary results)	Double blind RCT			Level I
2	Knee osteoarthritis functional classification scheme - validation of time dependent treatment effect. One year follow-up of 518 patients	Retrospective			Level III

Clinical outcomes

No.	Name of paper	Type	Journal name	Country	Level of evidence
1	A treatment applying a biomechanical device to the feet of patients with knee osteoarthritis results in reduced pain and improved function: a prospective controlled study	Double blind, prospective	BMC Musculoskeletal Disorders	UK	Level II
2	Long-term effects of AposTherapy in patients with osteoarthritis of the knee: A two year follow-up	Prospective	Arthritis	US	Level III
3	Patients with chronic non-specific low back pain who reported reduction in pain and improvement in function also demonstrated an improvement in gait pattern	Retrospective	European Spine Journal	Germany	Level III
4	APOS therapy improves clinical measurements and gait in patients with knee osteoarthritis	Retrospective	Clinical biomechanics	UK	Level IV
5	A novel biomechanical device improves gait pattern in patient with chronic nonspecific low back pain	Retrospective	Spine	US	Level IV
6	Reduction in knee adduction moment via non-invasive biomechanical training: A longitudinal gait analysis study	Prospective, single cohort	Journal of Biomechanics	UK	Level IV
7	A new non-invasive biomechanical therapy	Retrospective	Harefuah	Israel	Level IV

	for knee osteoarthritis improves clinical symptoms and gait patterns				
8	Effects of a customized biomechanical therapy on patients with medial compartment knee osteoarthritis	Retrospective	Annals of Physical and Rehabilitation Medicine	France	Level IV
9	A unique foot-worn device for patients with degenerative meniscal tear	Retrospective	Knee Surgery, Sports Traumatology and Arthroscopy	Germany	Level IV
10	The outcome of a novel biomechanical therapy for patients suffering from anterior knee pain	Retrospective	The Knee	Netherlands	Level IV
11	A non-invasive biomechanical device and treatment for patients following total hip arthroplasty: results of a 6-month pilot investigation	Prospective, single cohort	Journal of Orthopaedic Surgery and Research	UK	Level II
12	Noninvasive biomechanical therapy improves objective and subjective measurements of pain and function in patients with knee osteoarthritis: a retrospective analysis	Retrospective	Current Orthopaedic Practice	US	Level IV
13	A noninvasive biomechanical treatment as an additional tool in the rehabilitation of an acute anterior cruciate ligament tear: A case report	Prospective, case study	SAGE Open Medical Case Report	UK	Level IV
14	Patients with knee osteoarthritis demonstrate improved gait pattern and reduced pain following a non-invasive biomechanical therapy: a prospective multi-center study on Singaporean population	Prospective, single cohort	Journal of Orthopaedic Surgery and Research	UK	Level II
15	A non-invasive foot-worn biomechanical device for patients with hip osteoarthritis	Retrospective	Surgery: Current Research	US	Level IV

16	New approach for the rehabilitation of patients following total knee arthroplasty	Prospective, single cohort	Journal of orthopaedics	India	Level II
17	Alterations in sagittal plane knee kinetics in knee osteoarthritis using a biomechanical therapy device	Prospective, single cohort	Annals of Biomedical Engineering	US	Level IV
18	A novel non-invasive adjuvant biomechanical treatment for patients with altered rehabilitation after Total Knee Arthroplasty: Results of a pilot investigation	Prospective, single cohort	Clinics in Orthopedic Surgery	Korea	Level II
19	A novel self-care biomechanical treatment for obese patients with knee osteoarthritis	Retrospective	International Journal of Rheumatic Diseases	UK	Level IV
20	A non-invasive, home-based biomechanical therapy for patients with spontaneous osteonecrosis of the knee	Retrospective	Journal of Orthopaedic Surgery and Research	UK	Level IV
21	Positive Outcomes Following Gait Therapy Intervention for Hip Osteoarthritis: A Longitudinal Study	Prospective, single cohort	Journal of Orthopaedic Research	US	Level II
22	Gait abnormalities in patients with chronic ankle instability can improve following a non-invasive biomechanical therapy: A retrospective analysis	Retrospective	The Journal of Physical Therapy Science	Japan	Level IV

Biomechanical Alignment and Perturbation

No.	Name of paper	Type	Journal name	Country	Level of evidence
1	Control of knee coronal plane moment via modulation of center of pressure: a prospective gait analysis study	Prospective, single cohort	Journal of Biomechanics	UK	Level II
2	The influence of sagittal center of pressure offset on gait kinematics and kinetics	Prospective, single cohort	Journal of Biomechanics	UK	Level II
3	Effect of center of pressure modulation on knee adduction moment in medial compartment knee osteoarthritis	Prospective, single cohort	Journal of Orthopaedic Research	US	Level II
4	Detecting and quantifying global instability during dynamic task using kinetic and kinematic gait parameters	Prospective, single cohort	Journal of Biomechanics	UK	Level II
5	Foot center of pressure trajectory alteration by biomechanical manipulation of shoe design	Prospective, single cohort	Foot Ankle International	US	Level II
6	Reduction of frontal-plane hip joint reaction force via medio-lateral foot center of pressure manipulation: A pilot study	Prospective, single cohort	Journal of Orthopaedic Research	US	Level II
7	Alteration of the foot center of pressure trajectory by an unstable shoe design	Prospective, single cohort	Journal of Foot and Ankle Research	UK	Level II
8	Reduction of Hip Joint Reaction Force via	Prospective,	Journal of Orthopaedic Research	US	Level II

	Medio-Lateral Foot Center of Pressure Manipulation in Bilateral Hip Osteoarthritis Patients	single cohort			
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Muscle activation

No.	Name of paper	Type	Journal name	Country	Level of evidence
1	The effect of manipulation of the center of pressure of the foot during gait on the activation patterns of the lower limb musculature	Prospective, single cohort	Journal of Electromyography and Kinesiology	UK	Level II
2	Foot center of pressure manipulation and gait therapy influence lower limb muscle activation in patients with osteoarthritis of the knee	Prospective, single cohort	Journal of Electromyography and Kinesiology	UK	Level II
3	Neuromuscular response of hip-spanning and low back muscles to medio-lateral foot center of pressure manipulation during gait	Prospective, single cohort	Journal of Electromyography and Kinesiology	UK	Level II

Knee Osteoarthritis Functional Severity Classification

No.	Name of paper	Type	Journal name	Country	Level of evidence
1	Analysis of knee flexion characteristics and how they alter with the onset of knee osteoarthritis: a case control study	Retrospective	BMC Musculoskeletal Disorders	UK	Level III
2	Correlation between single limb support phase and self-evaluation questionnaires in knee osteoarthritis populations	Prospective, single cohort	Disability and Rehabilitation	UK	Level II
3	Can single limb support objectively assess the functional severity of knee osteoarthritis?	Prospective, single cohort	The Knee	Netherlands	Level II
4	Novel classification of knee osteoarthritis severity based on spatiotemporal analysis	Retrospective	Osteoarthritis and Cartilage	UK	Level IV

Supporting scientific evidence

No.	Name of paper	Type	Journal name	Country	Level of evidence
1	Gait metric profile of 157 patients suffering from anterior knee pain. A controlled study	Retrospective	The knee	Netherlands	Level III
2	Clinical outcomes following ankle fracture: a cross-sectional observational study.	Prospective, single cohort	Journal of Foot and Ankle research	UK	Level II
3	Deviations in gait metrics in patients with chronic ankle instability: a case control study	Retrospective	Journal of Foot and Ankle Research	UK	Level III
4	Differences in gait patterns, pain, function and quality of life between males and females with knee osteoarthritis: a clinical trial	Prospective, single cohort	BMC Musculoskeletal Disorders	UK	Level II
5	Sex and Body Mass Index Correlate With Western Ontario and McMaster Universities Osteoarthritis Index and Quality of Life Scores in Knee Osteoarthritis	Retrospective	Archive of Physical Medicine and Rehabilitation	US	Level IV
6	Differences in gait pattern parameters between medial and anterior knee pain in patients with osteoarthritis of the knee	Prospective, single cohort	Clinical Biomechanics	UK	Level II
7	The reliability of a gait analysis mat assessing patients with knee osteoarthritis	Prospective, single cohort	Journal of Orthopaedic	India	Level II
8	Gait metric profile and gender differences in hip osteoarthritis patients. A case controlled study	Retrospective	Hip International	Italy	Level IV
9	The correlation between radiographic knee	Retrospective	Clinical Rheumatology	UK	Level II

	OA and clinical symptoms – do we know everything?				
10	Gait characteristics and quality of life perception of patients following tibial plateau fracture	Retrospective	Archives of Orthopaedic and Trauma Surgery	Germany	Level IV
11	Lower extremity kinematic profile of gait of patients after ankle fracture. A case-control study	Prospective, single cohort	Journal of Foot and Ankle Surgery	US	Level II
12	Gait Assessment of Patients with Spontaneous Osteonecrosis of the Knee: A Retrospective Case Controlled Study	Retrospective	Rheumatology: Current Research	US	Level III
13	Association Between Knee Osteoarthritis and Functional Changes in Ankle Joint and Achilles Tendon	Prospective, Case-control	Journal of Foot and Ankle Surgery	US	Level II
14	Correlation between gait analysis and clinical questionnaires in patients with spontaneous osteonecrosis of the knee	Retrospective	Clinical Biomechanics	UK	Level IV
15	Knee osteoarthritis, degenerative meniscal lesion and osteonecrosis of the knee: Can a simple gait test direct us to a better clinical diagnosis	Retrospective	Orthopaedic & Traumatology: Surgery & Research	France	Level IV