

New OA Brace designed to treat symptomatic patellofemoral pain

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Introduction

Using knee bracing to conservatively treat knee osteoarthritis (OA) has been a common and accepted treatment for many years. The use of “unloading” or “offloading” braces for conservative treatment of uni-compartmental OA has been investigated and reported in many studies sponsored by different companies and in systematic reviews. All studies tend to demonstrate significant pain reduction.^{1,2,3,4} Unloading or off-loading braces are limited to uni-compartment knee OA which only addresses a percentage of the knee OA population. In the past, when patients present with bi and tri-compartmental knee OA, there has been very limited conservative options for the referring physician. The OA braces that have been available have not been sufficient to treat the symptoms of this patient population. With the introduction the Global Knee™ from Hely & Weber, we now have bracing options to address patients in all stages of knee OA disease progression.

Past bracing options did not address the Bi and Tri-compartmental Knee OA patients

Until recently, knee OA bracing has specifically referred to biomechanically off-loading a degenerated compartment of a knee (uni-compartmental OA) by mechanically stabilizing above and below the joint with a rigid frame and applying a pull or push force to the uninvolved side of the joint.⁵ Off-loading braces work well in reducing pain and providing stability to the joint. Off-loading braces are not, however, indicated for bi and tri-compartmental knee OA where off-loading of the joint often is not possible. While off-loading braces address stability and pain reduction, they rarely address common symptoms in the OA knee like anterior knee pain or patellofemoral pain, reduced range of motion, and swelling.



Current trends in protocols are increasing the need for appropriate OA Braces for the knee complex

Many factors affect how practitioners treat knee OA. As part of the affordable care act, CMS has mandated that prior to TKR the initial treatment for OA must be with conservative modalities. Some of the conservative treatments consist of home therapy, bracing, ambulatory aids and medications. The documentation of all therapies needs to be recorded over a 90-day minimum time frame to obtain approval for a Medicare patient.⁶ Also, the desire either by their surgeon or the patient to delay surgery requires the need for stabilizing and pain reducing modalities that will improve the quality of life.

A new approach to treating Bi and Tri-Compartmental Knee OA

For mild to moderate knee OA and for patients who clearly demonstrate medial or lateral joint pain, off-loading braces are effective. For patients in the later stage of disease progression and or with Bi and Tri Compartmental knee OA, the Global Knee™ from Hely & Weber enables referring physicians to better treat the associated symptoms for knee OA: swelling, instability, less range of motion, and anterior knee or patellofemoral pain. Knee OA has been studied at length along with its associated symptomatology. The symptoms of OA are not homogenous and attention to the many modulating factors that alter the experience of pain may improve the way we treat this disease.⁷

The Global Knee™ brace gives us an alternative for bracing the OA Knee. It contains componentry to address many of the symptoms of OA Knee pain with the goal to promote increased patient activity. The brace has the classic polycentric range of motion hinges with bendable uprights that can be adjusted for varus or valgus deformities to provide stability. The key component of the brace, the patellar sling, is designed to address patellofemoral pain by providing an inferior to superior pull, elevating and lifting the patella into a more natural position and aiding stair climbing and ambulation. This component needs further study as patients with knee OA are often more symptomatic for anterior knee pain which is not addressed with current OA braces. The large condylar pads and compressive backing provide compression and massage to the joint during ambulation with the goal of reducing joint effusions.

In a ten-patient questionnaire, we asked patients to rate the Global Knee on a scale from 1 to 10 with ten being the best. The responses showed considerable benefit for patients who, until recently, we did not brace or we incorrectly braced with an off-loading brace. These responses were the main arbiter of whether we used this brace for patients or not. Based on our selection criteria (discussed at length in a follow-up white paper as we believe it is a key to proper brace determination) we find the brace usage of off-loaders and the Global Knee to be similar and anecdotally experienced a rise in patient satisfaction when they are fitted with a brace specific to their need.

Global Knee Effectiveness

1 – Ineffective	10 – Completely effective
Function-Pain Relief:	6.9
Function Stability:	9.1
Fit:	7.5
Comfort:	7.5
Ease of Use:	5.9

Conclusion

Knee OA is not a diagnosis with homogenous symptoms. While many are similar, patients experience a wide range of symptoms that are not addressed with one modality. The Global Knee™ provides us with a very effective alternative treatment to off-loader braces. While our findings are not scientific, they do represent actual patient care. These results, proper patient selection for specific braces, and the long-term benefits of bracing need to be studied much more closely but our belief is bracing will prove effective and the availability of different braces to treat the many symptoms patients experience will enhance conservative care of the OA knee.

About the Author and Clinician:

Dan Pahls practiced as an Athletic Trainer for 10 years, and has been a Certified Orthotic Fitter since 2001. Dan is a partner in Synergy Orthopedics and has been selling, fitting, recommending, and fitting braces for over 25 years. His vision and need for a brace to conservatively address symptoms in the OA knee lead to the development of the Global Knee.

¹**Efficacy of Unloader Bracing in Reducing Symptoms of Knee Osteoarthritis**Roger V. Ostrander, MD, Charles E. Leddon, PhD, Joshua G. Hackel, MD, Christopher P. O’Grady, MD, and Charles A. Roth, MD The American Journal of Orthopedics® July/August 2016: 306-311.

²**Knee bracing for Unicompartmental Osteoarthritis**
Pollo FE, Wright, RW Journal of the American Academy of Orthopaedic Surgeons, 14:5-11, 2006.

³**The Effectiveness of Off-Loading Knee Orthoses in the Reduction of Pain in Medial Compartment Knee Osteoarthritis: A Systematic Review**
Feehan NL, Trexler GS, Barringer WJ Journal of Prosthetics and Orthotics. 2012; 24(1): 39-49.

⁴**Clinical and Biomechanical Evaluation of the Unloading Brace**
Finger S, Paulos LE. J Knee Surg. 2002;15(3):155-9.

⁵**An in vivo determination of condylar separation in subjects wearing an osteoarthritic knee brace during stance phase and heel strike**
Richard D. Komistek PHD, Douglas A. Dennis MD, Eric J. Northcutt MS, James T, Brumley II MS, Journal of Bone and Joint Surgery, British Volume 83-B(); 213, January 2001

⁶**Documenting Medical Necessity for Major Joint Replacement (Hip and Knee)**
MLN Matters®Number: SE1236 August 19, 2015

⁷**The symptoms of OA and the genesis of pain**
David J. Hunter MBBS PhD, Jason J. McDougall, BSc PhD, and Francis J. Keefe Rheum Dis Clin North Am. 2008 Aug; 34(3): 623–643., 10.1016/j.rdc.2008.05.004