



Knee procedure—Dr. John Pitts

Regenexx[®] at Work

APRIL 2026 | VOLUME 41

 3-MINUTE READ

The Case for Avoiding Knee Surgery

This month, we'll look at the **significance of avoiding surgery for the knee**—a body area subject to common surgeries such as:



Total knee replacement (TKR)



Partial knee replacement (PKR)



Meniscus surgery

We'll also debrief on some **trailblazing knee research** and explore how **avoiding or postponing knee surgery** can affect **employers' bottom line**.



Regenexx treatment protocols for the knee can **help avoid knee surgery** or **delay it to older age**.¹

**Revision surgery=Additional surgery intended to correct or improve the previous surgery.*

KEY TAKEAWAYS

- ✔ "Surgical avoidance" refers to **postponing or avoiding musculoskeletal (MSK) surgery**—as well as its **related physical and economic downsides**.
- ✔ **Total knee replacement (TKR), partial knee replacement (PKR), and meniscus surgery** are **under increased scrutiny** due to **concerns** about their **cost-effectiveness, outcomes, and risks**.
- ✔ **Surgical avoidance** helps to **drive cost savings** and **long-term ROI for employers**.

Why having alternatives to knee surgery matters

TKR, PKR, and meniscus surgery are increasingly being called into question due to the following concerns²⁻⁵:

- Nearly **25% of patients report chronic post-TKR pain**⁶
- Meniscus surgery has been linked to:
 - **Increased risk of developing arthritis** later⁷
 - **Higher incidence of TKR** up to 10 years later⁸
- **Risks** including infection, metal allergies, prolonged recovery, increased opioid use, blood clots, and increased financial burden on employers and members⁹⁻¹⁷
- As the **rate of increasingly younger patients undergoing TKR rises**, so does the **risk and rate of revision surgeries**^{18-21*}
 - **Employers are bearing the economic brunt** of this trend

The science behind knee surgical avoidance

Check out the **trailblazing knee research** from orthobiologics pioneer **Phillippe Hernigou, MD**, plus **Duke University's recent partnership with Regenexx**.

PHILLIPPE HERNIGOU, MD

Dr. Hernigou has played a pivotal role in advancing surgical avoidance research.

His **long-term studies over 10-15 years** for knee osteoarthritis comparing bone marrow concentrate (injected into the bone under knee cartilage) with TKR demonstrated^{13,22}:



*Phillippe Hernigou, MD,
Regenexx Medical Director
of Clinical Research*

80% of knees treated once with BMC injection **didn't need TKR for 10-15 years average**

BMC-treated knees **continued to last 10-15 years, even in advanced cases**

Long-term outcomes were **about the same as those of TKR**

DUKE UNIVERSITY X REGENEXX PARTNERSHIP²³

The Duke Clinical Research Institute at Duke University has recently partnered with Regenexx on a health economics and outcomes research (**HEOR**) study.

The research compared the **health outcomes and long-term cost savings of the Regenexx approach** to those of **common orthopedic surgeries for the knee (TKR, PKR, and meniscus surgery)** and lumbar spine (lumbar fusion and LFD[†]).

The study demonstrated that **patients with Regenexx protocol had lower total cost of care and significantly fewer downstream procedures** compared to those receiving surgery.

[†]LFD[†]=Laminectomy, foraminotomy, discectomy, and facetectomy.

THE BOTTOM LINE:

"Surgical avoidance" refers to a **main goal of the Regenexx protocol**: allowing members to **postpone or avoid surgery** and its related **physical and economic downsides**.

Economic advantages of surgical avoidance include **lower direct and indirect costs, less time off work, fewer complications, and long-term cost control** achieved through **durability**.^{1,23}



Contact the Regenexx Corporate Sales Team

See how the Regenexx protocol offers a **high-value, high-quality surgical avoidance option** between **conservative care and knee surgery** if conservative care falls short.

The Regenexx Protocol: A smart step between conservative care and knee surgery

KNEE SURGICAL AVOIDANCE

Conservative Care (Non-surgical)

- Physical therapy
- Pharmaceuticals
- Chiropractic care



The Regenexx[®] Protocol

- Regenexx provider patients report **up to 76% average knee function regained**¹
- Compared to typical post-surgery outcomes, overall, patients with Regenexx protocol report the following¹:
 - Having **less downtime**
 - **Returning to activities faster**
 - Experiencing **less pain** after their procedure

Knee Surgery

- Can be overused and misused
- Research indicates:
 - Up to **one-third of TKRs fail**²⁴
 - **~34% of TKRs are unnecessary**²⁵
- **Meniscus surgery** outcomes have been demonstrated to be **no better than** those of **sham surgery** or **exercise**²⁶⁻²⁸

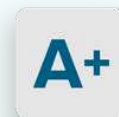
What is the
Regenexx[®]
Corporate Program?

The Regenexx Corporate Program provides **MSK cost savings for self-funded employers**. According to a Validation Institute cost-savings analysis, **procedures using Regenexx injectates were ~50% less expensive than the surgery avoided**.²⁹

The program continues to see traction among employers, brokers, and third-party administrators who have chosen to partner with us. The Regenexx benefit is no cost to add and simple to include in any self-funded healthcare plan.

Learn how adding the Regenexx benefit can **reduce costs by up to 70%** on individual surgeries while offering members a new option in care.¹ Contact your Regenexx Corporate Sales Representative to learn more.

Regenexx[®]
Corporate Program



6151 Thornton Avenue, Suite 400
Des Moines, IA 50321

regenexxcorporate.com
877-341-5968

Cost avoidance estimates for individual groups are not reflective of the potential cost avoidance estimates for another group. Any estimate of cost avoidance for a group is specific to their employee population. To understand how your company's surgical experience may relate to the Regenexx approach, you can request a [Regenexx Corporate Program Impact Study](#).

Cost savings estimates: Physicians within the licensed Regenexx network indicate the surgical procedure for which Regenexx provider patients are a candidate. The Regenexx Corporate Program then measures the actual cost of the procedure using Regenexx lab processes against the cost of the surgical alternative. While the Regenexx Corporate Program does post service reviews and assess a percentage of Regenexx provider patients, not all these cases have been verified by a third party. Fair cost estimates based on Denver, CO ZIP code. In some cases, a generic "arthroscopy" cost estimate had to be used when a detailed condition-specific estimate was unavailable.

The doctors featured are independent contractors who have licensed intellectual property from Regenexx for the preparation of medical injectates. The inclusion of these doctors is solely for informational purposes, and nothing in this newsletter or other marketing materials should be interpreted as establishing an employer-employee relationship, partnership, or agency between Regenexx and the doctors. Likewise, these doctors are not professionally trained or licensed by Regenexx.

The information provided by Regenexx is for informational purposes only and is not intended or implied to be a substitute for professional medical advice, diagnosis, or treatment. Regenexx is not a teaching institution or medical practice, and does not engage in the training of physicians or the practice of medicine. Physicians listed on the Regenexx websites are independent contractors who have licensed certain Regenexx intellectual property. Nothing on the Regenexx webpages, the Regenexx blog, any informational videos, or other marketing materials should be interpreted as endorsing a particular physician or establishing an employer-employee, partnership, or agency relationship between Regenexx and any physician.

© Regenexx Corporate 2026. All rights reserved.

References

1. Regenexx data on file.
2. Avila A, Vasavada K, Shankar DS, Petrera M, Jazrawi LM, Strauss EJ. Current controversies in arthroscopic partial meniscectomy. *Curr Rev Musculoskelet Med*. 2022;15(5):336-343. doi:10.1007/s12178-022-09770-7
3. Jha V. Editorial commentary: rate of meniscal repair versus meniscectomy has improved and should continue to improve. *Arthroscopy*. 2025;41(6):1928-1930. doi:10.1016/j.arthro.2024.10.006
4. Riddle DL, Jiranek WA, Hayes CW. Use of a validated algorithm to judge the appropriateness of total knee arthroplasty in the United States: a multicenter longitudinal cohort study. *Arthritis Rheumatol*. (Hoboken, NJ). 2014;66(8):8. doi:10.1002/art.38685
5. Riddle DL, Perera RA, Jiranek WA, Dumenci L. Using surgical appropriateness criteria to examine outcomes of total knee arthroplasty in a United States sample. *Arthritis Care Res* (Hoboken). 2015;67(3):3. doi:10.1002/acr.22428
6. George SZ, Bolognesi MP, Bhavsar NA, Penrose CT, Horn ME. Chronic pain prevalence and factors associated with high impact chronic pain following total joint arthroplasty: an observational study. *J Pain*. 2022;23(3):3. doi:10.1016/j.jpain.2021.09.007
7. Roemer FW, Kwok CK, Hannon MJ, et al. Partial meniscectomy is associated with increased risk of incident radiographic osteoarthritis and worsening cartilage damage in the following year. *Eur Radiol*. 2017;27(1):404-413.
8. Park CM, Ryou S, Choi M, Lee SJ, Yoo JJ, Kim HA. Total knee replacement after arthroscopic meniscectomy in knee osteoarthritis: a nationwide population-based cohort study. *J Korean Med Sci*. 2023;38(1):e6. Published 2023 Jan 2. doi:10.3346/jkms.2023.38.e
9. Heo SM, Harris I, Naylor J, Lewin AM. Complications to 6 months following total hip or knee arthroplasty: observations from an Australian clinical outcomes registry. *BMC Musculoskelet Disord*. 2020;21:602. doi:10.1186/s12891-020-03612-8
10. Singh P, Marrache M, Kim AH, Williams S, Hegde V, Khanuja HS. Total knee arthroplasty out-of-pocket costs on the rise: a nationwide analysis of financial burden and regional disparities. *J Arthroplasty*. Published online October 9, 2025:S0883-5403(25)01260-4. doi:10.1016/j.arth.2025.10.005
11. Williams EE, Katz JN, Leifer VP, et al. Cost-effectiveness of arthroscopic partial meniscectomy and physical therapy for degenerative meniscal tear. *ACR Open Rheumatol*. 2022;4(10):853-862. doi:10.1002/acr2.11480
12. Heo SM, Harris I, Naylor J, Lewin AM. Complications to 6 months following total hip or knee arthroplasty: observations from an Australian clinical outcomes registry. *BMC Musculoskelet Disord*. 2020;21:602. doi:10.1186/s12891-020-03612-8
13. Hernigou P, Delambre J, Quiennec S, Poignard A. Human bone marrow mesenchymal stem cell injection in subchondral lesions of knee osteoarthritis: a prospective randomized study versus contralateral arthroplasty at a mean fifteen year follow-up. *Int Orthop*. 2021;45(2):365-373. doi:10.1007/s00264-020-04571-4
14. Pabinger C, Lothaller H, Kobinica GS. Intra-articular injection of bone marrow aspirate concentrate (mesenchymal stem cells) in KL grade III and IV knee osteoarthritis: 4 year results of 37 knees. *Sci Rep*. 2024;14(1):2665. doi:10.1038/s41598-024-51410-2
15. Liu C, Guo C, Meng F, et al. Perioperative risk factors related to complications of lumbar spine fusion surgery in elderly patients. *BMC Musculoskeletal Disorders*. 2023;24(1):573.
16. Zaina F, TomkinsLane C, Carragee E, Negrini S. Surgical versus nonsurgical treatment for lumbar spinal stenosis. *Cochrane Database Syst Rev*. 2016; (1):CD010264.
17. Hah JM, Bateman BT, Ratliff J, Curtin C, Sun E. Chronic opioid use after surgery: implications for perioperative management in the face of the opioid epidemic. *Anesth Analg*. 2017;125(5):1733
18. Arthritis Foundation. The risks of early knee replacement surgery. Arthritis Foundation website. Accessed June 18, 2025. <https://www.arthritis.org/health-wellness/treatment/joint-surgery/safety-and-risks/the-risks-of-early-knee-replacement-surgery>
19. Centeno C. How can Regenexx satisfy the requirements to add orthobiologics to a health plan? Regenexx blog. Published May 10, 2022. Accessed June 16, 2025. <https://regenexx.com/blog/how-can-regenexx-satisfy-the-requirements-to-add-orthobiologics-to-a-health-plan/>
20. Centeno C. QALY analysis of BMC Treatment for Knee OA vs TKR. Presented at the Interventional Orthobiologics Foundation MAX Experience 2022 Annual Conference; February 18-19, 2022; Denver, Colorado.
21. Bounajem GJ, DeClercq J, Collett G, Ayers GD, Jain N. Does interaction occur between risk factors for revision total knee arthroplasty? *Arch Orthop Trauma Surg*. 2024;144(12):5061-5070. doi:10.1007/s00402-023-05107
22. Hernigou P, Bouthors C, Bastard C, Flouzat Lachaniette CH, Rouard H, Dubory A. Subchondral bone or intra-articular injection of bone marrow concentrate mesenchymal stem cells in bilateral knee osteoarthritis: what better postpone knee arthroplasty at fifteen years? A randomized study. *Int Orthop*. 2021;45(2):391-399. doi:10.1007/s00264-020-04687-7
23. Duke Clinical Research Institute data on file.
24. Szabo L. I'm in constant pain, 24/7: meet the one-third of patients who regret knee replacement surgery. Advisory Board website. Updated March 20, 2023. Accessed February 12, 2026. <https://www.advisory.com/daily-briefing/2019/01/07/knee-replacement>
25. Licholai G. Combating the growing rate of unnecessary surgeries. Forbes. Published August 2, 2023. Accessed February 12, 2026. <https://www.forbes.com/sites/greglicholai/2023/08/02/combating-the-growing-rate-of-unnecessary-surgeries/>
26. Sihvonen R, Paavola M, Malmivaara A, et al. Arthroscopic partial meniscectomy versus sham surgery for a degenerative meniscal tear. *N Engl J Med*. 2013;369(26):2515-2524. doi:10.1056/NEJMoA1305189
27. Berg B, Roos EM, Englund M, et al. Arthroscopic partial meniscectomy versus exercise therapy for degenerative meniscal tears: 10-year follow-up of the OMEX randomised controlled trial. *Br J Sports Med*. 2025;59(2):91-98. Published 2025 Jan 2. doi:10.1136/bjsports-2024-108644
28. Noorduyn JCA, van de Graaf VA, Willigenburg NW, et al. Effect of physical therapy vs arthroscopic partial meniscectomy in people with degenerative meniscal tears. *JAMA Netw Open*. 2022;5(7):e2220394. doi:10.1001/jamanetworkopen.2022.20394
29. Validation Institute. *Validation Report*. Published 2023. Accessed May 14, 2024.

Regenexx will never sell your information and is committed to your privacy. Read about our [Privacy Policy](#), the way we use information, and our commitment to data security.

If you decide that you're no longer interested in receiving the Regenexx at Work Newsletter, we'll be sorry to see you go. Please reply to this email to let us know you'd like to opt out of receiving future issues of the Regenexx at Work Newsletter.