



@physicaltherapyresearch

RAPID RESEARCH

October 2021

Inside This Week: Knee Pain & Treatment

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 - ✓ Stem Cell Therapies for Meniscus Tears

 - ✓ Common Causes of Noises Around the Knee



EFFECTS OF 12-WEEK DIGITAL PROGRAM FOR KNEE PAIN

[Click for Full Text
\(Mecklenburg et al.
2018\)](#)

This Randomized Controlled trial assessed the effectiveness of the Hinge Health 12-wk program in improving knee pain and disability in subjects with chronic knee pain, as compared to a control group receiving usual treatment and knee care education only.



KEY FINDINGS

162 participants; remotely delivered, home-based 12-week intervention that included:

Sensor-guided exercise therapy, education, cognitive behavioral therapy, weight loss, and psychosocial support.

Compared to control, the intervention group had:

Greater reduction in KOOS Pain & improved physical function.

Reduced self-reported likelihood of having surgery over the next 1, 2, and 5 years.

Increased understanding of the condition and treatment options.

Net cost savings on surgery of **\$4,340 over 1 year and \$7,900 over 5 years.**

In a subgroup analysis including only participants exhibiting clinical symptoms of osteoarthritis **the program proved equally effective.**

MAIN TAKEAWAYS

Individuals with Chronic Knee Pain who used the Hinge Health DCP for 12 weeks experienced significantly greater improvement in:

Pain.

Physical function.

Stiffness.

Surgery intent.

Understanding of their condition.

Given the observed benefits, the Hinge Health DCP may be an effective comprehensive treatment program for individuals with CKP

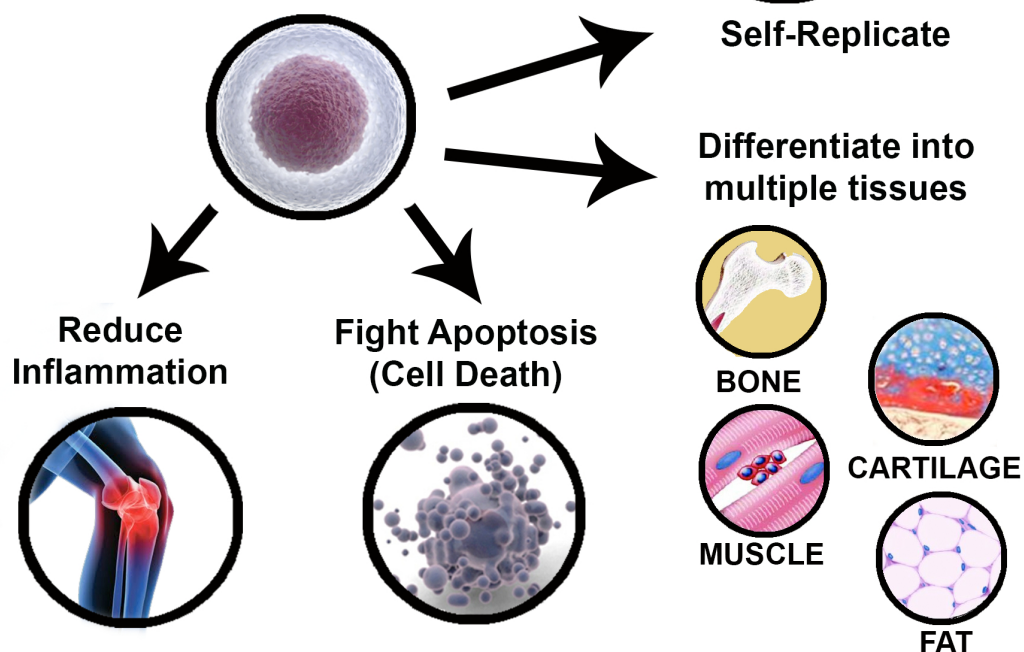
STEM CELL THERAPIES FOR MENISCUS TEARS

[Click for Full Text](#)
([Jacob et al. 2019](#))

This research comprehensively reviewed the current status of stem cell treatments, dividing them into injection-based and tissue-engineered cell therapies.

What is a Stem Cell?

A mesenchymal stem cell is a primitive cell with the ability to:



Adult stem cells are the means by which our bodies naturally heal throughout our lifetime

KEY FINDINGS

Meniscectomy can accelerate joint degradation significantly and is no longer a preferred treatment option, instead the aim is to **regenerate, repair, or replace the injured meniscus**.

Common sources for Stem Cells include bone marrow, adipose, synovium, and blood; each has **advantages, disadvantages, and differentiation capacities**.

Meniscal repair is very much **dependent on vascularity and stability of the tear site**.

Good **vascularity facilitates pluripotent stem cells and endogenous growth factors** to interact and mediate the production of repair meniscal tissue.

Some studies showed **complete resolution of meniscus tears using stem cell injections**, however consistency and quality of research was overall poor.

Robust outcomes are still **lacking for meniscal stem cell therapy studies**.

Current limitations of the data include a lack of long-term follow-up, control groups, and objective outcome endpoints.

MAIN TAKEAWAYS

Mesenchymal stem cells **appear to be safe and effective in producing superior quality meniscal repairs**.

Despite compelling pre-clinical data, there is **no consensus on the ideal cell source and scaffold for meniscus regeneration**.

No identification or recommendations were given from a certain intervention as a standard of care.

The solution to meniscal tissue regeneration is a particularly elusive one and appears far more complex than that of cartilage regeneration due to the complex phenotype and function of meniscal tissue.

Stem cell therapies will likely become more effective in the near future in order to aid meniscal repair modalities, knee OA progression.

COMMON CAUSES OF NOISES AROUND THE KNEE

[Click for Full Text \(Song et al. 2018\)](#)

This review described common causes of the physiological and pathological noises around the knee and how to manage it.

Common Causes of Knee Popping or Snapping



Torn meniscus



Loose cartilage



Cartilage wear or irritation



Swelling of tendons around the knee

The sounds around the knee have been described using various terms, including:

Popping, Snapping, Catching, Clicking, Crunching, Cracking, Creaking, Grinding, Grating, & Clunking.

Differentiate between physiological noise and pathological noise by checking for pain and swelling/effusion in the knee joint, as this is often **associated with pathological noise.**

A loud “pop” with pain at the time of injury usually indicates **damage to the ligaments or the meniscus.**

Crepitus, in the absence of any history of injury, may indicate **cartilage lesions in OA or inflammatory arthritis.**

Physiological noise varies and include:

Buildup or bursting of tiny bubbles in the synovial fluid, Snapping of ligaments, Catching of the synovium or physiological plica, Hypermobility meniscus or discoid meniscus, and Perception of previous noise after knee surgery due to emotional concerns.

If there is no pathological condition, there is no need to be concerned about the noise.

Management of pathological noise will depend on the underlying cause.

MAIN TAKEAWAYS

Noise around the knee is a common phenomenon.

In most cases, the sound is physiological, and there is **generally no reason for concern.**

Pathological noise is accompanied by pain, effusion, swelling, and a history of injury.

Healthy patients experiencing physiological noise **should be given appropriate information and reassurance.**

Careful evaluation of the characteristics of noise and differentiation between physiological and pathological noises can provide guidance for patients.

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Help us by giving 1 minute of your time to leave feedback for us.

We would greatly appreciate any feedback you have, as it helps us continually improve!

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