

Clinical Studies and External Validation

Hinge Health is committed to conducting rigorous research that establishes the efficacy and effectiveness of Hinge Health's programs. In partnership with researchers at Stanford, UCSF, and Vanderbilt, our team of PhD-trained researchers have published 12 peer-reviewed journal articles and 4 third party validated claims studies about engagement and clinical outcome improvements.

1. 2017 feasibility study of the Chronic Knee program was published in JMIR Rehabilitation and Assistive Technologies and reported a 57% decrease in pain at 12-week and high program satisfaction among members.
2. 2018 RCT of the Chronic Knee program was published in the Journal of Medical Internet Research and showed statistically significant pain reduction (intervention group achieved 61% VAS pain reduction) and functional improvement at 12 weeks versus a control group.
3. 2019 RCT of the Chronic Back program was published in npj Digital Medicine and showed statistically significant pain reduction (intervention group achieved 61% VAS pain reduction) and functional improvement at 12 weeks versus a control group.
4. 2020 longitudinal cohort study of Chronic Knee and Back program members was published in Journal of Medical Internet Research and showed 68% pain improvement at scale with over 10k members in the real world.
5. 2021 longitudinal cohort study about older adult engagement and clinical outcomes was published in Frontiers in Digital Health and showed that older adults used Hinge Health more than younger adults and achieved similar pain improvement of 57%-58%.
6. 2021 RCT of the Enso device was published in Journal of Pain Research and showed statistically significant pain reduction (intervention group achieved 2x pain reduction) and functional improvement at 2 and 4 weeks versus a control group.
7. 2021 Combined claims analysis (n=748) demonstrated over 2 years, total medical claims spend was \$2,654 less per Hinge participant compared to the matched control group. Total MSK medical claims spent in 1 year after starting Hinge was \$2,244 less per Hinge participant compared to the matched control group. Total medical claims spent for invasive treatment was \$1,965 less per Hinge participant compared to the matched control group.
8. 2022 Claims Analysis on Medicare Members (n=467) demonstrated a per-member-per-month (PMPM) cost savings of \$221 on overall chronic MSK cost, or a 2.7x ROI. 87% of savings came from avoided spend in hospitals and 13% from professional services. Savings were largely driven from the osteoarthritis diagnostic category.
9. 2022 longitudinal cohort study (n=2570) of Chronic Knee, Back, Shoulder, Hip, and Neck pathways was published in BMC Musculoskeletal Disorders and showed that Hinge Health members showed significantly more pain improvement (51% pain improvement) versus a comparison group at 1 year.
10. 2022 136 employer claims study (n=8414) demonstrated a per-member-per-year (PMPY) cost

savings of \$2,387 on overall chronic MSK cost, or a 2.4x ROI. The majority of savings came from lower surgery costs (39%). The largest reductions in service utilization between the two groups were in imaging, injections, DME, and surgery.

11. 2022 Acute Study (n=937) A longitudinal study showing that acute program participants experienced statistically significant pain and functional improvement at 12 weeks versus a nonparticipant comparison group.

12. 2022 Surgery Program Feasibility Study (N=53) A retroactive, observational feasibility study that showed HInge Health surgery program members had a 66% reduction in pain following TKA surgery, as well as .6 days shorter hospital stays on average (mean), and 1.7x fewer complications than a comparison group.

13. 2022 Chronic Pain Prevention Study (N=159) An observational study of 159 acute pain sufferers shows 3.7x more Hinge Health Acute Program participants avoid chronic pain than non-participants.

14. 2023 Manufacturing and Services Industries Medical Claims ROI Study (N=5,730) demonstrated a per-member-per-year (PMPY) cost savings of \$2,677 on overall MSK costs for services industry participants (a 2.7x ROI), as well \$,1987 on overall MSK costs for manufacturing industry participants (a 2.0x ROI). The majority of the savings (54%) came from surgery reduction in both industry groups.

15. 2023 Opioid Reduction Study (N=8,390) A pharmaceutical claims analysis that showed a 42% reduction in new opioid prescriptions and a 25% reduction in total opioid prescriptions for Hinge Health members in the first twelve months after initiating the program when compared against non-participants who received in-person PT.

16. 2023 Joint Replacement Study (N=1,478) A medical claims analysis where Hinge Health members with osteoarthritis demonstrated 73% fewer total knee replacements and 50% fewer total hip replacements over the course of 12 months starting treatment than a matched control group who received in-person PT.