

Outcomes in Hip Arthroscopy Patients Participating in Physical Therapy vs a Home Exercise Program



Taylor E. Hobson, MD, MBA; Allan K. Metz, BS; Trina R. Bellendir, PT, MSPT;
Devin L. Froerer, BS; Reece M. Rosenthal, BS; Kelly M. Tomasevich, MD;
Joseph Featherall, MD; Travis G. Maak, MD; Stephen K. Aoki, MD

University of Utah, Department of Orthopaedics

I have no disclosures to report.

SKA is a paid consultant of Stryker Corporation
TGM reports consulting fees from Arthrex and is an editorial board member of Clinical
Orthopedics and Related Research.



BACKGROUND

- Formal physical therapy (FPT) is the mainstay of the treatment paradigm for femoroacetabular impingement (FAI), both in the preoperative and postoperative periods.
- Previous research has demonstrated the importance of FPT in reducing pain and improving function in FAI patients.
- Current trends in orthopaedics emphasize increasing convenience and accessibility and decreasing resource use.
- Home exercise programs (HEP) have been utilized effectively in other areas of orthopaedics but have not yet been evaluated in the FAI patient population.

PURPOSE

The purpose of this study was to compare the short-term outcomes of a formal physical therapy program and a home exercise program in FAI patients treated with hip arthroscopy.

METHODS

- Prospective study of patients undergoing primary hip arthroscopy at a single center from Oct 2020 – Oct 2021.
- Patients self-selected into HEP or FPT group.

Inclusion Criteria

- 1) Age > 18 years
- 2) completion of pre-operative survey

Exclusion criteria

- 1) any previous ipsilateral hip surgery.

METHODS

- FPT was conducted as standard of care at our institution and in accordance with previously established literature and standards.
- The HEP group was modelled as an at-home version of the formal in-person PT regimen. Patients were given an introductory presentation and access to a mobile application which housed recordings of various exercises with instructions to complete a 4-phase, progressively more difficult physical therapy program.
- Number of sets, repetitions, and frequencies of various exercises were outlined in the mobile application.

METHODS

- Surveys were administered at 1, 3, 6, and 12 months. Included in the survey were:
 - Pain Scores (Visual Analogue Scale)
 - Single Assessment Numeric Evaluation (SANE)
 - International Hip Outcome Tool-12 (iHOT-12)
 - Patient-Reported Outcomes Measurement Information System Physical Function (PROMIS-PF)
 - Patient Satisfaction Questionnaire

RESULTS

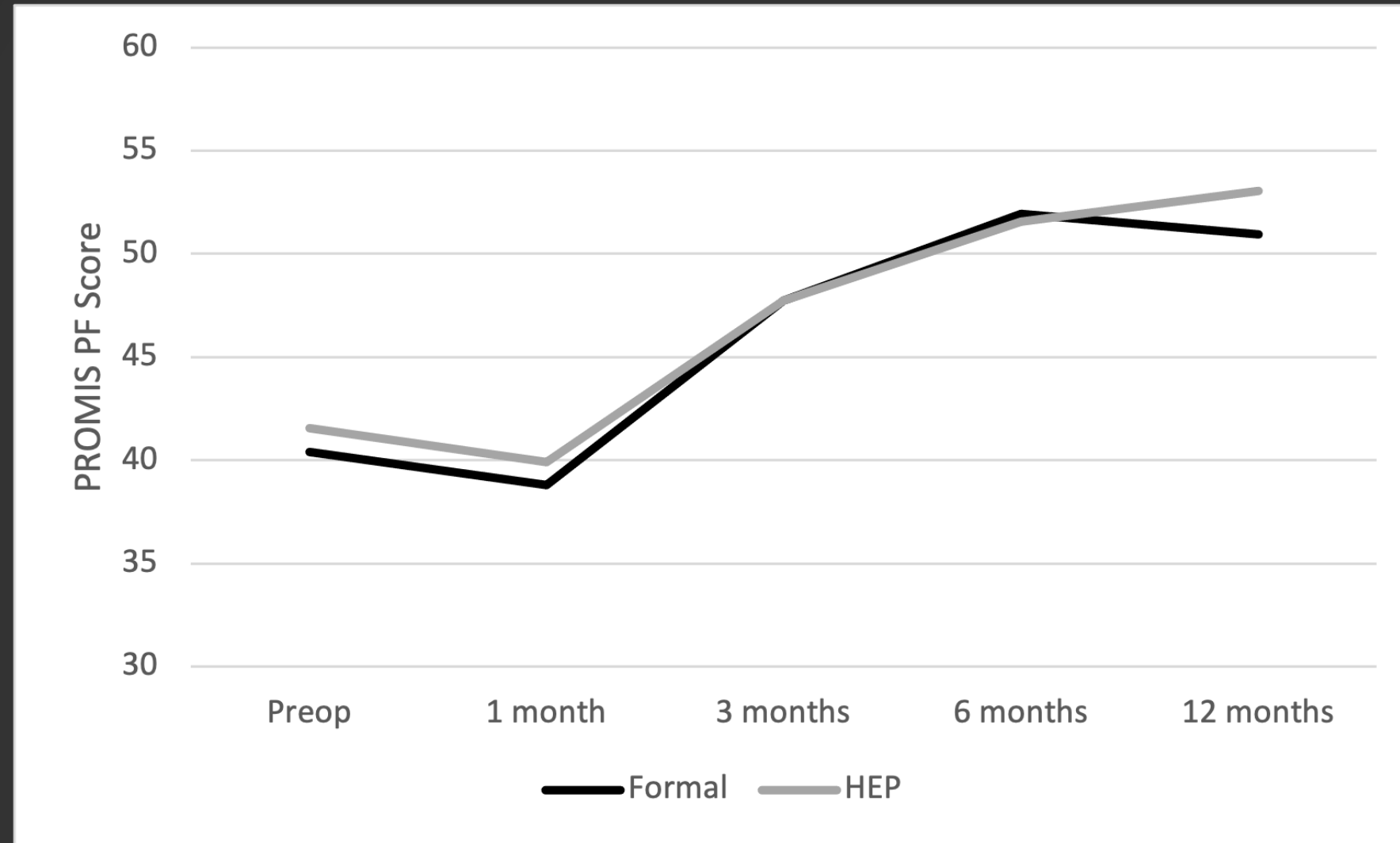
- 147 patients enrolled with 61 in FPT group and 86 in HEP group.
- There were no significant differences between the groups regarding patient sex ($p = 0.675$) or body mass index ($p = 0.188$), though the HEP group was slightly older than the FPT group (33.6 ± 9.5 years vs 30.1 ± 11.4 years; $p = 0.048$).
- No significant differences were reported between the groups in any outcome measurement at the final 12 month follow-up.

Table 1: 12 Month Postoperative Survey Results

| Variables* | Formal Physical Therapy | Home Exercise Program | P-value |
|---|-------------------------|-----------------------|---------|
| Hip rated as a percent of normal | 83.2 (15.8) | 85.9 (19.8) | 0.576 |
| VAS Pain | | | |
| At Rest | 1.23 (1.86) | 0.74 (1.39) | 0.262 |
| ADLs | 2.12 (2.42) | 1.42 (1.57) | 0.214 |
| During sport | 3.58 (2.91) | 2.32 (1.89) | 0.066 |
| PROMIS PF T-score | 51.0 (7.9) | 53.1 (10.9) | 0.426 |
| iHOT-12 | 71.7 (24.1) | 77.1 (25.0) | 0.421 |
| Patient satisfaction, PT | | | 0.449 |
| Very satisfied | 14 (56.0%) | 13 (41.9%) | |
| Satisfied | 8 (32.0%) | 10 (32.3%) | |
| Neutral | 3 (12%) | 6 (19.4%) | |
| Unsatisfied | 0 (0%) | 2 (6.5%) | |
| Very unsatisfied | 0 (0%) | 0 (0%) | |
| Patient satisfaction, PT dichotomized | | | 0.312 |
| Very satisfied/satisfied | 22 (88%) | 23 (74.2%) | |
| Neutral/unsatisfied/very unsatisfied | 3 (12%) | 8 (25.8%) | |
| Patient satisfaction, overall care | | | 0.747 |
| Very satisfied | 15 (60.0%) | 16 (53.3%) | |
| Satisfied | 6 (24.0%) | 10 (33.3%) | |
| Neutral | 4 (16.0%) | 4 (13.4%) | |
| Unsatisfied | 0 (0%) | 0 (0%) | |
| Very unsatisfied | 0 (0%) | 0 (0%) | |
| Patient satisfaction, overall care dichotomized | | | 1.000 |
| Very satisfied/satisfied | 21 (84.0%) | 26 (86.7%) | |
| Neutral/unsatisfied/very unsatisfied | 4 (16.0%) | 4 (13.3%) | |

*Variables represented as N (%) and mean (standard deviation) where appropriate. Continuous variables analyzed using independent samples t-tests and categorical variables analyzed using Chi Square and Fisher Exact tests.

RESULTS



Line graph plotting the survey administration timepoints (x-axis) against the Patient-Reported Outcomes Measurement Information System Physical Function (PROMIS PF) test for the Formal Physical Therapy (black line) and Home Exercise Program (HEP; gray line) groups. Both groups demonstrate significant ($p < 0.001$) and similar improvement in their PROMIS PF score across the study timeframe.

Table 2: Comparison of preoperative and final follow up PROs between groups

| Variable | Preop Scores | 12 Month Follow Up Scores | P-value |
|---|--------------|---------------------------|---------|
| Formal | | | |
| <i>Hip rated as a percent of normal</i> | 51.7 (24.2) | 83.2 (15.8) | <0.001 |
| <i>VAS Pain</i> | | | |
| <i>At Rest</i> | 3.31 (2.13) | 1.23 (1.86) | <0.001 |
| <i>ADLs</i> | 3.47 (1.78) | 2.32 (2.58) | 0.010 |
| <i>During sport</i> | 6.06 (2.46) | 3.82 (3.19) | 0.005 |
| <i>PROMIS PF T-score</i> | 40.7 (6.3) | 51.0 (7.9) | <0.001 |
| <i>iHOT-12</i> | 35.5 (14.3) | 72.1 (24.6) | <0.001 |
| HEP | | | |
| <i>Hip rated as a percent of normal</i> | 56.1 (20.6) | 85.5 (21.3) | <0.001 |
| <i>VAS Pain</i> | | | |
| <i>At Rest</i> | 3.68 (2.15) | 0.74 (1.39) | <0.001 |
| <i>ADLs</i> | 2.59 (1.90) | 1.38 (1.52) | <0.001 |
| <i>During sport</i> | 4.07 (2.75) | 2.15 (1.75) | <0.001 |
| <i>PROMIS PF T-score</i> | 43.0 (7.9) | 53.1 (10.9) | <0.001 |
| <i>iHOT-12</i> | 34.5 (13.7) | 76.4 (25.1) | <0.001 |

*Variables represented as N (%) and mean (standard deviation) where appropriate. Continuous variables analyzed using independent samples t-tests and categorical variables analyzed using Chi Square and Fisher Exact tests.

Both FPT and HEP demonstrated significant improvement in outcome and subjective scores from pre-operative to 12 month post-operative.

DISCUSSION

- This study suggests that FPT and HEP both significantly improve outcomes after hip arthroscopy for FAI.
- FPT and HEP show similar improvement in a self-selected patient population.
- This study is limited by the non-randomized, self-selecting nature of the experimental groups. However, this represents a clinically relevant scenario where patients may reasonably be given a choice between HEP and FPT by the clinician.

CONCLUSION

For patients undergoing hip arthroscopy for the treatment of FAI, formal physical therapy and home exercise programs are similarly efficacious in terms of patient-reported outcomes of hip function, with both rehabilitation options resulting in significant patient improvement at short term follow-up from their preoperative baseline

Thank You



©UNIVERSITY OF UTAH HEALTH, 2022