



Virtual Physical Therapy in the Orthopedic Population:

A Retrospective Analysis of 21,494 Patients

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Introduction

What is Virtual PT?

Virtual physical therapy is an effective and validated option to connect patients with providers in order to improve patient outcomes, improve patient compliance to physical therapy, and increase patient and provider satisfaction. Virtual physical therapy can enhance, and sometimes replace, traditional in-person physical therapy. Alongside virtual physical therapy, Force Therapeutics includes patient education, patient reported outcome collection, messaging and telemedicine for patient and provider interaction, and navigation features to help care team members track and connect with their patients

Due to the impact of COVID-19 on in person treatment options for millions of patients, a rapid adoption of telemedicine and virtual healthcare services have been seen across the country and the globe. It's estimated in 2020 that the telehealth market will grow exponentially, resulting in a year-over-year [increase of 64.3%](#).¹ With both patient and provider adoption to this new normal, the need for a clinically validated solution to partner with as telehealth products and services to become a standard of care is a necessity.

Is Virtual PT Effective?

Various studies have been conducted and published on the efficacy of virtual care platforms and virtual physical therapy across various orthopedic populations. In the sports population, Total Shoulder Arthroplasty (TSA) patients have had successful outcomes achieved through virtual PT², and patients had similar functional outcomes as patients using traditional outpatient PT following knee arthroscopy for partial meniscectomy.³ In the Total Joint Arthroplasty (TJA) population, recent publications have found that web-based physical therapy alone is equivalent in regards to range of motion and functional patient reported outcomes in both total hip and total knee arthroplasty.^{4 5 6 7} Not only can patients functionally recover, virtual physical therapy has proven to be cost effective as well for TJA patients.⁸ In the nonoperative population, research has found that knee osteoarthritis patients have done equivalently well in virtual PT and in-person PT 1 year from the [start of](#) treatment.⁹

Study Design

Force Therapeutics queried our database to examine outcomes of patients from all orthopedic subspecialties, including nonoperative and operative (spine, sports, joint, shoulder and elbow, etc.) treatment. All patients in the study had access to and opted into the platform. Patients were given access to a range of patient resources dependent on condition and physician including virtual physical therapy exercise videos, educational content, telehealth video services, and communication and messaging modules. A comparative observational study was conducted using patient and provider data to examine the effects of virtual physical therapy on treatment journeys. Patients were split into three groups:

Virtual Physical Therapy Only

Patients who did not attend traditional outpatient physical therapy or receive home health services; patients utilized virtual physical therapy only.

Outpatient Physical Therapy Only

Patients who were enrolled in the virtual physical therapy platform, but never engaged with virtual physical therapy.

Combination

Patients who utilized both outpatient physical therapy or home health services, as well as the Virtual Physical Therapy Platform.

Results

21,494 patients were included from 48 different procedures and treatments from 23 separate academic hospitals, ambulatory surgical centers, and community health systems from April 2018 through June 2020. Patients were included that completed our discharge questionnaire, indicating physical therapy services. 79% of patients during this time period used a combination of virtual and in person physical therapy services.

VIRTUAL PT GROUPING	N	%
Combination	17,082	79%
OPT Only	260	1%
Virtual PT	4,152	19%
GRAND TOTAL	21,494	100%

VAS Pain

Patients report VAS Pain (scale of 0-10) daily, regardless of treatment/procedure. When looking at VAS pain, patients from all groups improved over time. Patients who did not utilize any virtual physical therapy had the highest VAS pain at all timepoints.

VIRTUAL PT GROUPING	Baseline Pain	6 Week Pain	12 Week Pain
Combination	6.1	2.5	1.9
OPT Only	6.3	2.7	2.6
Virtual PT	5.9	2.4	1.8
GRAND TOTAL	6.1	2.5	1.9

Virtual PT only patients were the highest engaged with an average of 109 total video views compared to 80 in the combination group (0 video views in the OPT only group). As engagement with virtual physical therapy increased, as did satisfaction with the platform.

VIRTUAL PT GROUPING	Force Satisfaction
Combination	8.52
OPT Only	8.32
Virtual PT	8.74
GRAND TOTAL	8.57

Patients in the Virtual PT group had the lowest pain at both 6 weeks and 12 weeks postoperatively or into the program for nonoperative care. While the pain was also the lowest at baseline/preoperative this could be due to the fact that patients utilizing virtual care are actively engaging in their recovery, which is similarly shown with the combination group being the second highest followed by those engaging in outpatient physical therapy only having the highest pain at all timepoints.

Satisfaction

In regards to satisfaction, patients are asked to rate procedural/treatment satisfaction, on a scale of 1-5 as well as satisfaction with the Virtual PT program. Majority of patients were satisfied with their treatment, with a 4.5/5 procedure satisfaction overall. Patients in the virtual PT group had the highest procedure satisfaction at 4.58.

VIRTUAL PT GROUPING	Procedure Satisfaction
Combination	4.47
OPT Only	4.31
Virtual PT	4.58
GRAND TOTAL	4.49

Discharge Information

Force collects safety information including emergency room, urgent care, and readmission information from patients during their program. Rates were similar between groups, and Virtual PT had the lowest emergency room, urgent care, and readmission rates.

VIRTUAL PT GROUPING	Emergency Room	Urgent Care	Readmission
Combination	10% (1,552)	7% (1,113)	4% (562)
OPT Only	13% (31)	10% (24)	6% (14)
Virtual PT	6% (239)	6% (224)	3% (107)
GRAND TOTAL	9%	7%	21%

Limitations

While it is an asset to be able to analyze a wide variety of patients from various treatments, geographical locations, and physicians it can also introduce bias. Not every patient is equal, and many procedures and treatments need outpatient physical therapy. However, virtual physical therapy can only enhance what patients are doing in combination with their traditional outpatient physical therapy.

It is also important to note that there is a significant difference in sample sizes between groups. In further research it would be beneficial to receive additional data points from a larger control (outpatient physical therapy group) to even the sample sizes for proper analysis.

Conclusion

Results of this study indicate that virtual physical therapy can drastically improve and enhance recovery in the orthopedic population. When given the option, the majority of patients are open to engaging with a program that will assist in enhancing their recovery.

For clinicians, virtual physical therapy allows them to extend their reach into the patient's home to assist in optimizing patient outcomes and have a far deeper insight into their patients to assist in driving evidence-based practice in their practice.

About Force

Force Therapeutics was founded in 2010 as an episode-based digital care platform and research network designed to help clinicians intelligently extend their reach. Our platform leverages video and digital connections to directly engage patients at every step of the care journey – from the point of surgery scheduling, to post-op recovery and beyond. Backed by the insights of more than 60 leading healthcare centers across the country, Force is proven to drive more effective recovery, lower costs, and achieve better patient outcomes.

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