

# Total Knee Replacement and Rehabilitation



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DELAWARE ORTHOPAEDIC SPECIALISTS

# Background



## ☞ My History...

☞ AI DuPont HS

☞ University of Delaware

☞ Jefferson Medical School

☞ Residency at Temple University Hospital

☞ Fellowship at UPMC in Adult Reconstruction

☞ Medical Director, CAJR, CCHS

## ☞ Over 600 joint replacement per year

☞ Approx. 440 knees/ 200 hips

☞ 5 to 10 percent revision

# Total Knee Replacement



## ∞ Pain Relief

∞ TKR is usually a good pain relieving operation

## ∞ Function

∞ Less predictable... but good

∞ Not usually just an isolated problem

## ∞ Satisfaction

∞ 85% Satisfaction

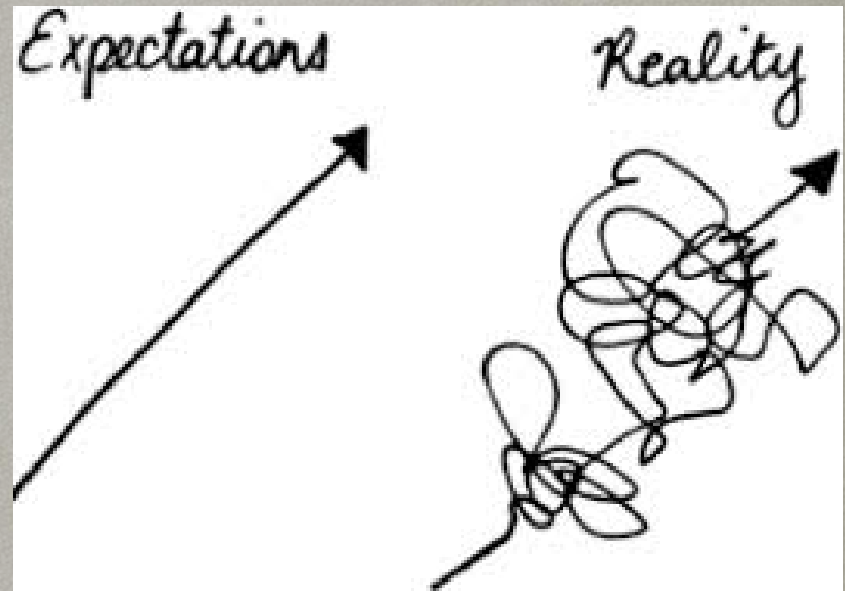
∞ Hip replacement is easier and more successful

# Expectations



## Expectations

- What is it going to do for you?
- Not going to reverse time...
- Have to have reasonable expectations



# Recovery



## ∞ Patient Dependent

∞ 3 to 6 months

∞ Better at 12 months...

∞ Experience is different from patient to patient

∞ Driving

∞ 1 to 3 weeks

∞ Work

∞ 4 to 6 weeks



# Rehabilitation



## ☞ Most Important Parts of the Recovery

### ☞ Rehabilitation

☞ It is not an easy surgery to recover from...

☞ Requires patient participation and appropriate expectations

### ☞ Pain Management\*\*\*

☞ Multi-Modal Pain Management

☞ Pre-Emptive

☞ Intra-Operative

☞ Post-Operative

# Pain Management



- ∞ Multi-Modal Pain Approach
  - ∞ Pre-Emptive Medications
  - ∞ Intra-Operative Medications
  - ∞ Multiple Medications
    - ∞ Decrease the need for Narcotics
      - ∞ Constipation, Urinary Retention, Lack of Appetite, Difficult Sleep, Confusion, Falls, Depression, Addiction
      - ∞ Less Side Effects
    - ∞ Attacking pain through Different Modes

# Disposition



## After Surgery

### One day Hospital stay

- Soon to be Out Patient Surgery (No Medicare)

  - 6 percent in 2017

  - Increasing to 20 percent by 2020...?

- Home PT to OP PT

- Virtual PT

- Studies show increased complications when going to inpatient nursing home or rehabilitation



# Pre-habilitation



- œ Pre Operative (PREHAB)
  - œ Seems Intuitive
  - œ Stronger you go in... the stronger you come out?
  - œ Issues?
    - œ Pain, Insurance, Efficacy?



# Pre-habilitation



❧ Quadriceps strength plays a dominant role in predicting one year stair climbing test (SCT) and Timed Up and Go Test (TUG) functional measures but is not a good predictor of self reported outcomes.

❧ Journal of Rheumatology 2005 Aug;32(8):1533-9

❧ Six week pre-habilitation training program for quadriceps strength improved quadriceps strength, walking speed and mental health prior to TKR but had no effect in the 12 weeks after surgery.

❧ PMR 2012 Sep;4(9):647-56

# Pre-habilitation



❧ Study failed to support the routine use of preoperative physical therapy in knee replacement surgery

❧ J of Arthroplasty, June 1998, Volume 13, Is.4, 414-421

❧ Preoperative physiotherapy programs are not effective in improving outcome after total knee replacement but their effect on outcome of total hip replacement cannot be adequately determined

❧ Australia Journal of Physiotherapy, 2004;50(1):25-30

# Pre-habilitation



- ❧ Exercise based interventions prior to surgery can reduce pain and improve physical function for people awaiting hip replacement surgery but not knee replacement surgery

❧ Arch Phys Med Rehab, 2013 Jan;94(1), 164-76

- ❧ Meta-Analysis found that pre-habilitation was effective in reducing LOS and an effective method for improving knee ROM and Sit to Stand test after TKA. It was not effective for improvement of quadriceps strength, 6 min walk, pain or functional recovery.

❧ Phys Sports medicine 2018 Feb;46(1):36-43

# Pre-habilitation



## Other studies:

### No significant postoperative benefits

Physiotherapy 2014 Dec(4):305-12

JBIC Database 2015 Jan;13(1):146-87

Physiotherapy Theory Practice 2017 Jan(1):9-30

### Conclusion:

Not a good predictor in self reported outcomes and function

Not really a consensus on opinions “for” or “against”

# Rehabilitation



☞ Where are we going next?

☞ Outpatient Surgery

☞ No rehab for Hip replacements

☞ **Formal Physical Therapy After Total Hip Arthroplasty Is Not Required: A Randomized Controlled Trial.**

☞ [J Bone Joint Surg Am.](#) 2017 Apr 19;99(8):648-655

☞ Limited rehab for TKR with emphasis on HEP

☞ Virtual PT

☞ Moving to interactive programs

# Rehabilitation



## ☞ Tele-Rehabilitation

☞ Internet based OP tele-rehab was comparable to conventional rehabilitation at 6 weeks in terms of ROM

☞ JBJS, 2011, Jan 19;93(2):113-20

☞ More studies needed to look at cost benefits in terms of Home based interactive programs

# Rehabilitation



## Cost of OP PT services

The approximate national average charge for these services is \$2,600 for Medicare patients and \$1,700 for those with private insurance. These costs are based on what's typical over 12 months after surgery

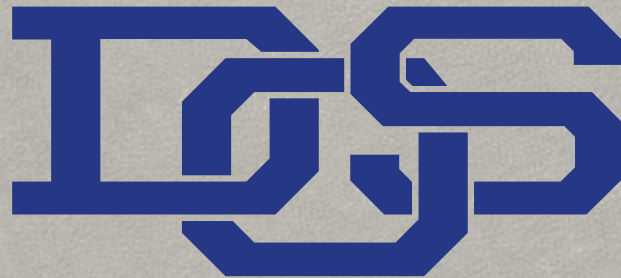
Healthline.com 2017

## For OP services in New Castle County, DE

Approx. 17 to 18 visits average for TKR



# Questions



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