Prehabilitation

Christine Alvero DPT, MBA
Director of Rehab, Nutrition, Safe Patient Handling
Moffitt Cancer Center
OVERVIEW

• Define prehabilitation
• Identify areas where prehab is used
• Identify components of prehab
• Benefits of prehab
• Multidisciplinary roles in prehab
What is Rehabilitation?

- A process of helping an individual achieve the highest level of function, independence, and quality of life.
- Physical therapy
- Occupational therapy
- Speech therapy
- Occurs when there are problems present
What is Prehabilitation?

- A process designed to improve a person’s physical and psychological health in anticipation of an upcoming stressor.
- Occurs after diagnosis but before treatment
- Time when patients are more physically and emotionally salient
- Proactive versus reactive
- Intervention based programs to improve outcomes
- Prepares for stressors to include:
  - Surgery
  - Chemo
  - Radiation
  - Cardiac procedures
Why the shift?

- National strategy to change healthcare focus
  - Away from “sick care”
  - Towards “healthcare”

- 5/6 top causes of death could be impacted by shift to wellness and prevention
  - Heart disease, cancer, stroke, COPD, diabetes

- Benefits of healthy individuals
  - More productive
  - Live independently longer
  - Take fewer sick days
Classifications

• Physical Focus
  – Early studies and prehab programs had small focus
  – Emphasis on physical exercise and endurance programs only

• Multi-modal approach
  – Recent research (oncology focused) supports broader view
  – Approach includes:
    • Physical
    • Psychological
    • Nutrition
    • Modifiable risk factors
Components

• Physical Focus
  – Strengthening
  – Endurance
  – Balance, core

• Psychosocial
  – Stress reduction
  – Relaxation techniques
  – Coping strategies

• Nutrition
  – New nutritional needs during treatment
  – Facts versus myths
Goals of Prehab

• LOWER
  – Length of stay (LOS)
  – Peri-operative complications
  – Postoperative complications
  – Re-admissions
  – Physical impairments
  – Recovery time
  – Pain

• INCREASE
  – Endurance capacity
  – Cardiac reserve
  – Respiratory function
  – Quality of Life
  – Outcomes
  – Return-to-work
  – Independence
History of Prehabilitation

- Began in the orthopedic population (joint replacements)
  - Concepts used, term not

- 1946 – military used prehab and found that 85% were able to pass recruitment exams after a 2 month prehab program

- Using a small “window of opportunity” to improve outcomes

- “Pre-operative physical conditioning is an increasingly common strategy aimed at improving postoperative outcomes, including length of stay (LOS), functional capacity and per-operative complications.”
Benefits

• Length of stay
  – Pilot programs show 40% decrease in lung ca patients
  – Pilot programs show 21% improvement in ambulation distance in lung ca patients

• Perioperative Complications
  – Cardiac surgery patients had decreased incidence of post op atelectasis and pneumonia
Benefits

- **QOL**
  - Self reports (questionnaires) show improved perception

- **Post Operative Care**
  - 1-2 pre op sessions can decrease post op care by 29%
Pre-Op Usage

• Recent dx, surgery pending

• Generalized aerobic & strength program using ACSM guidelines

• Results:
  – Improved cardiopulmonary fitness
  – Improved muscle strength
  – Aid in functional recovery post op
  – Improved QOL 6 months later

https://www.youtube.com/watch?v=DbddvJ4Om10
Pre-Op Usage

• Nutrition focus alone (GI surgeries)

• Use of oral supplements for 3-5 days prior to surgery
  – Focus on certain supplements (arginine, omega 3 fatty acids, nucleotides)
  – Beginning these supplements post op day 1

• Post op results:
  – Decreased infections (51%)
  – Decreased complications
  – Decreased length of stay (15%)
Pre-Op Usage

MOFFITT EXPERIENCE
• TRIALED WITH GI SURGEON
  – Expensive for patients
  – No change in LOS noted
  – No change in leaks
  – No change in infection rate
Orthopedic Usage

• Prehab prior to joint replacements can decrease post op care by 30% ($1200 per patient)

• Education and exercise focus

• TKR
  – Pre-op ROM is a predictor for outcomes
  – Functional capacity prior
  – Decreased pain post operatively
  – Improved function at a more rapid pace

• Largest gap in function is 6 weeks post op

https://www.youtube.com/watch?v=uenlAZzx26k
Orthopedic Usage

MOFFITT EXPERIENCE

• Barriers:
  – Many of our patients are seen by ortho and then have surgery the following week
  – Many of our patients have fractures or are at risk for fracture and are not appropriate for prehab
  – Patients are frequently seen by PT pre-op for education purposes
Prehab in Oncology

• Lung Cancer
  – May make patient eligible for surgery
  – Maximize respiratory efficiency
  – Smoking cessation if needed

⇒ Results show:
  • ↑ aerobic capacity, O2 sats post op
  • ↓ hospital LOS, stress using progressive relaxation
  • Often patients to not need further PT after discharge from hospital
Prehab in Oncology

- GU Cancer
  - Pre radical prostatectomy
  - Pelvic floor, low back, lower abdominal muscle strengthening program
  - 4-6 weeks preop

→ Results show:
  - Significant difference in level of continence at 3 and 6 months post op
  - Improved QOL scores with prehab
Prehab in Oncology

• Head and Neck Cancer
  – Swallowing exercises
  – Neck and shoulder ROM exercises
  – Extensive education
  – Smoking cessation if needed

→ Results from 2012 study
  • “Fast tracked” healing/swallow function after chemoradiation

→ Johns Hopkins
  • Anecdotal evidence shows fewer problems with prehab in place
Prehab in Oncology

• Breast Ca
  – UE strengthening to decrease post op frozen shoulder
  – Stress management
  – Psychological component of losing breast(s)

https://www.youtube.com/watch?v=k-X_MpclygE
https://www.youtube.com/watch?v=wGejGU67LGU
Prehab in Oncology

• Bone Marrow Transplant
  – Exercise program pre-transplant, during, and post transplant
  – 15% improvement in fatigue scores with exercise
  – 28% deterioration in fatigue scores without exercise
  – Depression scores were better with exercise
Prehab in Oncology

MOFFITT EXPERIENCE

• Lung Cancer
  – This is an area that we need to target

• GU Cancer
  – Most referrals are post-op
  – Currently investigating possibilities of offering a pre-op class

• H&N Cancer
  – Currently seen by speech pre-op and pre-XRT
  – Smoking cessation is offered
Prehab in Oncology

MOFFITT EXPERIENCE

• Breast Cancer
  – Currently investigating possibility of offering pre-op classes
  – Currently participating in lymphedema clinic monthly
  – Currently offering lymphedema screenings which take place pre-op and post-op

• BMT
  – Exercise program begins day 1 of admission
  – Many are seen before transplant when admitted for initial chemo
  – Need to further explore pre-op screenings/exercise and nutrition programs
Standardized Programs
Athletes

• Colleges use CSCS and Athletic Trainers

• Focus on muscle balance to prevent injury

• Established protocols which are sport dependent
Standardized Programs
The Valley Hospital

• Focus is on pre-op orthopedics only – using Athletic Trainers

• Multimodal approach
  – Exercise
  – Guided imagery and meditation

• Components
  – Education
  – Functional skills practice
  – Exercise (strength and cardio)
  – Audio programs for relaxation
Standardized Programs
STAR

- New cancer dx
- Prevention/reduction of long term problems
- Protocols based upon published research
- Focus on early screenings and early interventions
Standardized Programs
STAR – Prehab Protocol

- Targeted therapy with PT, OT, or SP
- Smoking cessation
- Nutrition services
- Nurse navigation
- Integrated medicine/complementary therapy
Multi-Disciplinary Roles

• Nurse Navigator – screening tools, suggesting referrals

• Providers – recognition of early intervention

• Social Work – anxiety, stress management

• Specialties – smoking cessation, behavior modification
Multi-Disciplinary Roles

- PT – increasing activity, building strength/endurance
- OT – maintaining ind with ADL and IADL
- Speech – swallowing difficulties
- Nutrition – eating plans before, during, and after tx
Barriers to Prehab

- Challenge to patients and providers believing that patients need intervention
- Benefits extend past the physical into relationships, trust, etc
- Brief time period between dx and surgery/treatment
- Determining the correct setting
  - Group classes
  - Individual sessions
Barriers to Prehab

- Some patients believe that no problems = no needs
- Delay in surgery (2 weeks -8 weeks)
- Reimbursement varies
- Determining the correct providers
  - Exercise specialists
  - Athletic trainers
  - Physical therapists
Creating a Prehab Program

• Clearly define prehab

• Designate a physician champion

• Address treatment delays

• Nurses are critical

• Determine your format
  – In person
  – Independent work for the patient
References


References


References
