Outline

- Growing old with CF
- General exercise & guidelines
- Secondary impairments. Why?
- Physical Therapy
- Treatment ideas
CF Team

- Patient/Family
- Physician
- Program Coordinator
- Nurse
- Dietitian
- Social Worker
- Respiratory Therapist
- Pharmacist
- Psychologist
- Research Coordinator
- Otolaryngologist
- Gastroenterologist
- Endocrinologist
- Physical Therapist

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An Aging Population

Number of Children and Adults with CF, 1986–2014

Cystic Fibrosis Foundation, Patient Registry Data

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Back in the day…
WHY EXERCISE?

- Live longer and healthier lives
- Weight loss
- Reduced fatigue
- Increase immune system response
- Improve sleep
- Boost your mood
- Prevent or manage depression
- Lower cholesterol
WHY EXERCISE?

- Improved blood flow
- Release of natural painkillers
- Slow cognitive decline
- Reduce risk of heart disease, osteoporosis, high BP, diabetes, obesity, stroke, cancer...
- Quality time with family and friends
- It’s FUN!

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WHY EXERCISE with CF?

- Improves exercise capacity
- Slows decline in lung function
- Increases mucus clearance
- Improves quality of life
- Improves nutritional outcomes

(Dwyer et al., 2011; Collaco et al., 2014)
Exercise Recommendations

- Total Moderate-Vigorous Activity
  - Kids/Teens: 60 minutes/day
  - Adults: >150 minutes/week
    - Preferably 300 minutes/week
- Aerobic: 30-60 minutes, 3x/wk
- Resistance: 2-3x/wk
  - Incorporate stretching as needed
- Considerations

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Activities for Infants

- **Focus: Development**
  - Tummy time
  - Pull to sit
  - Supported sit
  - Ball/Lap bouncing
  - “So big!”

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Activities for Older infants

- Expand on previous activities
- Crawl, climb, pull to stand
- Ball/Lap bouncing
- Baby wrestling/laughing
- Sit and tip

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Aerobic Activities

**TODDLER**
- running jumping, trampoline, ball bouncing, shuttle run games, hippity hop, dance

**SCHOOL AGE**
- team sports, tag, running, swimming, biking, jump rope, hiking, brisk walking

**TEEN/ADULT**
- distance running/biking, classes at gym/community center

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Strengthening Activities

**TODDLER**
- animal walks, hopping, jumping games, gymnastics, obstacle courses, playgrounds, encourage climbing, glue game, monkey bars

**SCHOOL AGE**
- tree climbing, planks, push ups, sit ups, pull ups, rope climbing, resistance band

**TEEN/ADULT**
- weight lifting, core exercises, gym memberships

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Stretching Activities

**TODDLER**
- yoga, make your body the letter or the animal, stretch over ball

**SCHOOL AGE**
- Yoga, dance, gymnastics, towel roll, full body stretch

**TEEN/ADULT**
- Yoga, dance, foam roll stretches

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EXERCISE
Some motivation required.
Dual Role of Trunk Muscles

Every muscle of the trunk is both a respiratory and a postural muscle

Hodges and Gandevia 2000

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Dual Role of Trunk Muscles

(a) Diet Coke can

(b) Image of muscle tissue

© Massery 2005, with permission.
Dual Role of Trunk Muscles

- Musculoskeletal changes 8-12 yo (Massery 2005)
- Kyphosis, Scoliosis
- Osteoporosis
- Pain
- Peripheral muscle weakness (Swisher 2010)
- UI
  - 30% adolescents (Prasad 2006)
  - 70% adults (Orr et al. 2001, Vella et al. 2009)

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Dual Role of Trunk Muscles

- Easier to prevent than it is to change.
- When do we start?
PT Assessment

- Annually
- Airway Clearance
- Posture
- Pain
- UI
- Range of Motion
- Strength
- Exercise Assessment
Posture
PT Assessment

- Sitting and standing
- During airway clearance
- Head and shoulders
- T and L spine
- Lower extremities
- Use of photos, flexible ruler, etc

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PT Assessment

• **Range of Motion**
  – Spine, shoulders, hips, pelvis

• **Strength**
  – Shoulders & Hips
  – Abdominal
  – Pelvic Floor

• **Endurance**
  – Formal vs. field tests
Continence

- Bladder
- Bowel
- Posture
- Airway Clearance

BATHROOM POSTURE

http://www.squattypotty.com/

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OKAY, SO YOU GOT ME INTO THE LIFE JACKET.
But there ain’t a chance in hell you can get me in the boat.

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Resources

- CFLF Recreation Grant
  - cflf.org

- Rock CF Kicks Back
  - letsrockcf.org

- Boomer Esiason Foundation
  - Exercise for Life, You Cannot Fail
  - esiaso.org

- Cystic Life Activity Grant
  - cysticlife.org

- Local Parks and Rec, Community Centers/Pools, etc.

- State/County Programs

- National Parks Services

- CFF PT RFA

- CFF PT Mentoring Program

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References


