Integrating Lifestyle Medicine into Neurologic Rehabilitation

Promote optimal health
Whole person wellness
Prevention of dis-ease and dis-ability

Objectives

- Describe and defend the physical therapists role in implementing lifestyle medicine into clinical practice
- Describe how changes in lifestyle and health behavior may positively affect brain and nervous system health
- Develop specific tools and strategies to integrate lifestyle medicine and motivational principles into neurologic rehabilitation
- Be able to implement motivational interviewing and health promotion practices into neurologic patient care
- Understand resources for referral for patients needing specific, ongoing, or other skilled needs outside of the physical therapy scope of practice

Reflection

What does Lifestyle Medicine mean to you?
Do you implement Lifestyle Medicine or Health Promotion in your practice?
Why is it important?
Lifestyle Medicine

Definitions:
"Lifestyle medicine is the evidence-based therapeutic approach to prevent, treat and reverse lifestyle-related chronic diseases."
- American College of Preventative Medicine

"Lifestyle medicine is the evidence-based practice of helping individuals and families adopt and sustain healthy behaviors that affect health and quality of life. Examples of target patient behaviors include, but are not limited to, eliminating tobacco use, improving diet, increasing physical activity, and moderating alcohol consumption."
- American College of Lifestyle medicine

Health Promotion and Wellness

Core Definitions (APTA Policy BOD Y03-06-16-39):
- **Health**: A state of being associated with freedom from disease, injury, and illness that also includes a positive component (wellness) that is associated with quality of life and positive well-being
- **Health Promotion**: Any effort taken to allow an individual, group or community to achieve awareness of – and empowerment to pursue – prevention and wellness
- **Wellness**: A state of being that incorporates all facets and dimensions of human existence, including physical health, emotional health, spirituality, and social connectivity
- **Prevention**: (Institute for Work and Health)
  - Primary: Prevent a disease or injury from occurring
  - Secondary: Reduce the impact of disease/injury through screening and early intervention to prevent long-term problems
  - Tertiary: Soften the impact of ongoing illness and injury to improve function and quality of life as much as possible

Health Priorities for Populations and Individuals (APTA HOD P06-15-20-11)
- Physical therapists provide education, behavioral strategies, patient advocacy, referral opportunities and identification of supportive resources after screening for:
  - Stress Management
  - Sleep health
  - Weight management
  - Violence-free living
  - Smoking cessation
  - Nutrition optimization
  - Alcohol moderation
  - Adherence to health care recommendations
In my practice, Lifestyle Medicine and Health Promotion looks like:
- Foundational approach to patient care
- Strategy and perspective when interacting with patients, starting with the initial evaluation and extending through every interaction
- Pairing of traditional rehabilitation with additional focus on health and wellness, in all aspects of the patients life
- Empowering patients for long term behavior change
- Tapping into intrinsic motivation and personal goals
- Promoting a more lasting effect on function and quality of life

Why Is it Important?

- 6 in 10 adults in the US have at least one chronic disease (related to lifestyle modifiable risk factors)
- Lifestyle or chronic diseases (non-communicable diseases) are the major cause of morbidity and mortality. They are mainly preventable, with a focus on healthy behaviors, such as physical activity, healthy eating, smoking cessation, and tobacco use, and are thus largely preventable.
- Leading cause of death and disability in the US:
  - Heart Disease
  - Lung Disease
  - Stroke
  - Alzheimer’s Disease
  - Cancer
  - Diabetes

Key Lifestyle Risks for Chronic Disease:
- Tobacco and Alcohol Use
- Poor Nutrition
- Lack of Physical Activity

Relevance to the Neurorehab

- Shorter rehab stays and decreased reimbursement increase the risk of post-rehabilitation health decline, and compromising the health of individuals with neurologic disability
- Individuals with a disability are less likely to engage in recommended amounts of physical activity
- Mobility and other functional limitations can challenge the ability to live a healthy lifestyle
- Significant barriers exist that limit exercise and physical activity in the adult neurologic population
- Co-morbid conditions and lifestyle related behaviors can exacerbate neurologic symptoms
Barriers to implementation

- Time
- Lack of interest or awareness (patient, public, and other health care providers)
- Lack of education or knowledge
- Lack of reimbursement
- Lack of resources
- Limited counseling skills
- Lack of self-efficacy
- Decreased focus on prevention by physical therapists
- Perception that the physical therapy work environment is not suitable for health promotion

Bezner, PTJ, 2015

Reflection

- What do we know about our patients priorities and goals?
- How ready are they to make the necessary lifestyle changes?
- What motivates our patients?
- What are the barriers to finding out these answers?

Physical Therapy for Sustained Behavior Change (PT4SBC)

- Definition: Physical Therapy for sustainable behavior change aims to optimize movement to improve the human experience by merging the guiding style of motivational interviewing with attitudinal foundations of mindfulness, principles of motor learning, and whole health/well-being.
- Consider the similarities of neuroplasticity and motor learning, along with behavior change and motivational interviewing:
  - motivation, self-confidence, repetition, salience/meaningful tasks, timing and type of feedback, and error tolerance
The Most Important Components? And the Hardest?

- Behavior Change
- Motivational Interviewing
- Motivational Principles in Rehabilitation

Behavior Change

Theories

- Transtheoretical Model
- Health Belief Model
- Social Cognitive Theory
- Self Determination Theory
- Resilience Model

Common Themes

- Self-efficacy
- Autonomy
- Motivation
- Readiness

Transtheoretical Model

- Time-based continuum of behavior change
- Decisional balance, processes of change, self-efficacy

Preventative Cardiovascular Nurses Association, accessed July 2019
Transtheoretical Model

Interventional Strategies
- Consider stages of change, attitudes toward exercise, and priorities
- Patient-led goal setting
- Facilitate patient change – empower self-efficacy, self-management, and resilience
- 5 A’s and 5 R’s – see smoking cessation

Morgan, S. et al. ANPT Synapse Center, 2019.

Health Belief Model

Health behavior change dependent upon the belief that:
- There is a risk for a negative health condition
- There is a positive expectation of avoiding the negative health condition by taking action
- That you can successfully complete the recommended action to be taken
- Perceived benefits >>> perceived barriers to change

ANPT Synapse Center, 2019
Social Cognitive Theory

- Inter-personal theory; personal beliefs/factors interacting with environmental factors to influence behavior
- Personal Factors: self-efficacy and outcome expectations
- Environmental Factors: Physical environment, social context (observed behaviors, opinions of others)

Strategies for Behavior Change

- Commonalities:
  - Engagement
  - Open Inquiry
  - Active Listening, reflective listening
  - Shared decision making
  - Goal setting
  - Action Planning
  - Accountability

Behavior Change in Neurorehab

- Barriers to Health Behavior Change:
  - Cognitive and communication defects
  - Psychosocial and environmental barriers
- "Findings showed that barriers to physical activity participation arise from personal factors that, coupled with lack of motivational support from the environment, challenge perceptions of safety and confidence to exercise."
Motivational Interviewing (MI)

- Motivational Interviewing: collaborative conversation style for strengthening a person’s own motivation and commitment to change.
- The addition of motivational interviewing to usual care may lead to modest improvements in physical activity for people with chronic health conditions. O'Halloran, et al, 2014.
- See it in action on YouTube: The Effective Physician Motivational Interviewing [Video].


See it in action on YouTube: The Effective Physician Motivational Interviewing [Video].

Motivational Interviewing (MI)

- Guiding Style of conversation
  - Collaboration: cooperation between patient and clinician
  - Acceptance: non-judgement, not trying to sway the patient
  - Evocation: evoke from patient’s that which they already have
  - Compassion: listen with empathy

OARS

<table>
<thead>
<tr>
<th>Open ended questions</th>
<th>Reflective Listening</th>
<th>Summarize</th>
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<tbody>
<tr>
<td>Reflective Listening</td>
<td>Listen with Empathy</td>
<td>Empower and encourage</td>
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Collins T. Medbridge online course, 2019.

MI in Neurorehab

- Builds Therapeutic Alliance
  - Empowers participation
  - Acceptance of deficits
  - Build self-efficacy, self-awareness and sense of control
- 3 Core Characteristics in PT practice
  - Clear focus on changing behavior
  - Use of reflective listening to understand patients perspective about changing their behavior
  - Emphasis on evoking the patient's motivation for change.

ANPT Synapse Center, 2019.
### Adapting MI to Cognitive and Behavioral Impairments

<table>
<thead>
<tr>
<th>MI Standard Principle</th>
<th>Cognitive and Behavioral Challenge</th>
<th>MI Modification</th>
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<tbody>
<tr>
<td>Assumes Intact Cognition</td>
<td>Impaired attention or concentration, disorientation</td>
<td>Repetition, simple verbal and visual materials</td>
</tr>
<tr>
<td>Uses open-ended questioning</td>
<td>Aphasia, impaired attention and processing</td>
<td>Clear and concise questions, provide sufficient time, provide acceptable choices</td>
</tr>
<tr>
<td>Uses Reflective Listening</td>
<td>Impaired Processing</td>
<td>Simple reflections, sufficient time</td>
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### Adapting MI to Cognitive and Behavioral Impairments

<table>
<thead>
<tr>
<th>Mild Impairment</th>
<th>Moderate Impairment</th>
<th>Severe Impairment</th>
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<tbody>
<tr>
<td>Support/manage autonomy of client choices:</td>
<td>Uphold autonomy for decisions not impacting safety:</td>
<td>Delegate decision making:</td>
</tr>
<tr>
<td>Clients preference for autonomy</td>
<td>- Provide 3 good choices</td>
<td>- Advise directly on most appropriate choice of action</td>
</tr>
<tr>
<td>Engage in shared decision making</td>
<td>- Even &quot;trivial&quot; involvement in decision making</td>
<td>- Use family/caregiver to determine choice</td>
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### Assessment and Outcome Measures

- Readiness to change ruler, self-efficacy ruler, self-efficacy scale
- Patient-specific Functional Scale, Goal Attainment Scale
- Goal setting work sheets, action planning guides
- Diagnosis Specific Tools: (Participation, QOL)
- Academy of Neurologic Physical Therapy -> Practice Resources -> ANPT Outcome Measure Recommendations
- https://www.sralab.org/rehabilitation-measures
- Shirley Ryan Ability Lab Rehabilitation Measures Database

Reflection

- How have you been able to promote patient motivation, autonomy, and self-efficacy in your clinical setting?
- How can we promote these characteristics during our traditional rehabilitation sessions?

Motivational Principles

- **Intrinsic Motivation Factors**
  - **Autonomy**: Feeling in control of our own actions and lives
  - **Competency**: Perceiving self as capable and competent
  - **Social Relatedness**: Need to feel included, accepted and connected with others
  - **Self-Efficacy**: Beliefs about own capabilities to produce desired effects

  Lewthwaite, Rebecca. Neuroconsortium, 2015

Building Autonomy

- Studies done by Chiviacowsky, et al: Exercise groups that could choose when they would use a tool or strategy during a task would perform better at that task.
- Controlling language, "you must, you should" can increase a cortisol response (stress response) and inhibit learning
- Offering choices, even simple choices, "which task do you want to do first, what color of ball do you want to use?", helps increase autonomy
- Feeling connected, valued, and relaxed creates a dopamine release, which helps with learning
- Always give “good choices”, and denote you value their opinion

Lewthwaite, Rebecca. Neuroconsortium, 2015
Building Competency

- Dobkin et al: Group that had feedback and encouragement during their walking task did better than control group
- Feedback types: Positive, normative
- Give positive expectations, “lift” negative expectations, give perception of success and progress, connect efforts to desired outcomes/goals
- “If you do X, Y, and Z, you will improve.”
- “Active people like you, with your experience, usually do really well this this task/exercise.”

Lewthwaite, Rebecca. Neuroconsortium, 2015

Building Relatedness

- Peer support
- Community based support groups
  - Eagle Mount, Senior Center, Cancer Support Community, Stroke/PD/MS support groups, online support networks
  - Build comradery in clinic between like patients
- Take an interest in patients personal life, and understand what is meaningful to them

Lewthwaite, Rebecca. Neuroconsortium, 2015

Building Self-efficacy

- Sources of self-efficacy:
  - Personal performance/accomplishments
  - Vicarious experiences
  - Verbal persuasion
  - Physiological/mental state
- Signs of low self-efficacy:
  - “I can’t do that” or other direct expressions
  - Hesitancy to begin an activity, cautious movements
  - “How confident are you that you can ….”
- Low self-efficacy is from 0/10 up to 6/10

Lewthwaite, Rebecca. Neuroconsortium, 2015
Building Self-efficacy

- With activities that are successful, ask “how can we make that even more challenging?”
- With activities that aren’t successful, “ok, now we know where to start!”
- Create challenging tasks and conditions, but not 100% successful (75-80% success rate is good)
- Accomplishments should be attributable to patient, make progress measurable and interpretable by patient
- Celebrate! Point out specific, even small, achievements of importance, and how that may impact their goals
- Research has supported self-efficacy as a primary correlate of physical activity in PD and MS

Ellis, JPT, 2013; Lead Effect, neuroconsortium, 2015

REVIEW

Health Priorities for Populations and Individuals

(APTA HOD P06-15-20-11)
- Physical therapists provide education, behavioral strategies, patient advocacy, referral opportunities and identification of supportive resources after screening for:
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Nutrition: Scope of Practice

- APTA policy – within scope of PT practice
- Montana PT Practice Act – no language limiting us from providing nutrition services, HOWEVER
- Montana Code Annotated 2017: TITLE 37, PROFESSIONS AND OCCUPATIONS
  CHAPTER 25, NUTRITIONISTS
  Part B. Licensing
  Scope Of Dietary-Nutrition Practice
  37-25-301. Scope of dietary-nutrition practice. Only a nutritionist can provide the following services:
  (1) assessing the nutrition needs of individuals and groups and determining resources and constraints in the practice setting;
  (2) establishing priorities and objectives that meet nutritive needs and are consistent with available resources and constraints;
  (3) developing, implementing, and managing nutrition care systems;
  (4) evaluating, adjusting, and maintaining appropriate standards of quality in food and nutrition services;
Nutrition

- Anticipate nutritional issues in our patients
- Disease specific, demographic, BMI
- Screen: mini-nutritional assessment
- Determine readiness for dietary behavior change
- Provide general information (nutrition education only)
- Recognize need for referral to a registered dietician

Morris, D et al, 2019

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Dietary Guidelines for Americans (disease prevention):

Choose My Plate
United States Department of Agriculture

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Nutrition: Stroke

- Malnutrition can be common, associated with worse outcomes
- Dysphagia has been shown to be associated with malnutrition and dehydration
- Decreased mobility, arm/facial weakness, depression and impaired cognition can all impact nutrition
- Nutrition plays a role in all the known metabolic risk factors that can potentially contribute to a second stroke
- American Heart Association/American Stroke Association

https://www.stroke.org/en/healthy-living/healthy-eating

**Nutrition: Multiple Sclerosis**

- Diet can increase the inflammatory process (high in SFA's or TFA's)
- Increase risk of developing MS with diet low in PUFA's
- Low fat diet may reduce rate of relapse and fatigue
- High levels of vitamin D slow progression, optimal dose?
- Supplementation with B12?
- Several diets proposed (Wahls Protocol), no good evidence


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**Nutrition: Multiple Sclerosis**

Naturopathic Perspective

- Recommend nutrient dense and anti-inflammatory foods
- Mediterranean Diet most practical
- Gut/Brain link, "leaky gut" or IBS symptoms may be related
- Specific foods and supplements recommended, email msevents@UW.edu and ask for handouts from presentation, from the National MS Society

Leary-Chang, ND and Vespignani, ND. August 2019.

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**Nutrition: Parkinson’s Disease**

- National Parkinson’s Foundation
  - [https://www.parkinson.org/blog/try/](https://www.parkinson.org/blog/)
- Motor and non-motor symptoms in PD can affect nutrition
- Protein and Levodopa interaction (take meds 30-60 minutes prior to eating, or wait 2 hours after eating to take meds)
- Foods can be neuroprotective or neurodegenerative

Ruscigno, M. 2016
Nutrition: Spinal Cord Injury

- Shopping and meal prep difficulties – problem solve with OT
- Increased risk of medical complications (DM, obesity, CV disease, osteoporosis, skin health)
- BMI cannot be used to accurately assess healthy weight
- Specific protein recommendations for wound healing and acute injury (1.2 – 2.0 grams protein / kg of body weight)
- HDLs tend to be lower due to decreased activity. C-reactive protein increases with stress/injury, and correlated with increased risk of heart disease
- Bone health: decrease caffeine, smoking. Increase Ca, Vit D, and weight bearing
- Neurogenic bowel/bladder: Increase fiber and fluid. Cranberry juice for UTI prevention?

Barton, K. W. WCI. April 12, 2011.

Nutrition and Brain Health

- Naturopathic perspective: Mito Food Plan, Institute for Functional Medicine. Supportive for neurodegenerative disease
- MIND diet: Mediterranean-DASH Intervention for Neurodegenerative Delay
- Supplements – refer to Pharm D, RD, MD, ND
  [http://ods.od.nih.gov/ - NIH office of dietary supplements]

Sleep Health

- Sleep is critical for immune function, tissue healing, pain modulation, cardiovascular health, cognitive function including depression/brightness, and learning and memory.
- Poor sleep quality may also contribute to the development of neurologic conditions:
  - May play an important role in the accumulation of Beta-amyloid and to the development of Alzheimer’s disease
  - REM disorders have been associated with the development of Parkinson’s disease and other neurodegenerative disorders
  - Sleep is frequently altered in individuals with neurologic conditions such as stroke, Parkinson’s disease, Alzheimer’s disease, multiple sclerosis, and spinal cord injury. Can impact their ability to learn and potentially influence recovery.

Siengsukon CF, PTJ, 2017
Sleep Health

- To integrate sleep health in prevention, health promotion, and wellness interventions, therapists should:
  - Assess overall sleep health and screen for risk of sleep disorders – ask general sleep questions
  - Refer for additional assessment as needed
  - Provide sleep hygiene education
  - Provide an appropriate exercise and physical activity program
  - Consider positioning to promote sleep quality
  - Address bed mobility issues

Siengsukon CF, PTJ, 2017

Sleep Health

- Sleep Hygiene Education:
  - Go to sleep and wake up at the same time each day
  - Use the bed for only sleep and sex
  - Develop a relaxing bedtime routine
  - Adopt an appropriate exercise program
  - Avoid caffeine 4 hours before bedtime
  - Avoid alcohol and smoking 3-4 hours before bedtime
  - Avoid OTC sleeping pills
  - Avoid daytime napping, or keep to 30 minutes
  - Make the sleeping environment comfortable and relaxing
  - Avoid large meals or spicy foods 2-3 hours before bed

Siengsukon CF, PTJ, 2017

Sleep Health

- RCT in 2016 found that people with multiple sclerosis who engaged in a moderate-intensity aerobic exercise program, and a low-intensity walking and stretching program, had improved sleep quality. (Siengsukon CF, et al)
  - Consider type and amount of clothing and sheets/blankets, as well as adapted devices, to help with bed mobility and position changes at night
  - Consider type and placement of lighting for safety
  - Help problem solve pain management, positioning, spasticity management at night
Stress Management

- Negative stress (distress), or chronic stress, is stress that has a negative impact on health and wellness.
- Positive stress (eustress) is stress that is typically motivating, short-term, and within our coping abilities.
- Stress management refers to the techniques aimed at addressing distress.
- Signs of distress include: increased fatigue, tension, irritability, elevated BP/HR.
- Chronic stress contributes to chronic health conditions and can exacerbate neurologic symptoms.
  
Bezner, 2015; ANPT, 2019

Stress Management

- Screening for stress, anxiety and depression
  - Self-reported questionnaires (PHQ-9) – may be limited with cognitive or communication difficulties
- Instruct in relaxation techniques (diaphragmatic breathing, 4-7-8 breathing, autogenic training, biofeedback, massage)
- Physical activity prescription to manage stress, consider t'ai chi and yoga.
- Time management techniques
- Recognize need to refer to another provider
  - Red flag: suicidal ideation, excessive crying, hopelessness

Bezner, 2015; ANPT, 2019

Stress Management

- Stress can contribute to the development and progression of neurodegenerative diseases.
  - Prevalence of depression in SCI, TBI, PD, MS is much higher than that of the average healthy adult population
- Involve family, friends, peers, support groups
- There's an app for that - headspace, calm, etc.

Bezner, 2015; ANPT, 2019
Smoking Cessation

Employ 5 A's and 5 R's
- Ready to change, use 5 A’s: Ask, advise, assess, assist, arrange
- Not yet ready to change, use 5 R’s: Relevance, Risks, Rewards, Roadblocks, Repetition

Montana DPHHS

CDC
- https://www.cdc.gov/tobacco/data_statistics/fact_sheets/health_effects/effects_cig_smoking/index.htm

Physical Activity and Exercise

“Exercise interventions are programs with a defined prescription of mode, intensity, frequency, and duration.”

“Aerobic exercise has the potential to help drive neuroplasticity changes that lead to improved outcomes on motor symptoms, behavior, and quality of life, and cognitive function for individuals with HD, MCI, AD, PD, MS, and dementia.”

Quinn et al, JNPT, 2017

Physical Activity:
- “movements of the body that use energy, and can encompass a range of everyday activities including walking, gardening, and climbing stairs, but also includes specific forms of sport or exercise, such as playing soccer, running on a treadmill, or doing Pilates or yoga.”

Exercise:
- “exercise interventions are programs with a defined prescription of mode, intensity, frequency, and duration.”
- FITT Principle – frequency, intensity, time, and type
Physical Activity and Exercise

Screening and Testing:
- Physical Activity:
  - Physical Activity Vital Sign – from exerciseismedicine.org
  - Physical Activity Scale for the Elderly (PASE)
  - Pedometer, wearable step counters/activity trackers
- Exercise:
  - ACSM's medical screening and risk stratification, may be warranted for moderate to high intensity exercise
  - Submaximal exercise testing:
    - Design your own submaximal test, executing THR and HR
    - 6 min walk test
    - Peabody's submaximal stress: Woodard, PTJ, 2014
    - Recumbent Stepper:
      - https://www.youtube.com/watch?v=wZe9TJQVc1Q

Lifestyle Medicine Biomedical Vital Signs:
- Body Mass Index: Body Weight (kg) / Height (m2)
- Blood Pressure, Heart Rate
- Rate of Perceived Exertion
- Lipid Panel, Blood Glucose/A1c

Physical Activity and Exercise Prescription:
- Special Considerations in neurorehabilitation – mobility limitations, disease specific issues
- APTA Physical Fitness for Special Populations Pocket Guide
  - http://www.apta.org/PFSP/
- CDC Physical Activity Guidelines:
Physical Activity and Exercise

Common Barriers:
- Access
- Time
- Mobility Impairments
- Cognitive/communication
- Co-morbidities
- Knowledgeable Trainers
- Personal/Social

Strategies for Implementation:
- Personalized programs
- Disease pathophysiology
- Disease staging
- Personal Preference
- Integrate behavior change and motivational interviewing
- Finding the benefits
- Action plans for specific barriers

Newitt et al. Disabil Rehabil, 2016
Quinn et al., JNPT, 2017

Models of Care for Health and Wellness

- Lifespan management of neurodegenerative diseases:
  - Assessment upon diagnosis to establish baseline status and identify key impairments and activity limitations.
  - Ongoing consultation with follow-up visits scheduled regularly to facilitate exercise adherence, identify changes in functional abilities, and collaborate on setting new goals as needed.
  - Advisory and coaching role over the course of the disease, incorporating behavioral interventions to facilitate exercise adherence and uptake.

Quinn, JNPT, 2017

Models of Care for Health and Wellness

- PT required for exercise prescription. 1-4 visits every 2-4 weeks. Long-term follow-ups at 6-12 months for exercise progression, or sooner if change in condition.

- Skilled Maintenance Care:
  - PT required to maintain or progress function and exercise. Set up HEP, gym, caregiver programs. PT every 1-3 months, recheck key outcome measures, exercise progression/modification, functional training.
  - http://www.apta.org/Payment/Medicare/CoverageIssues/SkilledMaintenance/

- Long-term Delivery Model (Dental Model):
  - PT required every 6-12 months (new episode of care each time) to assess functional status and change in needs
  - http://www.apta.org/AnnualCheckup/Form/

ANPT, 2019; Ellis, Terry podcast.
Putting it all together

**Case Example 1:**
- 30 year old female newly diagnosed with MS. Mother recently passed away from complications due to MS. Single mother. Previously active/regular exercise.
- MI used to assess overall health/wellness goals
- Stress Management, depression, pain management
- Nutrition

**Case Example 2:**
- 18 year old male with AIS B tetraplegia x 2 years. Chronic leg wound, underweight. Not engaging in regular physical activity or exercise.
- MI used to understand what is meaningful to him, assessing barriers to change and barriers to implementing health care recs
- Skilled referral needs – nutrition
- Physical activity, standing frame use
- Collaboration with other healthcare professionals

**Case Example 3:**
- 70 year old male with CVA and history of peripheral neuropathy. Spouse reports depression, isolation and sedentary activity. History of falls.
- MI used to determine readiness to change, patient preferences and overcoming barriers
- Behavior change for AD use, activity and safety recs
- Engagement in physical activity/exercise
Case Example 4:
- 75 year old female with PD; co-morbidities include OA, HTN, peripheral neuropathy. Reports falls, anxiety and low self-efficacy regarding her condition.
- MI used for assessing self-efficacy, perceptions, goals, motivation
- Building self-efficacy in clinic sessions, use of affirmations
- Skills for anxiety management, sleep promotion
- Involvement of peer support

Questions/Comments/Discussion

References
- Peer-reviewed Journal Articles:
  - Rimmer J, Henley K. Building the Crossroad Between Inpatient/Outpatient Rehabilitation and Lifelong Community-Based Fitness for People With Neurologic Disability. JNPT, v37, June 2013.
  - Ellis T, Motl R. Physical Activity Behavior Change in Persons With Neurologic Disorders: Overview and Examples From Parkinson Disease and Multiple Sclerosis. JNPT, v37, June 2013.
References:

Peer-Reviewed Journal Articles:

Online Learning, Expert Opinions, Podcasts, etc:
17. Ellis, Terry. APTA neurology section, degenerative disease SIG, podcast Deep Dive Neurodegenerative Disease, August 2019.