**WII-HAB INSERVICE**

1. **What is Wii-hab?**
   1. Wii-hab is the use of the Nintendo Wii gaming system and certain games to facilitate rehabilitation in a novel way. Visual and auditory cues for real time feedback is used in a way that is less demanding to the therapist. This form of rehab has been proven to provide at least equal and sometimes better results than traditional rehab alone. Wii-hab can be used in various settings for various diagnoses.
2. **What patients are appropriate and not appropriate for Wii-hab?**
   1. Precautions
      1. History of seizures/epilepsy/motion sickness
      2. Visual deficits
      3. Pregnancy
      4. Continue to monitor vital signs
   2. Contraindications
      1. Any contraindications to therapy apply
      2. Do not use the balance board if the patient is >330 lbs
      3. Do not play for longer than 1 hr without a 10-15 minute break
3. **What patients/impairments are appropriate and will most likely benefit from Wii intervention in a SNF/Nursing Home**
4. General Deconditioned Geriatric/Frail Patients

EVIDENCE: Fu

-in “institutionalized” older adults with hx of falls, wii fit balance training was more effective than conventional balance training in reducing the risk and incidence of falls- 1 hr 3x/wk, 6 wks, reduced falls by 69% vs. 35% (11% statistically higher) in conventional (over 12 mo, recorded by nsg staff)

-this study credits the real time visual feedback as the difference. CGA/SBA

“Conventional” included strengthening ex, tandem standing/walking in // bars, sideways and turnaround walking exercises in // bars, stepping, sit to stand and half squats

EVIDENCE: Chao

-Physical and Psychological effects in assisted living- bandura’s self efficacy theory

-2x/wk, 4 wks, 60 min-had decreased depression scores and increase SF-8 ( mental health QOL)

1. Patients with poor balance/increased falls risk

See above

1. Balance in patients with Alzheimer’s

EVIDENCE: Improving balance in alzheimer’s patients (Padala et al 2012)

Assisted living facility, mild AD, improved BBS and TUG compared to walking group 30 min/day, 5x/wk, 8wks

1. Patient with Parkinson’s
   * 1. Goal is to stimulate the displacement of the COG in sagittal and front planes, by challenging static balance, performing trunk rotation exercises in standing and alternating steps. Specific games for specific goals, such as improving static balance, dynamic balance or stationary gait.

\*\*depending on what your goal is for your patient, these are just common goals for pts with Parkinson’s.

* + 1. Unlike the others, there are games that are NOT indicated for these patients due to the high cognitive demands the games contain.

\*\*they are listed on the handout: soccer, obstacle course and basic run plus

EVIDENCE:

Mendes et al. 2012- early stage parkinsons, 2x/wk, 7 wks, 30 min mobility+30 min wii

Using the functional reach test to examine transfer of learning and retention (ability to transfer motor ability trained on the game to an untrained task).

Marked learning deficits on the 3 games that are contraindication compared to a healthy control group

Herz: 2 games tennis, 2 games bowling, 1 game of boxing~1 hr, 3x/wk, 4wks

saw improved motor function 1 mo post intervention using UPDRS

ADL’s improved right after but not 1 mo post

\*this study mentioned previous studies have shown dopamine increases in the brain during participation in video games

1. Joint Replacements (THA, TKA) and Amputations
   * 1. Improving lower limb weight distribution asymmetry
     2. Games that focus on lateral weight shift, multidirectional balance and static and dynamic postural control.

EVIDENCE: (Fung et al 2012) TKAs-Found no significant difference in using the wii vs. traditional rehab- but implies that the wii is an acceptable adjunct intervention based on LEFS, knee flexion/ext

EVIDENCE: (Miller et al 2012) case study for 2 transfemoral amputations- reduced need for AD in community in one and increased aerobic capacity in the other with tilt table, skiing, tightrope (done in // bars)

1. Neuropathy

EVIDENCE: (Hakim et al, 2014): case study bilateral peripheral neuropathy,

1 hr/visit, 2 visits/wk, 6wks

Sensory organization test did not change, however BBS, TUG, Motor Control test and Limits of stability all improved.

\*\*games were chosen based on specific problems of functional activity, strategy and impairments\*

1. Chronic Stroke

\*\*Improve weight shifting, symmetric foot stepping, controlled movements near limits of stability.

EVDIENCE: (Subramaniam et al, 2014) high intensity short duration, 110min/day, 5 days

Reducing cognitive-motor interference and improving balance control using LOS test

Table tilt, tight rope, soccer, balance bubble+ a cognitive task

1. **Which games are most often used for the most common diagnosis in a SNF:**
   1. Overall Balance
      1. Table tilt, Soccer Heading, Ski Slalom, and Ski Jump
   2. Aerobic
      1. Basic Step
   3. Parkinson’s
      1. Depends on goal- refer to handout
      2. Do NOT use: soccer, obstacle course or basic run due to high cognitive demands
   4. Alzheimer’s
      1. Yoga, Strength, and Balance
   5. LE joint replacements/Amputations
      1. Games that focus on lateral weight shift, multi directional balance and static and dynamic postural control
      2. Games that improve balance, gait and fear of falling and aerobic capacity
2. **Dosage and progression of using Wii games**
   1. Increase duration and difficulty of games to progress
   2. No specific dosage has been studied or recommended, however 3x/wk for 6 wks (4-12 weks) with 30-minute sessions is the average between studies.
   3. Easier games: yoga breathing, hula-hoop, ski-jump
   4. Medium difficulty: soccer, tight rope, and balance bubble
   5. High Difficulty: Ski slalom and penguin slide
3. **Benefits and Barriers of using the Wii in a SNF**
   1. Benefits:
      1. A great, quick way to produce visual and audio feedback, while the therapist can provide tactile cues in a time-crunched setting
      2. Could have two pts with similar needs play with against each other- concurrent therapy. Or could have one play while one rests and still do a concurrent or even group treatment.
      3. Could do a co-treatment, OT and PT or PT and SLP, for Parkinson’s for example, SLP (stroke?) could be doing cognition during a Wii game for dual-task practice.
      4. Has been shown to increase motivation and QOL
   2. Barriers:
      1. Need good hand control and grip for games that require controller
      2. Only have one Wii
      3. The games go quick, have to restart them frequently