Music, Motion, and Parkinson’s Disease

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MUSIC

MOVEMENT

PD

Rigidity and trembling of head

Forward tilt of trunk

Rigidity and trembling of extremities


“... Endorphins and Dopamine play a role in the musical experience ...”


- Endorphin release from music can create a stronger social cohesion

Blood vessels can expand ~25% when listening to “enjoyable” music, while they can shrink ~6% when listening to music.

American Heart Association
Music & Brain Activity
Music & Brain Activity

AUDITORY STIMULATION

RESTING STATE

LANGUAGE AND MUSIC

LANGUAGE

MUSIC
Music & Brain Activity
Playing music helps PD
Music can change the PD brain

“Dr. Jekyll and Mr. Hyde”
Music & Movement

Tuesday, August 9, 2011
Music or auditory rhythms can improve movement efficiency

- smooth
- coordinated/faster walking

Music or auditory rhythms can facilitate movement to become exercise/training

- dance
- coordinated/faster walking
Typical Adult Walking Pace 80 – 120 bpm
RESEARCH EVIDENCE... PD
Would you take a pill, daily, that cured all symptoms of PD?
Would you take a pill, daily, that cured all symptoms of PD?

Yes
Daily exercise for persons with PD is the best medicine for PD.
Would you take a pill, daily, that provided all the benefits of exercise?
Would you take a pill, daily, that provided all the benefits of exercise?

Yes??
So, . . . you want the benefits of exercise?
So, ... you want the benefits of exercise?

If I paid you, gave you transportation, a personal trainer, would you go to fitness center 5 days/week to exercise?
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If it was reimbursed (FREE) would you go to fitness center 5 days/week to exercise?
Movement & PD

Cueing at Home/Community - RCT

Group 1
- Cueing
  - 3 wks
  - NO Cueing
  - 3 wks
  - Final Outcome Measures

Group 2
- NO Cueing
  - 3 wks
  - Cueing
  - 6 wks

Methods

- 37 persons w/PD
- Used music (different genres) with accentuated rhythmic beats
- Divided training time in 1/3; comfort pace, fast pace, fastest pace
- Increased in increments of 5-10% each week
- Used to facilitate daily functional tasks

Group 1 | Group 2 | Group 3
--------|--------|--------
Cueing   | NO Cueing | Normal Activity

Final Outcome Measures

3 wks 3 wks 3 wks

**Exercise & PD**

**Dance the tango . . . as exercise**

**Study 1**

**Methods**
- 58 individuals with PD
- randomly assigned to:
  - Tango
  - Waltz/foxtrot
  - No intervention
- 1 hr class; 2x/week
- 20 lessons in 13 weeks

**Study 2**

**Methods**
- 19 individuals with PD
- randomly assigned to:
  - Tango
  - Group exercise
- 20 classes per group

**Study 3**

**Methods**
- ? individuals with PD
- randomly assigned to:
  - Tango
  - NO exercise
- 1 yr of training
- 2x/wk, 1hr/session


Look for this data/publications in the future . . . important study . . .

Tuesday, August 9, 2011
Is the tango better than traditional exercise?
Is the tango better than traditional exercise?
Exercise & PD

Turning cueing/movement into exercise

Methods

✦ 12 persons w/PD
✦ Training
  ✦ 8 weeks
  ✦ 3 x/week
  ✦ 30 minute session
  ✦ Allowed as many rest breaks as needed/requested
  ✦ 200 meter track

✦ Music (auditory cueing)
  ✦ Produced at CSU – CBRM
  ✦ 60 – 165 bpm – 5 bpm increments

Tuesday, August 9, 2011
Exercise & PD

What is the best music rate for you?
Exercise & PD

What is the best music rate for you?
**Conclusions**

How do you move/exercise with music while living with PD?

**Step 1:** What do I like to do (physical activity)?

or

**Step 1:** What new physical activity am I willing to try?

**Step 2:** Identify music you enjoy

or

**Step 2:** Identify the music rate that makes you move better

**Step 3:** Incorporate the music and activity together (example: walking to the beat of music/metronome)

**Step 4:** Seek out the assistance of a health care professional . . .

**INTENSITY & FREQUENCY**
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