Dance Your Way to Health!

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Overall Goal of Talk

- This session will focus on the health and well-being benefits of dance, movement, and music, using evidence-based research and audience participation.
Learning Objectives:

- To show that dance, movement, and music can enhance the health and well-being of patients.
- To understand the use of dance as a therapeutic tool in patients with Parkinson’s disease, and other medical conditions.
- To demonstrate that dance can enhance healthy aging.
- To show that dance and movement can benefit children.
Why I Chose this topic

- Dance: alternative form of exercise for patients and us!
- Personal Experience of Music, Dance, Movement, Exercise
Exercise
Common Barriers to Exercise


- lack of time
- fear of falling
- self-conscious about appearance
- poor health
- bad weather
- lack of energy (exercise is too tiring)
- no exercise partner
- little support to exercise
- too weak to exercise
- no (adequate) workout facilities
Obstacles to Physical Activity

- Unfortunately, most people do not meet the minimum recommended amounts of physical activity.
- Dropout ~50% of novice exercisers drop out of physical activity programs within the first six months.
- Before physiological gains occur.

The average American adult spends more than 50% of his/her waking hours in sedentary behavior.
Sedentary Behavior and CV Risk

- Even with 2hrs/day of moderate physical activity, sedentary behavior still correlated with all-cause mortality in a dose-dependent manner.

- Evidence is emerging that BREAKING UP sedentary time may be beneficial compared to uninterrupted sedentary time.

Curr Cardiol Rep (2016) 18:6
Sedentary Behavior and CV Risk

- Optimal sleep duration
- Less sedentary behavior time
- More time in active behaviors are associated with a reduced CVD risk profile.

Curr Cardiol Rep (2016) 18:6
Guidelines for Sedentary Behavior

- No current US Guidelines
- Independent of moderate daily physical activity requirement
- The Canadian Sedentary Behaviour Guidelines from the Canadian Society for Exercise Physiology:
  1. limiting recreational screen time < 2hrs/day
  2. limiting “sedentary (motorized) transport, extended sitting, and time spent indoors” throughout the day.

Curr Cardiol Rep (2016) 18:6
Sedentary Behavior and CV Risk

Australia’s Sedentary Behaviour Guideline similarly recommends:
1. minimizing the amount of time spent in prolonged sitting and
2. breaking up long periods of sitting as often as possible.

Curr Cardiol Rep (2016) 18:6
Strategies to Reduce Sedentary Behavior

“Built Environment”

u Home/Workplace
u Local/National Community
u Individual/Family

Curr Cardiol Rep (2016) 18:6
Local/National Community
- Urban planning
- Transportation policies
- Sidewalks, bike paths, green spaces
- Safety for non-vehicle traffic
- Media portrayal of typical lifestyles
- Socioeconomic opportunities
- Development of mobile Health technology

Workplace/Home
- Activity-permissive workstations
- Employer-sponsored health promotion
- Building design
- Furniture design
- Neighborhood walkability
- Time-saving devices/appliances

Individual/Family
- Personal motivation or health status
- Biological factors
- Demographic factors
- Hobbies that involve physical activity
- Avoidance of screen-based activities
- Interest in technology (mHealth)
Strategies to Reduce Sedentary Behavior

“Mobile Health” = mHealth

- mHealth technologies help eliminate the inaccuracy of self-reported sedentary and physical activity time.
- Programmable wearable technology—vibrate q 15 min-1hr if sitting too long.
Surgeon General’s Call to Action!

Step It Up!
HEALTH BENEFITS OF WALKING

- **20 MINUTES/DAY WILL BURN 7 POUNDS OF BODY FAT/YEAR**
- **45 MINUTES/DAY CUTS ODDS OF GETTING A COLD**
- **1 MINUTE WALKING CAN EXTEND LIFE BY 1.5–2 MINUTES**
- **20 MINUTES/WEEK CAN EXTEND LIFE BY SEVERAL YEARS**

**DEMENTIA**
Seniors who walk 6–9 miles/week are less likely to suffer from mental decline as they age, including dementia.

**DIABETES**
Walking 30 minutes/day, 5 days/week, along with moderate diet changes, can halve the risk of Type 2 Diabetes.

**HEART DISEASE**
Walking 30 minutes/day, 5 days/week can halve the risk of heart disease and reduce stress, cholesterol, and blood pressure.

**ARTHROPSIS**
Walking can reduce pain and improve function, mobility, mood, and quality of life, without worsening symptoms.

**DEPRESSION**
Walking triggers endorphins, promotes relaxation, and prevents anxiety and depression.

- **WALKING 6 MILES/WEEK CAN HALVE RISK OF ALZHEIMER’S DISEASE OVER 5 YEARS**
- **WOMEN WHO WALK FOR 1 HOUR/DAY, 5 DAYS/WEEK AND CONSUME 1,500 CALORIES/DAY CAN LOSE AND KEEP OFF 25 LBS**
- **WALKING 30 MIN/DAY, 4 DAYS/WEEK CAN REDUCE THE RISK OF DIABETES BY NEARLY 60%**
- **PROSTATE CANCER PATIENTS WHO WALK 90 MIN/WEEK HAVE NEARLY 50% LOWER MORTALITY RISK**
- **WOMEN WHO WALK REGULARLY ARE 31% LESS LIKELY TO DEVELOP Colon Cancer THAN THOSE WHO EXERCISE LESS THAN ONE HOUR/WEEK.**
Walking as Precursor to Dancing
Can Dance meet the Criteria for Optimal Physical Activity?
Physical Fitness

5 components:
- Cardiopulmonary endurance
- Muscular endurance
- Muscular strength
- Body composition
- Flexibility

American Heart Association Physical Activity Guidelines

AHA Recommendation

For Overall Cardiovascular Health:
• At least 30 minutes of moderate-intensity aerobic activity at least 5 days per week for a total of 150 minutes/week

OR
• At least 25 minutes of vigorous aerobic activity at least 3 days per week for a total of 75 minutes; or a combination of moderate- and vigorous-intensity aerobic activity

AND
• Moderate- to high-intensity muscle-strengthening activity at least 2 days per week for additional health benefits.

• For Lowering Blood Pressure and Cholesterol
An average 40 minutes of moderate- to vigorous-intensity aerobic activity 3 or 4 times per week

• www.heart.org
“MET” in relation to Exercise

One metabolic equivalent (MET) is defined as the amount of oxygen consumed while sitting at rest and is equal to 3.5 ml O2 per kg body weight x min.
World Health Organization: Moderate Intensity & Vigorous Intensity Exercise

<table>
<thead>
<tr>
<th>Moderate-intensity Physical Activity</th>
<th>Vigorous-intensity Physical Activity</th>
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<tbody>
<tr>
<td><strong>(Approximately 3-6 METs)</strong></td>
<td><strong>(Approximately &gt;6 METs)</strong></td>
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<tr>
<td>Requires a moderate amount of effort and noticeably accelerates the heart rate.</td>
<td>Requires a large amount of effort and causes rapid breathing and a substantial increase in heart rate.</td>
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<tr>
<td>Examples of moderate-intensity exercise include:</td>
<td>Examples of vigorous-intensity exercise include:</td>
</tr>
<tr>
<td>• Brisk walking</td>
<td>• Running</td>
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<tr>
<td>• Dancing</td>
<td>• Walking / climbing briskly up a hill</td>
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<tr>
<td>• Gardening</td>
<td>• Fast cycling</td>
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<tr>
<td>• Housework and domestic chores</td>
<td>• Aerobics</td>
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<tr>
<td>• Traditional hunting and gathering</td>
<td>• Fast swimming</td>
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<tr>
<td>• Active involvement in games and sports with children / walking domestic animals</td>
<td>• Competitive sports and games (e.g. Traditional Games, Football, Volleyball, Hockey, Basketball)</td>
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<td>• General building tasks (e.g. roofing, thatching, painting)</td>
<td>• Heavy shovelling or digging ditches</td>
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<tr>
<td>• Carrying / moving moderate loads (&lt;20kg)</td>
<td>• Carrying / moving heavy loads (&gt;20kg)</td>
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</tbody>
</table>
Moderate Intensity Exercise
Source: Cleveland Clinic

- Walking two miles in 30 minutes
- Biking five miles in 30 minutes
- Swimming laps for 20 minutes
- Running one and a half miles in 15 minutes
- Doing water aerobics for 30 minutes
- Playing volleyball for 45 minutes
- Playing pick-up basketball for 20 minutes
- Jumping rope for 15 minutes
- Walking stairs for 15 minutes
- Washing your car for 45 minutes to an hour
- Gardening for 30 to 45 minutes
- Raking leaves for 30 minutes
- Dancing for 30 minutes
Talk Test: Estimating Exercise Intensity

- For **Moderate Intensity**: You should be able to talk to others without gasping for air. Speaking will take a little more effort than usual, but you should be able to carry on a conversation.

- For **Vigorous Intensity**: Holding a conversation or saying more than a few words before stopping to take a breath
Dancing is Exercise!!
Dancing is fun!!!
Chiro-Dancing!!
Dancing becoming a trend!

- Dancing with the Stars
- So You Think You Can dance
- Zumba® Craze
- National Dance Day July 30th, 2016—
  [http://dizzyfeetfoundation.org/national-dance-day/](http://dizzyfeetfoundation.org/national-dance-day/): “This grassroots campaign encourages Americans to embrace dance as a fun and positive way to maintain good health and combat obesity.”
Origins of Dance

“Why do humans appreciate rhythmic movements?”

Wang “suggest(s) that human appreciation of rhythmic movements and rhythmic events developed from the natural selection of organisms adapting to the internal and external rhythmic environments”

Dance: Culture and Self-Expression

- Human culture, rituals and celebrations.
- Recreation and self-expression
- Competitive activity.
- Dancing is an enjoyable way to be more physically active and stay fit.

The Jewish Hora
Greek Dancing
“Dancing stimulates the mind, body, & soul. It has been proven to increase cognitive strengths and prolong life; that is the Miracle of Dance.”

~Lai Rupe’s Choreography
www.LaiRupe.com
Why Dance?

- It’s fun
- It’s social
- It’s aerobic
- Increased endorphins
- Freedom
- Self-Expression
- Healthy
- Can do it anywhere!!
- It’s free!!
- Weight Loss
- Fitness
Health Benefits of Dancing (some anecdotal)

- Cardiovascular fitness
- Strength
- Mood
- Self esteem
- Libido
- Stress reduction
- Flexibility
- Constipation
- Immune System
- Social benefits—connection, bliss
- Brain health—memorizing moves and healthy aging
- Osteoporosis prevention
MORE MUSIC

DANCE & MOVEMENT

Improved concentration & focus

Improved memory-listening to familiar music

Improved recovery from exercise & reduction in pain

Improved mood -> happier

Workout performance improved

Reduced stress & anxiety

Better SLEEP

Increased potential for weight loss
Different types of Dance
Different Dance Offerings

- Aerial
- Ballet
- Ballroom Dance
- Belly Dance
- Bollywood Dance
- Bokwa
- Contemporary Dance
- Dance Fitness
- Exotic Dance
- Hip Hop Dance
- Hustle
Different Dance Offerings—(cont’d)

- International
- Jazz Dance
- Latin Dance
- Modern Dance
- QiDance
- Salsa
- Step
- Swing
- Tango
- Tap
- Zumba
Tap Dancing
Yangko Dancing
Belly Dancing
Kathak—Indian Dance
Gagnam Style
Break Dancing
Line Dancing
Hooked on a Feeling!
Ditch the routine,
Join the party!
Zumba®

“Ditch the workout. Join the Party”

Zumba is a Latin-inspired dance workout first developed in Columbia in the mid-'90s by celebrity fitness trainer Alberto “Beto” Perez

15 million people, 180 countries (https://www.zumba.com/en-US)

“The goals of Zumba are for participants to improve strength, balance, coordination, and cardiovascular endurance.”

“Anecdotally, doctors are seeing more Zumba-related injuries.”

Prospective studies are also needed to compare rates of injury in Zumba to other forms of dance fitness classes such as aerobics and jazzercise.

Instructor Training: 10 hours with no prequalifications

Zumba®: It’s Fun but is it Effective?
The health-enhancing efficacy of Zumba® fitness:

**Physiologic Markers:**
- Maximal oxygen uptake significantly increased
- Per cent body fat significantly decreased
- Interleukin-6 and white blood cell (WBC) count both significantly decreased

**Quality of Life Markers:**
Enhancement:
- Physical functioning
- General health, energy/fatigue and emotional well-being

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“Zumba Gold® is a modified form of Zumba that was designed to meet the anatomical, physiological, and psychological needs of seniors.”

Lack of Research

Study Purpose:
(a) to assess the cardiovascular and metabolic responses to Zumba Gold® and
(b) to determine if Zumba Gold® meets current guidelines for improving and maintaining cardiorespiratory fitness.
Zumba Gold® Study Findings

- Feasible alternative to traditional exercise modalities for older adults
- Fulfilled guidelines for improving and maintaining cardiorespiratory fitness.
- This is critical: low cardiorespiratory fitness may contribute to
  - premature mortality
  - reduction in physiological functional capacity
  - loss of independence

Injuries from Zumba®

- Increased with the increased number of classes/week
- >= 4 classes per week, increased injuries
- Multiple injuries (some people)
- Knee (42%) most common
- Ankle/foot (14%), shoulder (14%), elbow (5%), calf (5%), lower back (5%), neck (5%), thigh (5%), and muscle pain (5%).

Zumba® vs. Dance and Fitness--Injuries

- “Zumba® injuries: similar to dance and aerobics
- Achilles tendon pain, calf pain, shin splints, plantar fasciitis, etc.
- Apply recommended injury-reduction techniques from dance, aerobics, and jazzercise to Zumba®.

Prevention Tips for Zumba®, Dance Fitness, Aerobics

- Warm-up/Cool Down
- Proper shoes
- Hydration
- Cross Training
- Smaller Zumba Classes
- Improved Training for Instructors
- Appropriate Class Level (Zumba Gold®)
- “RICE”

Zumba®—Recommendations for Patients

- Start with \( \leq 3 \) Classes/wk
- Rest one or two days in between classes
- Decrease the frequency of workouts if they start to feel pain, discomfort, or fatigue.

My Personal Experience with Zumba

- Too little warmup, esp. Zumba Gold
- Movements can be jerky and potential for injury
- Noise Levels’ too high—dangerous
- Felt good a few hours afterwards
- Instructors variable
Dance, Music and Mood
Why do people listen to music?

- regulate arousal and mood
- to achieve self-awareness
- expression of social relatedness

How does music make you feel?
Music as Mystery

Music “must be ranked amongst the most mysterious (abilities) with which (man) is endowed.”

Charles Darwin

Exercise and Mood

Exercise duration and mood state: how much is enough to feel better?

Improvements in mood after 10 min, 20 min, and 30 min

Exercice duration and mood state: how much is enough to feel better?
Hansen CJ1, Stevens LC, Coast JR.
Older Adults, Mood, and Dance

N = 16 trained women, (Mage = 64.5 +/- 7.6 yr.)

One 75 min session of aerobic line dancing

Significant Increase:
  - Vigor and Mood

Significant decrease:
  - Tension, Depression, Fatigue, and Anger

Tango Dance vs. Mindfulness Meditation for Stress, Anxiety, and Depression

- N= 97 with depression (self-reported)
- Tango, Mindfulness, Waiting List (control)
- 1.5 hours/week of either tango or mindfulness meditation over 6 weeks.
- Findings: Tango Dancing = Mindfulness Meditation -> Dec. Depression
- Tango Group also increased levels of mindfulness.
- Stress levels sig. reduced only in the Tango Group.

Argentine tango dance compared to mindfulness meditation and a waiting-list control: A randomised trial for treating depression. Pinniger, Rosa et al. Complementary Therapies in Medicine, Volume 20, Issue 6, 377-384
Salsa
Different Salsa dance styles

Promote health and fitness benefits, and perhaps more importantly, produce pleasurable experiences,

Adherence to Salsa dancing which likely provides exercise-like health benefits.

Fun = Adherence

Having fun has been shown to be the main reason that older adults adhere to their physical activity programs (Resnick and Spellbring 2000).
Dance and Special Populations
Dancing for People with Disabilities
She Without Arm, He Without Leg
Wheelchair Dancing Program at Mt. Sinai

Wheelchair Dance Performance for World Stroke Day

The Wheelchair Abilities Dance Program, a recreational therapy program organized by the Klingenstein Clinical Center (KCC) of The Mount Sinai Hospital, recently featured a dance performance at the World Stroke Day Fair held on Thursday, October 29, in the Guggenheim Atrium. The unique program allows outpatient stroke survivors and people with multiple sclerosis or spinal cord injuries to gain independence through dance classes.

The KCC houses an inpatient and outpatient recreational therapy department that utilizes music, dance, and art to aid in the patient recovery process and improve well-being.

“These programs offer our patients an alternative method for their healing process,” says Clarisse Quirit, CTRS, Recreational Therapist, Mount Sinai Rehabilitation Center. “It is inspiring to see the smiles on their faces.”

Choreographer Diane Discipolo leads Kimberly Trenard, left, and Sabrina Bennett in a wheelchair dance.
Wheelchair Dancing!
Chair Exercises and Chair Dancing

Chair Exercises

- **Cardiovascular exercises**
  - raise your heart rate and increase your endurance.

- **Strength training**
  - using weights or other resistance
  - to build muscle and bone mass, improve balance, and prevent falls.

- **Flexibility**
  - range of motion,
  - prevent injury
  - reduce pain and stiffness.
  - prevent or delay further muscle atrophy.

Dance and Children
Dance reduces Heart Disease and DM risk factors in Children

- 43% NYC school age children are overweight or obese
- Increased risk for heart disease and Type 2 DM.
- Prospective cohort study January 2008 and September 2010 at a public elementary school in NYC
- Effectiveness of an after-school program combining dance, nutrition, and lifestyle modification on reducing risk factors for CVD and T2DM

Dance and CVD and DM Risk Factor Reduction in Children

- N= 64 NYC Elementary School Children - 4th and 5th graders
- Duration: 16 weeks
- Study intervention: 4 hours of 60 min sessions of high intensity freestyle dance—including high-intensity dance genres included mambo, cha-cha, hip hop, and swing.
  - plus
- Diet and Lifestyle Counseling

Dance and CVD and DM Risk Factor Reduction in Children

RESULTS:
- BMI dropped in overweight and obese kids
- Endurance improved
- Decreased Risk Factors for DM, CHD
- Cholesterol dropped in the overweight and obese kids
- Improved lifestyle choices.

The interactive dance game Dance Dance Revolution (DDR)

This study provides support for the use of interactive dance games in intervention programs to prevent or treat pediatric obesity

Concl: Children may be motivated to be active when given the opportunity to play an interactive dance game.

Dance Dance Revolution
DDR and 2 year old
Dance and Less TV for Kids

- **N= 61, 8-10-year-old African-American girls and their parents/guardians.**
- **Treatment Group:** After-school dance classes at 3 community centers, and a 5-lesson intervention, delivered in participants' homes, and designed to reduce television, videotape, and video game use.
- **Control Group:** Receiving newsletters and receiving health education lectures.
- **Results:** Intervention Group vs. Controls
  - Decreased BMI
  - Increased after school physical activity
  - Decreased household viewing of TV
  - Decreased concern about weight
  - Increased school grades

CONCLUSION:

Jazz/tap classes provided more MVPA than ballet classes.

Dance classes provide valuable opportunities for adolescent girls to be physically active.

Dance in the Schools—Dance Education
Dance and Children

Suggested strategies for improving physical activity:

1. More active dance types—jazz, hip hop, and partnered dances.

2. Reduce barriers to more physically active dance classes.

Dance Movement Therapy
Dance Movement Therapy (DMT)

- Is practiced in mental health, rehabilitation, medical, educational and forensic settings, and in nursing homes, day care centers, disease prevention, health promotion programs and in private practice.
- Is effective for individuals with developmental, medical, social, physical and psychological impairments.
- Is used with people of all ages, races and ethnic backgrounds
- Individual, couples, family and group therapy formats.

Source: American Dance Therapy Assn.
Dance Movement Therapy
Dance Therapy and Depression

- Low-quality evidence
- Three small trials with 147 participants
- Does not allow any firm conclusions to be drawn regarding the effectiveness of DMT for depression.
- Larger trials of high methodological quality are needed to assess DMT for depression, with economic analyses and acceptability measures and for all age groups.”

Dancing and Medical Conditions
Dancing and Constipation
Exercise and Constipation


Dance and Neurological Disorders
Dance: Prevention for Neurological Disorders

- Reduction in risk for various neurological disorders, notably for cognitive decline, dementia and Alzheimer’s
- Reduced risk for onset of Parkinson’s
- Stroke incidence although these findings are not as robust as those for dementia and cognitive decline.
- Exercise having a neuroprotective effect in relation to the onset of various neurological disorders (Hillman et al., 2008).

Neurorehabilitative benefits of dance

- Physical and cognitive stimulation.
- Perception, emotion, and memory
- Enjoyable
- Adherence

Dance and Multiple Sclerosis

- **Dance therapy** as a rehabilitative method has shown promise in **neurological disorders** such as **traumatic brain injury, spinal cord injury, stroke, autism, sensory loss and Parkinson’s disease**

- Almost no data on Dance and MS

- **Pilot Study**
  - **N=8 MS patients**
  - **Intervention:** 2 hours structured progressive Salsa dance classes plus 30 min home practice/week

- **Conclusion:** improving physical activity, gait and balance.

Dance and Parkinson’s Disease
Dance and Parkinson’s Disease

- Neurodegenerative disorder: motor and non-motor symptoms with a chronic progressive course.
- No Cure
- Treatment: symptomatic treatment
  - Drugs: dopaminergic (Levodopa—gold standard)
  - Surgery: Deep Brain Stimulation (DBS)

Interventions for Parkinson’s—the evidence

- **Physical exercise** was originally proposed as a treatment PD many years ago—but early studies—poor qualities.
- New evidence: Exercise.
- Improves both motor and non-motor features of PD
- **REDUCED RISK OF DEVELOPING PARKINSON’S DISEASE.**

Abbruzzese, Giovanni G (09/2015). "Rehabilitation for Parkinson’s disease: Current outlook and future challenges.". Parkinsonism & related disorders (1353-8020)
“Exercise-induced brain plasticity is likely to represent the neural basis of rehabilitation for PD [12].”

“In addition, increasing evidence suggests that physical exercise reduces chronic oxidative stress (increased mitochondria biogenesis and autophagy upregulation) and stimulates the synthesis of neurotransmitters and trophic factors [13]. Both these neurochemical phenomena contribute to neuroplasticity.”

Dance and Parkinson’s Disease

- Dance for Parkinson’s Disease--
  http://danceforparkinsons.org/
- Mark Morris Dance
- Programs in 30 states, 8 countries
Dance for Parkinson’s Disease
Non-conventional strategies for PD

- Music Therapy
- Dance Therapy
- Martial Arts (T’ai Chi)—improves postural control with decrease in falls.

‡ Pleasurable, social engagement

Future studies, however, need more rigorous designs, with larger samples, and appropriate outcomes.

Dance and Stroke Rehab

- 5 Components to the modified dance routine:
  - warm up, technical exercises, improvisation, a short routine and a cool down.
- Combination of Jazz and Merengue
- popular hits of the 50s’ to 80s’
- Pilot study N=16
- Post-Stroke—1 to 6 months

Dance and Stroke Rehab

Dance exercises targeted:
- flexibility
- balance
- endurance
- upper extremity function
- perception (visual imagery and incorporation of the affected side for individuals with hemineglect)
- Memory

Dance and Stroke—Positive effects on Patients

- Confidence to move in their own body and dance in an informal social context.
- One participant said “(The dance intervention) allowed me to meet other people with the same kind of problems as me”.
- Another one expressed that “The exercises are not easy, but I have a lot of fun to attend those classes”.
- Participants also spontaneously reported an improvement in their standing balance and a decreased fear of falling: “I feel safer to move when I’m standing”, “I can see that my balance is better, because of the dance group”.

Dance and Bone Health
Physical Activity and Bone Density

Few epidemiological studies physical activity during adulthood and Bone Density

Mechanical stimuli and bone health: what is the evidence? Cheung, Angela M.; Giangregorio, Lora)
Exercise and Bone Health

- progressive resistance training + walking or aerobic dancing

- Improve bone density in the spine and hip in postmenopausal women


Mechanical stimuli and bone health: what is the evidence?

Cheung AM¹, Giangregorio L.
Use it or Lose It:

“Non-weight-bearing bones like the skull do not require mechanical loading to maintain their bone structure whereas the tibia will lose a substantial amount of bone mass if subjected to disuse for several weeks.”

Aerobic Dance: Mini-Trampoline vs. Hardwood Floor

- Decreased bone resorption, increased bone formation
- Health-Related Physical Fitness
- Balance
- Foot Plantar Pressure

Exercise and the Brain:
Healthy Aging
Fig. 1. Overview of individual components of multi-domain interventions for healthy brain aging: a selection of possible elements for cognitive training and physical activity embedded in a social environment, depending on specific biological factors.

Soledad Ballesteros, Eduard Kraft, Silvina Santana, Chariklia Tziraki
Maintaining older brain functionality: A targeted review
Neuroscience & Biobehavioral Reviews, Volume 55, 2015, 453–477
http://dx.doi.org/10.1016/j.neubiorev.2015.06.008
Physical Activity and Aging

- Neuroplasticity
- Cognitive Function

Dancing and Aging

Goals of Healthy Aging:

- Maintaining physical and cognitive abilities and fitness.
- “Dance, in addition to physical activity, combines emotions, social interaction, sensory stimulation, motor coordination and music, thereby creating enriched environmental conditions for human individuals.”

“Positron emission tomography (PET) has been shown recently that dancing elicits multisite brain activations (Brown et al., 2006) implicating the involvement of wide-spread interacting brain networks.”

Health Benefits of Dance in Older People

- Independent of style
- Muscular strength and endurance
- Balance
- Other aspects of functional fitness in older adults.
- Future research: mental health and explore ways to make dance attractive to both genders.

*Altern Ther Health Med.* 2015 Sep-Oct;21(5):64-70. The Effectiveness of Dance Interventions to Improve Older Adults' Health: A Systematic Literature Review. Hwang PW, Braun KL.
What is the SECRET to still DANCING at 106?
Virginia McLaurin—Dancing at the White House!
Dancing and Healthy Aging

- Dance vs. exercising, walking or playing an instrument
- Physical activity, social and emotional interaction
- High compliance
- Motor behavior, posture and balance, perceptual and cognitive abilities
- Successful aging

Dancing and Healthy Aging

- The types of dance did not seem to make a different with regard to cognition and physical fitness.
- Broad range of different types of dance, ranging from folklore dance, through tango to salsa and jazz, showed beneficial effects.

Dance Dance Revolution vs. Brisk Walking

- Individuals perceive that they are “dancing” or “playing” rather “exercising,” which may influence the intensity and energy expended during game play (Scheone et al. 2013; Sell et al. 2008).
Dance Dance Revolution vs. Brisk Walking

- DDR can be used as a viable approach for the elderly to harvest both physical and mental health.
Can Dance meet the Criteria for Optimal Physical Activity?
From Couch Potato to ...
Hot Potato!!!
Recommendations for Patients
Proper Footwear for Aerobics, Dance Fitness

- Sufficient cushioning and shock absorption
- Medial-lateral (side-to-side) stability.
- Permit twisting and turning
- Thick upper leather or strap support to provide forefoot stability and prevent slippage of the foot
- Toe Box High
- No running shoes (treds-can stick to floor; no side to side stability)
Prescription for your patients

- Pre-Exercise Physical Exam—evaluate your patients, stress test if needed.
- How long: start slow, baby steps, and increase incrementally and as tolerated—the ‘Talk Test’—
- How intense? Encourage goals of moderate to vigorous intensity min aerobic 30min, 5x/wk, can be broken up in 10 min intervals; Advance as tolerated and safe to vigorous, and depending on health issues and goals.
- With a group or alone
What is the Best Exercise for Patient?

Take the “Work” Out of Workouts with a Fitness Plan that “Fits” You

- A program that fits your lifestyle, including activities you love, so you can stick with it for a long time.
- A well-rounded program with aerobic, strength training, and balance exercises.
- A program that starts with your current level of fitness and takes into account any previous injuries or current limitations.
- A program that keeps your routines fresh and keeps you motivated.

Alone vs. Group

Q & A
Resources:

- Parkinson’s dance—video organization
- Dance4health.org
- Wheelchair dancing--www.wheelchairdancers.org
- http://dizzyfeetfoundation.org/national-dance-day/
- Healthy Steps Lebed Method (gohealthysteps.com)—for general wellbeing and for people with chronic diseases, cancer survivors
- http://www.adta.org/about_dmt (Dance Movement Therapy)
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Maury Feren—9/27/15 - 2/20/16
Dance your way to Health!!
Ain’t No Mountain High Enough
---Marvin Gaye and Tammi Terrell