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Relationship Between Physical Activity and Risk of Falls in Elderly of West Marin

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White, Chelsey; Hunter, Crystal; Ruys-solorzano, Fasha; Hunt, Nancy; Mozzetti, Shay; Tso, Nima; Ward, Nicholas; Guevara, Tony; Kinsman, Kayla; Tso, Dolma; Sardar, Sadaf; and Truong, Halina, "Relationship Between Physical Activity and Risk of Falls in Elderly of West Marin" (2017). *Scholarly and Creative Works Conference 2020*. 79.

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Presenter Information

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Community Assessment Project in West Marin

The Relationship Between Physical Activity and Fall

Chelsey White, Fasha Ruys-Solorzano, Crystal Hunter, Tony Guevara, Kayla Kinsman, Sadaf Sardar, Ha Truong, Nicholas Ward, Nima Tso, Dolma Tso.

Target Population

West Marin elderly residents

- ❖ 25% of West Marin population are seniors
- ❖ 44% of these seniors live alone
- ❖ Falls are the leading cause injuries among individuals over the age of 65

Point Reyes & Inverness



Food bank

Weekly Home visits

Seated Zumba

San Geronimo Valley Community Center



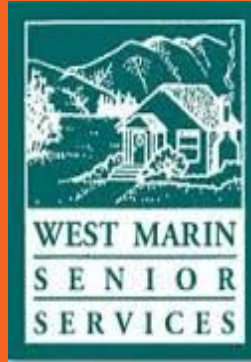
Food Bank

Senior Luncheon

Weekly Home Visits

Background

- 325 square miles of rural area
- 25% of the population are 60+ years old
- West Marin Senior Services
 - Promotes independence
 - Remain in their homes for as long as possible.
- 44% of the seniors of West Marin live alone
 - Half suffer from malnutrition
 - Increases the risk for falls



Problem Statement

In the United States, falls are the leading cause of injuries among individuals over the age of 65.



Since the majority of the seniors in West Marin are living in *widely spread out, rural, isolated locations*, it is important to implement an exercise regime program where they are able to remain independent.



A seated zumba video was made to encourage an increase of exercise within the comfort of their own homes and to build their strength to prevent falls.

Benefits of Seated Zumba

- It is FUN!
- Fast paced dancing music
- It is safe!
- It is challenging!
- Improves coordination and stamina
- Improves mood and confidence
- Anyone can do it!



COMMUNITY &
CULTURAL CENTER
dance palace

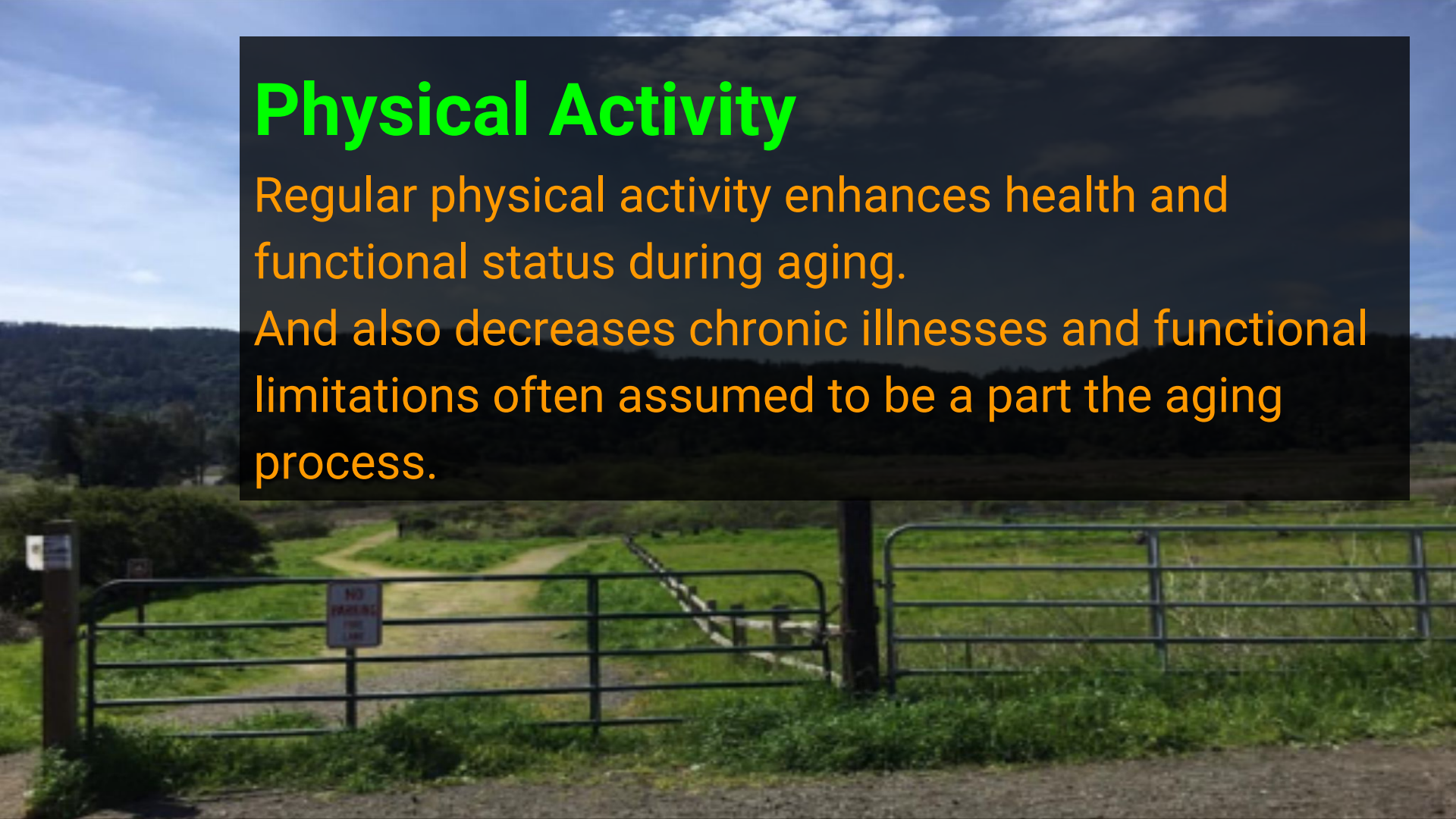
ZUMBA GOLD - SEATED

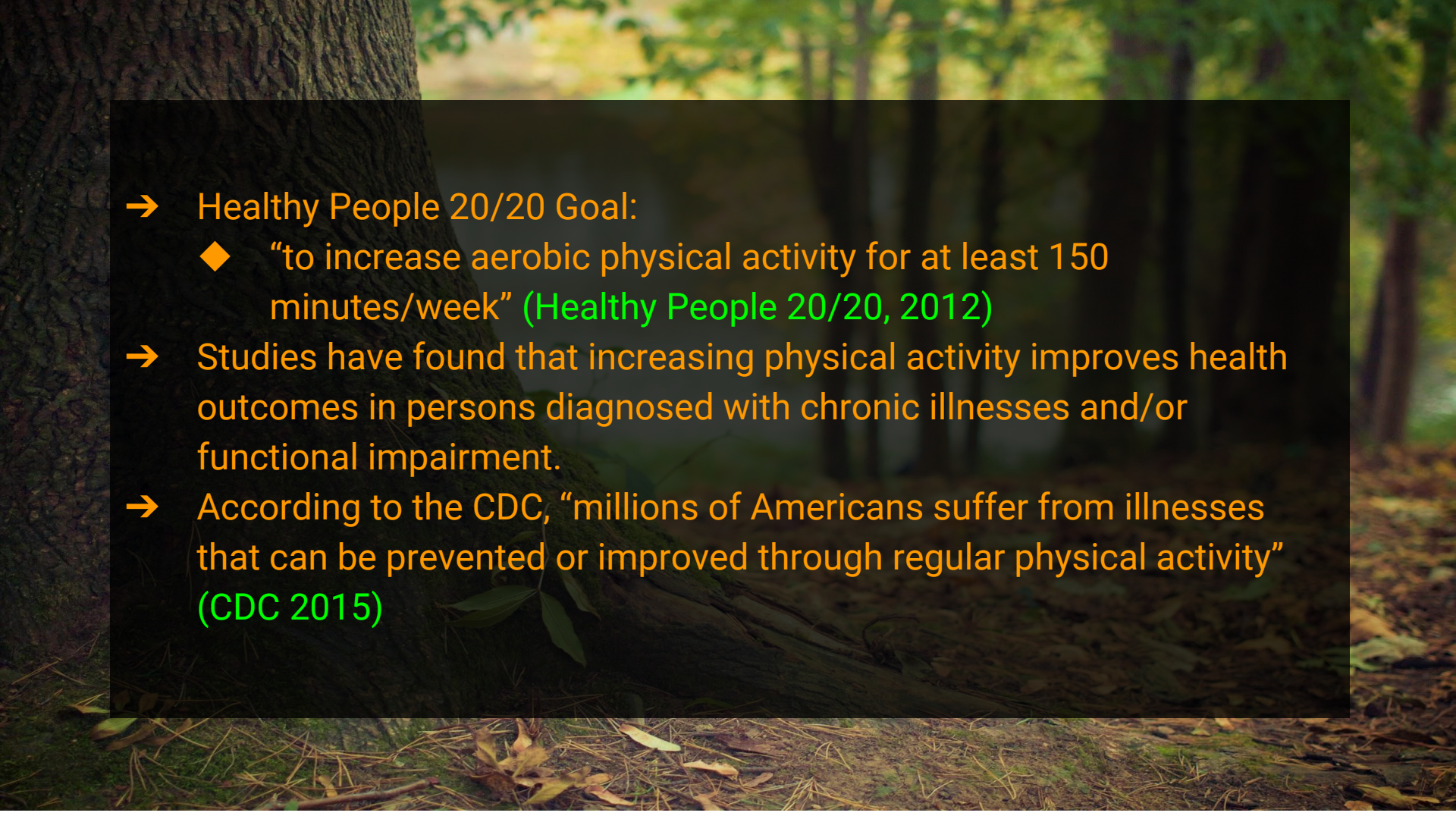
MOVING. GROOVING. SMILING.

Physical Activity

Regular physical activity enhances health and functional status during aging.

And also decreases chronic illnesses and functional limitations often assumed to be a part the aging process.



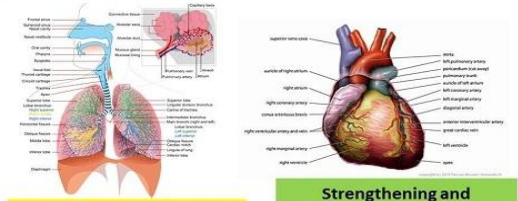
- 
- Healthy People 20/20 Goal:
 - ◆ “to increase aerobic physical activity for at least 150 minutes/week” (Healthy People 20/20, 2012)
 - Studies have found that increasing physical activity improves health outcomes in persons diagnosed with chronic illnesses and/or functional impairment.
 - According to the CDC, “millions of Americans suffer from illnesses that can be prevented or improved through regular physical activity” (CDC 2015)

Exercise

Helps build and maintain healthy muscles, bones and joints

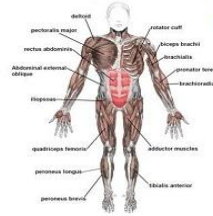
- Slows the loss of bone density that occurs with age
- 150 minutes of moderate intensity aerobic activity weekly can lower risk of hip fracture
- Moderate intensity aerobic activity can decrease the risk of falls

The Benefits of Doing Regular Aerobic Exercise



Strengthening the muscles involved in respiration, to facilitate the flow of air in and out of the lungs

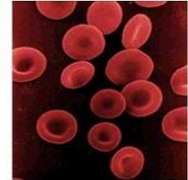
Strengthening and enlarging the heart muscle, to improve its pumping efficiency and reduce the resting heart rate, known as aerobic conditioning



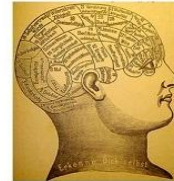
Strengthening muscles throughout the body



Improving circulation efficiency and reducing blood pressure



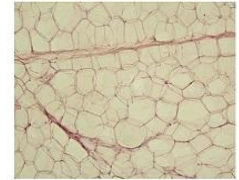
Increasing the total number of red blood cells in the body, facilitating transport of oxygen



Improved mental health, including reducing stress and lowering the incidence of depression



Reducing the risk for diabetes.



Burns body fat, while building leaner muscle.

Literature Reviews

The image features a central text overlay on a background photograph. The text, 'Literature Reviews', is written in a bold, orange, sans-serif font and is centered within a dark, semi-transparent rectangular box. The background is a rural landscape. In the foreground, two large, dark, textured tree trunks frame the scene from the left and right. A wooden fence with three horizontal rails runs across the middle ground. Behind the fence is a green field. In the background, there is a white, single-story house with a brown roof and a window, and to its left, a larger, darker barn. The sky is overcast and grey.

Beyond Strength: Participant Perspectives on the Benefits of an Older Adult Exercise Program

by M. Kohn, B. Belza, Petrescu-Prahova, and Miyawaki, C

- The purpose of this study was to evaluate effectiveness of an exercise program on health and happiness in a population over the age of 65
 - Participants felt they had increased happiness, stamina, strength, functional improvement, improved perceived fitness level, increased motivation and inspiration, improved balance, felt more confident in everyday activities such as gardening, improved social connections. They had a lowered risk of falls and improved quality of life
 - Implications for nursing include the possibility for program creation and improved programs related to fitness in the older community
-

Exercise training effects on elderly and middle-age patients with chronic heart failure after acute decompensation: A randomized, controlled trial by D. Acanfora.



- The purpose of this study was to assess whether physical training could improve the physical capacity of exercise in the elderly and thus decrease the risk of heart failure.
 - The sample size was composed of 72 individuals who participated in cardiopulmonary exercise tests (bicycle ergometry) to assess several parameters associated with health.
 - The results disclosed that exercise training improved peak oxygen consumption and ventilatory threshold both in elderly and middle-age patients. Peak carbon dioxide output, minute ventilation, peak heart rate and peak blood pressure increased only in middle-age patients after 4 weeks exercise training.
-

What Motivates Older Adults to Improve Diet and Exercise Pattern?

By: Bardach, S., Schoenberg, N., & Howell, B

- In the research article, *What Motivates Older Adults to Improve Diet and Exercise Pattern?*, Shoshana, et al. explore different perspectives on older adults' motivation to bring change in their diet and exercise.
 - The study found that perception of older adults, personal motivation, and confidence influenced the participants to change their diet and exercise patterns.
 - Implication for nursing: This study can guide the health care provider on how to approach with older adults to make change in lifestyle since the study gives perspective of older adults on their lifestyle changes.
-

The effect of physical activity on depressive symptoms and quality of life among elderly nursing home residents

By, Canbaz, M., Lok, N., Lok, S. (2017)

- A randomized controlled trial of a sample size of 80 individuals consisting of ages 65 & older.
 - 10-week "Physical Activity Program"
 - Purpose: Exercise program effects on the depressive symptoms and quality of life
 - Physical Activity Program consisting of 10 minute warm-up activities, 20 minutes rhythmic exercises, 10 minute cool-down exercises, and a 30 minutes free walking period on four days of the week.
 - Results of the study concluded that physical activity programs positively impact depressive symptoms and quality of life in the aging population among the participants.
 - This study recommends that in order to prevent chronic diseases and enable the aging population to maintain a higher quality of life, nurses and other healthcare professionals working with this population need to establish routine physical activity programs.
-

Effects of an Adapted Physical Activity Program On the Physical Condition of Elderly Women: An Analysis of Efficiency

by Alburquerque-Sendin

- 1 year long physical activity program with 123 sessions over 52 weeks
- **Sample size** of 120 elderly women from ages 60-65 and ages 65 and older
- **Purpose:** To identify the effects of physical activity on elderly women based on age groups.
- **Method:** 4 physical assessments based on Grip Strength (A1), Sit & Reach Test (A2), Static balance (A3), dynamic balance (A4)
- **Results:** The group 60-65 yrs old showed more benefits from the program by exerting less effort. On the other hand, women older than 65 years of age needed more time to complete each exercise to benefit from the exercise.
- **Overall:** The physical activity had an impact on changing the decline in physical ability involved with aging.

Wise, Old and Wonderful; The Benefits of Daytime Activities for Independently Living Frail Elderly People"

by Sylvia Kamphuis and Floris Kraan

The aim of this research is to gain an insight into the relation between daytime activities and the independence of the elderly.

Day-care activities therefore are a powerful intervention to assure that vulnerable elderly people can continue living independently at home for a longer time.

Day-care activities are an essential intervention to ensure that elderly individuals who are considered vulnerable can **continue living independently at home for longer periods of time**, concluding that if day-care activities were not offered as much or not at all, frail elderly and their partners will become even more vulnerable, which could potentially lead to more disabilities, acute admissions, and deaths.

Need-Based Assessment

Point Reyes Dance Palace

- Aikido Tuesdays 6-7.30 PM
- Floating Island Sangha Weds 7-8 PM
- Pilates Tues/Thurs 8-9 AM
- Ping-Pong Mon 7:30-9:30 PM
- Tai Chi & Qigong Friday 10:30-11:30 AM
- Tai Chi Chuan Sunday 8:30-10 AM
- Zumba Mon Thurs 6-7 PM
- Exercise for Life 11:15-12:15 PM
- Seated Zumba Thursday 11:30-noon
- Gentle Pilates Tuesday 9:30-10:30 AM
- Yoga Mon, Weds, Fri, Sat

San Geronimo Valley Community Center

- Performing arts programs
 - Monthly visual arts shows & galleries
 - Community gym
 - Tai Chi
 - QiGong
 - Yoga
 - Ping-Pong Thursdays 1 PM
-

Nursing Diagnosis

Risk for falls among seniors living in West Marin related to decreased mobility, loss of muscle mass, and decreased balance as evidenced by increased use of assistive devices when ambulating, unsteady gait, and history of falls within the community.





NURSING PLAN

- Increase the number of days per week that West Marin seniors perform the seated Zumba exercises from one day per week to most days of the week.
- Increase strength, mobility, and balance among West Marin seniors who participate in the seated Zumba project.
- Reduce risk of falls among West Marin seniors participating in the seated Zumba project.
- Increase exercise-related endorphins and reduce depression among West Marin seniors participating in the seated Zumba project



Nursing Interventions

Primary prevention: To reduce the risk of falls by educating this particular population about the many benefits that can be attained when exercise is introduced into their daily lifestyle

Secondary prevention: Is screening those in the population who are at highest risks for falls.

Tertiary prevention: Is targeting those in the population who have already had a fall and are immobile and are at the highest risk for a repeat fall.



Implementation

- Oral presentation on the benefits of exercise and seated zumba were given to the community
- Discussion of the seated Zumba DVD project
- Encouraged the community to participate and give feedback
- Names of participants were collected for evaluation purposes

Distribution

- Point Reyes
 - 25 seated Zumba DVDs
- San Geronimo Community Center
 - 35 seated Zumba DVDS

EVALUATION

Questionnaires for benefit of seated- zumba in West Marin seniors:



West Marin Location:

- San Geronimo Valley
- Point Reyes Station

1) Age:

- 65-75
- 76-85
- 86-95
- 96-105

2) Did you have a history of falls before seated zumba?

- Yes
- No
- If yes, (how many times) _____

3) Did you attend the seated Zumba class offered at the Dance Palace?

- Yes
- No

4) Would you be willing to use this DVD ?

- Yes
 - No
-



Questionnaires for benefit of seated- Zumba in West Marin seniors: continued...

5) On average, how many minutes do you perform seated Zumba for a session?

- 10 minutes
- 20 minutes
- 35 minutes

6) How effectively does the seated Zumba-DVD motivate you to exercise at home?

- Strongly agree
- Agree
- Neutral
- Disagree
- Strongly Disagree.

7) How helpful was the seated Zumba DVD in increasing your strength and balance?

- Very helpful
- Helpful
- Neutral
- Not helpful
- Not helpful at all

8) Have you fallen since you started using the seated Zumba DVD?

- Yes
- No

If Yes, how many? _____



ACKNOWLEDGEMENTS



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- ❖ **Nursing Students:** Nancy Hunt, Fasha Ruys-Solorzano, Shay Mozzetti, Chelsey White, Crystal Hunter, Sadaf Sardar, Dolma Tso, Nima Tso, Kayla Kinsman, Tony Guevara, Halina Truong, Nicholas Ward

THANK YOU