The Influence of Latin Dance Classes on the Improvement of Life Quality of Elderly People in Europe

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Abstract: The aim of this paper addresses the problem of the quality of life of elderly people by presenting the energy of Latinos that arouses optimism in European citizens and provides them with joy through Latin dances on a regular basis. The research covered 163 people in the old, so-called third, age, from the European countries with the highest aging rate, namely: Italy, Germany, Greece and Poland. Results shows that physical activity in the form of Latin American dances has a beneficial effect on the functioning of the body. Not only does it allow for maintaining physical fitness and inhibiting the development of many ailments and diseases, but also stimulates the brain to constant activity, which results in improvement of the ability to make associations, concentration and, above all, memory. It is also a way to fill the gap that arises as a consequence of the completion of certain life stages. Through making new social contacts, it is possible to forget about loneliness, stagnation and the monotony of everyday life. However, above all, Latin dance is a source of satisfaction, joy and happiness, i.e., determinants of the quality of life.

Keywords: dance; physical activity; quality of life; longevity; sustainability; culture mentality

1. Introduction

The objective of this paper is to determine the correlation between Latin dance classes and quality of life in the elderly populations of Europe.

The official reports of the American Centers for Disease Control and Prevention (CDC) confirm that the life expectancy of a Caucasian is as long as 79 years, while in the case of the representative of the Latino community it amounts to 82 years. In biological terms, the average life expectancy of a female of Latino descent is 2.4 years younger than in the case of a woman from any other ethnic group. Moreover, in every Latino age group, the risk of premature death is about 30% lower than in the case of other ethnic groups [1].

Aging is a universal and inevitable phenomenon that takes place always and anywhere, regardless of latitude or time zones. However, due to the progress of civilization and the improvement of living standard, life expectancy has risen, causing the aging population to be the most important factor in the demographic transformation of the 21st century [2].

A United Nations’ (UN) report forecasts that by 2030, the percentage of the population of Europe over 65 years old will reach 23.8%. Nowadays, Italy, Germany and Greece belong to the countries with the highest aging rate, i.e., the share of people aged 65 and more in the general population. In Poland, people at this age constitute 17.1% of the general population, while the average for the entire European Union (EU) amounts to almost 19%. Unfortunately, this situation is constantly changing and by as early as 2050 Poland will become one of the European countries with the highest number (percentage) of people over 65 which will double to over 30%. On the other end of the spectrum, there is e.g., Brazil,
where about 80% of senior citizens are ready for old age and want to spend this time positively [3] (data based on Ipsos MORI research carried out globally in 30 countries in cooperation with the Centre for Ageing Better, a British charity funded by the National Lottery Community Fund).

In this case, addressing issues related to senior citizens becomes very important, not only to meet their basic needs, but also to create development opportunities while caring for the quality and style of life [4,5].

Literature on the subject provides many definitions of quality of life [6–12]. This is undoubtedly an interdisciplinary as well as subjective concept that cannot be defined with norms or standards. The World Health Organization (WHO) states that quality of life is “an individual’s perception of their position in life in the context of the culture and value systems in which they live and in relation to their goals, expectations, standards and concerns” [13]. Based on this concept, the following factors that comprise an individual’s quality of life have been distinguished: physical health, mental state, degree of independence, relationships with other people and the environment in which the person lives [14]. Professor Steuden, who deals with the psychology of old age, emphasizes that: “The quality of life of the elderly is not a constant attribute, which is assigned to a person due to their age, but a resultant of external, environmental and situational factors” [15]. Therefore, it should be taken into account that the elderly are more diverse than presented in the general stereotype regarding old age. Everyone ages differently and at a different rate. “Psychological changes related to old age do not create one personality type or a way to assess one’s own life for the elderly” emphasizes reference [15]. Everyone is responsible for their own existence and giving life a meaning, thereby increasing its quality. This constitutes a considerable challenge for senior citizens—the awareness of the possibility of changing the quality of their own lives at all stages of aging. Every senior citizen wants to remain fit and self-sufficient for as long as possible, which is why more and more people are looking for ways to become active in their old age.

Dance has recently become one of the most popular forms of physical activity. Due to the strong promotion of dancing, a growing number of people enrol in various dance courses. Year by year, there are more dance schools that present diverse offers, and thus everyone can find something for themselves, regardless of their gender, age or social status. Skills or abilities are irrelevant, as dance classes are organized at various levels, which allows lessons to be found that will be a source of satisfaction and joy, as well as meeting one’s expectations. Dance is a natural movement, the biological need of the body, and at the same time a source of health. It has been practised by mankind since the beginning of our existence and has been present at every stage of life [16]. With it, we can transmit thoughts and feelings as well as affect the sphere of emotions. Since the dawn of time, dance has been an important part of social and spiritual life. The primitive men even depicted it in petroglyphs. People danced during rituals, as well as used it to teach and pass on traditions and values to next generations.

2. Materials and Methods

The objective of the paper was the Latin dance classes seen as a factor affecting the quality of life of elderly people in Central Europe.

Therefore, the research problem is represented by the following question: “What is the relationship between participation in South American dance lessons and a change in the quality of life of European senior citizens?” This is a problem of dependence, as it indicates the relationship between two variables: participation in dance classes and quality of life. The independent variable is the classroom conditions, which are conducive to increasing an individual’s well-being; whereas, the positive effects of participating in such classes constitute the dependent variable. Thus, the cognitive goal was to investigate to what extent the quality of life is increased thanks to these classes and what spheres it covers. The practical objective was to present the benefits of this type of activities for people aged 65 and older.

Various research methods were used to implement the formulated problem, including the analysis of the literature on the subject, observation method, intuitive method, comparative method and a
survey based on questionnaires with both open and closed questions, included to present the influence of dance on the respondents’ lives. Moreover, physical, mental, emotional and social aspects were taken into account.

The research covered 163 people in the old, so-called third, age, from the European countries with the highest aging rate, namely: Italy (38 people), Germany (64 people), Greece (21 people) and Poland (40 people); 70% of the respondents were women, while the remaining 30% were men. Such proportions in this form of physical activity are normal, as dancing is more common among women than men of all ages [17]. If the gender imbalances in the group were large, participants could dance solo or with a same sex partner. They chose the role of lead/follow. If the couple was male-female, the roles were assigned by traditional gender roles. However, as part of exercise and expanding knowledge of the partner’s steps and movements, everyone learned both roles. It helped to understand the intentions of the partner.

All respondents had led a passive lifestyle before they took up dance lessons. Today, they train regularly twice a week for 1–1.5 hours. All respondents had been attending Latin dance classes (salsa, cha cha, rumba, paso doble, jive, mambo, bolero, bachata, merengue, kizomba) for over six months. All participants were informed about conducting the tests 10 months before the interview. During this time, they were meticulously monitoring all data regarding their health and gathered the research results. This information was collected and its analysis presented in this study.

3. Results

The collected data show that the majority of the participants were non-married (78%), including 40.5% of divorces (24.5% of women and 16% of men) and 37.5% of widowed people (22% of women and 15.5% of men). As is well known, the majority of organized activities, which require the presence of a qualified instructor, are quite expensive. Thus, 20% of respondents describe their financial situation as very good, 50% as good and 30% as average. The respondents did not include people whose financial situation was bad. This may be due to the fact that 68.5% are professionally active and 31.5% do not work. Among the professionally active people, 85.3% perform mental work and 14.7% physical work.

The number of years spent on participating in dance classes by the respondents was usually 1–3 years (43%) or above 3 years (32.5%). Slightly fewer people (24.5%) had practised this form of exercise for 6–12 months. When choosing this type of classes, their primary criterion was the fact that dancing is an attractive way to maintain overall psychophysical fitness (96.5%) as well as the desire to meet new people (79%). Moreover, due to lifestyles where people are in a constant hurry, many people want to break away from their duties and boredom (44%), and consider dance as a form of activity that can be practiced at any age (39%). An important argument is the fact that dance is a useful form of physical recreation, which is beneficial to everyday life (32%) and is also an excellent rest and relaxation method (29.5%). Some of the respondents in this way fulfil their childhood dreams (16%) or return to an activity practiced in the past (12.5%). The smallest number of respondents perceive the classes to be a way to fill their free time and kill boredom (7%). The responses indicate that there are cases (15%) where the environment discourages the elderly from taking up this type of activity by saying that at this age doing this is not appropriate. Fortunately, for most people the information that they attend dance lesson is positively perceived in their environment (68.5%). Nevertheless, it is disturbing that there is still a large percentage of lonely people who even their closest family is not interested in them, neither encouraging nor dissuading their participation in physical activity, as they do not keep in touch with them (16%).

According to the respondents, the biggest obstacle that stops them from engaging in physical activity in the form of dance is the lack of motivation and willingness (35%), followed by low living standards (25%) and lack of time (20%). It is worth paying attention to the fact that many elderly people have major health problems and due to poor health they cannot participate in physical activity (12%). Moreover, the elderly are more likely to be injured, which can also prevent them from performing
physical activities (8%). The proper functioning of the individual, however, reveals itself not in passive “go with the flow”, but in the effective struggle with difficulties and adversities of fate.

The participants who take up Latin dance classes noticed a number of positive changes in their physical health. The vast majority assured us that they had significantly improved fitness (98%), as well as noticed greater amounts of energy and vigour (86%). They proved it by showing greater physical abilities: “I can go to the third floor without getting winded”, “now I can definitely go for a longer walk”, “playing with my grandchildren does not make me as tired as in the past”. Students feel relaxed and flexible (82%). More than half noticed a significant decrease in body weight (56.5%), and some also paid attention to its increased firmness (22%).

It is important to note that most of the respondents struggle with various diseases of affluence, e.g., a large percentage of obese people suffer from diabetes, hypertension and back problems; patients with cancer live under severe stress, while some of them also complain about back pains or overweight problems. The effect of therapy in the form of Latin dance classes on the physiological parameters of the students was impressive. In the case of each disease entity, an improvement in both results and mental condition was reported. The respondents agreed (100%) that dance classes had a significant impact on their well-being, and that despite the illnesses they are suffering from, they feel more joyful and happier. This may be the effect of endorphins, i.e., happiness hormones, that are released during dance. Furthermore, they meet with other suffering people and thus this community makes it easier to deal with problems together. Participation in dance classes resembles group therapy. The respondents struggling with cancer, overweight and obesity declared a stronger will to fight the illness as a result of the first positive effects of a dance workout they observed. Moreover, oncology patients have started to more strongly believe that a better lifestyle may prevent relapse of the illness.

The research results concerning people with coronary diseases shows that there was a reduction in LDL-cholesterol, and thus an increase in HDL-cholesterol (91.3%). Moreover, doctors informed them about the dilated lumen of the blood vessels that had been narrowed due to atherosclerosis (45.7%).

Most people complaining about back problems admitted that thanks to regular classes, the pain decreased significantly (90.4%). This could have happened for many reasons: a decrease in body weight leading to a reduction in overload (61.5%), an increase in the range of motion (69%), strengthening of stabilizer muscles (53.8%), and correction of posture (17.3%).

The remission of disease symptoms was recorded in the case of more than a half of diabetics participating in the study (61.5%). The CRP (C-reactive protein) concentration (53.8%) was regulated as well as the insulin transduction pathway (38.5%) and the lipid profile improved (30.8%).

The respondents who suffer from overweight and obesity also noted a reduction in the percentage of adipose tissue (90%), accelerated metabolism (86.7%) and muscle nutrition (16.7%).

The respondents who are in great stress and suffer from disorders of psychogenic origin admit that increased dance activity results in better sleep (79.6%). Moreover, dance decreases the capacity to experience pain typical in old age (20%). This is closely related to the interest in a healthy lifestyle. Over half of the respondents changed their eating habits (56%) and started caring more about their appearance (67%). The research results confirm that learning and improving dance skills often leads to taking up other activities, especially physical ones such as: walking, Nordic walking, swimming, aerobic, cycling (85%). Very often, the participants take part in discussions on Latin dances on Internet forums, thematic websites or social networking sites (65%). Moreover, there can be observed an increased interest in films about dance, carnival, the Latin mentality and approach to life (48%). However, there are also those who do not change anything in their lives apart from training (15%), a fact confirmed by previous reports [17].

The participants of dance classes also noticed many changes in the sphere of mental health. The vast majority felt better and experienced less stress (85%). Their concentration increased (52%) and memory improved (31%). Moreover, thanks to dance, many respondents have become less shy, and opened themselves more to others, thus it is now easier for them to establish interpersonal relationships (46.5%). All respondents unanimously stated that participation in dance classes had a
significant positive impact on their mood changes. Furthermore, the vast majority noticed an increase in their attractiveness (82%). This may be a consequence of changes that took place in the sphere of their social life, namely the number of their friends increased considerably (95%); they felt that they belonged to a given social group (55%); they understood the functioning of various social roles (34%); they learned the basics of social interaction and acquisition of value systems as well as behaviour patterns in a given community (15%). It is worth noting that as many as 72% of respondents regularly meet with other students outside of classes for social purposes, and 13% do so irregularly.

Dance plays many functions for the respondents. First and foremost, it is considered fun that allows relaxation, stress relief and pleasure (entertainment function—100%). Although movement is very important in the life of every person, not everyone is an enthusiast of regular physical exercise. Therefore, if that is the case, dance classes can be a good alternative (a rehabilitation function—100%). It not only strengthens physical fitness and coordination of movement, but as far as concerns health, dance contributes to reducing the expenses spent on medical treatment (economic function—25.5%). Human strength is regenerated, which leads to a more active lifestyle. It is a kind of biopsychic regeneration that is necessary to actively work in the environment (regenerative function—100%). Thus, it puts an individual among active persons (location function—31%). Dance allows the exploration of new places and broadening of one’s horizons, developing oneself and helping discover new and completely unknown talents (developmental function—22.5%). Dance classes also mean group meetings, forging permanent bonds, sharing a passion with others and spending time together (integration function—96.5%). Dance is also a form of helping one let off steam and achieve spiritual purification through communing with art. It makes it possible to rid oneself of tensions and sources of frustration. Dance allows complexes that overwhelm people in their everyday life to be overcome and the mind and soul to be cleansed through artistic experiences (cathartic function—92%). It reveals hidden desires, which for various reasons could not be pursued, and creates new values in human life. Psychological complexes that disturb the functioning of the ego are eliminated (creative function—71.5%). Participation in dance classes helps an individual adapt more easily to changes—increased activity and effort as well as new conditions (adaptive function—22%). Through dance, it is possible to reduce a number of deficiencies and unmet needs (compensating function—64%), as well as support and stimulate a person’s psychophysical development (stimulative function—80.5%). It is invaluable in breaking down barriers and freeing oneself from imposed, unwanted norms. Dance liberates from the boundaries of social relations, dependencies and domination of patterns. This emancipation gives one a taste of the heavenly infinity. In dance, everyone can feel free like a bird, and encounter their inner self and experience happiness (emancipatory function—87.5%). Thus, dance contributes to the creation of own patterns (socio-ideological function—71.5%).

4. Discussion

Although, as already mentioned, the aging process is inevitable and irreversible, since time immemorial people have been making every effort to find a way to stop it. However, today we only know methods that can help us effectively slow aging, and these mainly involve physical activity.

Dance is an effective way to prolong youth. Rhythmic exercises accompanied by music, appropriately matched to age and motor skills, are a means of preventive gerontology. It is well known that the best way to overcome illnesses is not to treat them, but to prevent them. The maxim of the ancient Greeks was: “We don’t stop exercising because we grow old. We grow old because we stop exercising.” Dance workout tailored to one’s physical capabilities brings maximum effect. Dance is also a perfect escape from a grey reality thanks to which social contacts, much needed by older people who often struggle with loneliness, are made. Stagnation and boredom are the enemy of intellectual and physical abilities. By carefully listening to music—in order to rhythmically dance, and by training in choreography—remembering steps—the human brain is constantly working at full capacity, which later results in an excellent memory and the ability to associate facts. This largely prevents senile dementia. By dancing regularly, people in the “third age” can experience an increase in
oxygen absorption capacity of the body and improved pulmonary ventilation thanks to which all body cells are oxygenated. Furthermore, the maximum stroke volume and cardiac output, blood volume and frequency of the heart rate are increased, which significantly improves circulation. All muscles and joints are used during dance, thanks to which muscle structure is improved, a person is protected against contractures and atrophy, as well as the joint range of motion, which prevents rheumatic pain, is increased. This is important for stabilizing the skeletal system. Physical activity in the form of dance is an important factor that may increase life expectancy not only because it hinders the development of many dangerous diseases such as obesity, osteoporosis, coronary diseases, diabetes, etc., but also because it brings a lot of satisfaction, joy and smile. Dance is a cure for shyness and loneliness, as it connects people in a natural way.

There are many publications and reports about the irreplaceable benefits of physical activity to health. Nevertheless, a large number of people do not do classic exercises, as they associate them with exerting oneself, tremendous fatigue and often pain. Others explain this by the lack of time or unwillingness to do sport. Sometimes, however, this type of excuse is justified. These may include, for example: disability, disease in advance stage, or age-related biological changes, as well as social conditions such as upbringing and negative experiences, psychological determinants, i.e., poor motivation and loss of life balance [18]. The solution for them are dance classes, which mainly provide relaxation and entertainment, with the benefits being “side effects” of pleasure. Latin dance classes give joy, satisfaction and, above all, fun, which lead to general relaxation and, consequently, improve well-being. They integrate both the body and the mind, at the same time regenerating them. Exercises that involve music and movement are a very attractive form of activity among people of all ages. This type of movement has an effect on many physiological functions, and improves muscle structure by engaging all muscles and joints. Moreover, such movement performed with music is not as tiring as in the case of other physical exercise and mobilizes to increase effort. Numerous researchers underline the undoubtable influence of music on the physiological changes of the body (among others:) [19–35]. Emotional reactions to music stimuli that are manifested by the activation of motor activity evoke internal changes in the body that appear in measurements of pulse rate, blood pressure, heart rate, galvanic skin response, breathing parameters and others. On the other hand, music relieves anxiety and its accompanying phenomena such as excessive acceleration of heart rate and breathing, sweating, lowering of the pain threshold, reducing immunity, increasing stress hormones.

There are many forms of physical activity available for senior citizens. The World Health Organization (WHO) recommends that the elderly engage in moderate physical activity for a minimum of 30 minutes a day at least 5 days a week. This activity should include endurance, strength, stretching, balance and coordination exercises. The last of these are especially important for senior citizens as they help reduce the risk of falls, which are very dangerous at an advanced age and their consequences can dramatically change lives. Thus, the most beneficial forms are those that involve a large number of muscles, combine body work with mind work, and are based on shaping coordination abilities such as: global movement coordination, kinesthetic differentiation of movements, temporal-spatial orientation, static balance, dynamic balance, rhythmization, ability to react quickly, ability to join movements, ability of high frequency movements. Therefore, it seems that dance forms combine all of these, as indicated by the presented research results. Various fitness forms and exercises based on martial arts are also similar to dance forms of physical activity. A literature review shows that practising tai chi, Nordic walking, yoga, pilates, aerobics and zumba have similar impacts on senior citizens’ health.

The most important benefits for the senior citizen’s health that result from these forms of physical activity are:

- increasing muscle strength, endurance and mobility, which translates into greater independence in everyday life and preservation of motor skills, including motor coordination that reduces the risk of falls [36–39].
- increasing bone density, which reduces the risk of osteoporosis and thus the risk of fractures [36].
• improving the efficiency of the respiratory system, which leads to better oxygenation of, among others, muscles and brain [37–39].
• strengthening of the heart, improving blood flow in blood vessels, increasing the chances of normalization and better control of blood pressure, which reduces the risk of clots and embolism [39–41].
• decreasing the level of LDL-cholesterol and triglycerides, while increasing the level of HDL-cholesterol [42,43].
• normalizing high blood glucose levels, improving its use by cells, as well as increasing insulin effectiveness in the body. These factors translate into a lower risk of type 2 diabetes [44,45].
• increasing the body’s resistance to infections [38,39].
• reducing body fat, improving intestinal peristalsis, regulating bowel habit and, consequently, facilitating slimming and maintaining appropriate body weight [39,41,46,47].
• improving physical and mental well-being, which reduces the level of stress, and translates into, among others, better quality of sleep and reduction of risk of, e.g., the development of depression and anxiety [48].

These are the most valued forms in gerontological practice due to their numerous cognitive, emotional, social and physical benefits. Understanding the physical demands placed upon senior citizens’ musculoskeletal systems by individual postures may allow experienced instructors and therapists to develop safe and effective exercise programs that reduce undesirable side effects. Regular physical activity by the elderly is one of the most important factors mitigating the impact of aging and enabling so-called successful aging, which allows good health and fitness to be maintained in everyday life and the ability to do household chores or move freely. In 2008, the European Union emphasized that regular physical activity allows preventing or delaying the occurrence of numerous diseases, as well as reducing the risk of death in general by 30% and the risk of death from cardiovascular diseases by about 30–50%.

This paper aims to present dance as a natural and universal form of physical activity, which in a versatile and harmonious way contributes to physical and mental development and shapes the health of the elderly by honing will and character.

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References
1. Horvath, S.; Gurven, M.; Levine, M.E.; Trumble, B.C.; Kaplan, H.; Allayee, H.; Ritz, B.R.; Chen, B.; Lu, A.T.; Rickabaugh, T.M.; et al. An Epigenetic Clock Analysis of Race/Ethnicity, Sex, and Coronary Heart Disease. *Genome Biol.* 2016, 17, 171. [CrossRef] [PubMed]
2. Banio, A.; Banio-Surmiak, J. Wpływ zajęć tanecznych ma wzrost jakości życia osób starszych. *Handel Wewnętrzny* 2017, 4, 5–18.
3. Global Study Finds High Levels of Concern about Ageing. Available online: https://www.ipsos.com/ipsos-mori/en-uk/global-study-finds-high-levels-concern-about-ageing (accessed on 27 January 2020).
4. Marquez, D.X.; Bustamante, E.E.; Blissmer, B.J.; Prohaska, T.R. Health Promotion for Successful Aging. 2009. Available online: https://journals.sagepub.com/doi/pdf/10.1177/1559827608325200 (accessed on 27 January 2020).
5. Franklin, N.C.; Tate, C.A. Lifestyle and Successful Aging: An Overview. *Am. J. Lifestyle Med.* 2009, 3, 6–11. [CrossRef]
6. Dalkey, N.C.; Rourke, D.L. *The Delphi Procedure and Rating Quality of Life Factors*; University California: Los Angeles, CA, USA, 1972.
7. Campbell, A.; Converse, P.E.; Rogers, W.L. The Quality of American Life: Perceptions, Evaluations, and Satisfactions. Available online: https://deepblue.lib.umich.edu/handle/2027.42/99153 (accessed on 27 January 2020).
8. Flanagan, J.C. Measurement of Quality of Life: Current State of the Art. Arch. Phys. Med. Rehabil. 1982, 63, 56–59. [PubMed]
9. Torrance, G.W. Utility Approach to Measuring Health-Related Quality of Life. J. Chronic Dis. 1987, 40, 593–603. [CrossRef]
10. Farquhar, M. Definitions of Quality of Life: A Taxonomy. J. Adv. Nurs. 1995, 22, 502–508. [CrossRef]
11. Ferrans, C.E.; Powers, M.J. Psychometric Assessment of the Quality of Life Index. Res. Nurs. Health 1992, 15, 29–38. [CrossRef]
12. McKenna, S.P. Measuring Quality of Life in Schizophrenia. Eur. Psychiatry J. Assoc. Eur. Psychiatr. 1997, 12 (Suppl. 3), 267s–274s. [CrossRef]
13. WHO | WHOQOL: Measuring Quality of Life. Available online: https://www.who.int/healthinfo/survey/whoqol-qualityoflife/en/ (accessed on 27 January 2020).
14. Saxena, S.; Orley, J. WHOQOL Group. Quality of Life Assessment: The World Health Organization Perspective. Eur. Psychiatry J. Assoc. Eur. Psychiatr. 1997, 12 (Suppl. 3), 263s–266s. [CrossRef]
15. Steduen, S. Psychologia Starzenia Się i Starości; PWN: Warsaw, Poland, 2011.
16. Banio, A. Physical Activity as an Important Factor. Dance as a Natural Physical Expression. In Physical Education and Sport as an Inherent Human Right and the Process of Constant Education; Nowocień, J., Zuchora, K., Eds.; AWF: Warsaw, Poland, 2014; pp. 126–133.
17. Banio, A. Taniec Jako Forma Rekreacji / Dance as a Form of Recreation. In Turystyka i rekreacja w teorii i praktyce / Tourism and recreation in theory and practice; Eider, J., Ed.; Uniwersytet Szczeciński: Szczecin, Poland, 2014; pp. 65–73.
18. Ingram, D.K. Age-Related Decline in Physical Activity: Generalization to Nonhumans. Med. Sci. Sports Exerc. 2000, 32, 1623–1629. [CrossRef]
19. Evers, S. Music for rheumatism—A historical overview. Z. Rheumatol. 1990, 49, 119–124. [PubMed]
20. Watkins, G.R. Music Therapy: Proposed Physiological Mechanisms and Clinical Implications. Clin. Nurse Spec. CNS 1997, 11, 43–50. [CrossRef] [PubMed]
21. Gantenbein, U.L. Healing of harmony: music therapy as a historical cultural phenomenon. Praxis 1999, 88, 956–964. [PubMed]
22. White, J.M. Music as Intervention: A Notable Endeavor to Improve Patient Outcomes. Nurs. Clin. N. Am. 2001, 36, 83–92.
23. Bernardi, L.; Porta, C.; Casucci, G.; Balsamo, R.; Bernardi Nicolò, F.; Fogari, R.; Sleight, P. Dynamic Interactions Between Musical, Cardiovascular, and Cerebral Rhythms in Humans. Circulation 2009, 119, 3171–3180. [CrossRef]
24. Murrock, C.J.; Higgins, P.A. The Theory of Music, Mood and Movement to Improve Health Outcomes. J. Adv. Nurs. 2009, 65, 2249–2257. [CrossRef]
25. Thoma, M.V.; Marca, R.L.; Brönnimann, R.; Finkel, L.; Ehlert, U.; Nater, U.M. The Effect of Music on the Human Stress Response. PLoS ONE 2013, 8, e70156. [CrossRef]
26. Mysiak, A.; Lindbaek, M. Examples of the use of music in clinical medicine. Tidsskr. Den Nor. Lægeforening Tidsskr. Prakt. Med. Ny Raekke 2000, 120, 1186–1190.
27. Karageorghis, C.I.; Terry, P.C.; Lane, A.M.; Bishop, D.T.; Priest, D. The BASES Expert Statement on Use of Music in Exercise. J. Sports Sci. 2012, 30, 953–956. [CrossRef]
28. MacDonald, R.A.R. Music, Health, and Well-Being: A Review. Int. J. Qual. Stud. Health Well-Being 2013, 8. [CrossRef]
29. Thoma, M.V.; Marca, R.L.; Brönnimann, R.; Finkel, L.; Ehlert, U.; Nater, U.M. The Effect of Music on the Human Stress Response. PLoS ONE 2013, 8, e70156. [CrossRef]
30. Miendlarzewska, E.A.; Trost, W.J. How Musical Training Affects Cognitive Development: Rhythm, Reward and Other Modulating Variables. Front. Neurosci. 2014, 7. [CrossRef] [PubMed]
31. Raglio, A.; Filippi, S.; Bellandi, D.; Stramba-Badiale, M. Global Music Approach to Persons with Dementia: Evidence and Practice. Clin. Interv. Aging 2014, 9, 1669–1676. [CrossRef] [PubMed]
32. Regaçone, S.F.; Lima, D.D.; Banzato, M.S.; Gução, A.C.; Valenti, V.E.; Frizzo, A.C. Association between Central Auditory Processing Mechanism and Cardiac Autonomic Regulation. Int. Arch. Med. 2014, 7, 21. [CrossRef] [PubMed]
34. Särkämö, T.; Tervaniemi, M.; Laitinen, S.; Numminen, A.; Kurki, M.; Johnson, J.K.; Rantanen, P. Cognitive, Emotional, and Social Benefits of Regular Musical Activities in Early Dementia: Randomized Controlled Study. *Gerontologist* 2014, 54, 634–650. [CrossRef]

35. Habibzadeh, N. The Effect of Music on Mental and Physical Performance. *Phys. Act. Rev.* 2015, 3, 32–36. [CrossRef]

36. Küçükçakır, N.; Altan, L.; Korkmaz, N. Effects of Pilates Exercises on Pain, Functional Status and Quality of Life in Women with Postmenopausal Osteoporosis. *J. Bodyw. Mov. Ther.* 2013, 17, 204–211. [CrossRef]

37. Manor, B.; Lough, M.; Gagnon, M.M.; Cupples, A.; Wayne, P.M.; Lipsitz, L.A. Functional Benefits of Tai Chi Training in Senior Housing Facilities. *J. Am. Geriatr. Soc.* 2014, 62, 1484–1489. [CrossRef]

38. Moleszak, A. Nordic Walking Jako Współczesna Forma Aktywności Seniorów =Nordic Walking as a Contemporary Activity Form of Seniors. *J. Educ. Health Sport* 2016, 6, 365–375. [CrossRef]

39. Crill, M.; Donnaruma, L.; Hughes, B.; Kelpy, K.; Kbling, K.; Kuzniatsova, A. Zumba Gold and Well-Being: Older Women’s Perspectives—ProQuest. Available online: https://search.proquest.com/openview/6820006dd0d871c77724b5b0779bdab/1?pq-origsite=gscholar&cbl=18750&diss=y (accessed on 16 February 2020).

40. Campo, R.A.; Light, K.C.; O’Connor, K.; Nakamura, Y.; Lipschitz, D.; LaStayo, P.C.; Pappas, L.M.; Boucher, K.M.; Irwin, R.; Hill, H.R.; et al. Blood Pressure, Salivary Cortisol, and Inflammatory Cytokine Outcomes in Senior Female Cancer Survivors Enrolled in a Tai Chi Chih Randomized Controlled Trial. *J. Cancer Surviv.* 2015, 9, 115–125. [CrossRef] [PubMed]

41. Chen, K.-M.; Chen, M.-H.; Hong, S.-M.; Chao, H.-C.; Lin, H.-S.; Li, C.-H. Physical Fitness of Older Adults in Senior Activity Centres after 24-Week Silver Yoga Exercises. *J. Clin. Nurs.* 2008, 17, 2634–2646. [CrossRef] [PubMed]

42. Araneta, M.; Tanori, D. Benefits of Zumba Fitness® among Sedentary Adults with Components of the Metabolic Syndrome: A Pilot Study—Abstract—Europe PMC. Available online: https://europepmc.org/article/med/24921620 (accessed on 16 February 2020).

43. Vendramin, B.; Bergamin, M.; Gobbo, S.; Cugusi, L.; Duregon, F.; Bullo, V.; Zaccaria, M.; Neunhaeuserer, D.; Ermolao, A. Health Benefits of Zumba Fitness Training: A Systematic Review. *PM&R* 2016, 8, 1181–1200. [CrossRef]

44. Maiorana, A.; O’Driscoll, G.; Cheetham, C.; Dembo, L.; Stanton, K.; Goodman, C.; Taylor, R.; Green, D. The Effect of combined aerobic and resistance exercise training on vascular function in type 2 diabetes. *JACC J. Am. Coll. Cardiol.* 2001, 38, 860–866. Available online: http://www.onlinejacc.org/content/38/3/860.abstract (accessed on 16 February 2020).

45. Sigal, R.J.; Kenny, G.P.; Boule, N.G.; Wells, G.A.; Prud’homme, D.; Fortier, M.; Reid, R.D.; Tulloch, H.; Coyle, D.; Phillips, P.; et al. Effects of Aerobic Training, Resistance Training, or Both on Glycemic Control in Type 2 Diabetes: A Randomized Trial. *Ann. Intern. Med.* 2007, 147, 357–369. [CrossRef]

46. Pata, R.W.; Lord, K.; Lamb, J. The Effect of Pilates Based Exercise on Mobility, Postural Stability, and Balance in Order to Decrease Fall Risk in Older Adults. *J. Bodyw. Mov. Ther.* 2014, 18, 361–367. [CrossRef]

47. Song, M.-S.; Yoo, Y.-K.; Choi, C.-H.; Kim, N.-C. Effects of Nordic Walking on Body Composition, Muscle Strength, and Lipid Profile in Elderly Women. *Asian Nurs. Res.* 2013, 7, 1–7. [CrossRef]

48. Gururaja, D.; Harano, K.; Toyotake, I.; Kobayashi, H. Effect of Yoga on Mental Health: Comparative Study between Young and Senior Subjects in Japan. *Int. J. Yoga* 2011, 4, 7–12. [CrossRef]