AN ANCIENT ART FORM TO A THERAPEUTIC INTERVENTION- BELLY DANCING & WOMEN'S HEALTH

ABSTRACT

Introduction: Dance has been used as a healing ritual for thousands of years and has its historical roots among indigenous people. Dance or movement therapy in itself has been proved to have a curative power. Physical fitness is a set of attributes a person has relative to his/her ability to perform physical activities that require aerobic fitness, endurance, strength, or flexibility and is determined by a combination of regular activity and genetically inherited ability. Dance is viewed as an action that includes coordinating bod movements with music, just as brain activation since it is continually important to learn and recollect new steps. Belly dance is an expressionistic type of dance that originated in Egypt. It lays emphasis on complex movements of the torso. belly dancing has gracefully swayed its way to mainstream cardiovascular and musculoskeletal fitness all over the world.

Objective: To provide concise overview of Belly dancing and its effects on women's health.

Methods: A Search of PUBMED, CINHAL, Google Scholar. database was conducted to find relevant studies in relation to Belly dancing as a therapeutic intervention.

Result: Articles done on Belly dancing intervention on women were included in this review

Conclusion: The study provides an up-to-date overview of the current literature on Belly Dancing and women's health. It lays emphasis on the effects of belly dancing as an intervention used to enhance women's health cohesively.

KEYWORDS: Belly dance, dance therapy, women's health, breast cancer, urinary incontinence, fibromyalgia, malignancy, low back pain, abdomen, pelvis, pelvic rotation, movement pattern, locomotor pattern.

INTRODUCTION

Dance has been used as a healing ritual for thousands of years and has its historical roots among indigenous people. Dance or movement therapy in itself has been proved to have a curative power. The American Dance Therapy Association defines dance therapy as "the psychotherapeutic use of movement -a process which furthers the emotional, social, cognitive, and physical integration of the individual" (American Dance Therapy Association, 2012). It is believed to have a positive impact

on the social, physical, or psychological well-being of people. DMT improves Quality of Life, satisfaction with life (SWL) and increases perceived social support (PSS)(1)

Physical fitness is a set of attributes a person has relative to his/her ability to perform physical activities that require aerobic fitness, endurance, strength, or flexibility and is determined by a combination of regular activity and genetically inherited ability(2) Regular physical activity correlates with improved QOL and with better physical and psychological well-being(1)

Standard physical activity is viewed as one of the main variables for way of life, in keeping up with wellbeing and expanding life expectancy. Also, Dance is viewed as an action that includes coordinating bod movements with music, just as brain activation since it is continually important to learn and recollect new steps. As a musical-kinetics skill, it requires the coordination of body developments with rhythmic stimuli, fostering the flexibility of the movement. A review says that dance when done routinely, postpones the reduction of functional abilities associated with aging and even reverses the loss of morbidity(2)

Belly dance is an expressionistic type of dance that originated in Egypt. It lays emphasis on complex movements of the torso. It is known by several different names, like Middle Eastern dance, *raks al-sharqi*, *raks al-baladi*, *oriental dance*, *danse du ventre*, and the most popular name being belly dance. It has evolved to take many different forms depending on the country and region, both in costume and dance style(3)

To date, belly dancing has gracefully swayed its way to mainstream cardiovascular and musculoskeletal fitness all over the world. This form of dance can burn as many calories as walking, running, swimming, or riding a bike. With the swift movements and constant swaying, the body is eventually toned and leaned. It majorly uses the core muscles of the body i.e the abdomen, pelvic and back. As a form of dance it promotes physical rehabilitation, relaxation, social support, and body mind connection. It involves movement accompanied by music, inducing experiences capable of modifying the organism at the physiological, affective, motor, and existential levels(4)

Therefore, the aim of this study is to review the effectiveness of Belly dancing as a therapeutic intervention in pathologies concerning women physically and psychology. We would be curating a

literature review of the effects of Belly dancing on women with malignancies, fibromyalgia, urinary incontinence and the psychological effects along with a discussion on the effects of belly dancing on trunk and pelvic control.

BELLY DANCING AND MALIGNANCIES

Márta Szalai et al. conducted a clinical study to assess the efficacy of belly dancing as a tool for rehabilitation in female patients with malignancies. This prospective, non-randomized follow-up study was designed to compare the health-related quality of life (HRQoL), perceived social support (PSS) and overall life satisfaction (OLS) in female patients receiving a standard medical care for malignant diseases with or without additional belly dancing. Patients were chosen in the Outpatient Department of the National Institute of Oncology, Budapest, Hungary from 2008–2009. 55 patients joined the one-year-long rehabilitation program (research group, RG) while 59 age-matched patients who received only standard medical care volunteered for clinical assessment (control group, CG). HRQoL, PSS and OLS were assessed using questionnaires like EORTC QLQ-C30, F-SozU-K14, and Campbell's OLS, respectively. The scores collected in RG and CG were controlled for baseline socio-demographic characteristics and evaluation was done by ANCOVA analysis. It was found that patients of the Research Group scored better at both the baseline and follow-up than the CG, and the differences between the two groups' measured parameters increased further during the course of the study. Hence, they further concluded that Belly dance as an intervention can be applied as a complementary rehabilitation method to improve the HRQoL, PSS and OLS in female patients treated for almost all malignant diseases(1)

The pilot study by Carminatti et al. (2019) was aimed at investigating the influence of a belly dancing program on the body image and self-esteem of women during and after breast cancer treatment. It studied 19 women who had either finished, or were still undergoing treatment. Breast cancer can have multiple repercussions in women’s lives and physical activity such as belly dancing benefit the individual during this period. The objective of the study was to analyze the influence of belly dancing on the body image and self-esteem of women during and after breast cancer treatment. The Nineteen women with breast cancer who were part of this study, were divided into a control group of 8 women and a study group of 11 women. They were undergoing treatment at the

Center for Oncological Research (CEPON). Questionnaires were used for data collection and divided into three blocks as follows: a) general information - sociodemographic and clinical characterization; b) body image - Body Image After Breast Cancer; and c) self-esteem - Rosenberg Self-Esteem Scale. The study group underwent a belly dance intervention which consisted of 60-minute classes that were conducted twice a week, for a total of 12 weeks. Women in the control group were instructed to maintain their routine activities. Changes observed in the improvement of body image were significant in the belly dance group in the pre- and post-intervention periods in the body stigma ($p = 0.017$) and transparency ($p = 0.021$) scales. There were no significant changes in regards to self-esteem. The control group had no changes in both, their body image or self-esteem(2)

Szalai M et al. performed a qualitative analysis of oncologic rehabilitation through a belly dancing peer support group (PSG). The study included 55 patients who joined the belly dance PSG and 59 age-matched controls recruited by head nurses of the Outpatient Department of the National Institution of Oncology, Budapest, Hungary in 2008–2009. In the quantitative phase, they compared the research group (RG) and the control group (CG) after a 1-year follow-up regarding health-related quality of life (HRQoL), PSS and overall life satisfaction (OLS). They applied the European Organization for Rehabilitation and Treatment of Cancer's Quality of Life Questionnaire version C30 (EORTC QLQ-C30) and the D1 subscale of Campbell's questionnaire. They found that patients of the RG scored better at both the baseline and follow-up than the CG, and the differences between the two groups' measured parameters increased further during the course of the study. Therefore, they concluded that belly dance as an intervention can be applied as a complementary rehabilitation method to improve HRQoL, PSS and OLS in female patients treated for malignant diseases(4)

BELLY DANCING AND FIBROMYALGIA

A randomized, single-blind, control study was conducted by Baptista AS, et al. to verify the effectiveness of dance in patients with fibromyalgia. Random allocation to a dance group (n=40) and a control group (n=40) was done for eighty female patients with fibromyalgia aged 18-65 years. Patients in the dance group practiced 16 weeks of belly dance twice a week, while the patients in the

control group were asked to carry out normal tasks. The patients were evaluated with regards to pain (VAS), functional capacity (6MWT), quality of life (FIQ and SF-36), depression (Beck Inventory), anxiety (STAI) and self-image (BDDE) indices. The dance group achieved significant improvements in VAS for pain ($p<0.001$), six-minute walk test ($p<0.001$), FIQ ($p=0.003$), BDDE ($p<0.009$) pain ($p<0.001$), emotional aspects ($p<0.003$) as well as mental health ($p<0.021$) subscales on the SF-36. Hence they concluded that belly dance can be used in the treatment of fibromyalgia to reduce pain, improve functional capacity, quality of life and self-image(5)

BELLY DANCING AND LOW BACK PAIN

Castrillon et al. engaged themselves researching the effects of a standardized belly dance program on perceived pain, disability, and function in women with chronic low back pain as investigations of belly dancing mechanics indicate similar muscular activation patterns of those known to influence chronic low back pain (cLBP). The objective of this study was to investigate the influence of a standardized belly dance program in women with cLBP. A single subject design was used to evaluate weekly outcomes during a three-week baseline period, six-week belly dance program, and again at a two-month follow-up. Outcome measures for pain, disability, function, and fear-avoidance beliefs were used. Two subjects completed the standardized belly dance program as asked. After two months, subject one demonstrated change scores of -1.12, -1%, and 2.2 for pain, disability, and function respectively while subject two demonstrated change scores of 5.4, 5%, and 1.1 for pain, disability, and function, respectively. Subject one showed a significant change in the score for both fear avoidance of work and physical activity, with score changes of 4 and 3.3, respectively. Hence, the results of this study suggest a standardized belly dance program may positively influence pain and function in women with cLBP (6)

BELLY DANCING AND URINARY INCONTINENCE

An SY, Kim SS et al. performed a study to examine the effect of belly dancing on urinary incontinence-related muscles and vaginal pressure in middle-aged women. The study supervised the effect of belly dancing on the muscles related to urinary incontinence and vaginal pressure in

middle-aged women to provide a basis for establishing an effective training program focusing on mitigating and preventing urinary incontinence. The subjects included 24 middle-aged women, diagnosed with urinary incontinence. The subjects were then randomly divided into two groups, viz. the experimental group (N=12) and control group (N=12). The experimental group underwent a belly dancing program focusing on pelvis moves. The experimental group were found to showcase increased muscle strength and vaginal pressure, while the control group showed no significant change. Hence, belly dancing focusing on pelvis moves had been proved to have a positive effect on the urinary incontinence-related muscle strength and vaginal pressure, suggesting that a recreational dance program focusing on pelvic exercise can be used to prevent and relieve the symptoms of urinary incontinence as a non-surgical treatment(7)

IMPACT OF BELLY DANCING ON ABDOMEN AND PELVIS

In a study investigating on how belly dance experts perform the “hip shimmy”, The hip shimmy is a complex rhythmic movement consisting of voluntary pelvic oscillations mostly in the frontal plane, with minimal or no movement of the trunk. The aims of this study were twofold: 1) to assess whether under postural and frequency conditions, can the amplitude and stability if the pelvic movement be maximized, and 2) investigate in a whether it is really possible to oscillate the pelvis in the frontal plane only at 1 to 3 Hz range and to dissociate this one-axis pelvic rotation from potential spontaneous upper-trunk oscillations. Nineteen belly dance experts performed this task in three frequencies and three knee bending postures. Eight joint angles were calculated using the kinematic data of 20 markers over the entire body collected with a motion capture system. Mean amplitude, frequency, and spatial and temporal variability of frontal pelvic oscillations were analyzed to link motor performance and movement stability. Five Continuous Relative Phases (CRP) were formulated to identify the modes and stability of coordination patterns. The results showed that a low posture enhances amplitude performance and that the pelvic oscillation amplitude tended to decrease at 3 Hz, although between-condition differences remained small. Temporal stability was highest at 2 Hz and significant interindividual differences emerged at 3 Hz. CRP analysis revealed an unpreventable coupling between pelvis and upper-trunk oscillations in the frontal and transversal planes. A consistent antiphase coordination between transversal pelvis and upper-trunk may have been caused by anatomical and counter-balancing constraints. In the frontal plane, multiple stable pelvis-upper trunk patterns including in-phase, out-of-phase and antiphase

evolved to antiphase predominance and in-phase disappearance upon reaching 3 Hz. In sum, increasing frequency highlighted the concomitance of two control phenomena: the inter-individual differentiation in performance and standardization of the possible pelvis-upper-trunk patterns.(8–10)

DISCUSSION

The aim of this study is to evaluate the effectiveness of Belly Dance as a therapeutic intervention for different health conditions seen commonly in women's population. Belly dance can be a chosen form of rehabilitation with women having low self-confidence and self-esteem, for post-surgery breast cancer women, women experiencing urinary incontinence and women with low back pain and fibromyalgia.(6,11,12) As a type of dance, belly dance seems to lend itself to providing itself as an efficient tool in rehabilitating female patients with malignancies showing significant improvement in the body image of female patients during and after breast cancer treatment. The Health-related quality of life (HRQoL), perceived social support (PSS) and overall life satisfaction (OLS) markedly improved through belly dancing as a complimentary rehabilitative tool for female patients with malignancies. It can even be used in the treatment of fibromyalgia to reduce pain, improve functional capacity, quality of life and self-image(5) Belly dancing has even been shown to recruit the abdominal and lumbar musculature as traditional spinal stabilization exercise and, therefore, may be an effective option in influencing pain and function in cLBP. A regular pelvic exercise program in the form of recreational dancing like Belly Dancing could be actively applied as an effective non-surgical treatment for urinary incontinence.(7,9) Belly dance also provides an innovative approach for the study of human motor control and coordination to provide insight into complex control mechanisms of pelvic motion. However, the extent of efficacy if Belly Dancing in al of these conditions needs to be further assessed using different novices. Additional research investigating belly dancing as an intervention for the people with malignancies, fibromyalgia, cLBP, urinary incontinence and pelvic motions utilizing a larger blinded sample with comparison to a control group is warranted.

CONCLUSION

This study has gathered evidence on the effects of belly dance on various pathologies that affect women. Belly dance can be a chosen form of rehabilitation with women to improve the vast array of

pathologies focusing on the different zones of symptoms providing a chance for improvement. In conclusion as a type of dance, belly dance seems to lend itself to providing itself as an efficient tool in rehabilitating female patients.

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