REVIEW
OF
RELATED
LITERATURE
Chapter II

REVIEW OF RELATED LITERATURE

The present chapter incorporates a brief review of the researchers done in the area related to this investigation. The purpose of reviewing the earlier researches is not only to economize the historical perceptive of the present work but also that the related studies that have taken cognizance of one or more variables included in this study and as such these studies may help the investigator to design her study in a manner such that recurrence of the shortcomings and pitfalls observed in an earlier study may be checked moreover, the finding may be utilized to substantiate and support wherever necessary for the interpretation of the results of the present study.

The investigator made a survey of the literature related to the present work and come to conclusion that not many researches of this type have been carried out in India and however quite a few studies of this type have been conducted in foreign countries.
Province et al.\textsuperscript{1} to determine if short-term exercise reduces falls and fall-related injuries in the elderly. Design --A preplanned meta-analysis of the seven Frailty and Injuries: Cooperative Studies of Intervention Techniques (FICSIT)--independent, randomized, controlled clinical trials that assessed intervention efficacy in reducing falls and frailty in elderly patients. All included an exercise component for 10 to 36 weeks. Fall and injury follow-up was obtained for up to 2 to 4 years. Setting--Two nursing home and five community-dwelling (three health maintenance organizations) sites. Six were group and center based; one was conducted at home. Participants--Numbers of participants ranged from 100 to 1323 per study. Subjects were mostly ambulatory and cognitively intact, with minimum ages of 40 to 65 years, although some studies required additional deficits, such as functionally dependent in two or more activities of daily living, balance deficits or lower extremity weakness, or high risk of falling. Interventions--Exercise components varied across studies in character, duration, frequency, and intensity. Training was performed in one area or more of endurance, flexibility, balance platform, Tai Chi (dynamic balance), and resistance. Several treatment arms included additional non exercise components, such as behavioral components, medication changes, education, functional activity, or nutritional supplements. Main Out come Measures--Time to each fall (fall-related injury) by self-report and/or medical records. Results--Using the

Andersen-Gill extension of the Cox model that allows multiple fall outcomes per patient, the adjusted fall incidence ratio for treatment arms including general exercise was 0.90 (95% confidence limits [CL], 0.81, 0.99) and for those including balance was 0.83 (95% CL, 0.70, 0.98). No exercise component was significant for injurious falls, but power was low to detect this outcome. Conclusions-Treatments including exercise for elderly adults reduce the risk of falls.

Woo et al² found the beneficial role of exercise in improving bone mineral density, muscle strength and balance, has been documented predominantly in younger populations. These findings may not apply to elderly populations with limited ability to perform exercises of high intensity. Objective: to examine the effects of Tai Chi (TC) and resistance exercise (RTE) on bone mineral density (BMD), muscle strength, balance and flexibility in community living elderly people. Design: randomized controlled trial, using blocked randomization with stratification by sex. Setting: a community in the New Territories Region of Hong Kong, China. Subjects: one hundred eighty subjects (90 men, 90 women) aged 45–54, were recruited through advertisements in community centers. Methods: subjects were assigned to participate in TC, RTE three times a week or no intervention (C) for 12 months. Measurements were carried out at baseline, 6 and 12 months. Analyses of covariance (ANCOVA) adjusted for age and baseline

² Jean Woo; Athena Hong; Edith Lau; Henry Lynn "A Randomized Controlled Trial of Tai Chi and Resistance Exercise on Bone Health, Muscle Strength and Balance in Community-living Elderly People" International Journal of Age And Aging./2007pp.48-51
values of variables that were significantly different between groups: i.e. smoking and flexibility for men; quadriceps strength for women. Results: compliance was high (TC 81%, RTE 76%). In women, both TC and RTE groups had less BMD loss at total hip compared with controls. No effect was observed in men. No difference in balance, flexibility or the number of falls was observed between either intervention or controls after 12 months. Conclusion: the beneficial effects of TC or RTE on musculoskeletal health are modest and may not translate into better clinical outcomes.

Chow\(^3\) conducted a study where there were three purposes of study (1) characterize seniors’ leisure activities in terms of the physically active leisure index using the MET values,(2) To determine to what extent and in what ways three types of physical activity: leisure-time physical activity, household physical activity and occupational physical activity, are related to nine health dimensions: health perception, physical functioning, mental health, vitality, role functioning, pain, social functioning, number of doctor visits and obesity, and (3) To compare the physically active leisure index with the PASE scale in terms of explaining variance in older adults’ health. This study utilizes secondary data analysis from a study entitled-The Relation of Local Government Recreation and Park Services to the Health of Older Adults. The subjects were from Peoria, San Diego, Arlington, Houston, and Minneappolis. The sample was predominantly white and the

\(^3\) Chow, Hsueh-wen, Ph.D., "The Relationship between Physically Active Leisure Activities and Health for Adults Age Fifty and Older." The Pennsylvania State University, 199pp Dissertation Abstracts International 2007 vol.68 no.1 July.
majority of them were female with a mean age of 67. Half of the subjects were married and the sample had a diverse education level. Content analysis, One-Way ANOVA divaricates correlation and multiple regression analyses were conducted to fulfill study objectives.

Study findings highlight the greater importance of leisure-time physical activity than house hold or occupational physical activity in predicting older adults’ health. The content analysis from the open-ended leisure activities revealed that many older adults’ leisure activities remain secondary, gender; ethnicity and geographical location were significantly related to subjects’ physically active leisure index. However age, marital status and education were not significantly related. Although the physically active leisure index developed from this study did not explain as much variance in the health outcomes as the Pace scale. It was a pilot test of a method which was intended to incorporate quantities measures of physically active leisure in the field of leisure studies. These results should be considered in light of the study’s limitations. Results demonstrated that physically active leisure was a better predictor of older adults’ health compared to other forms of physical activity and conclude that policy planning should concentrate on providing recreation and leisure opportunities to promote healthy active living for seniors. Moreover, leisure studies scholars should continue to collaborate with other disciplines and professionals to provide and examine the empirical evidence pertaining to leisure and its impact on advancing active lifestyles for older adults.
Sato\textsuperscript{4} determined the physical fitness component that contributes to improving and maintaining health status for each age group as well as quantifying the degree of the relationship between health status and physical fitness in middle-aged and elderly males. The participants were 995 males aged 30 to 69 years. Ten physical fitness tests and medical checkups were performed. The participants were divided into a healthy group and an unhealthy group according to health status. Multiple discriminate analysis was applied to the multivariate data. Correct discriminate probabilities of the multiple discriminate function to discriminate the healthy and unhealthy groups for males ranged from 67.0\% to 75.1\%. These findings suggest that there is a relatively high relationship between the health status and physical fitness level for middle-aged and elderly males. With each individual's discriminate score calculated using the multiple discriminate function as the index of the degree of health, the Pearson's correlation coefficient of the discriminate score and the performance in each physical fitness test were calculated. The age change between 30 and 69 years old was classified into five patterns according to the contribution. The result of this study is considered to be useful as objective data to prepare an exercise program considering the contribution of the physical fitness component of health status.

\textsuperscript{4} Toshiro Sato, Shinichi Demura, Tomohiko Murase and Yoshiki Kobayashi\textsuperscript{5} Contribution of Physical Fitness Component to Health Status in Middle-aged and Elderly Males \textit{Journal of Physiological Anthropology} Vol. 25 (2006), No. 5 pp.311-319
This paper aims at advancing the conceptualization of leisure as a contributor to quality of life (QOL) in an international and multicultural context, based on an extensive and critical review of literature on leisure and QOL from a global, international perspective. Given the central role of culture in conceptualizing this notion, this paper gives attention to various cultural contexts world-wide. To illustrate the diversity of our societies, examples are introduced specifically from three culturally unique contexts in this paper – i.e., Asian, Middle-East, and Indigenous contexts. Also, some examples are drawn from other cultural groups in global and international contexts, particularly, in non-western contexts. Then, the final section of this paper aims at integrating and synthesizing the knowledge gained from this review to develop a tentative/working proposition about how leisure can contribute to QOL from international and cross-cultural perspectives. Specifically, based on such integration, this paper identifies and describes major pathways linking leisure to QOL. Overall, an overarching theme common to almost all cultural contexts examined appears to be the role of leisure-like activities as a context or space for creating meanings which then help to promote the quality of people's lives. Major pathways or mechanisms that can facilitate meaning-making and life-quality-enhancement highlighted in this review include: (a) positive emotions and well-being experienced from leisure, (b) positive

5 Aybar Damali, Department of Therapeutic Recreation “Advancing the Conceptualization of Leisure” College of Health Professions Temple University, Suite 313, 1700 North Broad Street, PA 19122 Philadelphia, USA Dissertation Abstracts International, May 2006
identities and self-esteem gained from leisure, (c) social and cultural connections and a harmony developed through leisure, and (d) leisure's contribution to learning and human development across the life-span. Also, emphasized in this paper is the role of leisure as a context for realizing and utilizing human strengths and resilience. It is important, however, to stress that in people's quest for a meaningful life, the benefits of meaning-making through leisure involve both "remedying the bad" and "enhancing the good," as shown throughout this paper. Despite these benefits, we should not ignore that leisure experiences are socially and culturally constructed and shaped by the inequalities of society. Thus, the reality of power imbalance and inequalities should be acknowledged and appropriately addressed socially, culturally, and politically. Particularly, providing culturally relevant and meaningful leisure opportunities for less privileged population groups world-wide is clearly a top priority.

Suakka⁶ Studied Muscle strength declines with increasing age, and the power-type strength characteristics decline even more drastically than the maximal muscle strength. Therefore, it is important to design training programmes specifically for sedentary middle-aged people to effectively improve the power-type strength in leg and trunk muscles. To be suitable for the target group, the exercise programmes should be feasible, motivating and easy to practice. The aim of this study was to design and investigate the effects and feasibility of a power-type strength training programme in 226

middle-aged men and women, with 26 persons as non-training controls. The
subjects trained three times a week during 22 weeks, in 12 groups with
exercise classes of 10-20 subjects, and using no or very little external
equipment. All training sessions were controlled and supervised by an
professional instructor. Vertical squat jump, standing long jump, 20 meter
running time, maximal anaerobic cycling power, maximal oxygen uptake,
and angular trunk muscle flexion and extension velocities were measured
before and after the training period to evaluate the training effects.
Questionnaires concerning employment, physical activity, smoking,
musculoskeletal symptoms and exercise motives were also filled in before
and after the training period. The greatest improvements were achieved in
vertical squat jump (18%) and in angular trunk flexion (14%) and extension
(16%) velocities. An external loading totalling 2.2 kg (attached) in ankles
increased the height in vertical squat jump by 23% and maximal anaerobic
cycling power by 12%, these improvements were significant compared with
subjects in no load training group (p = 0.03 in vertical squat jump and p =
0.05 in maximal anaerobic cycling power). Exercise induced injuries
occurred in 19% of men and 6% of women. Low back symptoms decreased
in exercisers by 12% and knee symptoms (increased) by 4% during the
intervention. Of all subjects, 24% dropped out during the training period. In
summary, improvements were achieved in several physiological
performances reflecting the power-type strength qualities, especially in
vertical squat jump and trunk muscle flexion and extension velocities.
Improved perceived health and fitness among the participants who completed the training programme, and the relatively low number of injuries also indicate the feasibility of the programme. The training programme is simple, and it also seems to be practical among middle-aged, sedentary subjects. It may be useful in preventing the decline of power-type strength characteristics in middle-aged subjects.

Naegle studied to determine the nature of an associations between spiritual and religious experiences, habits, and the dietary and exercise behaviours of middle-aged religious women. The subjects of the study were 492 middle-aged (45-65 years old) female members of the Church of Jesus' Christ of Latter day Saints in randomly selected congregations throughout the state of Utah during 2004. All subjects completed a 66 questions survey instrument, the Spiritual and Physical Health Questionnaire (SPHQ), designed to collect data on demographics, dietary and exercise behaviours, daily spiritual experiences and religious and prayer practices. Data were collected from July through October 2004, and were analyzed using SPSS version 13 commands for descriptive data test, Pearson and canonical correlations, and factor analysis. Findings suggest that spiritual health is defined by at least three separate constructs of spirituality, religiosity and prayer, and that increased levels of these constructs correlate with greater awareness of dietary habits and increased frequency and

duration of light/moderate physical activity. Prayer correlated with spirituality, religiosity, and physical health habits. Women with high levels of both spirituality and religiosity are more likely to have higher levels of dietary awareness and physical activity as compared with women with low levels of both, or high level on one construct and low on the other. Several demographic variables correlated with spiritual and physical health habits. Researchers and health educators can utilize the knowledge gained from this study to improve understanding of the spiritual health dimension, including the definition, constructs, and potential uses of spiritual health in relation to dietary and exercise habits.

Kristal et al. 8 found that practicing Yoga regularly for at least half an hour per week may help offset middle-age weight again. It is estimated that people typically gain about one pound per year between the ages of 45 and 55. Researchers at Fred Hutchinson Cancer Research Center found that weight gain in those who practiced Yoga weekly for at least four years had a 3.1 Pound reduction in expected weight gain.

Snoxell9 the aim of the study was to investigate whether an improvement in balance and confidence can be observed after six weeks of functional balance exercise amongst a group of women aged between forty-five and seventy years. The study population consisted of eighteen healthy females aged between forty-five and seventy. The subjects were divided into

8 Kristal, Gaur, Marathe email: http://www.scwfitness.com/2005
two groups, control and experimental. The experimental subjects undertook a balance exercise programme over a six week period, twice a week. In addition, two forty-minute circuit sessions consisting of functionally specific balance exercises were conducted during one of the sessions in weeks three and five. Balance assessments were made before and after training for both groups. Statistically significant improvements in equilibrium were observed in the experimental subjects, measured by the Berg Functional Balance Scale (BFBS) and the Dynamic Gait Index (DGI), after six weeks of twice weekly forty minute exercise sessions, showing that the exercise used in the training programme and circuits does allow specific neural pathways to be utilized for balance to be generated.

Chirs\textsuperscript{10} found Modern life, which characterized by automation and mechanization causes laziness and inactivity in people all over the world. It in essence deprives one of movement, which negatively affects man and his body. Chronic illnesses caused by an inactive life style lead to unnecessary deaths, which again impacts negatively on the community as a whole. The South African Police Service (SAPS) has far from escaped this world wide phenomenon. It is in fact, experiencing an abnormally high death rate which can be linked directly to police officer's lifestyle. This study has proven that the average police officer is in extremely poor physical condition, and that

this is in all probability the cause of the unusually high natural death rate as well as the high incidence of suicide among SAPS members. The primary objective of this study is the justification of a maintenance programe for low enforcement officers. For this programe to be successful, it has to(i) be relatively inexpensive and provide easily accessible facilities;(ii) be in line with critical physical job requirements;(iii) contribute directly to the maintenance of job-oriented fitness;(iv) include a section that is solely tasked with the physical maintenance of the officers;(v) from part of the SAPS’s police on sport. The results of this study the dire necessity of the immediate implementation by SAPS management of the suggested physical maintenance programe.

Rose\textsuperscript{11} investigated the two motivators physical activity are health and appearance. The public sector focuses on health as the primary motivator when creating physical activity promotion campaigns, while the fitness industry uses appearance as its main motivator. Despite the call by some theorists that social marketers should include both health and appearance as motivator in physical activity campaigns, whether these factors can be successful independently and how they may interact, remain to be determined. Therefore, the purpose of this dissertation was to examine weather televised health promotion exercise advertising had different effects

on viewers than appearance-based exercise advertising. Four separate experiments examined this question. Experiment one used undergraduates participants (N=103) to examine whether the two types of exercise advertising would have different effects on three dependent variables; exercise attitude, social physique anxiety and self-presentation in an exercise setting. Experiment two examined the same questions in a group of participants aged 44 to 67 years (N=20). Experiment three used an undergraduate sample (N=89) to test the effect of exercise advertising on the three dependent variables, but also include socio culture attitudes towards appearance as a dependent variable. Experiment four used an independent variable. Experiment four used an undergraduate sample (N=97) to test whether the two forms of exercise advertising had different effects on stage of behaviour change, self-efficacy for exercise, and decisional balance (from the trans theoretical model). All four experiments used a pretest/post test experimental design. Participants filled out pre-test questionnaires one week prior to viewing a twenty minute video Japanese culture that made no reference to exercise or sport. Imbued into the video were advertising breaks that contained six neutral advertisements and three target advertisements. The target advertisements in one video were promoting physical activity for health. The second video contained exercise for appearance advertisements, and the third was a control video with three more neutral advertisements. After viewing a video participants completed the post test questionnaires. The main findings across the series of
experiments were the post test questionnaires. The main findings across the series of experiments were that health based exercise advertising positively influenced exercisers and older participants; that appearance based exercise advertising had negative effects on men only; and that there is a distinction between self-presentation concerns in a non competitive exercise environment compared to a competitive exercise environment.

Sibley\textsuperscript{12} found that the recent reviews of the literature have demonstrated that exercise seem to have a positive impact on cognitive performance in both adults and children. One of the mechanisms that has been proposed for this relationship is that exercise increases cognitive inhibition. Therefore, the purpose of this dissertation was to assets the impact of an acute bout of exercise on inhibition and cognitive performance.

Two studies were performed, the first examining the effect of physical education classes on inhibition in a sample of third grades, the second examining the effect of an acute bout of aerobic exercise on arousal and inhibition in college age adults. In study 1, the effect of 15 minutes of physical education were compared to 15 minutes of regular classroom activities. In study 2, the effect of 20 minutes of self paced moderate intensity running on a treadmill were compared to the effect of a 20 minute sedentary control period. In both studies, cognitive inhibition was assessed

using stroop interference and negative priming tests, and cognitive performance was assessed using digit symbol substitution tasks. Also in study arousal was measured using heart rate monitors and the Activation-Deactivation Adjective Checklist. Results from Study 1 showed that the physical education class did not have a significant impact on inhibition or cognitive performance. This lack of significant findings may be due to the mythological issues that may limit the impact of exercise on the cognitive measures used in this study. In study 2, appositional impact of exercise on inhibition was found. This finding suggests that the exercise may lead to increases in inhibition, thus increasing the efficiency with which the brain can process information.

Comely\textsuperscript{13} found that the Arthritis is the most common chronic condition affecting older people and is a major cause of limited activity. Arthritis education programs in English have demonstrated a positive impact on health but these programmes have not reached the Hispanic communities where arthritis is the leading cause of disability. Minorities, such as Hispanics, have traditionally been reluctant to pursue self-help programmes, and have been identified as an under-served population in terms of medical care. This study examined the effectiveness of one community healthy adult education programme targeting Hispanic older adults with arthritis, the Spanish Arthritis Self Management Education

\textsuperscript{13} Cornely, Helen Z. Ed. Florida International University 2003 143 pp. "Health changes in Hispanic Older Adults in a Spanish Arthritis self Management Education Programme"\textit{Dissertation Abstract International} Vol. 65 no.2 August 2004
Programme (SASMEP), by evaluating changes in the participants' general health, pain, disability, self-efficacy, health perceptions, frequency of physical visits, and exercise. A pre and post control group experimental design and analyses of covariance were used to determine the pre and post differences in health status and health behaviour for a group participating in the SASMEP and a group who did not use gender and age as covariates. A repeated measures design was also used, and repeated measures analyses of variance and post hoc test were done on health status and health behaviour data collected pre-post and one year post education to determine long-term differences. Results indicated the participants decreased in arthritis disability immediately following the education. Self-efficacy and health perceptions increased for both groups but not significantly. The participant's health behaviours showed significantly fewer physician visits and significantly increased time spent and strengthening exercise and time spent performing aerobic exercise. No group differences were found in the frequency of arthritis physician visit. The improvements seen immediately after the SASMEP participation were not reflected in post one year scores. No significant differences were found for the participants' health status or health behaviours one year following the education. Health status and health behaviours did not return below base line scores after one year suggesting the participants' health, although not improved, did not deteriorate. Therefore, the SASMEP education provided short-term health benefits for older Hispanic adults with arthritis, but not long-term health benefits.
Christopher studied The purpose of this study was to: (1) determine the steps/day accumulated by middle school student (Grades 7-8 and, (2) determine if participants differing in aerobic fitness also differed in accumulated steps/day. Participants included 223 students from the seventh grade (n=111; 57 males and 54 females) and eighth grades (n=112; 54 males and 58 females). Participants accumulated four days of seated Perimeter data and performed the Fitness Gram Pacer test. Males accumulated significantly more steps/day then females (11,589+ 3270 vs. 10,232 + 2517 steps/day, respectively; F 1,219 = 16.0 p < 16.0, P < .001) There were no differences in steps/day between grades. High fit participants accumulated significantly more steps/day (F2, 217 = 264.9 p <.001) than moderately is low fit participants (=1,491 and =2,867 steps/day, respectively ). The Pearson correlation between steps/day and aerobic fitness was 0.35 (p < .01). Participants who participated in sports in addition to physical education (PE) accumulated significantly more steps/day (=980 steps/day) then those participating in PE only (F 1,219 = 10.0, P < .002). Combined with previous research on elementary and high school students, the steps/day data gathered from middle school students completes a preliminary activity curve illustrating the consistent pattern of differences between males and females and a decrease In physical activity as youth grow older. The low relationship

between physical activity and aerobic fitness was reconfirmed. Participants in the high fitness category were more active than those in the lower categories and sports participation accounted for a significant amount of daily step counts.

Hau\textsuperscript{15} substantial research has been conducted on benefits provided by use of local parks and associated resources, but there is limited work investigating determinants and interventions influencing local park use, especially among older adults, some research has explained factors related to local park use by older adult such as constraints, social demographics, social support and health statuses. Most of these studies, however, address only a few factors, and no research has been identified that has examined their combined or interactive effects on older adults use of local parks. The purpose of this study is to examine factor effecting older adults use of local parks and to specially examine the role social support plays in these relationships. 683 individuals age 50 and over residing in Peoria, IL participated in this study, which intercepted older adults in both local parks and other community setting to complete questionnaires. The meditation and final models of social support in the relationships between factor effecting older adults use local parks were developed and the factors and mediators identified in both models explained 30% of the variation in park use by older adults. The three most significant predictors of use of local parks by older adults.

adults were length of stay at the park during the most recent visit, who they were with, and having a park within walking distance. Results showed a significant mediating that an occasional reminder or other supportive behaviours from family or friends played a significant role in affecting older adults use of local parks.

Andrew\textsuperscript{16} examined the health benefits of a Tai Chi Chuan exercise program with volunteers participating in a four month recreational activity. Tai Chi Chuan can be described as moving yoga and meditation combined. A series of movements derived from the martial arts; performed slowly softly, and gracefully with smooth transitions between positions and emphasis on deep breathing. Participants (91) were divided into three groups; two interventions, one control. Intervention; Tai Chi Chuan classes, two days / week (group 1), and one day / week (Group 2). The control (group 3), attended nutrition class one day / week. All sessions were 60 minutes in length. While volunteers were recruited to participate in the study they were assigned based on town of residence and, sites were randomly assigned to host the groups. Participants were 60 + Years; (Mean = 7.17 Years), and included 75 women and 16 men; relatively active, community dwelling, members of senior centers or residents in a senior housing unit. Group 1 (Vernon) n=21, Group 2 (Manchester) n=32, Group 3 (South Windsor-Control) n=38. The study examined the effectiveness of this treatment based

\textsuperscript{16} Paterna Andrew A., “The effectiveness of a recreational modality (Tai Chi Chuan) in enhancing health status in an older adult population”, \textit{Dissertation Abstract International} Vol. 64 No.5 Nov' 2003
on attitudes about health and recreational activity, activity self-efficacy, life satisfaction, and physical testing measures (balance, blood pressure, body fat percent, flexibility, grip strength and ratings of perceived exertion). Initial results indicate significant changes in balance, blood pressure and flexibility, among the groups, with no significant findings in health attitudes or life satisfaction. After further evaluation, both treatment groups were collapsed into one and compared with the control group. This analysis also showed evidence of significance for the treatment group, in balance, blood pressure and flexibility. A follow survey of the control group showed them to be active individuals. This may explain, in some categories, why the control group showed as much improvement as the treatment groups. A third analysis, with group sizes equalized, (Computer random selection of cases) indicate significant findings for treatment groups, in balance, blood pressure, flexibility and the mental component summary (life satisfaction of the Health Survey. The results indicate that Tai Chi may be a useful recreational modality in the physical or cognitive rehabilitation program for older adults.

Craven\textsuperscript{17} studied clearly demonstrated that for older adults, home based resistance programs which are in expressive and accessible, can be effective methods for improving physical function and upper and lower body strength. Science and technology are changing with each passing day,

\textsuperscript{17} Chair Annette E. Craven, “Taiwanese elders : Successful aging and physical activity”. \textit{Dissertation Abstract International} Vol. 64, 2003.
influencing the current lifestyle of human beings. New technologies make people’s daily lives easier and positively prolong the life of human beings. New technologies also replace activities that require physical labour. These technologies also replace activities that require physical labour. These technologies reduce physical activity and increase productivity. The result is not only flourishing economics but also a gradual reduction in human physical activity. However, the phenomenon of social aging still exists and is a universal phenomenon. The problems of aging have appeared gradually and are world wide. The purpose of this study was to investigate the description and understanding of successful aging from Taiwanese elders’ perspective. Elders were defined as Taiwanese men and women 65 years of age and older. This study examined how elders understanding of successful aging was related to physical activity and made recommendations based on the results of the study. In this qualitative study the researcher used the five categories (activity of seeing and hearing, pursuing further education and study, activity of art, exercise, and travel and action) to do face to face interviews of twenty elders from Chang Hua Country in Tajwan. The researcher used a semi structured set of interview questions. These questions were structured to enable the researcher to understand how elders understand the meaning of successful aging, and to gain information about their thoughts. These twenty participants of interviews included 12 males and 8 females. Based on research findings, Taiwanese elders identified the following factors as critical to successful aging:
(a) Health

(b) Independence and self assertion

(c) Harmonious Family

(d) Social activity and

(e) Understanding aging

With the increase in longevity among seniors in Taiwan and worldwide, it is important to ensure that this population takes full advantage of those added years in a climate of physical health and mental, emotional, social and spiritual well being. This study contends that the best way to achieve wellness is through regular physical exercise, whether Western-style exercise such as jogging or traditional Eastern style exercises such as tai-chi. It also proposes that the achievement of this regular physical exercise cannot be accomplished casually, at least not for the senior population at large. Senior wellness requires the positive input of all levels of social, from individual seniors to private enterprise to government. It also requires that the barriers to senior participation in physical wellness programs be addressed and removed.

Robyn\textsuperscript{18} limited number of comprehensive instructional manuals exists on water based relaxation exercise programs for the older adult population, and ever fewer materials on teaching and training instructors in

these programs. Success with individualized water based programs depends on skills and knowledge of older adult educators, aquatic teachers, aqua therapy specialists and / or health and fitness instructors. Therefore, thorough training techniques are essential to successful programs. There is a need for a manual with content materials, instruction, demonstration technique, illustrated exercise photographs and recommendations for a safe, effective, low intensity Kikou program. The Kikou training manual would serve to train instructors with providing safe exercise progressions as well promoting fitness and wellness for the older adult population. Water Tai Chi, Tai Chi and Aquatic Yoga, water based forms and Tai Chi Ball and Chi Kung, land based forms were selected for this study because the foundation for the five techniques focus on diaphragmatic breathing, rhythmic body movements, visualization and relaxation concepts. The program’s name was chosen for the Japanese word, “Kikou” meaning slow diaphragmatic breathing exercise. The primary purpose of this study is to design a comprehensive course training manual for the Kikou water based program. The manual is intended to provide the Kikou trainee with knowledge necessary to teach and demonstrate skills to conduct Kikou exercise classes. The intent is to train new and less experienced aquatic teachers of older adjusts, as well as individuals from abroad range of backgrounds, as Kikou course instructors. The Kikou program includes a series of 50 body specific relaxation exercises designed exclusively for an aquatic teachers of older adults, as well as individuals from a broad range of backgrounds, as Kikou
course instructors. The Kikou program includes a series of 50 body specific relaxation exercises designed exclusively for an aquatic environment specific to the older adult. The Kikou course training manual addresses the following course organization and administration, safety and pool practices, demonstration techniques, practice session guidelines, relation technique background and exercise modification for adults with health related problems. Also included are nine lessons illustrating 50 photographs with step-by step instructions as well poolside instructional cue cards for lamination. The Kikou program is an excellent 'stand alone' course for the older adult population and / or may be implemented in other water based programs.

Shu's purpose of the study was to examine various wellness literature, conduct a survey and interviews with seniors in order to recommend the components of a model program for physical wellness which can be used by seniors in Taiwan. The research design utilized a quantitative survey with 200 seniors living in six cities in Taiwan, and qualitative interviews with 15 seniors chosen from the original 200. The results of the survey and interviews were used to create the components of a optimal model for a physical wellness program which will promote holistic wellness among seniors and to offer recommendations to the Taiwan government for implementation of this model, once it is refined and the details further laid

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19Li-Shu, “A study of how physical recreation activities contribute to senior wellness, with a recommended Taiwan Model”, Dissertation Abstracts International Vol. 63 No. 5 Nov'2002
out, will lead to the desired effect of creating a more enjoyable and healthy lifestyle for the ever-increasing numbers of seniors in Taiwan.

Thomlin\textsuperscript{20} examined the effects of a home based resistance training program on physical function and strength in a group of older adults. Forty three volunteer participants, 65-89 years of age, were randomly assigned into either the control or the training group. All subjects were pre and posttested on muscular strength, physical function, height and weight. The home based training group (n=20) exercised using elastic bands and body weight for resistance, three times per week for 12 weeks completing three sets of eight to 12 repetitions for each of the seven exercises. To improve exercise adherence, an in-home visit was conducted for all training subjects during the first four weeks of training, followed by bi-monthly phone calls. The control group (n=20) exercised using elastic bands and body weight for resistance, three times per week for 12 weeks completing three sets of eight to 12 repetitions for each of the seven exercises. To improve exercise adherence, an in-home visit was conducted for all training group subjects during the first four weeks of training, followed by bimonthly phone calls. The control group (n=21) was asked to maintain their current level of activity. Two participants, one male from each of the groups with drew from the study. One female was unable to complete post test leg press strength

\footnote{Michael E. Tomlin “Effects of a home based resistance training program on physical function and strength in a group of older adults.” \textit{Dissertation Abstract International}, Vol. 63 No. 5 No. 2002.}
assessment due to a previously existing injury. A multiple analysis of covariance (MANCOVA) was used to determine if there were significant group effects, followed by an analysis of covariance (ANCOVA) to determine were those differences occurred. A significant group effect was found for strength. Univariate ANCOVAs found that the training group improved significantly on all of the five strength measures which were the leg press, seated row, shoulder press, seated bench press and hammer curl. The average increase in strength measures for the training group was 21.29% while the control group was 2.83%. For physical function the MANCOVA revealed a significant group effect. Univariate ANCOVAs found significant differences on two measures of physical function, the arm curl and the 30 second chair stand. The eight foot up and go, stair climb, and sit and reach were not significantly different.

Malathi et al at Bhabha Atomic Research Centre, Medical Division, in Mumbai, India, evaluated the overall benefits of Yoga on risk factors for heart disease. A group of 20 patients, 35 to 55 years of age, all of whom had mild to moderate high blood pressure, began a daily one hour Yoga programme. Prior to the implementation of their Yoga progame and following three months of yoga, biochemical and psychological parameters were studies. The overall results were quite impressive. After three months of yoga practice, the patients experienced a decrease in blood pressure, as

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well as a decrease in blood sugar, cholesterol and triglycerides. Feedback also indicated that the patients were calmer.

**Brances and et.al**\(^{22}\) Aim of this study was to assess the livelihood of individuals to participate in enough physical activity to promote fitness and, more conservatively, to accrue only health benefits. Secondary (n=883;20.5 percent) and active (n=1144;26.5 percent) groups were identified from the 1990 Allied Dunbar National Fitness Survey of English adults (n=4316). The data were analyzed using logistic regression. Participants were described using 20 variables identified from previous research, six of which made a significant contribution to the model (p less than 0.05). The odds of being sedentary increased with age, self-perception of lifestyle problems, and lower scores on education, self perception of motivation to exercise, perception of own participation in physical activity and recognition of exercising enough for health benefits. The odds of being active were associated with the opposite characteristics to those observed for sedentary behaviour. The extreme scores varied from individuals who may be 385 times more likely to be sedentary, to those who were 29 times more likely to be active, depending on scores on the selected variables. The result of this study provides a means to determine individual propensity to participate in adequate physical activity, and to identify those who may benefit most from

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\(^{22}\)Milleineaux Dr. Barnes Ca & Barnes E : “Factors affecting the likelihood to engage in adequate physical activity to promote health”, *Journal of Sports Sciences (GRB)* Vol. 19 No. 4 April 2001. pp. 279-288 Refs.38
health promotion campaigns. As the number of older adults increases, the goals of the health care system for the elderly are shifting from diagnosis and cure to maintenance of independent living. As individuals age, their functional ability decreases, which increases disability. If the disability becomes severe, it may prevent the individual from living independently and thereby necessitate costly, long term care. It has been shown that as individuals grow older, there is an age related decline in activities of daily living balance muscular strength and flexibility. However persons who maintain a high level of physical activity generally estranger, are more flexible, and have better balance than their sedentary counterparts. The purpose of investigation was to quantify the functional ability, balance muscular strength, flexibility, and life satisfaction of older adults, 75-85 years of age, living in one of three residential settings: a nursing facility, an assisted care facility, and independently in the community. The subjects (N=69) were recruited from nursing facilities (n=23), assisted care facilities (n=23), and the community (n=23). Activity level was assessed by the Physical Activity Questionnaire for the Elderly (Voorips, Ravelli, Dongelmans, Deurenberg & Van Stavern, 1991). The subjects were asked, in one-on-one interviews, to report their habitual physical activity over the past 1 years. The questionnaire consisted of three sections pertaining to household activities, sport activities, and leisure time activities. The items relating to household activities used a 4 to 5 point rating scale. Sports and leisure time activities included the type of activity, hours per week engaged
in the activity, and number of months in the year in which the activity was
normally performed, Reliability (r=0.89) was established by Vorrips et al.

Dash23 Through him a study was conducted that measured
improvement in hand grip in rheumatoid arthritis patients versus non
arthritic volunteers following Yoga training. The results were significant.
Hand grip strength in both hands (measured with a grip dynamometer)
increased in non-arthritis patients following Yoga. Hand strength did not
improve among the corresponding control groups.

Mukhopadhyaya24 conducted a study was undertaken to observe
any beneficial effect of yogic practices during training period on the young
trainees.54 trainees of 20-25 years age group were divided randomly in two
groups i.e. yoga and control group. Yoga group (23 male and 5 females) was
administered yogic practices for the first five months of the course while
control group (21 males and 5 females) did not perform yogic exercises
during this period. From the 6th to 10th month of the training both the groups
performed the yogic practices. Physiological parameters like heart rate,
blood pressure, oral temperature, skin temperature in resting condition,
responses to maximal and sub maximal exercise, body flexibility were

23 M.Dash,and Telly"Improvement in hand grip strength in normal volunteers and rheumatoid
(2001)."

24 Ray U.S,Mukhopadhyaya S,Purkayastha S.S et. al "Effect of yogic exercises on physical and
mental health of young fellowship course trainees."Indian Journal Physiol.Pharmacol 2001
Jan;45(1):37-53.
recorded. Psychological parameters like personality, learning, arithmetic and psychomotor ability, mental well being were also recorded. Various parameters were taken before and during the 5th and 10th month of training period. Initially there was relatively higher sympathetic activity in both the groups due to the new work/training environment but gradually it subsided. Later on at the 5th and 10th month, yoga group had relatively lower sympathetic activity than the control group. There was improvement in performance at sub maximal level of exercise and in anaerobic threshold in the yoga group. Shoulder, hip, trunk and neck flexibility improved in the yoga group. There was improvement in various psychological parameters like reduction in anxiety and depression and a better mental function after yogic practices.

Lashbrook25 took ten healthy, untrained volunteers (nine females and one male), ranging in age from 18-27 years, were studied to determine the effects of hatha yoga practice on the health-related aspects of physical fitness, including muscular strength and endurance, flexibility, cardio respiratory fitness, body composition, and pulmonary function. Subjects were required to attend a minimum of two yoga classes per week for a total of 8 weeks. Each yoga session consisted of 10 minutes of pranayamas (breath-control exercises), 15 minutes of dynamic warm-up exercises, 50 minutes of Asanas (yoga postures), and 10 minutes of supine relaxation in

Savasana (corpse pose). The subjects were evaluated before and after the 8-week training program. Isokinetic muscular strength for elbow extension, elbow flexion, and knee extension increased by 31%, 19%, and 28% (p<0.05), respectively, whereas isometric muscular endurance for knee flexion increased 57% (p<0.01). Ankle flexibility, shoulder elevation, trunk extension, and trunk flexion increased by 13% (p<0.01), 155% (p<0.001), 188% (p<0.001), and 14% (p<0.05), respectively. Absolute and relative maximal oxygen uptake increased by 7% and 6%, respectively (p<0.01). These findings indicate that regular hatha yoga practice can elicit improvements in the health-related aspects of physical fitness.

Ken et al.²⁶ investigated the training effects of daily jogging and nutritional control on treatment of obesity in middle-aged and older women, physical training for six months was prescribed. Training group members were 11 obese housewives aged 43.3±7.3 (55-31), while control group members were 5 obese women aged 39.6±4.3 (45-34). As a result of instruction about nutrition and physical training for six months, the subjects' body weight and Rohrer's index markedly decreased. In addition to that, some items of blood contents and aerobic function improved, and symptoms of hyperlipemia decreased. In conclusion, it was considered that nutritional

control as well as physical training would be indispensable as a prescription for middle-aged and older obese people.

Perrin et al.\(^{27}\) found Balance disorders increase with aging and raise the risk of accidental falls in the elderly. It has been suggested that the practice of physical and sporting activities (PSA) efficiently counteracts these age related disorders, reducing the risk of falling significantly.

Methods: This study, principally based on a period during which the subjects were engaged in PSA, included 65 healthy subjects, aged over 60, who were living at home. Three series of posturographic tests (static, dynamic with a single and fast upward tilt, and dynamic with slow sinusoidal oscillations) analyzing the centre of foot pressure displacements or electromyographic responses were conducted to determine the effects of PSA practice on balance control. Results: The major variables of postural control were best in subjects who had always practiced PSA (AA group). Those who did not take part in PSA at all (II group) had the worst postural performances, whatever the test. Subjects having lately begun PSA practice (IA group) had good postural performances, close to those of the AA group, whereas the subjects who had stopped the practice of PSA at an early age (AI group) did not perform as well. Overall, the postural control in the group studied decreased in the order AA > IA > AI > II. Conclusions: The period during which PSA

are practiced seems to be of major importance, having a positive bearing on postural control. It seems that recent periods of practice have greater beneficial effects on the subject's postural stability than PSA practice only at an early age. These data are compatible with the fact that PSA are extremely useful for elderly people even if it has not been a lifelong habit.

Jam M. et al\(^{28}\) studied Life satisfaction was assessed with the Satisfaction with Life Scale (SWLS) (Deiner, Emmons, Larsen, & Griffin, 1985). Subjects were timed for each item / task e.g. picking up an object from the floor, donning a jacket, walking, writing a sentence etc.) and a PPT score was calculated from the recorded times. The subjects were given two trials to complete each item, with no prior practice, and the best of the two trials was recorded for analysis. Normally used assertive devices were permitted. Reuben and Sui (1990) established a high reliability (r=0.79) for the test on a population of older adults. After a 5 min rest, each subject performed the timed Up and Go test to assess dynamic balance (Podsiadlo & Richardson, 1991). After the test for dynamic balance the subject was given a 5 min rest and then was tested for muscular strength using a 1 repetition maximum (1 RM) measure for the bilateral knee extension and double leg press. Each subject performed a warm up of 10 repetitions with no weight. The 1 RM measurements for the knee extension and leg press were repeated

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1 week later, and the best of the two scores was used as the measurement. The final test performed by the subjects was the modified Sit and Reach test for flexibility of the low back and hamstrings. Two practice trials were allowed before recording the reach scores for three trials. The final score was an average of the three trials. One way ANOVAs were used to identify whether significant differences occurred among the three samples of older adults for the physical activity questionnaire, SWLS, PPT, Up and Go, 1 RM for leg press and leg extension, flexibility, and demographic variables, Statistical significance was set at an alpha level of \( p < 0.05 \). There were no significant differences among the groups in age, height, weight, education level, and number of daily medications. Satisfaction with life scores were not significantly different, \( F(2,66) = 1.52, \ p = 0.23 \), among individuals living in the community, assisted care facilities, or nursing facilities. A significant difference existed among the groups for self reported physical activity level, \( F(2,66) = 27.17 \ p = 0.00 \). Physical activity level was lower in individuals living in nursing facilities as opposed to those living in the community or assisted care facilities. There was a significant difference in functional ability as determined by the Physical performance Test, \( F(2,66) = 45.94 \ p = 0.00 \), among the three groups of older adults, assisted care older adults had lower PPT scores than community living older adults. A significant difference existed among the groups for dynamic balance as determined by the times Up and Go, \( F(2,64) = 8.66, \ p = 0.00 \). Individuals living in a nursing facility had higher dynamic balance scores (poorer balance) than individuals who lived
in the community or assisted care facilities. There was no significant difference in dynamic balance between individuals who lived in the community and assisted care facilities. The results for the modified Sit and Reach test also indicated a significant difference among the groups, F(2,66)=10.77, p=0.00. Flexibility was less for individuals living in nursing facilities as compared to the community and assisted care individuals. This investigation indicate that differences in functional ability, physical activity level, dynamic balance, lower body strength, and flexibility exist among same aged older adults living in nursing facilities, assisted care facilities, and the community. The difference among the groups are most likely due to multiple factors. Some changes in ability can be a result of primary aging, while other changes may be attributed to the reduced activity level that often accompanies aging (Herman, 1992). The loss of strength, flexibility, and balance that occurs with aging is due in part to disuse resulting from a relatively inactive lifestyle

Youjie et al29 studied the Purpose: A cohort of middle-aged and older men and women were followed for an average of 50.5 yr to examine the association between physical fitness, physical activity, and the prevalence of functional limitation. Methods: The participants received medical assessments between 1980 and 1988 and responded to a mail-back survey regarding functional status in 1990. Results: Among 3495 men and 1175

women over 40 yr of age at baseline, 350 (7.5%) reported at least one functional limitation in daily or household activities at follow-up. The prevalence of functional limitation was higher among women than men. Physically fit and physically active participants reported less functional limitation than unfit or sedentary participants. After controlling for age and other risk factors, the prevalence of functional limitation was lower for both moderately fit (odds ratio = 0.4, 95% CI = 0.2-0.6) and high fit men (odds ratio = 0.3, 95% CI = 0.2-0.4), compared with low fit men. Corresponding figures for women were 0.5 (0.3-0.7) and 0.3 (0.2-0.5) for moderately fit and high fit women. The association between physical activity and functional limitation was similar to the data for physical fitness. Conclusions: These data support a protective effect of physical fitness and physical activity on functional limitation among older adults and extend this protective effect to middle-aged men and women.

Jo Judge\textsuperscript{30} investigates the Balance improvement in older women. Backgrounds and purpose; Loss of lower-extremity strength increases the risk of falls in older persons, The purpose of this study was to test the hypothesis that a vigorous program of lower-extremity strengthening, walking, and postural control exercises would improve the single-stance balance of healthy older women and lower their risk of falls and fall-associated injuries, Subjects, From a total of 38 respondents, 21 women

were randomly assigned to either a treatment group (combined training, n = 12) of a control group (flexibility training, n = 9). The subjects ranged in age from 62 to 75 years (mean = 68, SD = 3.5). Method-A randomized control trial compared the effects of two exercise programs on static balance. The combined training group exercised three times per week on knee extension and sitting leg press machines, walked briskly for 20 minutes, and performed postural control exercises, which included simple tai chi movements. The flexibility training group performed postural control exercised weekly. Measurements of balance were obtained on a force platform in double and single stance, at baseline and following 6 months of exercise training. Result- Double-stance measurements were unchanged after training. The mean displacement of the center of pressure in single stance improved 17% in the combined training group and did not change in the flexibility training group. A repeated-measures analysis of variance revealed that the difference I improvement between the combined training and flexibility training groups was not significant. Discussion And Conclusion- This is the first intervention trial to demonstrate improvements in single-stance postural sway in older women with exercise training. Additional studies with more subjects will be needed to determine whether a combined training program of resistance training, walking, and postural exercises can improve balance more than a program of postural control exercises alone.
Conn et al.\textsuperscript{31} Studied that Despite the potential benefits of exercise, rates of exercise among older adults remain low. Self-efficacy expectation is the strongest correlate of exercise behavior or exercise behavior change. Objectives: To develop and test the predictive ability of a model of exercise among older adults. Method: the model’s constructs related to exercise and self-efficacy included outcome expectancy, perceived barriers to exercise, perceived health, age, and lifelong leisure exercise among adults 65 to 100 years of age ($N = 147$). Data were collected by personal interview and analyzed with path analysis. Results: Self-efficacy expectation had a strong direct effect on exercise. Outcome expectancy contributed little to exercise in the model, perceived barriers and self-efficacy expectation, followed by age, exerted the most total influence on exercise scores. Conclusions: Lifelong leisure exercise exerts its influence on exercise through self-efficacy beliefs, further emphasizing the importance of efficacy. Also important are perceived barriers to exercise. Further research should examine self-efficacy expectations, perceived barriers, and age as predictors of exercise among older adults at different stages of health behavior change.

Sun\textsuperscript{32} examined the purpose of research was to determine the extent to which the level of leisure participation and acculturation contribute to life

satisfaction among elderly Korean immigrant. The researcher also examined the relationship between the level of acculturation and leisure participation patterns. In order to answer the research questions, a sample of 127 Korean born persons age 60 and older was recruited from several social service agencies located in Queens, New York, which serve Korean senior citizens from the New York metropolitan area and surveyed on their participation in leisure activities, acculturation level, life satisfaction and demographic background variables. The sample was characterized as predominantly female, mostly married or widowed, living with their spouses or other family members, and to be in good to excellent health. They were elderly and had lived most of their lives outside of the U.S. Their education was limited, with few being educated beyond elementary grades. The major findings of the study were as follows: (1) The respondents tended to have low levels of participation in leisure activities. They also had low levels of acculturation, and low level of satisfaction. (2) Participants tended to participate in home and social activities in much more than other form of activities, sports and outdoor activities were participated in the least of all. (3) Sex, age and health status were significant influences on all forms of leisure participation. Married people participated in sports more than unmarried people; people who lived with their spouses or by themselves participated in spectator and educational activities and sports more than

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those who lived with non-spouse others. Respondents with more education participated more in home and social activities, spectator and educational activities, and sports than those with lower educational levels.

Participation in leisure activities was positively related to the individual’s level of acculturation and life satisfaction. Life satisfaction and acculturation were positively related. After controlling for demographic background factors and acculturation, participation in leisure activities accounted for a significant portion of the variance in life satisfaction among Korean immigrant elderly persons.

Verfaillie F. and Nicholas conducted a study where the purpose of the study was to compare the effect of resistance training alone or in combination with balance and gait training on balance and gait measures in seniors. Subjects, ranging in age from 65 to 83 years, were randomly assigned to a strength and balance/gait group (SB, n=21) or a control group (S, n=18) receiving strength and relaxation training. Both groups significantly increased their strength and gait speed over the 12 week training period, but step length remained unchanged. The results suggest that elderly can make significantly improve some balance and gait measures beyond improvements achieved from strength training alone. If replicated, these results set the stage for investigations of injury control benefits possible from balance training.

Shephard et al.\textsuperscript{34} Studying the flexibility for an aging population conducted that sit and reach is more reliable than other simple measures and it provide data that correlate with other information on trunk flexibility.

Pevarnik and Sherman\textsuperscript{35} studied the responses of aerobically fit men and women to up-hill/down-hill walking and jogging and in this study he found that both walking and jogging economies differ between negative and positive TM(Tread Mill) grades. Gender differences appears negligible when comparing aerobically trained men and women.

Dummer et al.(1985)\textsuperscript{36} examined the age related differences in muscular strength and muscular endurance among seventy three female master swimmers aged twenty four to seventy one years. Each subject was assessed on measures of body size, gripe strength , peak isokinetic torque of shoulder and knee flexion and extension and endurance of shoulder and knee movements. Although swim training appears to have resulted in higher strength values for these swimmers than for less active women ,an age related decline in muscular values was nevertheless apparent. The result fail to reveal a similar trend for muscular endurance suggesting that swim training influences muscular endurance more than muscular strength among adult women.

\textsuperscript{34} R.J.Shephard,M.Berridge and William Montelpare,"On the Generality of the Sit and Reach Test :An Analysis of Flexibility Data for an Aging Population "Research Quarterly for Exercise and Sports.61 (December 1990):pg.326-330


\textsuperscript{36} Gail M.Dummer et al."Age Related Differences in Muscular Strength and Endurance among Female Master Swimmer" Research Quarterly for Exercise and Sports 56(June 1985):pg.97-110.
Nelson in his study designed to determine whether or not significant changes occur in flexibility, heart rate, body weight, selected anthropometric measurements, body fat and general at physical condition as a result of participation in Aerobic Dancing. Twelve minute run, skin fold measurements, anthropometric measurements, sit and reach test, and resting heart rate. Class sections randomly assigned to one of the training regiments, exercise for fifty minutes three times a week for a period of six weeks. A third group as control group. He concluded that (1) participation in both the dance programmes resulted in an increase in the general level of physical fitness, (2) participation in the aerobic dancing programme significantly reduce body fat, (3) increased flexibility, (4) Neither participation in the aerobic nor aerobic dancing produced significant change in body weight, (5) Even punted in changes in various anthropometric measures along with a significant decrease in body fat. These results, considered in conjunction with the fat that there was not a corresponding significant weight loss, indicates that participation in aerobic dancing caused increase in lean muscle mass.

Sevier conducted from an administrator’s standpoint if there were any change in selected factors of physical fitness and personality in a group

37 Priest, Nita Nelson, "Comparative effect of two prigrame of aerobic dance on flexibility ,Body composition and general physical condition of Selected Age group " Dissertation Abstracts International January 1984 vol.44 no.

38 Vernon Alvinan Sevier, "An Adminitrative Study of the effect of aerobic dancing and on selected physical fitness and personality variable" Dissertation Abstract International Vol.40 January 1980:3874-A
of adults women following participation in a six week programe of aerobics dancing. The results indicated that the subjects improved significantly in the area of physical fitness and showed change in four facts of personality. Significant change occurred on the National YMCA physical fitness test in each of the evaluated items which included the components of cardio-respiratory endurance, body composition, flexibility, muscular strength and muscular endurance. The subjects demonstrated significant improvement in the degree to which the environment was perceived as facilitating or retarding their functioning as measured by the life quality inventory. The resultant conclusion supporting the use of Aerobic dancing as an effective in five areas of physical fitness an showed significant changes un four fact a of personality and other variables.

Moses\textsuperscript{39} conducted a study to investigate the effect of yoga on flexibility, vital capacity and breath holding time, and found significant improvement in all these factors.

Dr. Lang\textsuperscript{40} said. “This research shows that you get important benefits from exercise even if it doesn’t help you lose weight.” The research was carried out using data from two ongoing studies, the English Longitudinal Study of Ageing and the US Health and Retirement Study. Both are long-term studies of the changes that take place as middle-aged people move into old

\textsuperscript{39} Robson Moses”Effect of yoga and Flexibility and Respiratory Measures of Vital Capacity and Breath holding Time”Ed.Dissertation (University of Oregon,1979):76-77

\textsuperscript{40} Dr Lang. “Some people take up exercise and then give up when they don’t lose weight,” An Article published in inter National Journal of Age and Aging vol.32 no.5 1978
age. Both groups — 8,692 in the US, and 1,507 in England — were asked at the start if they did any vigorous exercise. This could include sports, heavy housework, mowing the lawn, sweeping up leaves, or any job that involves physical labour and would make a participant feel out of breath or sweaty. The team worked out from the answers how many of the participants did at least 30 minutes of this type of exercise at least three times a week. They then compared this with the experience of physical decline in the participants. They conclude in the Journal of the American Geriatrics Society that those who maintained a reasonable level of physical activity were more likely to be able to walk distances, climb stairs, maintain their sense of balance, stand from a seated position with their arms folded, or sustain their hand grip as they got older. Across all weight ranges, the rate of decreased physical ability later in life.