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Appendices

APPENDIX A

GENERAL INFORMATION TO FILL THE QUESTIONNAIRES

Dear Student,

My varied weight reduction training, pre-test, post-test data of physical test and psychological questionnaire form the part of my Ph.D research work. I am conducting an investigation to explore the effects of varied weight reduction training program on body mass index selected physical fitness and psychological variables among college obese women. In this connection I seek your help and cooperation to collect the data before and after my training. Please feel free and be frank in giving answers for the psychological questionnaires. I honestly assure you that the data and about your information will be kept strictly confidential and used for academic purpose only.

A. Vijayalakshmi, Ph.D
(Research Scholar)

Please furnish the correct information for the following:

1. Name :
2. Age :
3. Weight :
4. Name of the College :

APPENDIX B

EVERLY AND GIORDANO*'S* STRESS SCALE

S. No	Statements	Almost always true	Usually true	Seldom true	Never true
1.	I do not like to wait for other people to complete their work before I can proceed with my own				
2.	I hate to wait in most lines				
3.	People tell me that I tend to get irritated to easily				
4.	Whenever possible I try to make activities competitive				
5.	I have a tendency to rush into work that needs to be done before knowing the procedure I will use to complete the job				
6.	Even when I go on vacation I usually take some work along				
7.	When I make a mistake it is usually due to the fact that I have rushed into the job before completely planning it through				
8.	I feel guilt for taking time off from work				
9.	People tell me I have a bad temper when it comes to competitive situations				
10.	I tend to lose my temper when I am under a lot of pressure at work				
11.	Whenever possible, I will attempt to complete two or more tasks at once				
12.	I tend to race against the clock				
13.	I have no patience for lateness				
14.	I catch myself rushing when there is no need				

STRESS SCALE

Author	: Giordano*'s* D. and Everly, G., 1979
Availability	: Agra Psychological Research Cell, Agra
Main Features	: The scale consists of 14 statements with Likert method scale.
Reliability	: Reliability established by split-half method following Spearman-Brown prophecyformula was found to be 0.84.
Validity	: Content validity was established on the basis of the rating by experts. Item discrimination value and homogeneity of items was also determined statistically.
Time	: About 30 minutes
Norms	: Mean scores norms available
Reference Book	: Giordano*'s* D. and Everly, G., 1979 (Controlling Stress and Tension: A Holistic. Approach,1990)

APPENDIX C

MARTENS'S SPORTS COMPETITIVE ANXIETY TEST

S.No	STATEMENTS	Rarely	Some time	Often
1.	Competing against others is socially enjoyable			
2.	Before I compete I feel uneasy			
3.	Before I compete I worry about not performing well			
4.	I am a good sportsman when I compete			
5.	When I compete, I worry about making mistakes			
6.	Before I compete I am calm			
7.	Setting a goal is important when competing			
8.	Before I compete I get a queasy feeling in my stomach			
9.	Just before competing, I notice my heart beats faster than usual			
10.	I like to compete in games that demands a lot of physical energy			
11.	Before I compete I feel relaxed			
12.	Before I compete I am nervous			
13.	Team sports are more exciting than individual sports			
14.	I get nervous wanting to start the game			
15.	Before I compete I usually get uptight			

COMPETITIVE ANXIETY SCALE

Author : Rainer Martens, 1977

Availability : http://www.humankinetics.com/competitive-anxiety-in-sport-paperMain Features : The scale consists of 15 statements with Likert method scale.

Reliability : Reliability established by split-half method following Spearman-Brown prophecy formula was found to be 0.89.

Validity : Content validity was established on the basis of the rating by experts. Item discrimination value and homogeneity of items was also determined statistically.

Time : About 30 minutes

Norms : Mean scores norms available

Reference Book : Rainer Martens, Competitive anxiety in sport, 2002

APPENDIX D

KAMLESH'S SPORTS ACHIEVEMENT MOTIVATION INVENTORY

S.No	Statements	Response
1	I enjoy playing ……	a) Vigorous game (S)
		b) Game (S) which requires little physical effort
2	As a player I like to be called …….	a) A well skilled player
		b) A top performer
3	In my life I would like to …….	a) Use sport as a profession
		b) Use my sports achievements to get other benefits likeemployment, admission etc.
4	I want to earn fame in sports …….	a) By my hard work
		b) By influencing officials/selectors
5	During the holidays, I want …….	a) To watch matches
		b) To spend time in perfecting my game
6	I take pride in being called …….	a) A sportsman of fine manner
		b) A sportsman of perfect techniques and skills
7	It is my nature …….	a) To just participate in sports rather than to compete
		b) To take sports competitions seriously
8	I play the game …….	a) To keep good health only
		b) To just earn fame
9	I feel extremely unhappy when …….	a) I lose a competition
		b) I lose my sports equipments or kit
10	Generally I make friends with …….	a) Those who are outstanding sportsmen though less
		b) Those who are highly influential but sportsmen of lesser ability
11	I have a tendency to concentrate …….	a) On one event only
		b) On more than one event

12	I feel my success depends upon …….	a) My own hard work
		b) My friends or officials
13	I want to practice sports so that …….	a) I may be selected to represent my School/State/ Nation
		b) So that I may keep fit
14	I feel that winning in sports is …….	a) Something to be proud of
		b) Everything for me
15	I shall feel contented if my team …….	a) Just wins a match
		b) Crushes the opposite team
16	In near future, I shall be …….	a) A star sportsman
		b) A rich person
17	Generally, I have a feeling that …….	a) I must represent my country in my sport
		b) I may achieve some success in sports activities
18	Criticism on my performance …….	a) Helps me to work harder
		b) Discourages me a great deal
19	I would like to …….	a) Do much better than others
		b) The best within my power
20	Generally I have a feeling …….	a) That I would create a new record in my game/sport
		b) That I shall retire before I reach the top in my game

Author	: M.L.Kamlesh, 1982
Availability	: Agra Psychological Research Cell, Agra (First handbook of psychological and social instruments)
Main Features	: The scale consists of 20 statements. Each statement is followed by a 5-point rating scale.
Reliability	: Reliability established by split-half method following Spearman-Brown prophecy formula was found to be 0.84.
Time	: About 30 minutes
Norms	: Mean scores norms available
Reliability	: Reliability established by split-half method following Spearman-Brown prophecy formula was found to be 0.89.
Reference Book	: M.L. Kamlesh, Psychology of physical education and sports, 1983

APPENDIX E

MUKTA RANI RASTOGI'S SELF-CONCEPT QUESTIONNAIRE

1	In general, I believe, I am a fairly worthwhile person				
	Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree
2	I like and feel pretty good towards myself				
	Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree
3	I worry over humiliating situations more than most persons				
	Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree
4	I an perform my best in a vocation or job against an opponent who is much superior to me				
	Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree
5	I often feel that my movements are clumsy				
	Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree
6	I think I have an attractive personality				
	Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree
7	If given a chance, I could do something that would be of much benefit to the world				
	Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree
8	I lend to be quick and certain in my actions				
	Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree
9	I think of myself as a successful person				
	Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree
10	At times I am uncharitable to those who love me				
	Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree
11	Sometime I feel depressed for no apparent reason at all				
	Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree
12	I frequently; feel thwarted because I am enable to do as I desire				
	Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree
13	I often feel I get blamed or punished when I don't deserve it				
	Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree
14	I find it hard to continue work when I do not get enough encouragement				
	Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree
15	When upset emotionally I take much time to recover				
	Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree
16	I find it hard to do my best when people are watching				
	Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree
17	At times I indulge in false excused to get out of things				
	Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree
18	I prefer not to spend much time dwelling on the past				
	Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree
19	I am unwanted by those I feel, are important to me				
	Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree
20	I am satisfied to a large extent about my sex matters				
	Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree

APPENDIX E (Continued)

21	I become upset by criticism even if it is good or meant well				
	Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree
22	I look forward to prepare myself to attend what I intended to				
	Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree
23	My greatest weakness is that I find difficult to complete my work without assistance from others				
	Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree
24	It is my convictions that people in general tend to grow				
	Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree
25	I am as good as anyone else				
	Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree
26	If I were young again I would try to do the thing which I could not do earlier				
	Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree
27	The members of my family often take advice and suggestion from me for overall matters				
	Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree
28	When things go wrong I pity or blame myself				
	Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree
29	I sometimes think or imagine of performing sexual act that many people consider unnatural				
	Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree
30	I certainly feel useless at times				
	Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree
31	I spend much of the time worrying over the future				
	Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree
32	I find difficult to control my weight				
	Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree
33	I can always hear and see things as well as most other people				
	Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree
34	I don’t get invited out by friends as often as I would really like				
	Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree
35	At times I brag about my qualities before others				
	Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree
36	I am fairly able to recall the significant events of my early childhood				
	Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree
37	I can recover easily and quickly from social blunders				
	Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree
38	I frequently fail to recollect several things which I am to do				
	Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree
39	I have several times given up doing a thing because I thought to little of my ability				
	Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree
40	I see it is a bad mistake to spend most of my time worrying for the future, instead I prefer to try to find some pleasure in every present moment				
	Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree

APPENDIX E (Continued)

41	I am often in low sprit				
	Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree
42	It is very important to me to feel that what I am doing is very worthwhile or meaningful				
	Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree
43	I enjoy mixing with people				
	Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree
44	I can tackle new situations with reasonable degree of assurance				
	Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree
45	At times I feel a painful sense of loneliness and want very much to share an experience with someone else				
	Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree
46	I can almost always go to sleep at night without any difficulty				
	Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree
47	When luck turns against me I pray God to make it in favour of me				
	Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree
48	Sometimes I would become a respectable person of society				
	Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree
49	I believe that everyone is responsible for that he is as for what he does				
	Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree
50	I deserve severe punishment for my sins				
	Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree
51	I usually prefer to do things in tried way rather than experimenting new and different ways				
	Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree

SELF-CONCEPT SCALE

Author : Mukta Rani Rastogi (1980)
Availability : Agra Psychological Research Cell, Agra (First handbook of psychological and social instruments)
Main Features : The scale consists of 51 statements. Each statement is followed by a 5-point rating scale.
Reliability : Reliability established by split-half method following Spearman-Brown prophecy formula was found to be 0.84.
Validity : Content validity was established on the basis of the rating by experts. Item discrimination value and homogeneity of items was also determined statistically.
Time : About 30 minutes
Norms : Mean scores norms available
Reliability : Reliability established by split-half method following Spearman-Brown prophecy formula was found to be 0.87.
Reference Book : Udai and Rao, 1992, First handbook of psychological and social instruments

APPENDICES - C

LIST OF SUBJECTS SELECTED FOR THE STUDY

Kaarvonen Formula – MHR (220bmp – Age)
Step 1 – Maximal HR – AGE
Step2 – Observe RHR - AGE
Step 2 – calculate HRR (MHR-RHR)
Step4 - CLACULATE TRAINING INTENSITY ZONE – TI = HRR X .30 + RHR

S.N0	NAME	CLASS	ROLL	AGE	SCHOOL NAME
1.	A. A.ANANDHI	10	3	16	Holy Angels GHSS
2.	A. M. SAMYUKTHAA	8	4	14	Sri Sarada Vidyalaya GHSS
3.	A. P. DHIVYA	8	5	14	Sri Sarada Vidyalaya GHSS
4.	A. SUGAPRIYA	10	3	16	Holy Angels GHSS
5.	A.LAKSHMI SUDARSINI	8	4	15	Sri Sarada Vidyalaya GHSS
6.	A.LAKSHMI SUDARSINI	8	5	14	Sri Sarada Vidyalaya GHSS
7.	A.ROSE STEFINA	10	5	16	Holy Angels GHSS
8.	A.SAIDHARSHINI	11	1	17	Holy Angels GHSS
9.	AARTHI. S	10	2	16	St.Joseph GHSS
10.	AASHIKA S	11	1	17	St.Joseph GHSS
11.	ABDUL AHAD	10	2	15	St.Joseph GHSS
12.	ABINAYA.B	8	4	14	Holy Angels GHSS
13.	ABIRAMI K M	8	5	14	Holy Angels GHSS
14.	ABIRAMI.M	8	2	14	Holy Angels GHSS
15.	ABIRAMY M P	8	1	14	Holy Angels GHSS
16.	ADVAITHA.R	10	2	15	St.Joseph GHSS
17.	AKSHAYA	11	5	17	St.Joseph GHSS
18.	AKSHAYA M	8	4	14	St.Joseph GHSS
19.	AMBIKA RAINA	8	1	14	St.Joseph GHSS
20.	ANU SIVA MALATHI . R	8	4	14	St.Joseph GHSS
21.	ANUSHADEVI U	8	1	15	St.Joseph GHSS
22.	ARCHANA K	10	3	16	Sri Sarada Vidyalaya GHSS
23.	ARCHANA. S	10	5	15	Holy Angels GHSS
24.	ARSHIYA S	8	1	14	St.Joseph GHSS
25.	ARTHY.S.S	10	1	16	Holy Angels GHSS

APPENDICES – C (Continued)

LIST OF SUBJECTS SELECTED FOR THE STUDY

Kaarvonen Formula – MHR (220bmp – Age)
Step 1 – Maximal HR – AGE
Step2 – Observe RHR - AGE
Step 2 – calculate HRR (MHR-RHR)
Step4 - CLACULATE TRAINING INTENSITY ZONE – TI = HRR X .30 + RHR

S.N0	NAME	CLASS	ROLL	AGE	SCHOOL NAME
26.	ARUNA M	10	2	15	Holy Angels GHSS
27.	ARUNPRIYA.C	8	4	14	St.Joseph GHSS
28.	ATCHAYA M	11	1	17	Sri Sarada Vidyalaya GHSS
29.	ATSHAYA.O	10	2	15	Holy Angels GHSS
30.	AYSHA.M	10	2	15	Holy Angels GHSS
31.	B. DURGA	10	3	15	Holy Angels GHSS
32.	B.E.THREVENIMENAKA	8	5	15	Sri Sarada Vidyalaya GHSS
33.	BACKIYA ARUL	8	1	14	Sri Sarada Vidyalaya GHSS
34.	BAGAVATHI.P	8	2	14	Sri Sarada Vidyalaya GHSS
35.	BAGYLAKSHMI GUPTA	10	5	15	St.Joseph GHSS
36.	BRINDHA DEVI V	10	5	15	St.Joseph GHSS
37.	BRUNTHA. P	10	1	15	St.Joseph GHSS
38.	C.M.SWARNADEVI	11	2	17	St.Joseph GHSS
39.	DEEBIKHA.D.P	8	2	14	Sri Sarada Vidyalaya GHSS
40.	DEEPAK	8	4	14	Holy Angels GHSS
41.	DEESHAN M A	8	5	14	Holy Angels GHSS
42.	DHARSHANA S	8	4	15	Holy Angels GHSS
43.	DHIVIYA PRIYA.T.H	8	5	14	Holy Angels GHSS
44.	DISHA PAWAR	8	4	15	Holy Angels GHSS
45.	K.P.VANITHA	10	49	15	Sri Sarada Vidyalaya GHSS
46.	KANAGADURGA.B	10	39	15	Holy Angels GHSS
47.	M. MOHANA SRI	10	39	16	Holy Angels GHSS
48.	M.ANITHA	11	2	17	Holy Angels GHSS
49.	MANJU.S	9	36	15	Sri Sarada Vidyalaya GHSS
50.	NATHIYA S	10	39	15	Holy Angels GHSS
51.	NIVETHA V	9	36	14	St.Joseph GHSS
52.	RUBADHARSHINI.E	10	49	15	Sri Sarada Vidyalaya GHSS

APPENDICES – C (Continued)

LIST OF SUBJECTS SELECTED FOR THE STUDY

Kaarvonen Formula – MHR (220bmp – Age)
Step 1 – Maximal HR – AGE
Step2 – Observe RHR - AGE
Step 2 – calculate HRR (MHR-RHR)
Step4 - CLACULATE TRAINING INTENSITY ZONE – TI = HRR X .30 + RHR

S.N0	NAME	CLASS	ROLL	AGE	SCHOOL NAME
53.	RUBINI	11	48	17	Sri Sarada Vidyalaya GHSS
54.	S SAKTHI	10	49	15	Sri Sarada Vidyalaya GHSS
55.	SALINI S	10	48	16	St.Joseph GHSS
56.	SANJANA DHARINI S	10	49	15	St.Joseph GHSS
57.	SANTHANALAKSHMI.M	9	52	15	Holy Angels GHSS
58.	SAVITHA G	10	51	15	Sri Sarada Vidyalaya GHSS
59.	SHREE VAISHNAVI A	10	51	16	Sri Sarada Vidyalaya GHSS
60.	SHRIYA BHARADWAJ	10	49	15	Sri Sarada Vidyalaya GHSS
61.	SNEHA.S	11	52	17	St.Joseph GHSS
62.	SOUNDHARYA.K	10	49	15	Holy Angels GHSS
63.	SRI MADHANA J	11	48	16	St.Joseph GHSS
64.	SRIMATHI	10	48	15	St.Joseph GHSS
65.	SRUTHI.R	9	52	15	St.Joseph GHSS
66.	SUBARANJANA B	9	51	14	St.Joseph GHSS
67.	SUBHADRAA CH	9	51	14	St.Joseph GHSS
68.	SUBIKSHA.G	10	49	15	Sri Sarada Vidyalaya GHSS
69.	SUCHIMITA.K	11	51	17	Sri Sarada Vidyalaya GHSS
70.	SUMRITHIE.P.R	10	49	15	Sri Sarada Vidyalaya GHSS
71.	SURUTHIKA	10	48	15	Sri Sarada Vidyalaya GHSS
72.	SUSMITHA V	10	49	16	Holy Angels GHSS
73.	SWATHI. M	11	52	17	Holy Angels GHSS
74.	THARANI. S. R	9	59	14	Sri Sarada Vidyalaya GHSS
75.	V.SUBARNA	9	52	14	Holy Angels GHSS
76.	VANMATHI R.M.	11	59	17	Holy Angels GHSS
77.	VIDYA BHARATHY.S.M	9	59	14	Sri Sarada Vidyalaya GHSS
78.	VINKODI.B.R	9	59	14	Sri Sarada Vidyalaya GHSS
79.	VRM.DHANAMAGAL	10	49	15	Holy Angels GHSS
80.	YAMINI S	9	59	15	Holy Angels GHSS

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Effect of Zumba dance on selected physical fitness of school girls

A Vijayalakshmi, K Kavitha and Dr. M Jayachitra

Abstract
This study was investigated the impact of Zumba dance on selected physical fitness of school girls. To achieve the purpose of the study 40 school girls were selected from Sri Saratha Vidhayalaya higher secondary school Salem. The subjects were randomly assigned to two equal groups (n = 20). Group - I underwent Zumba dance practice (ADWYG) and group - II was acted as control group (CG). The Zumba dance was given to the experimental group for 3 days per week (Monday, Wednesday and Friday) for the period of twelve weeks. The control group was not given any sort of training except their routine work. The physical parameters of flexibility (set and reach test) and muscular strength (modified setups) before and after training period. The data collected from the subjects was statistically analyzed with 't' test to find out significant improvement if any at 0.05 level of confidence. The result of the present study Zumba dance significantly improved selected physical fitness of school girls.

Keywords: Zumba dance, body composition and VO_2 max

Introduction
People are increasingly aware of the benefits of various policies and regular exercise and physical activity programs as a result of actions and campaigns aimed at developing a more active and healthier lifestyle. Physical activity is fundamental to maintaining life functions and is an essential part of having a healthy lifestyle because it has been proven in many studies to have a protective role against cardiovascular disease, metabolic disorders, skeletal disorders and even mental development (Vendramin *et al*., 2016) [1].

The Zumba fitness is a new kind of dance workout, inspired by Latin American music and Latin American dances. The exercise combines the basic of dance merengue, salsa, samba, cumbia, reggeaton and other Latin American dances, uses basic aerobic steps, but also enriches their composition of the other dance like hip-hop, belly dancing, Indian, African dance, etc. It is fusion of basic principles of aerobic interval training and strengthening exercises which promote consumption of calories, improve cardiovascular system and strength of the whole body (Perez & Greenwood-Robinson, 2009) [2, 11].

This modern approach of fitness exercising satisfies goals such as harmony of the body, improving posture and strengthening bone-joint segments of the locomotor's apparatus (Furjan-Mandić, Kosalec, & Vlašić, 2011). Group fitness exercises represent the form of programmed physical activity to improve health and change body shape. The Zumba fitness is a new kind of dance workout, inspired by Latin American music and Latin American dances. The exercise combines the basic of dance merengue, salsa, samba, cumbia, recreation and other Latin American dances, uses basic aerobic steps, but also enriches their composition of the other dance like hip-hop, belly dancing, Indian, African dance, etc.

It is fusion of basic principles of aerobic interval training and strengthening exercises which promote consumption of calories, improve cardiovascular system and strength of the whole body (Perez & Greenwood-Robinson, 2009) [2, 11]. This modern approach of fitness exercising satisfies goals such as harmony of the body, improving posture and strengthening bone-joint segments of the locomotor's apparatus. This is very important from the aspect of maintaining interest for continuous exercise, since the main reason for leaving the group fitness program is monotony of each training session in long term of practicing (Stoiljković *et al*., 2010) [12, 13].

Methodology

In this study the selected 40 school girls selected from Sri Saratha Vidhayalaya higher secondary school Salem. The subjects were randomly assigned in to two equal groups namely, Zumba Dance group (ZDWYP) (n = 20) and Control group (CG) (n = 20). The respective training was given to the experimental group the 3 days per weeks (alternate days) for the training period of twelve weeks. The control group was not given any sort of training except their routine. The evaluated physical parameters were flexibility was assessed by sit and reach test and the unit of measurement was in centimetres, muscular strength was assessed by modified sit-ups and the unit of measurement was in counts. The training programme was lasted for 60 minutes for session in a day, 3 days in a week for a period of 12 weeks' duration. These 60 minutes included 10 minutes warm up, Zumba dance for 25 minutes and Yoga practice for 25 minutes and warm down. The equivalent in Zumba dance is the length of the time each action in total 3 days per weeks (Monday, Wednesday and Friday).

Statistical analysis

The collected data before and after training period of 12 weeks on the above said variables due to the effect of Zumba dance was statistically analyzed with 't' test to find out the significant improvement between pre and posttest. In all cases the criterion for statistical significance was set at 0.05 level of confidence. (P<0.05).

Table 1: Computation of 't' ratio on selected parameters on experimental group and control group. (Scores in numbers).

Group	Variables		Mean	N	Std. Deviation Pre	Std. Deviation Post	T ratio
Experimental group	Flexibility	Pre-test	6.25	20	1.11	1.05	2.63*
		Post-test	6.45	20			
	Muscular strength	Pre-test	7.75	20	0.85	0.89	21.00*
		Post-test	8.80	20			
Control group	Flexibility	Pre-test	5.70	20	1.03	1.05	1.71
		Post-test	5.55	20			
	Muscular strength	Pre-test	7.70	20	16.31	17.34	1.37
		Post-test	7.75	20			

*Significant level 0.05 level degree of freedom (2.09, 1 and 19).

Table 1 reveals the computation of mean, standard deviation and 't' ratio on selected Flexibility and Muscular strength experimental group. The obtained 't' ratio on Flexibility and Muscular strength were 2.63 and 21 respectively. The required table value was 2.09 for the degrees of freedom 1and 14 at the 0.05 level of significance. Since the obtained 't' values were greater than the table value it was found to be statistically significant.

Further the computation of mean, standard deviation and 't' ratio on Flexibility and Muscular strength control group. The obtained 't' ratio on Flexibility and Muscular strength were 1.71 and 1.37 respectively. The required table value was 2.14 for the degrees of freedom 1 and 14 at the 0.05 level of significance. Since the obtained 't' values were lesser than the table value it was found to be statistically not significant.

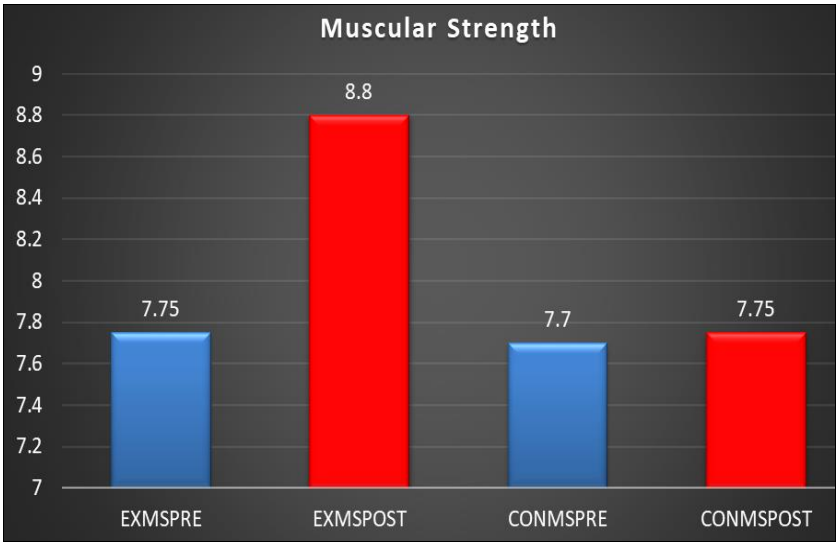

Fig 1: Bar diagram showing the mean value on Muscular Strength of School Girls on Experimental and Control group (Scores in numbers).

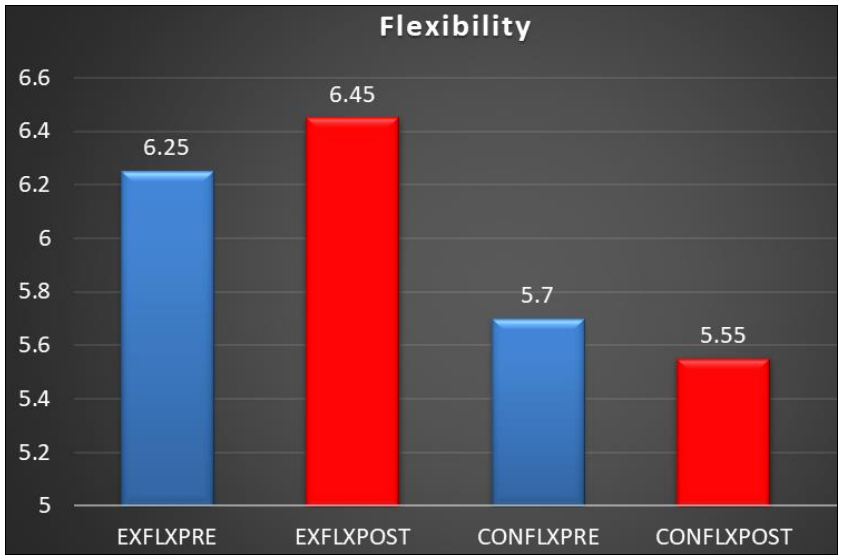

Fig 2: Bar diagram showing the mean value on Flexibility of School Girls on Experimental and Control group (Scores in numbers)

Discussion and Findings

The present study experimented the effect of Zumba dance training with yoga on physical parameters of school girls. The result of the study shows that the Zumba dance training improved the Flexibility and Muscular strength. The findings of the present study had similarity with the findings of the investigations referred in this study. However, there was a significantly changes of subjects in the present study the Flexibility and Muscular strength was significantly improved of subject in the group may be due to the in Zumba dance. Dance development can be multidimensional among individuals and brings about positive improvements when individuals dance as a sportive activity or physical activity. Numerous studies emphasize physiological and psychological benefits of dancing (Hackney and Earhart, 2010; Hanna, 2010; Huddy and Stevens, 2011; Zitomer and Reid, 2011) [20, 21, 24]. It was found that hopelessness levels of the university students who danced decreased (Bastug and Demir, 2010) [27]. Minton (2003) reported that students who received dancing classes had more abstract and creative thinking skills compared to those who did not receive dancing courses. Fonseca *et al*. (2014) observed that ballroom dancing brought perceptual benefits for those who practiced it. Krampe (2013) [7] found that dance-based therapy was mildly or moderately effective in several components of balance and mobility. It was identified that motivation, self-confidence, body language, dancing related self-sufficiency and dance performances improved positively (Tokinan and Bilen, 2011) [5]. In a study on concentration, it was observed that concentration levels and feeling-states improved significantly over sessions of both yoga and aerobic exercise sessions equally. Aerobic exercise and yoga both produce positive changes in concentration, stress, energy, and well-being while only yoga produces improvements in mood and self-satisfaction (Dolde, 2011) [6]. Dancing, playing games, painting, and singing by the children support growth as well as play a key role in brain's learning skills and improve all of the senses.

Conclusions

It was concluded that 12 weeks twelve weeks Zumba dance practice significantly improved the Flexibility and Muscular strength of school girls.

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Effect of Zumba dance with yoga on body composition and vo2 max of school girls

A Vijayalakshmi and Dr. M Jayachitra

Abstract
This study was investigated the impact of Zumba dance with yoga practice on body composition and Vo2 max of school girls. To achieve the purpose of the study 40 school girls were selected from Sri Saratha Vidhayalaya higher secondary school Salem. The subjects were randomly assigned to two equal groups (n=20). Group- I underwent Zumba dance with yoga practice (ADWYG) and group - II was acted as control group (CG). The Zumba dance with yoga Practices was given to the experimental group for 3 days per week (Monday, Wednesday and Friday) for the period of twelve weeks. The control group was not given any sort of training except their routine work. The physical parameters of body composition (skin fold caliper) and Vo2 max (Queens's college step test) before and after training period. The data collected from the subjects was statistically analyzed with 't' test to find out significant improvement if any at 0.05 level of confidence. The result of the present study Zumba dance with yoga practices significantly improved body composition and Vo2 max of school girls.

Keywords: Zumba dance with yoga practices, body composition and Vo2 max

Introduction
Group fitness exercises represent the form of programmed physical activity to improve health and change body shape. The zumba fitness is a new kind of dance workout, inspired by Latin American music and Latin American dances. The exercise combines the basic of dance merengue, salsa, samba, cumbia, recreation and other Latin American dances, uses basic aerobic steps, but also enriches their composition of the other dance like hip-hop, belly dancing, Indian, African dance, etc. It is fusion of basic principles of aerobic interval training and strengthening exercises which promote consumption of calories, improve cardiovascular system and strength of the whole body (Perez & Greenwood-Robinson, 2009) [4]. This modern approach of fitness exercising satisfies goals such as harmony of the body, improving posture and strengthening bone-joint segments of the locomotors apparatus (Furjan-Mandic, Kosalec & Vlasic, 2011) [1]. The researches confirm that the implementation of various forms of group fitness program contributed to statistically significant effects in improving functional and motoric abilities of a woman (Mandaric, 2011), and changes in women body composition, as well. Also, the latest researches separate dance aerobic as the most effective group fitness program (Hiznayova, 2013) [2] which through motivating music implement creative choreography primarily aimed to entertain the trainees. The advantage of this model of exercise is that every practice is a new entertainment based on various dance steps with different intensity and form of exercising, what makes the participants more motivated (Perez and Greenwood-Robinson, 2009) [4]. This is very important from the aspect of maintaining interest for continuous exercise, since the main reason for leaving the group fitness program is monotony of each training session in long term of practicing (Stoiljkovic et al., 2010).

Methodology
In this study the selected 40 school girls selected from Sri Saratha Vidhayalaya higher secondary school Salem. The subjects were randomly assigned in to two equal groups namely, Zumba dance with yoga Practices group (ZDWYP) (n=20) and Control group (CG)(n=20). The respective training was given to the experimental group the 3 days per weeks (alternate days) for the training period of twelve weeks.

The control group was not given any sort of training except their routine. The evaluated physical parameters were bod composition was assessed by skin fold calliper test and the unit of measurement was in percentage, Vo2 max was assessed by queen college step test and the unit of measurement was in ml/kg/mins.

Training programme

The training programme was lasted for 60 minutes for session in a day, 3 days in a week for a period of 12 weeks' duration. These 60minutes included 10 minutes warm up, zumba dance for 25 minutes and Yoga practice for 25 minutes and warm down. The equivalent in zumba dance with yoga is the length of the time each action in total 3 days per weeks (Monday, Wednesday and Friday).

Statistical analysis

The collected data before and after training period of 12 weeks on the above said variables due to the effect of Zumba dance was statistically analyzed with't' test to find out the significant improvement between pre and posttest. In all cases the criterion for statistical significance was set at 0.05 level of confidence. (P< 0.05)

Table 1: Computation of 't' ratio on selected parameters on experimental group and control group (Scores in numbers)

Group	Variables		Mean	N	Std. Deviation Pre	Std. Deviation Post	T ratio
Experimental Group	Body Composition	Pre test	29.45	20	1.19	1.18	15.98*
		Post test	28.35	20			
	Vo2 Max	Pre test	22.40	20	5.48	5.40	14.03*
		Post test	29.30	20			
Control group	Body Composition	Pre test	29.30	20	1.08	1.27	1.45
		Post test	29.40	20			
	Vo2 Max	Pre test	22.25	20	4.98	5.03	1.83
		Post test	22.10	20			

*significant level 0.05 level degree of freedom (2.09, 1 and 19)

Table I reveals the computation of mean, standard deviation and 't' ratio on selected Body Composition and vo2 max experimental group. The obtained't' ratio on Body Composition and vo2 max were 15.98 and 14.03 respectively. The required table value was 2.09 for the degrees of freedom 1and 14 at the 0.05 level of significance. Since the obtained't' values were greater than the table value it was found to be statistically significant.

Further the computation of mean, standard deviation and 't' ratio on Body Composition and vo2 max control group. The obtained 't' ratio on Body Composition and vo2 max were 1.45 and 1.83 respectively. The required table value was 2.14 for the degrees of freedom 1and 14 at the 0.05 level of significance. Since the obtained't' values were lesser than the table value it was found to be statistically not significant.

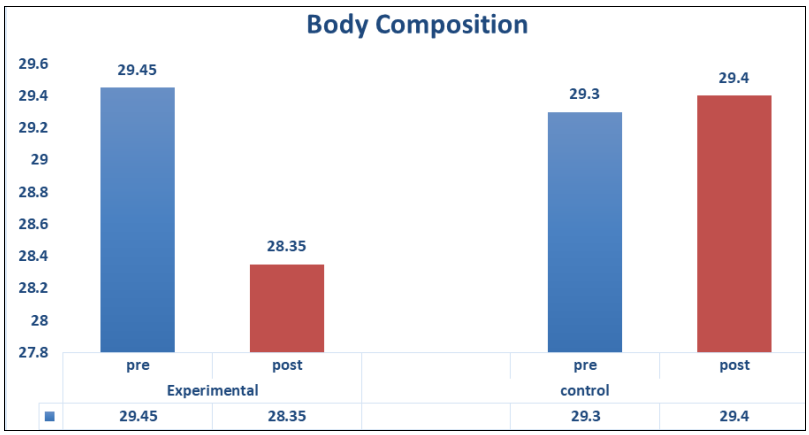

Fig 2: Bar diagram showing the mean value on Body Composition of School Girls on Experimental and Control group (Scores in numbers)

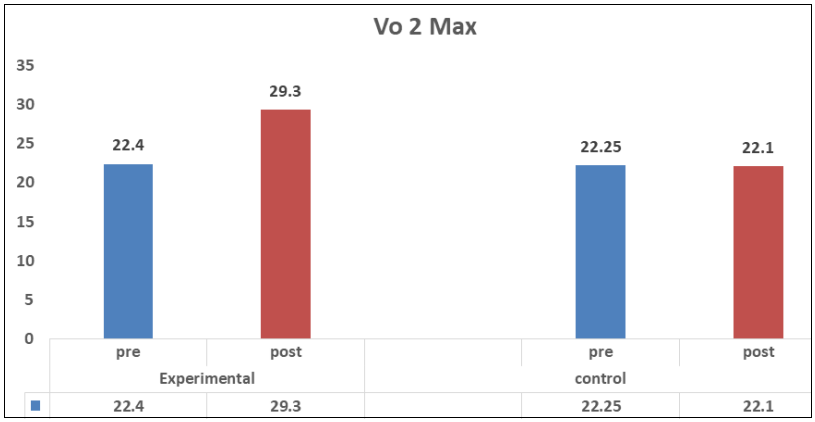

Fig 2: Bar diagram showing the mean value on vo2 max of School Girls on Experimental and Control group (Scores in numbers)

Discussion and findings

The present study experimented the effect of Zumba dance training with yoga on physical parameters of school girls. The result of the study shows that the Zumba dance training with yoga Practice improved the Body Composition and vo2 max. The findings of the present study had similarity with the findings of the investigations referred in this study. However, there was a significantly changes of subjects in the present study the Body Composition and vo2 max was significantly improved of subject in the group may be due to the in zumba dance with yoga. Sovova E et al., (2015) [11] found out that maximum oxygen consumption significantly higher performance in Yoga group as a result of 2 years among normal population. According to Barene (2014) [10] 12 weeks' practice of soccer and zumba were found to be significantly improved the VO2 max peak among female hospital employees. Kodgire et al., (2013) [7] reported that significant improvement on Vo2 max had increased yoga group as a result of 8 weeks of Yoga activity among school girls. Mikalacki et al., (2011) [9] reported the level of significance was improved the value of Fitness Index (FITIND) and VO2 max had developed due to pole walking as a result at 3 months among elderly women. Mivachi et al., (2009) found out that prediction of VO2 max with daily step counts predicted and predicted VO2 max correlated well with measured VO2 max suggesting that step count is useful for Vo2 max in Japanese women. Arnulflo RamoS- Jimenez et al., (2009) [6] studied that improvement on VO2 max had increased due to Hatha Yoga training group of 11 weeks among middle aged and older women.

Conclusions

It was concluded that 12 weeks twelve weeks zumba dance with yoga practice significantly improved the Body Composition and vo2 max of school girls.

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