# EFFECTS OF VARIED DANCE FITNESS PROGRAMME WITH YOGA ON SELECTED CARDIO-PULMONARY PHYSICAL FITNESS AND PSYCHOLOGICAL VARIABLES AMONG OBESE SCHOOL GIRLS

Thesis submitted to the Bharathiar University in partial fulfillment of the requirements for the award of the Degree of

### DOCTOR OF PHILOSOPHY IN PHYSICAL EDUCATION

**Submitted by** 

#### A. VIJAYALAKSHMI

**Under the Guidance of** 

Dr. M. JAYACHITRA

**Director of Physical Education** 



**PSGR Krishnammal College for Women** 



# DEPARTMENT OF PHYSICAL EDUCATION PSGR KRISHNAMMAL COLLEGE FOR WOMEN

**College of Excellence** 

An Autonomous College - Affiliated to Bharathiar University Re-accredited with 'A++' Grade by NAAC, NIRF 2021-6<sup>th</sup> Rank An ISO 9001:2015 Certified Institution

COIMBATORE – 641 004, TAMILNADU, INDIA

**JUNE 2022** 



CERTIFICATE

This is to certify that the thesis, entitled "EFFECTS OF VARIED DANCE

FITNESS PROGRAMME WITH YOGA ON SELECTED CARDIO-

PULMONARY PHYSICAL FITNESS AND PSYCHOLOGICAL VARIABLES

AMONG OBESE SCHOOL GIRLS" submitted to Bharathiar University, in partial

fulfillment of the requirements for the award of the Degree of

**DOCTOR OF PHILOSOPHY IN PHYSICAL EDUCATION** is a record of

original research workdone by A. VIJAYALAKSHMI during the period 2017-2022

of her research in the Department of Physical Education at PSGR Krishnammal

College for Women, Coimbatore, under my supervision and guidance and the thesis

has not formed the basis for the award of any Degree / Diploma / Associateship /

Fellowship or other similar title of any candidate of any University.

Place:

Date:

**Countersigned** 

Signature of the Guide

**Head of the Department** 

**Principal** 

ii

Declaration

**DECLARATION** 

I, A. VIJAYALAKSHMI, hereby declare that the thesis, entitled "EFFECTS

OF VARIED DANCE FITNESS PROGRAMME WITH YOGA ON SELECTED

CARDIO-PULMONARY PHYSICAL FITNESS AND PSYCHOLOGICAL

VARIABLES AMONG OBESE SCHOOL GIRLS", submitted to Bharathiar

University, in partial fulfillment of the requirements for the award of the Degree of

**DOCTOR OF PHILOSOPHY IN PHYSICAL EDUCATION** is a record of original

and independent research work done by me during 2017-2022 under the Supervision

and Guidance of Dr. (Mrs.) M. JAYACHITRA, Director of Physical Education,

Department of Physical Education, PSGR Krishnammal College for Women, Coimbatore

and the thesis has not formed the basis for the award of any Degree/ Diploma/

Associateship /Fellowship or other similar title to any candidate in any University.

Place:

Date:

**Signature of the Candidate** 

iii

# Dedicated to My Husband Mr. J. Suman Prabhu



#### **ACKNOWLEDGEMENT**

First and foremost, I thank the **Almighty** for his immense blessings and his supremacy that work within me through thick and thin accomplish this research successfully. He has made my life more beautiful; I owe to his blessing.

My journey to this academic level has been a tremendous and unforgettable learning experience where I truly discovered myself. I had the opportunity to come face to face with reality, kindness, generosity and love from a good number of kind hearted people, many of who worked behind-the-scenes to ensure that I overcome all the hurdles and challenges that stood between the program and success. I would, therefore, sincerely like to acknowledge the efforts people that help, support, assistance, sacrifice and stood by me to ensure the success of this study.

I express my sincere thanks to **Mr. G. Rangasamy**, Managing Trustee, GRG Institutions and **Dr.** (**Mrs.**) **R. Nandini**, Chairperson, PSGR Krishnammal College for Women, Coimbatore, for providing me an opportunity to pursue my research in this institution.

I am grateful to **Dr. (Mrs.) N. Yesodha Devi**, Secretary, PSGR Krishnammal College for Women, Coimbatore, for giving me an opportunity to undertake my research work in this prestigious institution.

I place on record my sincere thanks to **Dr.** (**Mrs.**) **S. Nirmala**, Principal, PSGR Krishnammal College for Women, Coimbatore for giving me an opportunity to upgrade my knowledge and education in this esteemed institution.

With all humility, my deepest gratitude goes to my honorific for giving me a very competent and caring Research supervisor **Dr.** (**Mrs.**) **M. Jayachitra**, Director of Physical Education, Department of Physical Education, PSGR Krishnammal College for Women, Coimbatore for her patience, motivation, enthusiasm and immense knowledge that taken together, make her great mentor. It is indeed her availability, accessibility, encouragement and suggestions which helped me in completing my research in time, wonderful long journey. She is simply admirable mentor and I will always remain grateful to her.

I am grateful to thank **Mrs.Sugantha Sampathkumar**, Mentor, Department of Physical Education, PSGR Krishnammal College for Women, Coimbatore for her continuous support and encouragement for completion of the research.

I am extremely indebted to the Vice Chancellor **Prof. Dr. P. Kaliraj**, Bharathiar University, Coimbatore for providing opportunity to do research in Bharathiar University.

My heartfelt thanks are due to **Dr. K. Murugavel**, Registrar in-charge, Bharathiar University, Coimbatore and Faculties of Department of Physical Education, Bharathiar University Coimbatore for the support and opportunity to embark on this study.

I am extremely indebted to the entire **Faculty Members and Research Scholars** of the Department of Physical Education of Bharathiar University.

My special thanks go to **Dr.D.Maniazhagu**, **Associate Professor**, **Department of Physical Education and Sports Science**, **Alagappa University**, **Karaikudi** who shaped my academic pursuit. His encouragement and guidance not only improved my research knowledge but also motivated me to learn widely. He has been a staunch supporter and I am deeply grateful for his advice, wisdom, and encouragement.

I thank **Dr.S.Renuga Devi, Former Principal**, Navarasam Arts and Science College for Women, Erode for support in helping me by providing necessary support in finding data for report.

I whole heartedly acknowledge the moral support during my hard time rendered by **Dr.Amsa Natarajan**, **Rtd Principal**, **Sri Sarada College of Physical Education for Women**, My heartfelt thanks are due to **Dr.S.Kalaiselvi**, **Rtd Medical Officer & Assistant Professor**, **Sri Sarada College of Physical Education for Women**, Salem for their encouragement and support on this study.

I am gratified to my research friends **Dr.K.Kavitha**, Director of Physical Education, Navarasam College for Women, Erode and **Mrs.R.Saradha**, Fitness for Women Studio, Salem, who travelled with me in this research journey in way of preparing the training plan, for training the groups, to administer the test and to collect the data.

All Journeys undertaken are usually less strenuous and less painful when travelled in a group. I would like to express my thanks and appreciation to my course mates whom we embarked on this eventful Ph.D. journey together who are **S.Joicy and N.FaizaBanu.** They are simply a good caring people. I acknowledge their moral support in carrying out this research work.

I am grateful to thank **Dr.E.Balaji**, Director of Physical Education, CBM College, Coimbatore and **Dr.S.Ramesh Kumar**, Director of Physical Education, Sri Ramakrishna Mission Vidyalaya College of Arts and Science, Coimbatore for the timely guidance and support rendered to complete my research.

My profound thanks are due to **Dr. J.V.Sasireka**, **Principal in-charge**, Sri Sarada College of Physical Education for Women, **Mrs.B.Anilet**, **Physiotherapist**, Sri Sarada College of Physical Education for Women, Salem for their moral support in continuing my education at this level.

I thank **Dr. L. Shanthi**, Librarian, PSGR Krishnammal College for Women, Coimbatore for support in helping me by providing necessary support in finding data for report

**Ms. S. Suriyaprabha,** Assistant Physical Director, Department of Physical Education, PSGR Krishnammal College for Women, Coimbatore for their individual contributions in ensuring the success of this study. Mention at this stage must be made of.

My deepest thanks are owed to **Mrs.Mythily**, Director of Physical Education, and **Ms.A.Ananthi**, Physical Education Teacher, Sri Sarada Higher Secondary School for Girls for her support by providing their students as subjects taking the test, required training and other support needed for the completion of the research report.

My sincere thanks to **Mr.Steephen**, Physical Education Teacher, St. Joseph Matric Higher Secondary School, Salem and **Mrs.Shanmugapriya**, Physical Education Teacher, Holy Angel's Matric Hr. Sec. School, Salem, for providing the subjects for study.

Most importantly, I would like to thank my late grandparents Late **Thiru A.Ponnusamy** and **Late Shri P.Kuzhanthaiammal** on whose sweat and struggle I acquiredmy basic education and for all the support he willingly gave while he lived. It is unfortunate that they are not alive to neither reap the fruit of my education nor witness this unique feat. For obvious reasons, I owe most of what I have and will accomplish in life to them.

I must also not forget to put on record the confidence reposed in me by my parents **Thiru A.P. Arumugam** and **Shri K. A. Therisa** for their actions provided in no small way the stimulus I needed to redouble my efforts towards achieving this unique feat.

Finally but very importantly, I say a big thank you to my husband best friend and life partner, **Mr.J.Suman Prabhu**, who has always stood by me and has shared my hardest and difficult moments in life. His faith and support contributed in making this workless painful.

I also very sincerely appreciate my daughters **S.V.Pranalisha**, **S.V.Pranavthisha** and **S.V.Abisha** for their love and patience they showed when they lost nearness while this programme lasted. Thank you my dears.

My special thanks go to at all levels of my academic pursuit especially those whose efforts, actions and inactions have positively shaped my academic standing for better. I equally acknowledge all the authors and authorities whose works and ideas I extensively used in this study.

To the participants of my research survey, I remain very grateful. Without your support and generosity in participating and providing information underpinned the richness of the data, I would not have been able to make original contributions in this thesis.

I obviously have not acknowledged many other people who contributed in one way or the other to the success of this research exercise. It must, however, be clear that my heart still remembers all contributions made and I am sincerely grateful to all.

My prayer is for divine blessings to be everybody's portion now and always.

(A.VIJAYALAKSHMI)

### LIST OF TABLES

TABLE NO.	TITLE	PAGE NO.
3.1	Selection of test and criterion measures	59
3.2	Intra class correlation co-efficient obtained for test –re test score	61
3.3	Answer key table for body composition	69
3.4	Answer key table for stress	74
3.5	Answer key table for self-concept	78
3.6	Administration of training	80
3.7	Training intensity	80
3.8	Duration of training schedule	82
3.9	High intensity aerobic dance	83
3.10	Yoga training for experimental group - I	84
3.11	Low intensity aerobic dance	85
3.12	Yoga training for experimental group – II	86
3.13	Zumba dance	87
3.14	Yoga training for experimental group - III	88
4.1	Details of subject weight category	93
4.2	Computation of 't' ratio on VO <sub>2</sub> max of experimental and control groups	94
4.3	Analysis of covariance on pre, post and adjusted post-test means of experimental and control groups on VO <sub>2</sub> max	95
4.4	Scheffe's post hoc test for the differences between the paired adjusted post-test means on VO <sub>2</sub> max	96
4.5	Computation of 't' ratio on breath holding time of experimental and control groups	99
4.6	Analysis of covariance on per, post and adjusted post-test means of experimental and control groups on breath holding time	100
4.7	Scheffe's post hoc test for the differences between the paired adjusted post-test means on breath holding time	101

TABLE NO.	TITLE	PAGE NO.
4.8	Computation of 't' ratio on resting heart rate of experimental and control groups	104
4.9	Analysis of covariance on pre, post and adjusted post – test means of experimental and control groups on resting heart rate	105
4.10	Scheffe's post hoc test for the differences between the paired adjusted post-test means on resting heart rate	106
4.11	Computation of 't' ratio on vital capacity of experimental and control groups	109
4.12	Analysis of covariance on pre, post and adjusted post – test means of experimental and control groups on vital capacity	110
4.13	Scheffe's post hoc test for the differences between the paired adjusted post-test means on vital capacity	111
4.14	Details of subjects weight category	114
4.15	Computation of 't' ratio on body composition of experimental and control groups	115
4.16	Analysis of covariance on pre, post and adjusted post – test means of experimental and control groups on body composition	116
4.17	Scheffe's post hoc test for the differences between the paired adjusted post-test means on body composition	117
4.18	Computation of 't' on flexibility of experimental and control groups	120
4.19	Analysis of covariance on pre, post and adjusted post – test means of experimental and control groups on flexibility	121
4.20	Scheffe's post hoc test for the differences between the paired adjusted post-test means on flexibility	122
4.21	Computation of 't' ratio on muscular strength of experimental and control groups	125
4.22	Analysis of covariance on pre, post and adjusted post – test means of experimental and control groups on muscular strength	126
4.23	Scheffe's post hoc test for the differences between the paired adjusted post-test means on muscular strength	127
4.24	Computation of 't' ratio on cardio respiratory endurance of experimental and control groups	130

TABLE NO.	TITLE	PAGE NO.
4.25	Analysis of covariance on pre, post and adjusted post – test means of experimental and control groups on cardio respiratory endurance	131
4.26	Scheffe's post hoc test for the differences between the paired adjusted post-test means on cardio respiratory endurance	132
4.27	Computation of 't' ratio on stress of high experimental and control groups	135
4.28	Analysis of covariance on pre, post and adjusted post – test means of experimental and control groups on stress	136
4.29	Scheffe's post hoc test for the differences between the paired adjusted post-test means on Stress	137
4.30	Computation of 't' ratio on anxiety of experimental and control groups	140
4.31	Analysis of covariance on pre, post and adjusted post – test means of experimental and control groups on anxiety	141
4.32	Scheffe's post hoc test for the differences between the paired adjusted post-test means on anxiety	142
4.33	Computation of 't' ratio on achievement motivation of experimental and control groups	145
4.34	Analysis of covariance on pre, post and adjusted post – test means of experimental and control groups on Achievement motivation	146
4.35	Scheffe's post hoc test for the differences between the paired adjusted post-test means on achievement motivation	147
4.36	Computation of 't' ratio on self-concept of experimental and control groups	150
4.37	Analysis of covariance on pre, post and adjusted post – test means of experimental and control groups on self-concept	151
4.38	Scheffe's post hoc test for the differences between the paired adjusted post-test means on Self-concept	152

## LIST OF FIGURES

FIGURE NO.	FIGURE	PAGE NO.
4.1	Bar diagram showing pre, post and adjusted post test of experimental and control groups are presented in the diagram on VO <sub>2</sub> Max	98
4.2	Bar diagram showing pre, post and adjusted post test of experimental and control groups are presented in the diagram on breath holding time	103
4.3	Bar diagram showing pre, post and adjusted post test of experimental and control groups are presented in the diagram on resting heart rate	108
4.4	Bar diagram showing pre, post and adjusted post test of experimental and control groups are presented in the diagram on vital capacity	113
4.5	Bar diagram showing pre, post and adjusted post test of experimental and control groups are presented in the diagram on body composition	119
4.6	Bar diagram showing pre, post and adjusted post test of experimental and control groups are presented in the diagram on flexibility	124
4.7	Bar diagram showing pre, post and adjusted post test of experimental and control groups are presented in the diagram on muscular strength	129
4.8	Bar diagram showing pre, post and adjusted post test of experimental and control groups are presented in the diagram on cardio respiratory endurance	134
4.9	Bar diagram showing pre, post and adjusted post test of experimental and control groups are presented in the diagram on stress	139
4.10	Bar diagram showing pre, post and adjusted post test of experimental and control groups are presented in the diagram on anxiety	144

FIGURE NO.	FIGURE	PAGE NO.
4.11	Bar diagram showing pre, post and adjusted post test of experimental and control groups are presented in the diagram on achievement motivation	149
4.12	Bar diagram showing pre, post and adjusted post test of experimental and control groups are presented in the diagram on self-concept	154
4.13	Pie diagram showing the percentage of improvement in VO <sub>2</sub> max among high intensity aerobic dance with yoga, low intensity aerobic dance with yoga, zumba dance with yoga groups	156
4.14	Pie diagram showing the percentage of improvement in breath holding time among high intensity aerobic dance with yoga, low intensity aerobic dance with yoga, zumba dance with yoga groups	158
4.15	Pie diagram showing the percentage of improvement in resting heart rate among high intensity aerobic dance with yoga, low intensity aerobic dance with yoga groups	160
4.16	Pie diagram showing the percentage of improvement in vital capacity among high intensity aerobic dance with yoga, low intensity aerobic dance with yoga, zumba dance with yoga groups	161
4.17	Pie diagram showing the percentage of improvement in body composition among high intensity aerobic dance with yoga, low intensity aerobic dance with yoga, zumba dance with yoga groups	163
4.18	Pie diagram showing the percentage of improvement in flexibility among high intensity aerobic dance with yoga, low intensity aerobic dance with yoga, zumba dance with yoga groups	165
4.19	Pie diagram showing the percentage of improvement in muscular strength among high intensity aerobic dance with yoga, low intensity aerobic dance with yoga, zumba dance with yoga groups	167

FIGURE NO.	FIGURE	PAGE NO.
4.20	Pie diagram showing the percentage of improvement in cardio respiratory endurance among high intensity aerobic dance with yoga, low intensity aerobic dance with yoga, zumba dance with yoga groups	169
4.21	Pie diagram showing the percentage of improvement in stress among high intensity aerobic dance with yoga, low intensity aerobic dance with yoga, zumba dance with yoga groups	170
4.22	Pie diagram showing the percentage of improvement in anxiety among high intensity aerobic dance with yoga, low intensity aerobic dance with yoga, zumba dance with yoga groups	172
4.23	Pie diagram showing the percentage of improvement in achievement motivation among high intensity aerobic dance with yoga, low intensity aerobic dance with yoga, zumba dance with yoga groups	174
4.24	Pie diagram showing the percentage of improvement in self-concept among high intensity aerobic dance with yoga, low intensity aerobic dance with yoga, zumba dance with yoga groups	176