

# The Effect of Functional Training and Balanced Nutrition on Increasing Vo2max and Reduction of Percent Body Fat in Women Members of New Life Gym

*by Fery Juanda*

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# Proceedings

## **The 5th Annual INTERNATIONAL SEMINAR on Transformative Education and Educational Leadership**

Theme : Education Innovation in Globalization Practice

22 September 2020  
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**Schedule of The 5<sup>th</sup> Annual Internatioanal Seminar on Transformative Education and Educational Leadership (AISTEEL) 2020**  
**Postgraduate School, Universitas Negeri Medan**

**22 September 2020**

<b>(Indonesian time)</b>	<b>Activities</b>	<b>PIC/Moderator</b>
07.00 – 08.30 (am)	Preliminaries	committee
08.30 - 08.45 (am)	<b>Opening Ceremony</b> 1. MC Speech 2. Indonesian National Anthem 3. Pray 4. Chairperson Report 5. Welcoming speech of Director of Postgraduate School 6. Welcoming speech and official opening of Rector of Universitas Negeri Medan 7. Photo session	MC (Dr. Anni Holila Pulungan, M.Hum & Sofianto Gultom, S.Pd)
08.45 – 09.25 (am)	Keynote Speech 1: <b>Prof. Dr. Syawal Gultom, M.Pd</b> (Universitas Negeri Medan– Indonesia)	Dr. Rahmad Husein, M.Ed
09.25 – 10.05 (am)	Keynote Speech 2 <b>Prof. Emmanuel Manalo</b> (Graduate School of Education, Kyoto University, Japan)	Prof. Amrin Saragih, PhD
10.05 – 10.45 (am)	Keynote Speech 3 <b>Dr. Susan Ledger</b> (Head of Education, Murdoch University - Australia)	
10.45 – 11.25 (am)	Keynote Speech 4 <b>Prof. Dr. Ekkarin Sungtong</b> (Dean of Faculty of Education Prince of Songkla University - Thailand)	Mangara Simanjorang, PhD
11.25 – 12.05 (am)	Keynote Speech 5 <b>Assoc. Prof. Yuri Uesaka</b> (The University of Tokyo - Japan)	
<b>12.05 – 13.30</b>	<b>Break</b>	
<b>13.30 – 15.30</b> (pm)	<b>Parallel Session 1</b> <b>(divided to 19 parallel rooms)</b>	Moderator/Operator
15.30 – 15.35 (pm)	Break	
15.35 – 17.00 (pm)	<b>Parallel Session 2</b> <b>(divide to 19 parallel rooms)</b>	Moderator/Operator
17.00 – 17.10 (pm)	Cloosing	committee

**Proceedings of the 5<sup>th</sup> Annual International Seminar on Transformative Education  
and Educational Leadership (AISTEEL 2020)**

**Preface**

The fifth Annual International Seminar on Transformative Education and Educational Leadership (AISTEEL 2020) was held by virtual seminar on 22 September 2020. This seminar is organized by Postgraduate School, Universitas Negeri Medan and become a routine agenda at Postgraduate program of Unimed now.

The AISTEEL is realized this year with various presenters, lecturers, researchers and students from universities both in and out of Indonesia participating in, the seminar with theme “Educational Innovation in Globalization Practice”.

The fifth AISTEEL presents 4 distinguished keynote speakers from Universitas Negeri Medan - Indonesia, Kyoto University - Japan, Murdoch University – Australia, Prince of Songkla University – Thailand and from The University of Tokyo - Japan. In addition, presenters of parallel sessions come from various Government and Private Universities, Institutions, Academy, and Schools. Some of them are those who have sat and will sit in the oral defence examination. The plenary speakers have been present topics covering multi disciplines. They have contributed many inspiring inputs on current trending educational research topics all over the world. The expectation is that all potential lecturers and students have shared their research findings for improving their teaching process and quality, and leadership.

There are 180 articles submitted to committee, some of which are presented orally in parallel sessions, and others are presented through posters. The articles have been reviewed by double blind reviewer and 104 of them were accepted for published by Atlantis Press indexed by International Indexation, while 54 papers are published by digital library indexed by google scholar..

The Committees of AISTEEL invest great efforts in reviewing the papers submitted to the conference and organizing the sessions to enable the participants to gain maximum benefit.

Grateful thanks to all of members of The 5<sup>th</sup> Annual International Seminar on Transformative Education and Educational Leadership (AISTEEL 2020) for their outstanding contributions. Thanks also given to Atlantis Press for producing this volume.

The Editors

**Bornok Sinaga  
Rahmad Husein  
Juniastel Rajagukguk**

### Table of Content

Title And Authors	Page
The Effect of Learning Models and Motion Ability on Learning Outcomes of Volleyball Passing Skills for Class VIII Students of Junior High School 6, Academic Year 2019-2020 <i>Ihsan Azhari Hasugian; Julaga Situmorang; Abdul Hasan Saragih</i>	1-5
The Effect of Everyone is a Teacher Here Learning Model and Learning Style on The Economic Learning Outcomes <i>Swara Kasih Kartini Putri; Saidun Hutasuhut; M. Nasir</i>	6-10
The Effect of Learning and Creativity Models on the Economic Learning Outcomes of Grade XI Berastagi High School Students <i>Wisnu Saputra Sembiring</i>	11-16
The Effect of Learning Methods and Courage Towards The Outcomes of Learning Physical Education Students Class V Public Elementary School in Sub-District Tanah Jawa <i>Dewi Hamda M. Sirait; Albadi Sinulingga; Agung Sunarno</i>	17-22
Development of Exercise Variations Race After Lay Up Basketball <i>M.Anas Surimeirian; Tarsyad Nugraha; Rahma Dewi</i>	23-25
Development of Dribble Training Variations in The Basketball Extracurricular Club in State High Schools of Medan City 2020 <i>Riski Iman Siregar; Ardi Nusri; Agung Sunarno</i>	26-29
Development of Interactive Learning Media Basketball Games in Subjects Physical and Sports Health Education <i>Andes Martua Harahap; Imran Akhmad; Hariadi</i>	30-37
Speech Function in The News Broadcast of the Radio Kardopa Medan <i>Syukur Selamat Gulo; Amrin Saragih ; Sumarsih</i>	38-44
External and Internal Conjunctions in the News Story Text of the Jakarta Post <i>Novita Sari; Amrin Saragih; Anni Holila Pulungan</i>	45-49
Analysis of Chemical Practicum Guides for Learning Evaluation Based on the National Education Standards <i>Arfiena Fitria Berutu; Iis Siti Jahro; Marham Sitorus</i>	50-53
An Analysis of Students' Scientific Attitude on the Topic of Bryophytes in State High Schools of the Langkat Regency <i>Muhammad Syukri; Ashar Hasairin; Fauziyah Harahap</i>	54-57
Karonese Language Shift of Young Generation <i>Tita Nirmaliya Ginting ;Siti Aisyah Ginting; Anni Holila Pulungan</i>	58-62
Interruption in the Conversation on Corbuzier Youtube	63-66

<i>Devi Rahmawiyta Sitompul; Sri Minda Murni; Anni Holila Pulungan</i>	
Analysis of the Determinan of North Sumatra Coffe Exports to the United States Error Correctional Model Approach <i>Rimelda Rona Sar; M. Nasir; Muhammad Fitri</i>	67-70
The Implementation of Deception Strategy Used by Fahri Hamzah as an Indonesian People's Representative Council in the Political Debate <i>Astari Rara Sandy; Sumarsih; Meisuri</i>	71-73
The Flouting Maxim in Social Interaction Expressed by The Characters in Zakeut Edition of Eumpang Breuh Movie <i>Asmaul Husna; Sumarsih; I Wayan Dirgeyasa</i>	74-77
How Children Acquire Lexical Acquisition <i>Dwi Astarini</i>	78-81
Translation Method in Web-Toon: True Beauty as Digital Comic by Yaongyi <i>Fitri Anisah Sitorus; Rahmad Husein; Sri Minda Murni</i>	82-86
Naturalization in Translation of English Accounting Terms into Indonesian <i>Anita Basrah; Anni Holila Pulungan; Rahmad Husein</i>	87-90
Types of Rudeness in the Classroom Context <i>Siti Sahuri; Sri Minda Murni; Rahmad Husein</i>	91-95
The Influence of Agriculture and Industry Sectorson GRPDin Serdang Bedagai Regency <i>Zuhari; M. Fitri Rahmadana; Arwansyah</i>	96-100
Analysis of Input Production of Rice <i>Hazlansyah Ramelan; Arwansyah; Rachmat Mulyana</i>	101-104
The Effect of Functional Training and Balanced Nutrition on Increasing Vo2max and Reduction of Percent Body Fat in Women Members of New Life Gym <i>Fery Juanda; Hariadi; Ardi Nusri</i>	105-107
The Translation of Cultural Words in Novel the Associate <i>Farah Frayenisari Sutara; Anni Holila Pulungan; Syahron Lubis</i>	108-112
Analysis of the Effect of Macroeconomic Variables to Joint Stock Price Index with Monetary Policy as Moderating Variables in Indonesia <i>A. Mahendra; Dede Ruslan; Sirojuzilam; Irsad</i>	113-118
Students' Multilanguages Acquisition <i>Wikiaprian Pinim; Rahmad Husein; Siti Aisyah Ginting</i>	119-126
Pastap Game Development for Learning Badminton of the Mild Mental Retardation <i>Mulia Romadi Harahap; Sanusi Hasibuan; Isa Hidayati; Hariadi; Friska Indria Nora Harahap</i>	127-130



Types of Elicitation on Students' Engagement in Learning English <i>Wilda Novri Anisah; Rahmad Husein; Masitowarni Siregar</i>	131-133
Flouting Maxim of Humor in Digidoy Comic Strips <i>Yanti Hidayani Hasibuan; T. Silvana Sinar; Rahmad Husein</i>	134-136
Improvement of Mathematical Communication Skills and Student Learning Motivation Through Realistic Mathematics Education Approaches <i>Sari Arta Simanjuntak, Waminton Rajagukguk, Yulita Molliq Rangkuti</i>	137-140
Taboo Words in Rap Song Lyrics <i>Nurul Khoiriyah Hasibuan; Amrin Saragih; Rahmad Husein</i>	141-143
The Technique of Montessori Method to Investigate Reading Achievement at Preschool <i>Sofiah Rahmah Nst; Rahmad Husein; Masitowarni Siregar</i>	144-146
Analysis of Academic Supervision of Principal to Improve Teachers' Basic Teaching Skills at SMK Swasta Harapan Mekar 2 Medan <i>Fahmi, Prof. Dr. Zainuddin, M.Pd, Dr. Irwandy, M.Pd</i>	147-150
Ritual Ngumbah Keris in Javanese Society (Study on the Javanese community in the Kuala Silo Bestari sub-district, North Tanjungbalai district, Tanjungbalai City) <i>Syuhady Witana; Ichwan Azhari; Pujiati Chalid</i>	151-153
The Effect of Literature Circle and Students' Interest on Students' Reading Comprehension Achievement <i>Siti Soleha; Rahmad Husein; Zainuddin</i>	154-158
The Development of Game Based on Basic Motion Learning Model in SD Brigjend Katamso Medan <i>Iswanta Ginting, Haradi, Sanusi Hasibuan</i>	159-162
Types of Intertextuality in Opposite Editorials Related to the Vice Presidential Candidates Debate Topics 2019 <i>Elsi Revita Hasibuan; Anni Holila Pulungan; Sri Minda Murni</i>	163-168
Lexical Metaphor Used in Awaken the Giant Within for Transforming Lives of Students <i>Henri Dunant Biha; Rahmad Husein; Anni Hollila Pulungan</i>	169-171
Analysis of Factors Affecting Rice Imports in North Sumatera <i>Adiguna Dwirusandi; Dr. Arwansyah, M.Si.; Dr. Fitrawaty, M.Si.</i>	172-175
Types and Functions of Fillers Used by Indonesian Celebrities in Seleb English Youtube Videos <i>Ella Marissa Pardede; Amrin Saragih; Anni Holila Pulungan</i>	176-180
Analysis of Labor Demand and Supply in North Sumatra <i>Muhammad Alhasymi Matondang; Dede Ruslan; Indra Maipita</i>	181-185

Culturally Loaded Words and Phrases in Nevermoor Translated into Bahasa Indonesia <i>Noni Indani</i>	186-189
The Effect of Word Wall Strategy and Students' Interest on English Vocabulary Mastery <i>Siti Fadhilah Siregar; Anni Holila Pulungan; Sri Minda Murni</i>	190-195
Analysis of Regional Financial Independence, Economicgrowth Rate of Human Development Index in 34 Provinces in Indonesia <i>Tiur Roida Simbolon; Fitrawaty; Indra Maipita</i>	196-201
Development of Thematic Learning Media For Comics for Beatiful Themes of Diversity My Country to Improve Results Student Learning in Fourth Grade of Public Elementary School 028071 Binjai City <i>Indra Maulana Harahap; Hidayat; Ratih Baiduri</i>	202-213
Expressive Speech Acts in Up in the Air Movie <i>Gusti Rahayu Manik</i>	214-217
Development of Android-Based Learning Media Subject for Class X Drug Matters in 1st Besitang State Senior High School <i>Andi Akbar Suparto; Tarsyad Nugraha; Sanusi Hasibuan</i>	218-220
The Influence of Teaching Style and Student Perception on the Outcomes of Passing Learning in The Volley Ball Game in SMP Negeri 4 Laguboti <i>Martin Edward Manik; Rahma Dewi; Budi Valianto</i>	221-223
The Effect of Teaching Approaches and Linguistic Intelligence on the Students Achievement in Reading Comprehension <i>Muhammad Ilham Adha; Berlin Sibarani; Didik Santoso</i>	224-228
Development of Interactive Learning Media in Character Formation Kindergarten <i>Natalia Noveri Tarigan; Hamonangan Tambunan; Samsidar Tanjung</i>	229-234
Analysis of the Ability of Metacognition of Students of SMAK Country Samosir in Solving Problems Apply Learning Guided Discovery <i>Siita Tamba, Bornok Sinaga, Syafari</i>	235-240
The Influence of PAIKEM Strategy on Reading Interests of VII Grade of SMP Negeri 2 Siberut Selatan <i>Eirene Siagian; Abdurahman Adisahputera; Wisman Hadi</i>	241-246
Development of Local Characteristics Learning Text Learning Media in Indonesian Language Learning in Kartika I-2 SMA Private Vocational School <i>Herza Alwanny; M. Oky Fardian Gafari; Abdurrahman Adisahputera</i>	247-256

# The Effect of Functional Training and Balanced Nutrition on Increasing Vo2max and Reduction of Percent Body Fat in Women Members of New Life Gym

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**Abstract**— This study aims to determine the effect of functional training and nutritional status on increasing Vo2Max and decreasing percent body fat in female members of the new life gym . This research is an experimental research conducted at Lippo Plaza, Medan Petisah, North Sumatra . The sample in this study was Female Life New Gym Members, a total of 12 people . Data collection methods are done by tests, and measurements . Then the data obtained were analyzed using quantitative statistical techniques . The results showed that the level of vo2max and percentage of body fat members before being given the application had a percentage (0.00%), and after being given the application for vo2max had an average criterion (70.00%), and for body fat percentage had normal criteria ( 55.00%), this shows there is an increase for vo2max 70.00% and for body fat percentage 55.00%. The test results of one sample t-test showed significance value of 0.000 ( $p < 0.05$ ).

**Keywords**— *Functional training, Balanced nutrition, Vo2max, Percent body fat.*

## I. INTRODUCTION

Sports is a form of activity that can be done to keep our bodies healthy and fit. The phenomenon that occurs today is that many people experience cardiovascular disease, which is a disease that arises from a lack of movement in their daily lives and arises due to unhealthy eating patterns. Nutritional problems play an important role in life, with the emergence of instant, fatty and high cholesterol foods that can trigger appetite and can change diet, by eating frequently, like to eat high-calorie foods, this can cause over nutrition if not balanced with exercise physically, the calories that enter will also not be balanced with the calories expended, and these calories are stored as energy reserves in the form of fat which can cause people to be overweight or obese . A person's fitness in doing physical activity can be seen by measuring Vo2Max. Whyte (2006: 70) Vo2Max is the maximum amount of oxygen in milliliters, which can be used in one minute per kilogram of body weight. People who are in good shape have a higher Vo2Max value and can perform activities more vigorously

than those who are not in good condition. Maximum oxygen consumption is the maximum amount of oxygen that can be consumed during intense physical activity until fatigue occurs. The value of Vo2Max depends on cardiovascular condition, respiration, hematology, and exercise ability. This measurement of the Vo2Max value can be used to analyze the effects of a physical exercise program. People who are in good shape have higher Vo2Max scores and can do more vigorous activity than those who are not in good shape.

For the measurement of the maximum volume of oxygen Vo2Max can be done in two ways: Directly, indirectly. Direct measurement can be done in the laboratory but it is very expensive. In general, the Vo2Max aerobic capacity test is carried out in an indirect way so that it is not expensive, for example by: step test, run 12 minutes, run 2.4 km, and test one mile brisk walk. In improving fitness, there are many types of sports that can be done, including functional exercises, which are sports that are tailored to body movements in daily activities, most of which involve activities that are targeted at the core muscles (stomach and lower back). Functional training is a type of flexible exercise. , can be done anywhere and anytime. Functional training is also proven to increase stability, strength, mobility, endurance and flexibility of the body. As the name implies, "function" means function or purpose. The goal is for the body to function properly. So , the meaning of functional training here is an exercise that focuses primarily on specific goals such as making it easier to carry out various activities both carrying groceries, climbing stairs, lifting items or playing with children.

The fitness center is known as a fitness club, a fitness center, commonly referred to as a gym is a place that accommodates sports equipment for physical exercise purposes, has facilities and services such as a main exercise area consisting of free weights areas including dumbbells, barbells, treadmills, cross trainers, static cycle, functional training, TRX suspension training and also studio group exercise classes. Another facility is a personal trainer, where the fitness center manager employs a personal trainer who can

provide advice on nutrition, training and health consultations, and help design an appropriate and appropriate exercise program for each member. New life gym is located in the industrial area of Medan Sepisah, where based on the results of researchers' observations in collecting member data at the new life gym, researchers found data from 2104 members, there were 75% member whose percentage of body fat was more than normal with male gender 31% and female sex is 44%, based on female gender, there are 4% early adolescence, 21% late adolescence, 17% early adulthood, 11% late adult, 5% early elderly, and late 1% elderly. This shows that the highest percentage of body fat is found in women in late adolescence, namely 21%.

## II. METHOD

This study the authors used experimental research methods (quantitative). Where in this research is generally presented a complex nature, starting from a study of substantive and fundamental theories to operational technical matters. This research was carried out by focusing on the effect of functional training and balanced nutrition on increasing vo2max and decreasing the percentage of body fat in female members of New Life Gym.

This research is planned at New Life Gym in Medan, Lippo plaza, North Sumatra Province in 2020. In this study the researchers used a purposive sample where according to Arikunto (2013: 183) "the sample aims to be done by taking the subject, not based on strata, random, or regional but based on the existence of a specific purpose". The criteria in determining this sample include: (1) 17-25 years old, (2) having a body fat over percentage, (3) being female, (4) willing to be a sample, (5) willing to follow research procedures, (6) no history of cardiovascular disease. Based on the above criteria, the members taken in this study were 12 members.

Data collection techniques in this study were carried out by means of tests and measurements of several research variables. Data analysis was performed using quantitative statistical techniques, which were carried out through the stages of univariate analysis, bivariate analysis, normality test, and one-sample t test. This study uses a Pre Experimental experimental design form with "One Groups Pretest-Posttest Design", which is a research design that contains a pretest before being treated and a posttest after being treated. Thus it can be known to be more accurate, because it can compare with those held before being treated (Sugiyono, 2001: 64). A group of subjects was subjected to treatment for a certain period of time, measurements were made before and after the treatment was given, and the effect of the treatment was measured by the difference between the initial measurement (O1) and the final measurement (O2), the frequency of meetings 3 times a week with a duration of 60 minutes 1 meeting, the meeting is 18 times. The reason is quoted from Fox (1988: 181) "the subject exercised 3 days per week a total of 6 weeks". This research was conducted on March 1, 2020 to April 14, 2018. Training for 18 meetings is expected to affect Vo2Max and body fat percentage.

## III. DISCUSSION

The functional training is carried out 3 times a week and balanced nutrition is carried out every day from the start of implementation to completion. The results of the pretest and posttest increase in vo2max and decrease in the percentage of body fat for new life gym female members are presented as follows: The normality test is intended to determine whether the variables in the study have a normal distribution distribution or not. The calculation of this normality test uses the Kolmogorov formula, with computer-assisted processing that all data has a p value (Sig.) > 0.05, then the variables are normally distributed.

The hypothesis of the effect of functional training and balanced nutrition on the increase in vo2max and the decrease in body fat percentage of female members of the new life gym The first hypothesis says "there is a significant effect of functional training and balanced nutrition on the increase in vo2max female members of the new life gym", based on the results of pre-test and post-test. If the results of the analysis show a significant difference, the application of functional training will have an effect on the increase in female member vo2max of the new life gym. The conclusion of the study is declared significant if the value of t count > t table and the sig value is less than 0.05 (Sig <0.05). Based on the analysis, it was found that t count was 6.788 and t table (df 6; 0.05) 2.447 with a significance value of p of 0.001. Because t count 6.788 > t table (df 6; 0.05) 2.447, and a significance value of 0.001 <0.05, these results indicate a significant difference. Thus the alternative hypothesis (Ha) which reads "there is a significant effect of functional training and balanced nutrition on the increase in female members' vo2max new life gym", is accepted. This means that functional training has a significant effect on increasing the female member vo2max of the new life gym. From the pretest data it has a mean of 0.00%, then at the posttest the average reaches 70.00%. Then the second hypothesis reads "there is a significant effect of the application of functional training and balanced nutrition on the decrease in body fat percentage of female members of the new life gym", based on the results of the pre-test and post-test. If the results of the analysis show a significant difference, then functional training and balanced nutrition have an effect on decreasing the percentage of body fat for new life gym female members. The conclusion of the study is declared significant if the value of t count > t table and the sig value is less than 0.05 (Sig <0.05). Based on the results of the analysis, that t count is 5.925 and t table (df 6; 0.05) 2.447 with a significance value of p of 0.001. Therefore t count 7.851 > t table (df 6; 0.05) 2.447, and a significance value of 0.001 <0.05, this result shows that there is a significant difference. Thus the alternative hypothesis (Ha) which reads "there is a significant effect of functional training and balanced nutrition on the decrease in body fat percentage of female members of the new life gym", is accepted. This means that functional training and balanced nutrition have a significant effect on decreasing the percentage of body fat for new life gym female members. From the pretest data it has normal criteria of 0.00%, then at the posttest it has normal criteria reaching 55.00%.

Based on the data analysis, the research results show that there is a significant effect of functional training and balanced nutrition on the increase in Vo2max and decrease the percentage of body fat for female members of the New Life Gym. The sequence of activities that must be carried out so that in the end conclusions can be drawn are: (1) held a pretest with the aim that the initial data on vo2max and body fat percentages are known, (2) the implementation of functional training and balanced nutrition (3) then the last one is holding a posttest which aims to compare with pretest data. Functional training is a type of exercise that is flexible, can be done anywhere and anytime. Functional training has also been shown to increase stability, strength, mobility, endurance and flexibility. As the name implies, "function" means function or purpose. The goal is for the body to function properly. The circuit training format uses a full body training program with a sequence of squat patterns, lift patterns, press patterns, pull patterns, rotation patterns, smash patterns, moving and carrying load patterns, and gait and locomotion patterns.

Functional training and balanced nutrition have been shown to have a significant effect on increasing VO2max and decreasing the percentage of body fat for female members of the New Life Gym. In accordance with Suharjana (2013: 129) states that the form of training that is in accordance with the principles of training and the existing measurements is expected to provide maximum results, so that the objectives of the program are achieved. The increase in vo2max and decrease in body fat percentage is caused by balanced nutrition that is adjusted to the weight and calorie needs of each member as well as the increased physical activity of the members who initially do irregular and unprogrammed sports to 3 times a week with low and moderate intensity which is the source the energy needed comes from burning its body fat reserves. The increased physical activity causes the burning of body fat reserves to meet the body's caloric needs during exercise. This is in accordance with the opinion of Lyne Bryck (2001: 56) which states that "In our bodies there is always a biochemical process to obtain energy for each work motion". Aerobics performed at low to moderate intensity for 30 minutes or more will burn fat.

#### IV. CONCLUSION

Based on the explanation above regarding the effect of functional training and balanced nutrition on increasing vo2max and decreasing the percentage of body fat in female members of the New Life Gym, this study can be concluded as follows:

1. Based on the results of the analysis of the effect of functional training and balanced nutrition on VO2max.

So it can be concluded that, there is an effect of functional training and balanced nutrition on vo2max in female members of the New Life Gym.

2. Based on the results of the analysis of the effect of functional training and balanced nutrition on body fat percentage. So it can be concluded that, there is an effect of functional training and balanced nutrition on the percentage of body fat in female members of the New Life Gym.
3. Based on the results of the one sample t-test, it shows that, there is a significant effect between functional training and body fat percentages on increasing vo2max and decreasing body fat percentage in female members of New Life Gym.

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