

Summary of Research Conducted

Batch 2025

Title	Researcher	Abstract
ACE (AGILITY COMBINED EXERCISE) ENHANCEMENT PROGRAM AMONG SEPAK TAKRAW WOMEN VARSITY PLAYER	GONZAGA, CHRISTINE LABINA	In this study investigated how effective the ACE (Agility Combined Exercise) Enhancement Program for women Sepak Takraw varsity playes at the University of Southern Mindanao. The program aimed to improve the athlete’s agility using the ACE (Agility Combined Exercise) Enhancement Program, which includes ladder drills, zig-zag run , and shuttle run exercise to measure changes in their agility, the T-Drill Test was was utilized before and after the training program. The study used a pre-experimental design with pre-test to determine how the participants responded to the exercise. After comparing the results, it was found that the ACE Enhancement Program effective into the improvement in the athlete’s agility. The training included ladder drills, zig-zag run, and shuttle run, all of which helped boost the players quickness and control of movement. These types of drills may also be useful foer athletes in other sports, but further research is ssuggested to see how effective they are for different types of athletes.
ASSESSING THE IMPACT OF DANCE EXERCISE TO BMI AMONG PATHFIT STUDENTS	SABAL, BOYET	Schools measuring Body Mass Index is seen to help reduce obesity in youth. However, little is known about how effective it is in lowering obesity rates or encouraging physical activity. The general objective of this study is to determine the significant difference in the Body Mass Index (BMI) of PATH-FIT students before and after participation in a dance exercise intervention. The study employed a quantitative research approach using a pre-test and post-test design. Ten female students from the University of Southern Mindanao, aged 18 to 25 and classified as overweight (BMI 25.0–29.9 kg/m²), were selected through purposive sampling. Participants engaged in a structured dance exercise program, with BMI measurements collected before and after the intervention. A paired t-test was used to analyze the data and compare BMI values pre- and post-intervention. The results showed a decrease in the mean BMI from 27.05 to 25.62. Three participants reached the normal BMI range (18.5–24.9 kg/m²), while the remaining seven showed slight reductions but remained in the overweight category. The paired t-test yielded a p-value of 0.038, which was not considered statistically significant. Nevertheless, the findings indicate that regular dance exercise may contribute to positive changes in BMI among overweight students. It is recommended that future research explore participants’ interest and motivation levels, as these may influence engagement and outcomes. Additionally, integrating dietary monitoring with exercise, as well as

		ensuring consistency in participation, may lead to more significant improvements in BMI and overall health.
ATHLETE'S BEHAVIOR AND COLLEGIATE SPORTS PERFORMANCE OF VARISTY STUDENTS	WACAN, JEAN CHAVEZ	This study determined the athletes' behavior and perceived collegiate sports performance of varsity students of University of Southern Mindanao. Specifically, determined the athletes' behavior in terms of: respect for social convention; respect for the rules and the officials; respect for one's full commitment toward sports participation; respect and concern for the opponent and negative approach towards the practice of sport using the Multidimensional Sportspersonship Orientation Scale (MSOS) and Sport Performance Perception Scale Manual. 76 respondents exhibited respectful behavior toward social conventions, rules, officials, and opponents, as well as show a strong commitment to their sport, tend to perform better in their athletic endeavors. The significant positive correlation between athletes' behavior and their sports perceived performance suggests that displaying respect, dedication, and emotional control plays a crucial role in enhancing overall performance. This highlights the importance of fostering positive behavioral traits in athletes to support their success both on and off the field. The correlational research approach was used to determine the respondent's behavior and sports perceived performance. On the other hand, correlation research approach was used in this study to measure whether there is a significant relationship between athletes' behavior and sports performance. The results of the study revealed a significant relationship between varsity athletes' behavior and their sports performance, with a correlation coefficient of 0.342 and a p-value of 0.003. This indicates a weak yet significant positive relationship between these two variables. The data suggests that athletes who display positive behaviors, such as respect for rules, commitment to training, and sportsmanship, tend to perform better in their respective sports.
BIOMECHANICAL ANALYSIS IN THE ENHANCEMENT OF GYAKU-ZUKI VIA SPAT-CAPS INTERVENTION USING MICRO-CONTROLLER BASED MEASUREMENT TOOL	SIATOCA, DONALYN CARBON	Gyaku-zuki (reverse punch) is a fundamental technique applied in karate. It serves as the primary offensive technique in the sport. Biomechanics aids in enhancing movement, strength, and efficiency while also minimizing injury risk. The lack of research for specific training program on gyaku-zuki (reverse punch) like SPAT-CAPS routine exercise. The purpose of this study was to prove the effectiveness of a four-week SPAT-CAPS training program. The participants are all karatedo athletes in University of Southern Mindanao. They categorized into novice, intermediate, and advanced skill levels. A micro-controller based measurement tool, objectively measured punching force helped enhanced gyaku-zuki (reverse punch) before and after the intervention. A pre-test-post-test designed was employed. Results showed significant improvement in all categories after the intervention. There are 7 participants from both novice and intermediate category while only 1 participant in advanced. The overall mean novice category's pre-test was 21.5 (weak) while post-test rose to 64.28 (strong), and for intermediate category's pre-test was 23.64

		(weak) while post-test rose to 61.92 (strong) however, data for advanced category was incomparable since only one respondent. Statistical analysis using T-test yielded the p-values of .001 for both novice and intermediate category, indicating a significant increase in punch force of gyaku-zuki (reverse punch). The standard deviation (SD) for novice was (8.40) while intermediate was (12.13) indicates very large effect size indicates strong meaningful impact on gyaku-zuki. The findings highlight the effectiveness of SPAT-CAPS routine exercise as a program for enhancing gyaku-zuki (reverse punch).
BOOSTING HAND-EYE COORDINATION SKILL OF MARTIAL ARTS ATHLETES: EFFICACY OF REFLEX BALL TRAINING PROGRAM	MERCADO, KRISTLE FAITH T.	Hand-eye coordination is a fundamental skill in martial arts, particularly in disciplines like Pencak Silat where precise timing, quick reflexes, and accurate execution of techniques are essential. Despite its importance, many athletes struggle to improve this skill through traditional training methods alone. This study investigated the efficacy of a reflex ball training program in enhancing the hand-eye coordination of martial arts athletes at the University of Southern Mindanao. A pre-experimental one-group, pre-test and post-test design was employed involving nine Pencak Silat Athletes. The Alternate Hand Wall Toss Test was used to assess hand-eye coordination before and after the intervention. The training program consisted of reflex ball drills integrated into regular practice sessions over a specified period. Pre- and Post-test scores were analyzed using the Wilcoxon Signed-Rank Test to determine statistical significance. The baseline results indicated that the athletes primarily exhibited “Fair” to “Average” coordination levels, with none achieving “Good” or “Excellent” classifications. Post-intervention results showed marked improvements, with two athletes reaching the “Good” category and the rest achieving higher “Average” scores. The mean score increased from 19.44 to 25.67, and the p-value of 0.00017 indicated a statistically significant improvement at $\alpha = 0.05$ level. The findings demonstrate that reflex ball training is an effective method for boosting hand-eye coordination among martial arts athletes. It supports the integration of reflex-based exercises into routine training to enhance performance-related skills. Coaches and trainers are encouraged to adopt such evidence-based interventions, and future studies are recommended to include larger sample sizes, long-term follow-ups, and comparative training methods.
COACHE’S COACHING BEHAVIOR AND ATHLETES LEVEL OF MOTIVATION: BASIS FOR INTERVENTION	CATANUS, BEA LEE SHIEN PEPITO	This study entitled “Coaches’ Coaching Behavior and Athletes’ Level of Motivation: Basis for Intervention” aimed to determine coaches coaching behavior and athletes’ level of motivation in University of Southern Mindanao and eventually develop an appropriate and effective intervention plan. A total of 268 student-athletes participated in this study, two adapted questionnaires the Coaching Behavior Scale for Sport and the second is Sport Motivation Scale-II was used. The findings revealed that the overall coaching behavior had a grand mean of 3.28, indicating that coaches "often" demonstrated effective practices. Technical skills and competition strategies emerged as the

		strongest dimensions, with sub-means of 3.54 and 3.55, respectively, highlighting the coaches' strengths in providing feedback, instruction, and competitive preparation. However, personal rapport scored the lowest at 2.81, suggesting areas for improvement, particularly in avoiding negative behaviors and fostering trust and understanding. The study aligns with literature emphasizing holistic coaching approaches that integrate technical, mental, and relational dimensions. In terms of athletes' motivation, the grand mean of 3.17 indicates moderate alignment with motivational statements. Intrinsic regulation scored the highest with a sub-mean of 3.37, reflecting athletes' enjoyment and personal interest in sports. In contrast, external regulation and non-regulation scored the lowest, highlighting the minimal influence of external rewards and the presence of slight amotivation among some respondents. Based on these findings, program development should focus on enhancing coaches' interpersonal skills, offering structured physical training plans, and fostering athletes' intrinsic motivation through autonomy-supportive practices. Addressing these areas will contribute to a more supportive and effective coaching environment, sustaining athletes' performance and growth.
DECREASING ABDOMINAL OBESITY AND BODY MASS INDEX THROUGH A STRUCTURED METABOLIC EQUIVALENT TASK FITNESS PROGRAM	SALLAPAO, ROBERTO	Obesity and abdominal fat accumulation are major health concerns due to sedentary lifestyles, poor diet, and lack of physical activity. These conditions increase the risk of chronic diseases such as heart disease, diabetes, and metabolic disorders. This study aimed to evaluate the effectiveness of a MET-based fitness intervention in reducing Body Mass Index (BMI) and abdominal obesity among sedentary individuals. Ten participants, all initially classified as Obese Class I (Moderate), were involved in the study. Pre-test assessments of BMI and waist circumference were conducted to establish baseline health risks. Participants then underwent a structured MET-based exercise program over a specific period. The post-test results revealed a decrease in average BMI from 32.33 to 30.66, indicating a statistically significant improvement ($p < 0.001$). Similarly, average waist circumference was reduced from 106.3 cm (abdominal obesity) to 100.6 cm (increased but moderate risk), with a p-value of less than 0.001. Cohen's d values for both BMI and abdominal fat reductions were greater than 2, indicating a very large effect size. These findings demonstrate that the MET-based fitness program significantly improved participants' body composition and reduced health risks associated with obesity and excess abdominal fat. It shows that even simple, structured exercise programs based on METs can lead to significant improvements in body composition and health. This suggests that sports scientists and fitness professionals can use MET-based programs to help individuals, especially beginners or those with sedentary lifestyles, safely and effectively manage weight, improve physical fitness, and reduce the risk of chronic diseases.

		The regular engagement in structured physical activity effectively lowers BMI and abdominal fat, thereby enhancing overall metabolic function, cardiovascular health, and movement efficiency. The results highlight the importance of staying active to prevent diseases and lead a healthier life.
EFFECT OF RESISTANCE TRAINING TO THE IMPROVEMENT OF LEG POWER AMONG SEPAK TAKRAW ATHLETES	TRAZO, JOHN PETER	This study explored the impact of a structured resistance training program on improving leg power among Sepak Takraw athletes at the University of Southern Mindanao. Sepak Takraw is a sport that relies heavily on explosive leg power, especially for skills such as service, blocking, and smashing. As such, this research addresses the need for specific physical conditioning tailored to the demands of the sport. A quantitative pretest-posttest design was used, involving 12 male varsity athletes. The participants underwent a Vertical Jump Test before and after completing a two-month resistance training program. The program was designed to enhance lower limb strength and power through a progressive sequence of resistance exercises, including squats, lunges, and plyometric drills. The results revealed a statistically significant improvement in the athletes' vertical jump performance. The mean jump height increased from 54.42 cm in the pretest to 58.42 cm in the posttest. A paired t-test confirmed the significance of this improvement ($t = -5.138$, $p = .000$), indicating that the gains were not due to chance but were a result of the training intervention. These findings suggest that a well-structured resistance training program can effectively improve leg power, which is critical in Sepak Takraw performance. Improved leg strength not only enhances athletic skills but may also help in reducing the risk of injuries associated with high-impact movements in the sport. In conclusion, the study supports the integration of structured resistance training in the regular conditioning programs of Sepak Takraw athletes. Coaches and trainers are encouraged to adopt similar training models to optimize performance outcomes. Future research may focus on longer training durations or the inclusion of varied resistance modalities to further enhance results.
ENHANCING CLASS COHESION THROUGH INTERCULTURAL DIALECT IN COMMUNICATION AMONG 1ST YEAR BSESS STUDENTS	VILLAROSA, CREZILDA F.	This study deals with the cultural and linguistic differences and their implications for communication and cohesiveness in a team of first-year BSESS students. Some of the BSESS students proved to be from different tribes. Problems encountered in teamwork were caused by varying languages and cultural value systems. To encourage class unity and cooperation, this study has promoted intercultural communication activities and cultural awareness. It is important to compare the students' feelings before the interventions to those after it. In this regard, responses indicated better improvements in connectedness, trust, and teamwork. Several personal issues remained unresolved, but the class became overall more united and supportive.

		The significant increase in post-test scores ($p < 0.001$) suggests that this playful yet culturally relevant approach successfully improved both class cohesion and, demonstrating the value of incorporating dialect-based games in classroom activities. In conclusion, spending time together and engaging in group activities helps students from diverse backgrounds feel closer and work better as a team. Understanding and respecting each other's cultures strengthens communication and trust, creating a positive learning environment that fosters cooperation and inclusiveness.
IMPROVING BALANCE THROUGH PISTOL SQUAT BALANCE EXERCISE FOR B'DADALI DANCE TROUPE	MACAPASIR, JULYSAH DAUD	The study aimed to improve the balance of B'dadali dancers using the Pistol Squat Exercise. This study utilized a quantitative research design. 10 USM B'dadali Dance Troupe Members (5) female dancers and (5) male Dancers at University of Southern Mindanao, Kabacan, North Cotabato were selected through purposive sampling method. A pre-test assessed their initial balance, identifying strengths and areas for improvement then, a structured balance training program was implemented. After completing the program, a post-test measured the improvements. Results showed that the pre-test had a grand mean of 1.70, indicating a need for improvement, while the post-test had a significantly higher grand mean of 4.00, reflecting an acceptable level of satisfaction. A test of significant difference revealed a P-value of .001, confirming a statistically significant improvement in their performance. The findings showed a sharp rise which reflects the effectiveness of the enhancement program in improving balance stability. The findings from this study provided valuable insights to the coach in developing effective exercise routine to enhance the balance of B'dadali dance troupe in their dance performance. The study recommends that the enhancement program be integrated into regular training routines, as it significantly improved balance performance among the B'dadali dancers.
INTEGRATION OF "IFLEX" BAND IN PLYOMETRIC TRAINING FOR LEG STRENGTH AMONG KARATEDO PLAYERS	BONARES, WHITNEY ABONG	This study investigated the effectiveness of a four-week IFLEX-assisted plyometric training intervention on leg strength among Karatedo players at the University of Southern Mindanao. IFLEX, an improvised elastic band made from bike inner tubes, was integrated into a structured plyometric training program. Thirteen varsity athletes (6 males, 7 females) participated in the study. A pre-experimental, pre-test-post-test design was employed using a 25-meter single-leg hop test to assess lower limb strength. Results indicated significant improvements in post-test performance across both male and female groups. Male participants showed a statistically significant gain in left-leg strength ($p = .034$), while in the right leg improvement was marginally significant ($p = 0.071$). Female participants demonstrated highly significant gains in both legs ($p = .000$ and $p = .003$). These findings show that the IFLEX plyometric program is an

		effective, low-cost way to boost leg strength and support plyometric training in martial arts and other power-based sports.
KATA DANCE FOR FITNESS ; ENHANCING INTEREST FOR EXERCISE ENGAGEMENT	OREJUDOS, CHRISTIAN JAY	This study entitled Kata Dance for Fitness: Enhancing Interest for Exercise Engagement that was conducted at the University of Southern Mindanao and only focused on the first year ISPEAR BSESS FSC students, it was conducted from March 17 to April 17, 2025. This research determines the level of interest on 15 randomly selected first year ISPEAR BSESS students on Kata dance through comparing the difference on pretest and posttest result. The researcher utilized the choreographed video to collect information through survey questionnaires using the four scale (Strongly Agree, Agree, Disagree, Strongly Disagree). The initial result revealed that students had low interest on kata dance exercise, with an overall mean score of 2.37 and 53.3% which falls under the "Low Interest" category. Furthermore, after the Kata dance exercises, there was a significant and positive change in the participants' interest, with the overall mean interest increasing from 2.37 to 3.67 which categorized under ("Strongly Agree") range, and 86.7% of respondents showing a very high interest. This change was statistically significant (Wilcoxon Signed Rank test: $Z = -3.436$, $p = 0.001$), and the crosstabulation showed that all 8 students who had previously been classified as "Low Interest" moved to "High" or "Very High Interest," and all 7 students who had previously been classified as "High Interest" moved to "Very High Interest." The study concludes that direct participation in Kata dance effectively cultivates strong interest, even among initially disengaged individuals.
THE EFFECT OF SOMATIC EXERCISE AMONG BSESS STUDENTS WITH MODERATE ANXIETY	BENSON, APRIL JOY GAMBALAN	This study investigated the effectiveness of a somatic exercise program in reducing anxiety levels among second-year Bachelor of Science in Exercise and Sports Sciences (BSESS) students at the University of Southern Mindanao. The research employed a pre-experimental, pre-test-post-test design to assess changes in anxiety levels before and after the intervention. A total of 14 participants, all exhibiting moderate levels of anxiety, were enrolled in a four-week somatic exercise program. The intervention included carefully structured routines focused on body awareness, breathing, and gentle movement aimed at calming the nervous system and promoting relaxation. Anxiety levels were measured using standardized tools both prior to and following the intervention. Data were analyzed using descriptive and inferential statistics, including paired t-tests, to determine the significance of any observed changes. The results revealed a significant decrease in anxiety levels from the pre-test mean score of 12.00 to the post-test mean score of 3.92. The p-value of .001 indicated a statistically significant improvement in anxiety symptoms following the program. These findings suggest that somatic exercises can serve as an effective non-pharmacological approach to managing anxiety. The intervention proved beneficial in helping students reduce stress, enhance self-

		regulation, and improve overall mental well-being. This study supports the integration of somatic practices into mental health and physical education programs, particularly in academic settings where students often experience elevated stress levels. Furthermore, it highlights the potential of body-centered practices as accessible, low-cost strategies for promoting mental wellness in educational institutions.
ASSESSING THE EFFECTIVENESS OF INTERVAL RUNNING FOR FATIGUE INDEX RECOVERY	BIACA, JONATHAN	This study investigate the effectiveness of a 6 weeks of Interval Running Training program of sprinter, middle and long distance varsity runners in University of Southern Mindanao. The participants were categorized as male and female athletic runners, who preparing diligently for the upcoming competition. A Running-based Anaerobic Sprint Test was conducted, involving a 35-meter distance and 6 sprints with 10 seconds of rest between each sprint. A pre-experimental, pre-test post-test design was employed, with the fatigue index objectively measured before and after the intervention. Data analysis compared the pre-test and post-test results of the Running-based Anaerobic Sprint Test. The results indicated that Interval Running Training was effective in improving fatigue recovery for athletic runners, both men and women, with implications for developing targeted training methods and protocols tailored to different events of athletics.
COMMUNITY SPORTS AND ONLINE GAMING AMONG YOUTH	MASUKAT, DATUMANONG D	This study aimed to identify the factors behind low youth participation ni community sports ni Barangay Malapag, Carmen, Cotabato, and to evaluate the impact of a structured community sports program ni reducing excessive online gaming and enhancing overall well-being. Utilizing a quasi-experimental design, the research involved 30 participants aged 18-30, divided into control and experimental groups. Data were gathered through a structured questionnaire assessing gaming duration, physical activity, enjoyment, social interaction, and well-being. Pre-test and post-test measures were administered to both groups to assess changes following a 12-session sports intervention. Findings showed a statistically significant improvement ni the experimental group across al variables, with a p-value of 0.000, confirming the effectiveness of the program. The intervention resulted ni reduced online gaming, increased physical activity, greater social engagement, and improved enjoyment. These outcomes emphasize the vital role of community sports in promoting healthier behaviors and supporting youth development, particularly ni rural communities. Overall, the study highlights community-based sports initiatives as effective tools for addressing the negative impacts of online gaming, fostering well-being, and strengthening social bonds among rural youth.

**ACE (AGILITY COMBINED EXERCISE) ENHANCEMENT PROGRAM
AMONG SEPAK TAKRAW WOMEN VARSITY PLAYER**

CHRISTINE L. GONZAGA

**BACHELOR OF SCIENCE IN EXERCISE AND SPORTS SCIENCES
(Fitness and Sports Coaching)**



JUNE 2025

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CHRISTINE L. GONZAGA

Thesis Manuscript Submitted to the Department of Exercise and Sports
Sciences, Institute of Sports, Physical Education and Recreation,
University of Southern Mindanao, Kabacan, Cotabato in Partial
Fulfillment of the Requirements for the Degree of

BACHELOR OF SCIENCE IN EXERCISE AND SPORTS SCIENCES
(Major in Fitness and Sports Coaching)



JUNE 2025

ACADEMIC INTEGRITY STATEMENT

I hereby declare and confirm with my signature that the Manuscript is exclusively the result of my own autonomous work based on my research and literature published, which is referenced immediately after the information is presented and listed in the reference section. I also declare that no part of the work submitted has been made in an inappropriate way, whether by plagiarizing, infringing on any third person's copyright, or falsifying data. Finally, I declare that no part of the Manuscript submitted has been used for any other paper in another higher education or research institution.



CHRISTINE L. GONZAGA

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APPROVAL OF THESIS MANUSCRIPT

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Specialization	N/A
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APPROVED BY THE GUIDANCE COMMITTEE


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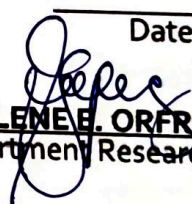
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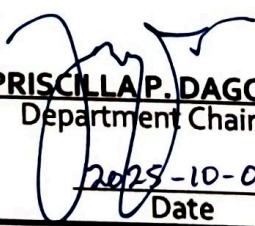
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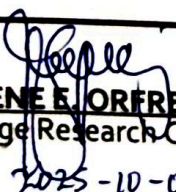
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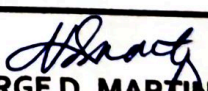
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ACCEPTANCE OF THESIS

The thesis attached hereto, entitled "**ACE (AGILITY COMBINED EXERCISE) ENHANCEMENT PROGRAM AMONG SEPAK TAKRAW WOMEN VARSITY PLAYER**" in partial fulfillment of the requirements for the degree of **BACHELOR OF SCIENCE IN EXERCISE AND SPORTS SCIENCES** is hereby accepted.


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BIOGRAPHICAL DATA

The researcher was born on December 29, 2002 at Barangay Kalacacan, Pikit, North Cotabato. She is the seventh child among the children of Mr. Carlito L. Gonzaga and Mrs. Nenita L. Gonzaga. She took her primary education in Kalacacan Elementary School, Kalacacan, Pikit, North Cotabato. She continued her secondary education in Kalacacan, High School, Kalacacan, Pikit, North Cotabato. Also, she continued her senior high education in Takepen, Senior High School.

The researcher enrolled her tertiary education in University of Southern Mindanao, Kabacan, North Cotabato with a degree of Bachelor of Science in Exercise in Sports Sciences major in Fitness and Sports Coaching. She is a student who worked hard to make herself and her parents proud and successful. As she neared the end of her academic journey, she remained deeply grateful for the unwavering support of her loved ones and the guidance of God, who helped her pursue her dreams. Despite facing challenges along the way, her determination—along with the encouragement of those around her—enabled her to overcome them and stay focused on her goals.


CHRISTINE L. GONZAGA
Researcher

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ABSTRACT

GONZAGA, CHRISTINE L. 2025. ACE (Agility Combined Exercise) Enhancement Program among Sepak Takraw Women Varsity Player. BSESS Thesis. Institute of Sports, Physical Education and Recreation, University of Southern Mindanao, Kabacan, Cotabato. 56pp

Adviser: **JERUM B. ELUMBARING, MAEd-PE**

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Keywords: *ACE (Agility Combined Exercise), Ladder Drills, Shuttle Run, Test, and Zig-zag Run*

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JANICE B. MALLORCA

Thesis Manuscript Submitted to the Department of Exercise and Sports
Sciences, Institute of Sports Physical Education and Recreation,
University of Southern Mindanao, Kabacan, Cotabato
in Partial Fulfillment of the Requirements
for the Degree of

BACHELOR OF SCIENCE IN EXERCISE AND SPORTS SCIENCES
(Fitness and Sports Coaching)



JUNE 2025

ACADEMIC INTEGRITY STATEMENT

I hereby declare and confirm with my signature that the Manuscript is exclusively the result of my own autonomous work based on my research and literature published, which is referenced immediately after the information is presented and listed in the reference section. I also declare that no part of the work submitted has been made in an inappropriate way, whether by plagiarizing, infringing on any third person's copyright, or falsifying data. Finally, I declare that no part of the Manuscript submitted has been used for any other paper in another higher education or research institution.


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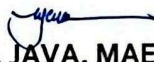


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ACCEPTANCE OF THESIS

The thesis attached hereto, entitled "**AN INNOVATIVE TRAINING APPROACH IN THE ENHANCEMENT OF AGILITY AMONG PENCAK SILAT**" prepared and submitted by **JANICE B. MALLORCA** in partial fulfillment of the requirements for the degree of **BACHELOR OF SCIENCE IN EXERCISE AND SPORTS SCIENCE** is hereby accepted.


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The researcher was born on June 12, 2002, in New Baliki, Midsayap, Cotabato. She is the Third daughter of Ronnie Mallorca and Gemma Mallorca, with two siblings, Rogie Mallorca and Rogielyn Mallorca. Her Family currently resides in Baliki, Midsayap, Cotabato.

She completed her elementary education at Baliki, Elementary School and continued her junior and senior high school at Dilangalen National High School. With a strong commitment to advancing her education, the researcher pursued her tertiary education at University of Southern Mindanao, Kabacan, Cotabato and took up Bachelor of Science in Exercise and Sport Sciences.

She is a hardworking and determined student, believing that perseverance and dedication will lead to a better future. Her family's unwavering support has been her greatest source of strength, inspiring her to keep moving forward despite the challenges she faces. With deep gratitude, she hopes to one-day give back to them as a way of honoring their sacrifices and guidance. Through every hardship, she has grown both personally and professionally, holding onto the belief that every struggle comes with the promise of ease.


JANICE B. MALLORCA
Researcher

ACKNOWLEDGMENT

The researcher extends her deepest gratitude to everyone who contributed and encouraged her throughout the completion of this study. First and foremost, her utmost gratitude to Almighty God for the unending blessings, knowledge, and strength, which helped her make this research possible.

Unbounded gratitude to her parents, Ronnie Mallorca and Gemma Mallorca, for their unwavering support in every way they can provide, whether spiritually, morally, or financially. Special thanks to her sister and brother, ate Inday, for always supporting her with all the expenses. She also extends her gratitude to her sibling tata, for their support. Their help and encouragement have been her inspiration in this study. She is deeply grateful for their unconditional love, care, and sacrifices.

The researcher expresses her deepest gratitude to her Adviser and Co-Adviser, Professor Vinus P. Java, MAEd-PE, and Professor Bae Kellah Kassandra A. Landawe for their patience, trust, encouragement, and guidance, as well as for their insightful recommendations, constructive criticisms, and supervision in improving this study.

To her examining committees, Professor Marlene E. Orfrecio, EdD-PE, and Professor Priscilla P. Dagoc, MSPE, for sharing their expertise, valuable insights, and feedback, which contributed to the enhancement of this study.

The researcher sincerely appreciates her friends and classmates for their support and encouragement. Special acknowledgment is extended to Jhonel and Christian their valuable assistance and moral support throughout the conduct of this study. Their enduring friendship and encouragement have significantly contributed to the researcher's academic and personal development.

To her relatives, aunts, uncles, and cousins for their encouragement and support. To Ate Rogielyn, for her invaluable support and guidance throughout the completion of this thesis, her generosity in sharing her knowledge, time, and expertise significantly contributed to the development and success of this research her encouragement and willingness to assist even during challenging times. Truly made a difference in my academic journey.

I would like to express my sincere gratitude to all those who contributed to the successful completion of my research. Special thanks to all my respondents in Pencak Silat Team and their Coach Ma'am Bae, who provided invaluable assistance in participating and performing the training program. Your time, energy, creativity, and dedication greatly enhanced the quality and effectiveness of this study. I am grateful for your support and collaboration, which played a crucial role in achieving the goals of this research.

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ABSTRACT

MALLORCA, JANICE B. 2025. An Innovative Training Approach in the Enhancement of Agility Training Among Pencak Silat Athletes. BSESS Thesis. Institute of Sports, Physical Education and Recreation, University of Southern Mindanao, Kabacan, Cotabato. 64 pp

Adviser: **VINUS P. JAVA, MAEd-PE**

This study entitled "An Innovative Training Approach in the Enhancement of Agility among Pencak Silat Athlete's" aimed to evaluate the enhancement of an innovative training intervention—specifically agility ladder and cone drills—on the agility performance of Pencak Silat athletes. Utilizing a quantitative pre-experimental one-group pre-test and post-test design, nine varsity athletes participated in a structured agility program over a defined training period. Agility was assessed using a standardized agility test, with results recorded before and after the intervention.

The baseline results revealed that both male and female athletes performed within the "Needs Major Improvement" category, with mean scores of 13.45 seconds for males and 14.31 seconds for females. Post-intervention data showed substantial improvements: males averaged 10.24 seconds ("Above Average Agility"), and females averaged 10.40 seconds ("High Agility"). A paired samples t-test revealed a statistically significant difference

between the pre-test and post-test results ($t = 9.55$, $p = 0.000012$), indicating the intervention's effectiveness.

These findings highlight the value of targeted agility training in enhancing neuromuscular coordination, footwork, and reaction speed. The structured intervention not only improved performance but also demonstrated that agility is a trainable attribute when approached through sport-specific methods.

The study recommends integrating data-driven training programs into university sports development initiatives and encourages coaches to adopt pre- and post-assessment methods. Future research should explore long-term agility retention, the effects of combining drills with plyometric training, and broader applications across different sports and skill levels.

Keywords: *Agility, Athletic Performance, Innovative Training Approach. Pencak Silat Athletes, Sports Intervention,*

**ASSESSING THE IMPACT OF DANCE EXERCISE
TO BMI AMONG PATH-FIT STUDENT**

BOYET C. SABAL

BACHELOR OF SCIENCE IN EXERCISE AND SPORTS SCIENCES
(Fitness and Sports Management)



JUNE 2025

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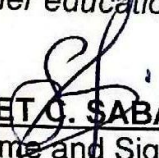
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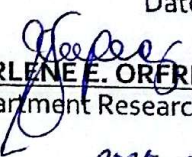
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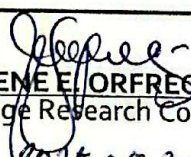
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The thesis attached hereto, entitled "**ASSESSING THE IMPACT OF DANCE EXERCISE TO BMI AMONG PATH-FIT STUDENTS**" prepared and submitted by **BOYET C. SABAL** in partial fulfillment of the requirements for the degree of **BACHELOR OF SCIENCE IN EXERCISE AND SPORT SCIENCES** major in **FITNESS AND SPORTS MANAGEMENT** is hereby accepted.


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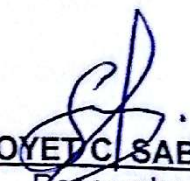
The researcher was born on June 28, 1999, in Kabacan, Poblacion, Cotabato. He is the youngest son among the five children of Mr. Faizal I. Sabal and Mrs. Mary Jean C. Sabal live in Poblacion, Kabacan, Cotabato.

He completed his Elementary education at Kabacan Pilot Central School and his Secondary education at Carmen National High School.

Due to his Determination in life, he continued his Senior High School at Carmen National Senior High School and enrolled in the course in Accountancy, Business and Management (ABM) strand and finished in year of 2019.

To follow his tertiary education, he continued his study at the University of Southern Mindanao Kabacan, Cotabato, and took up a Bachelor of Exercise Science and Sports Sciences from the College of Institute of Sports, Physical Education and Recreation (ISPEAR).

His courage, supported from his loving family and belief in GOD's helped he finish his course.


BOYET C. SABAL
Researcher

ACKNOWLEDGMENT

The researcher would like to express sincere gratitude to all those who provided support and assistance throughout the course of this study. Their contributions and encouragement have been invaluable.

The researcher is deeply appreciative to Cheeze R. Janito, MAEd, the research adviser, for her unwavering guidance, emotional support, expert advice, and generous financial assistance. Her dedication and belief in the researcher were instrumental in the successful completion of this academic endeavor.

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The researcher would also like to express sincere thanks to Gladys Pearl O. Ambrocio, MAT-HK, the BSESS adviser, whose encouragement and inspiration played a vital role in the researcher's determination to complete the study. Her support greatly contributed to the fulfillment of this academic work.

Gratitude is also extended to the researcher's family and friends for their patience, understanding, and moral support, all of which greatly contributed to the research process.

The researcher is thankful to the research participants, whose voluntary involvement made this study possible.

Deep appreciation is likewise given to Ruben L. Tagare Jr., PhD, the statistician, for his expertise in data analysis and interpretation, and for his generous investment of time and effort.

Sincere thanks also go to Marlene E. Orfrecio, EdD-PE, the college research coordinator, for her continuous guidance, time, and support from the beginning of the study to its successful completion.

Above all, the researcher offers the highest gratitude to Almighty God (Allah) for granting the strength, wisdom, and divine guidance necessary to complete this study.

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ABSTRACT

SABAL, BOYET C. 2025. Assessing the Impact of Dance Exercise to BMI among PATH-FIT Students. BSESS Thesis. Institute of Sports, Physical Education and Recreation, University of Southern Mindanao, Kabacan, Cotabato. 48 pp

Adviser: **CHEEZE R. JANITO, MAEd**

Schools measuring Body Mass Index is seen to help reduce obesity in youth. However, little is known about how effective it is in lowering obesity rates or encouraging physical activity. The general objective of this study is to determine the significant difference in the Body Mass Index (BMI) of PATH-FIT students before and after participation in a dance exercise intervention. The study employed a quantitative research approach using a pre-test and post-test design. Ten female students from the University of Southern Mindanao, aged 18 to 25 and classified as overweight (BMI 25.0–29.9 kg/m²), were selected through purposive sampling. Participants engaged in a structured dance exercise program, with BMI measurements collected before and after the intervention. A paired t-test was used to analyze the data and compare BMI values pre- and post-intervention.

The results showed a decrease in the mean BMI from 27.05 to 25.62. Three participants reached the normal BMI range (18.5–24.9 kg/m²), while the remaining seven showed slight reductions but remained in the overweight

category. The paired t-test yielded a p-value of 0.038, which was not considered statistically significant. Nevertheless, the findings indicate that regular dance exercise may contribute to positive changes in BMI among overweight students.

It is recommended that future research explore participants' interest and motivation levels, as these may influence engagement and outcomes. Additionally, integrating dietary monitoring with exercise, as well as ensuring consistency in participation, may lead to more significant improvements in BMI and overall health.

Keywords: *BMI, Dance Exercise, Overweight, PATH-FIT Students*

**BIOMECHANICAL ANALYSIS IN THE ENHANCEMENT OF
GYAKU-ZUKI VIA SPAT-CAPS INTERVENTION USING
MICRO-CONTROLLER BASED MEASUREMENT TOOL**

DONALYN C. SIATOCA

**BACHELOR OF SCIENCE IN EXERCISE AND SPORTS SCIENCES
(Fitness and Sports Coaching)**



JUNE 2025

**BIOMECHANICAL ANALYSIS IN THE ENHANCEMENT OF GYAKU-ZUKI VIA
SPAT-CAPS INTERVENTION USING MICRO-CONTROLLER BASED
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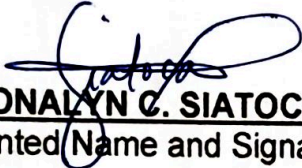
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ACCEPTANCE OF THESIS

The thesis attached hereto, entitled "**BIOMECHANICAL ANALYSIS IN THE ENHANCEMENT OF GYAKU-ZUKI VIA SPAT-CAPS INTERVENTION USING MICRO-CONTROLLER BASED MEASUREMENT TOOL**" prepared and submitted by **DONALYN C. SIATOCA** in partial fulfillment of the requirements for the degree of **BACHELOR OF SCIENCE IN EXERCISE AND SPORTS SCIENCES MAJOR IN FITNESS AND SPORTS COACHING** is hereby accepted.


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BIOGRAPHICAL DATA

The researcher was born on July 23, 1998 at Barangay Dajay, Surallah, South Cotabato. She is the only daughter among the children of Mr. Conrado E. Siatoca and Mrs. Wilma C. Siatoca. She took her primary education in Pagsabangan Elementary School, Pagsabangan, Tagum City, Davao Del Norte. She continued her secondary education in Tagum City National High School, Mankilam, Tagum City, Davao Del Norte.

The researcher enrolled her tertiary education in University of Southern Mindanao, Kabacan, North Cotabato with a degree of Bachelor of Science in Exercise in Sports Sciences major in Fitness and Sports Coaching. She is a working student striving hard to make herself be successful. Now, she finds herself closer the end of her journey, grateful for the support of her loved ones, and with unwavering faith in God, who has blessed her to pursue her dreams.


DONALYN C. SIATOCA
Researcher

ACKNOWLEDGEMENT

The researcher gratefully expresses her appreciation and gratitude to the people behind the success of this study. The following people are deeply appreciated for their helped and support:

To her beloved family, the source of her inspiration, Papa Ondo, Mama Wilma. To her brother Daniel, Edwin and Weldon Jay for their prayers, and constant love;

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To his adviser, Professor Jerum B. Elumbaring, who guided her and for his invaluable feedback and support throughout her research. His extensive knowledge and experience were instrumental in the completion of this study;

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To her statistician, Professor Ruben L. Tagare Jr., who helped and gave his time and effort to analyze and interpret the result of this study;

To his programmer, Jan Patrick D. Sambo, for his invaluable guidance and unwavering support. His expertise and mentorship have been a big help in ensuring this study successful;

To her respondents, for their time and effort they rendered to participate in the exercise routine program;

To her family for always supporting her throughout her life and serves as her inspiration.

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ABSTRACT

SIATOCA, DONALYN C. 2025. Biomechanical Analysis in the Enhancement of Gyaku-zuki via SPAT-CAPS Intervention using Micro-controller Based Measurement Tool. BSESS Thesis. Institute of Sports, Physical Education and Recreation, University of Southern Mindanao, Kabacan, Cotabato. 52pp

Adviser: **JERUM B. ELUMBARING, MAEd-PE**

Gyaku-zuki (reverse punch) is a fundamental technique applied in karate. It serves as the primary offensive technique in the sport. Biomechanics aids in enhancing movement, strength, and efficiency while also minimizing injury risk. The lack of research for specific training program on gyaku-zuki (reverse punch) like SPAT-CAPS routine exercise. The purpose of this study was to prove the effectiveness of a four-week SPAT-CAPS training program. The participants are all karatedo athletes in University of Southern Mindanao. They categorized into novice, intermediate, and advanced skill levels. A micro-controller based measurement tool, objectively measured punching force helped enhanced gyaku-zuki before and after the intervention. A pre-test-post-test designed was employed. Results showed significant improvement in all categories after the intervention. There are 7 participants from both novice and intermediate category while only 1 participant in advanced. The overall mean novice category's pre-test was 21.5 (weak) while post-test rose to 64.28 (strong), and for intermediate category's pre-test was 23.64 (weak) while post-test rose to 61.92 (strong) however, data for advanced category was incomparable since only one respondent. Statistical

analysis using T-test yielded the p-values of .001 for both novice and intermediate category, indicating a significant increase in punch force of gyaku-zuki. The standard deviation (SD) for novice was (8.40) while intermediate was (12.13) indicates very large effect size indicates strong meaningful impact on gyaku-zuki. The findings highlight the effectiveness of SPAT-CAPS routine exercise as a program for enhancing gyaku-zuki.

Keywords: *Biomechanical Analysis, FSR Sensor, Gyaku-zuki, Karate, Micro-controller, Punching Force, SPAT-CAPS*

**BOOSTING HAND-EYE COORDINATION SKILL OF
MARTIAL ARTS ATHLETES: EFFICACY OF
REFLEX BALL TRAINING PROGRAM**

KRISTLE FAITH T. MERCADO

BACHELOR OF SCIENCE IN EXERCISE AND SPORTS SCIENCES
(Fitness and Sports Management)



JUNE 2025

**BOOSTING HAND-EYE COORDINATION SKILL OF MARTIAL ARTS
ATHLETES: EFFICACY OF REFLEX BALL TRAINING PROGRAM**

KRISTLE FAITH T. MERCADO

Thesis Manuscript Submitted to the Department of Exercise and Sports
Sciences, Institute of Sports Physical Education and Recreation,
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Partial Fulfillment of the Requirements for the
Degree of

BACHELOR OF SCIENCE IN EXERCISE AND SPORT SCIENCES
(Major in Fitness and Sport Management)



JUNE 2025

ACADEMIC INTEGRITY STATEMENT

I hereby declare and confirm with my signature that the Manuscript is exclusively the result of my own autonomous work based on my research and literature published, which is referenced immediately after the information is presented and listed in the reference section. I also declare that no part of the work submitted has been made in an inappropriate way, whether by plagiarizing, infringing on any third person's copyright, or falsifying data. Finally, I declare that no part of the Manuscript submitted has been used for any other paper in another higher education or research institution.


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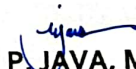


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ACCEPTANCE OF THESIS

The thesis attached hereto, entitled "**BOOSTING HAND-EYE COORDINATION SKILL OF MARTIAL ARTS AHTLETES: EFFICACY OF REFLEX BALL TRAININGG PROGRAM**" prepared and submitted by **KRISTLE FAITH T. MERCADO** in partial fulfillment of the requirements for the degree of **BACHELOR OF SCIENCE IN EXERCISE AND SPORTS SCIENCES** is hereby accepted.


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The researcher was born on the 18th day of February 2003 at Tambac, Tulunan, North, Cotabato. She is the eldest daughter among the two children of Mr. Romaldo A. Mercado and Mrs. Wellma T. Mercado. She took her primary education in Tambac Elementary School, Tambac, Tulunan, North Cotabato. She continued her secondary education in Tulunan, National High School, Poblacion, Tulunan, North Cotabato.

The researcher enrolled her tertiary education in University of Southern Mindanao, Kabacan, North Cotabato with a degree of Bachelor of Science in Exercise in Sports Sciences major in Fitness and Sports Management. As the researcher reflect on her journey, it reminded her every experience, triumph and setbacks that shaped her into the person she is today despite many challenges. She believes that together with passion, perseverance and faith to the almighty God nothing is impossible.


KRISTLE FAITH T. MERCADO
Researcher

ACKNOWLEDGMENT

Indeed, God is the power, sovereign, King of all kings and Lord of all lords. Without him, people are nothing and we cannot do anything. For all the things he has done for each and every one especially to the life of the researcher, glory, honor, thanksgiving and praise are due to him forever and ever. With the strength, courage, wisdom, financial providence, patience, faithfulness and enlightenment that come from him, the study is materialized.

The Great Provider has given His people and institutions as resources and instruments in the preparation and conduct of the research. The researcher wishes to convey his profound gratitude and sincerest thanks from the innermost chamber of his heart to the following:

To her beloved parents, the source of her inspiration Mr. Romaldo A. Mercado and Mrs. Wellma T. Mercado, to her sister Mariel Rose T. Mercado, for their prayers, and constant love. To the researcher's personal life, she's grateful to be supported by her loving partner, Roberto M. Sallapao, whose encouragement and love motivate her to pursue her goals.

To her adviser, Vinus P. Java, MAEd-PE and Co-adviser, Ma'am Bae Kellah Kassandra A. Landawe, who guided her and for their invaluable feedback and support throughout her research. Their extensive knowledge and experience were instrumental in the completion of this study;

To the members of the examining committee, Marlene E. Orfrecio, EdD-PE and to her panel, Marlon A. Mancera, MAEd-PE for their valuable effort, time,

constructive criticism, insightful suggestions and encouragement for the improvement and to make this study informative and reliable. Their comments and suggestions pushed her to sharpen her thinking and brought greater depth to this study;

To her statistician, Ma'am, Judy Ann Nomil Balcita, who helped and gave her time and effort to analyze and interpret the result of this study;

To her respondents, for their time and effort they rendered to participate in the exercise routine program;

Above all, to the almighty God, the source of all knowledge and gave the researcher the strength, guidance and wisdom which made all things possible.

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ABSTRACT

MERCADO, KRISTLE FAITH T. 2025. Boosting Hand-Eye Coordination Skill of Martial Arts Athletes: Efficacy of Reflex Ball Training Program. BSESS Thesis. Institute of Sports, Physical Education and Recreation, University of Southern Mindanao, Kabacan, Cotabato. 54 pp

Adviser: VINUS P. JAVA, MAEd-PE

Hand-eye coordination is a fundamental skill in martial arts, particularly in disciplines like Pencak Silat where precise timing, quick reflexes, and accurate execution of techniques are essential. Despite its importance, many athletes struggle to improve this skill through traditional training methods alone. This study investigated the efficacy of a reflex ball training program in enhancing the hand-eye coordination of martial arts athletes at the University of Southern Mindanao.

A pre-experimental one-group, pre-test and post-test design was employed involving nine Pencak Silat Athletes. The Alternate Hand Wall Toss Test was used to assess hand-eye coordination before and after the intervention. The training program consisted of reflex ball drills integrated into regular practice sessions over a specified period. Pre- and Post-test scores were analyzed using the Wilcoxon Signed-Rank Test to determine statistical significance.

The baseline results indicated that the athletes primarily exhibited “Fair” to “Average” coordination levels, with none achieving “Good” or “Excellent” classifications. Post-intervention results showed marked improvements, with two

athletes reaching the "Good" category and the rest achieving higher "Average" scores. The mean score increased from 19.44 to 25.67, and the p-value of 0.00017 indicated a statistically significant improvement at $\alpha = 0.05$ level.

The findings demonstrate that reflex ball training is an effective method for boosting hand-eye coordination among martial arts athletes. It supports the integration of reflex-based exercises into routine training to enhance performance-related skills. Coaches and trainers are encouraged to adopt such evidence-based interventions, and future studies are recommended to include larger sample sizes, long-term follow-ups, and comparative training methods.

Keywords: *Athletes Performance, Hand-Eye Coordination, Hand Wall Toss Test, Martial Arts, Pencak Silat, Reflex Ball Training, Intervention*

**DECREASING ABDOMINAL OBESITY AND BODY
MASS INDEX THROUGH A STRUCTURED
METABOLIC EQUIVALENT TASK
FITNESS PROGRAM**

ROBERTO M. SALLAPAO

BACHELOR OF SCIENCE IN EXERCISE AND SPORTS SCIENCES
(Fitness and Sports Management)



JUNE 2025

**DECREASING ABDOMINAL OBESITY AND BODY MASS INDEX THROUGH
A STRUCTURED METABOLIC EQUIVALENT TASK FITNESS PROGRAM**

ROBERTO M. SALLAPAO

Thesis Manuscript Submitted to the Department of Exercise and Sports
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I hereby declare and confirm with my signature that the Manuscript is exclusively the result of my own autonomous work based on my research and literature published, which is referenced immediately after the information is presented and listed in the reference section. I also declare that no part of the work submitted has been made in an inappropriate way, whether by plagiarizing, infringing on any third person's copyright, or falsifying data. Finally, I declare that no part of the Manuscript submitted has been used for any other paper in another higher education or research institution.


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He attended his tertiary education, at the University of Southern Mindanao in Kabacan, North Cotabato. He is working hard as a student to achieve his dreams, earning a degree in Exercise and Sports Sciences major in Fitness and Sports Management. Despite the challenges of balancing work and studies, he remains determined to succeed.

As he drew nears to the end of his educational journey, he feels grateful for the support of his family and loved ones. He also has strong faith in God, trusting that His guidance and blessings have helped him reach this point. Looking forward to the future, he is hopeful and motivated to continue striving for success and to make his family proud.


ROBERTO M. SALLAPAO
Researcher

ACKNOWLEDGMENT

Indeed, God is the most powerful, the sovereign King of all kings and Lord of all lords. Without Him, we are nothing, and we cannot do anything. All praise, honor, thanks, and glory belong to Him forever. It is through His strength, courage, wisdom, provision, patience, faithfulness, and enlightenment that this research has become possible

God, as the Great Provider, has given us resources and tools to help in preparing and conducting this study. The researcher sincerely wants to express her deepest gratitude and thanks from the bottom of her heart to the following:

To her beloved family, the source of her inspiration Pa Lao-ing, Nanay, Ate Cha, and Pastor for their prayers, love and support; To the Sallapao family, who have always supported and motivated him, especially during tough times, and who shared helpful tips to cheer her up; To his adviser, Professor Vinus P. Java, and co-adviser, Bae Kellah Kassandra A. Landawe, for guiding him and providing valuable feedback throughout the research. Their knowledge and support were essential to finishing this study;

To the examining committee members, Professor Marlene E. Orfrecio and Professor Moreno B. Java, Jr., for their time, constructive criticism, and encouraging suggestions that improved his work; To her statistician, Professor Judy Ann Nomil Balcita, for helping analyze and interpret the results; To all the respondents, for their participation and effort in the exercise routine program; and to his family, for their unwavering support and inspiration throughout his life.

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ABSTRACT

SALLAPAO, ROBERTO M. 2025. Decreasing Abdominal Obesity and Body Mass Index through a Structured Metabolic Equivalent Task Fitness Program. BSESS Thesis. Institute of Sports, Physical Education and Recreation, University of Southern Mindanao, Kabacan, Cotabato. 94 pp

Adviser: VINUS P. JAVA, MaeD-PE

Obesity and abdominal fat accumulation are major health concerns due to sedentary lifestyles, poor diet, and lack of physical activity. These conditions increase the risk of chronic diseases such as heart disease, diabetes, and metabolic disorders. This study aimed to evaluate the effectiveness of a MET-based fitness intervention in reducing Body Mass Index (BMI) and abdominal obesity among sedentary individuals. Ten participants, all initially classified as Obese Class I (Moderate), were involved in the study. Pre-test assessments of BMI and waist circumference were conducted to establish baseline health risks. Participants then underwent a structured MET-based exercise program over a specific period.

The post-test results revealed a decrease in average BMI from 32.33 to 30.66, indicating a statistically significant improvement ($p < 0.001$). Similarly, average waist circumference was reduced from 106.3 cm (abdominal obesity) to 100.6 cm (increased but moderate risk), with a p-value of less than 0.001. Cohen's d values for both BMI and abdominal fat reductions were greater than 2, indicating a very large effect size. These findings demonstrate that the MET-based fitness program significantly improved participants' body composition and reduced health

risks associated with obesity and excess abdominal fat. It shows that even simple, structured exercise programs based on METs can lead to significant improvements in body composition and health. This suggests that sports scientists and fitness professionals can use MET-based programs to help individuals, especially beginners or those with sedentary lifestyles, safely and effectively manage weight, improve physical fitness, and reduce the risk of chronic diseases.

The regular engagement in structured physical activity effectively lowers BMI and abdominal fat, thereby enhancing overall metabolic function, cardiovascular health, and movement efficiency. The results highlight the importance of staying active to prevent diseases and lead a healthier life.

Keywords: *Abdominal Obesity, BMI, Health Intervention, MET-Based Exercise, Physical Activity, Sedentary Lifestyle,*