

Physiological aspects of Arnis: Enhancing performance and training strategies

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ABSTRACT

Arnis, recognized as the national martial art and sport of the Philippines, holds a vital role in promoting indigenous culture while contributing to school-based sports development. Beyond its cultural significance, it serves as a platform for enhancing students' physical fitness, discipline, and competitive skills. In this context, the present study sought to examine the physiological attributes of Arnis athletes and analyze how these factors relate to their competitive performance and inform effective coaching strategies in the Division of Capiz. A quantitative descriptive research design was used, and data were gathered from 52 Arnisadors. The physiological aspects were assessed using the Philippine Physical Fitness Test (PPFT), while training strategies were evaluated through a researcher-made questionnaire covering pre-, during-, and post-competition phases. Statistical tools such as frequency, percentage, mean, and standard deviation were utilized. Findings revealed that most participants were aged 13–15, predominantly female, and had less than one year of experience. Results showed that cardiovascular endurance, flexibility, balance, agility, speed, power, and reaction time ranged from good to very good, while muscular endurance reached excellent levels. However, muscular strength and coordination remained fair. It was also found out that strength, balance, power, and coordination improved with age, experience, and higher levels of competition. Coaching strategies were rated outstanding across all phases, particularly in conditioning, communication, and performance reflection. However, nutrition planning, anxiety management, tactical adjustments, and video analysis needed improvement. The study concluded that although coaching strategies were effective, a shift toward science-based training programs was needed. A program of activities was proposed to improve muscular strength and coordination and to enhance overall athlete performance.

Keywords: Arnis, Physiological Aspects, Training Strategies, Physical Fitness, Coaching Strategies, Philippine Physical Fitness Test (PPFT), Quantitative Descriptive Research.

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INTRODUCTION

Filipino Martial Arts (FMA), particularly Arnis, represent a traditional combat system deeply rooted in Philippine history and cultural heritage. Developed by early Filipino communities as a form of self-defense and survival, Arnis employs indigenous weapons such

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as rattan sticks, blades, daggers, and spears (Martin et al., 2018). Known also as Eskrima and Kali across various regional and cultural traditions, Arnis functions not only as a martial discipline but as a living expression of Filipino identity and cultural continuity. Its historical and cultural significance was formally affirmed when the Philippine government declared Arnis the National Martial Art and Sport through Republic Act No. 9850 in 2009, a legislative act intended to promote and preserve the discipline both locally and internationally, and to strengthen its integration within sports and educational systems (Lim, 2018).

Despite this institutional recognition, significant gaps persist in the scientific and pedagogical treatment of Arnis as a competitive sport. Recent studies indicate that there remains a lack of standardized, sport-specific physical performance measures for competitive Arnis athletes (Peralta, 2025; Endab et al., 2024). This deficiency is compounded by the limited integration of Arnis into higher education, as the Philippine Eskrima Kali Arnis Federation (2017) observed that only a small number of higher education institutions consistently incorporate Arnis into their Physical Education programs, pointing to persistent challenges in its widespread implementation. These converging gaps suggest that while Arnis has achieved formal national recognition, the infrastructure needed to support its competitive development remains underdeveloped.

Within the Department of Education framework, student-athletes are assessed using the Philippine Physical Fitness Test, which evaluates general fitness components such as strength and endurance. However, this instrument does not adequately capture the specific physiological demands inherent in Arnis competition. Performance-critical capacities such as reaction time, explosive movement, agility under pressure, and anaerobic output during sparring remain unmeasured by current assessment tools. This misalignment between existing evaluation frameworks and actual competitive demands underscores the need for more sport-specific, competency-based assessment approaches that more faithfully reflect the performance requirements of Arnis athletes.

The absence of objective, sport-specific data creates practical difficulties for coaches and athletes alike. Without accurate measurement tools, it becomes difficult to identify performance-related strengths and weaknesses with precision. An athlete may demonstrate strong technical proficiency yet lack the physical capacity to sustain performance in the later stages of a match, or may possess adequate strength but insufficient reaction speed to respond effectively to an opponent. Quantifying these physiological variables therefore serves a critical function, enabling more accurate and evidence-based athlete evaluation and supporting the broader goal of innovation and transformation in Physical Education practices.

The coaching dimension of Arnis development presents a parallel set of concerns. Many coaches in the Division of CapiZ rely on experience-based and traditional training methods, the effectiveness of which in meeting the evolving demands of modern competition is not consistently established. Research in sports science emphasizes that effective coaching must be grounded in a scientific understanding of the athlete's physical condition, training load, and recovery needs (Mujika et al., 2018; Bompa and Buzzichelli, 2019). Evaluating whether current conditioning, skill development, and recovery strategies are sufficient to meet these standards is therefore both timely and necessary.

The practical motivation for this inquiry is further reinforced by the observation that, although many high school athletes in CapiZ participate in Arnis, only a small number advance to higher levels of competition such as the Palarong Pambansa. This pattern suggests a developmental gap that may be attributable, at least in part, to the absence of data-informed training strategies. By examining the relationship between physical fitness attributes and prevailing coaching practices, this study aims to assess the effectiveness of existing training programs and to identify areas for improvement. The findings are intended to assist coaches in adopting more structured, evidence-based approaches to athlete development, thereby

addressing individual weaknesses, reinforcing existing strengths, and ultimately contributing to the production of more competitive and well-prepared Arnis athletes. In doing so, this study also seeks to advance the broader preservation and development of Arnis as both a competitive sport and a vital component of Filipino cultural heritage. (3)

Statement of the problem

This study aimed to determine the physiological aspects of Arnis towards enhancing performance and training strategies. Specifically, this study sought to provide answers to the following problems:

1. What is the level of physiological aspects of Arnis athletes in terms of body composition, cardiovascular endurance, muscular endurance, muscular strength, flexibility, agility, speed, balance, power, reaction time and coordination when classified according to age, sex, weight category and years in playing arnis?
2. What is the level of competition participated by the Arnis athletes and their level of physiological aspects?
3. What is the level of training strategies utilized by the Arnis coaches as a whole and in terms of pre-competition, during competition, and post-competition?
4. What program of activities can be formulated to further improve the arnis training strategies based on the findings of the study?

METHODOLOGY

This study employed a quantitative descriptive research design to examine the physiological aspects and training strategies of Arnis athletes in selected secondary schools. Quantitative research involves the systematic collection and analysis of numerical data to describe variables, identify patterns, and summarize the characteristics of a population. It is commonly used to describe existing phenomena without manipulating variables, allowing results to be generalized to a larger population (David, 2005). This design was appropriate for the study because it aimed to gather descriptive information about the physical fitness levels of the respondents. The researcher administered a set of physical fitness tests to selected Arnis players, and the quantitative component included the collection of physiological and performance data, which were subsequently analyzed to describe their fitness profiles.

The study was conducted in selected secondary schools in the Division of Capiz for school year 2025 to 2026. The schools included in the study were Capiz National High School, Sapián National High School, Panitan National High School, Ivisan National High School, and Mambusao National High School. These institutions served as the research locale because they housed the identified Arnis student-athletes whose physiological profiles and training experiences were directly relevant to the objectives of the study.

The participants of the study consisted of 52 Arnis athletes from the aforementioned secondary schools who were enrolled during the academic year 2025 to 2026. Among the five participating schools, Mambusao National High School contributed 9 participants, representing 17.30% of the total sample. Capiz National High School likewise contributed 9 participants, also accounting for 17.30%. Panitan National High School contributed 11 participants, comprising 21.15% of the sample. Sapián National High School contributed 8 participants, representing 15.38%, while Ivisan National High School contributed the largest group with 15 participants, accounting for 28.84% of the total. The combined total of 52 participants represented 100% of the study sample.

Purposive sampling was used to select the respondents. Purposive sampling is a non-probability method for obtaining a sample in which researchers use their expertise to choose specific participants that will help the study meet its goals (Frost, 2017). The participants were purposively selected as the most suited subjects for the Philippine Physical Fitness Test (PPFT) due to their specialized athletic training and physical conditioning, which directly aligned with the physiological requirements of the assessment. They were further chosen because they were the formally identified Arnis student-athletes in the selected schools, and their specific experiences and physical profiles provided the depth necessary to address the research objectives and effectively respond to the researcher-made questionnaire.

The data for this study were gathered through two primary instruments: a researcher-made questionnaire and the standardized Philippine Physical Fitness Test (PPFT). The researcher-made questionnaire was designed to obtain quantitative data on the profiles and training strategies of the 52 Arnis athletes. This instrument consisted of 40 items divided into two sections. The first part collected demographic data such as age and competition level, while the second part utilized a 4-Point Likert Scale to evaluate the frequency and nature of the athletes' training routines. Participants answered this instrument by selecting the numerical rating that best described their consistent training habits. Simultaneously, the standardized PPFT was utilized to measure the participants' physiological levels across health-related and skill-related fitness components. This battery of tests involved objective physical assessments, including BMI for body composition, the 3-minute step test for cardiovascular endurance, and specific drills for agility, speed, and power. Participants performed the required physical tasks under supervision, and their results were recorded as raw scores, expressed in units such as time, distance, or repetitions, on a standardized scoring sheet. These scores were subsequently interpreted based on established national fitness norms to provide the quantitative data necessary to address the research objectives.

The research instrument was subjected to content validity and reliability testing. It was prepared by the researcher and presented to the advisory committee for corrections and improvements to its content and face validation. The instrument was also subjected to a pilot trial run with 30 Arnis athletes to check for flaws in the items and in the instructions. The pilot test respondents were Arnis athletes from Lawaan Integrated School and Roxas City School for Philippine Craftsmen, and they did not participate in the actual survey. Only 30 respondents were used in the reliability testing because, according to Garrett, this number was adequate. Data from the pre-test were tabulated and the reliability coefficient was computed using the Cronbach Alpha, which measures how well a set of items or variables measures a single multidimensional latent construct. Technically, Cronbach Alpha is a coefficient of reliability or consistency, and when data have a multidimensional structure, the coefficient is usually low. According to Milton Smith, a reliability coefficient of 0.80 or more but not more than 1.0 is necessary for the whole questionnaire to be considered reliable. In this study, the computed reliability coefficient of the survey questionnaire was 0.959, which, using Smith's guideline, confirmed that the questionnaire was reliable and therefore utilized in the actual study.

Before the actual data gathering, the researcher secured a permission letter addressed to the superintendent of the Schools Division of Capiz. Additional letters of approval were submitted to the head administrators of the participating public secondary schools, requesting authorization to conduct the study involving their student-athletes in Arnis. A further letter was likewise secured and addressed to the advisory teachers of the students selected as respondents. Upon approval, the researcher personally administered the data gathering process. During administration, the researcher explained the content of the questionnaire to the respondents to enable them to answer the items appropriately. Once the data were gathered, the researcher analyzed and interpreted the answers in relation to the statement of the problem.

For the physical fitness testing component, the participants underwent the standardized PPFT to measure physiological aspects, focusing on both health-related and skill-related fitness components. Parental consent was secured before conducting the test to ensure that the students were permitted to participate and that ethical guidelines were observed. Prior to the actual testing, the participants performed a proper warm-up to prepare their bodies and reduce the risk of injury. After completing the test, a cool-down session was conducted to help the body gradually return to its normal state and to promote recovery. These procedures were followed to ensure the safety and well-being of all participants throughout the testing process.

The gathered data were analyzed using SPSS software. The researcher ensured that all physiological measurements and survey responses were properly scored and assigned their respective verbal interpretations for each indicator. After the physical testing and survey administration, the raw results from the PPFT, specifically scores for BMI, cardiovascular endurance, muscular strength and endurance, flexibility, agility, speed, balance, power, reaction time, and coordination, were systematically recorded. These results, along with the responses from the retrieved questionnaires, were collated, scored, and entered into a master data sheet. The researcher carefully encoded and cross-checked the responses of each respondent to ensure the integrity and alignment of the data with its corresponding analysis.

The statistical tools used to analyze and interpret the gathered data included frequency and percentage, mean, and standard deviation. Frequency and percentage were used to describe the demographic profile of the Arnis athletes, including their age, sex, weight category, years of playing, and highest level of competition reached, which helped in determining the distribution of participants across different categories. The mean was used to determine the level of physiological aspects such as BMI, speed, and power, as well as the level of training strategies before, during, and after competition. Mean scores were interpreted using a predetermined scale to categorize the athletes' fitness levels and the nature of their training strategies. The standard deviation (SD) was used alongside the mean to determine the homogeneity or dispersion of scores within the physiological tests. A low SD indicates that the athletes' physical fitness levels are close to the mean, while a high SD indicates a wide variance in physical capabilities.

To interpret the numerical data derived from the training strategy questionnaire, a five-point response scale was applied. A mean range of 4.21 to 5.00 corresponded to a score of 5 and carried the verbal description of "Almost Always," indicating that the strategy is utilized in every instance. A mean range of 3.41 to 4.20 corresponded to a score of 4 and was described as "Often," indicating that the strategy is utilized most of the time. A mean range of 2.61 to 3.40 corresponded to a score of 3 and was described as "Sometimes," indicating that the strategy is utilized occasionally. A mean range of 1.81 to 2.60 corresponded to a score of 2 and was described as "Seldom," indicating that the strategy is seldom utilized. A mean range of 1.00 to 1.80 corresponded to a score of 1 and was described as "Almost Never," indicating that the strategy is not utilized at all.

For the interpretation of numerical data retrieved from the physical fitness tests under the PPFT, a separate five-point scale based on the Department of Education's PPFT norms was applied. A mean range of 4.21 to 5.00 corresponded to a score of 5 with the verbal description of "Outstanding," indicating that the athlete possesses superior physiological capability for the specific component. A mean range of 3.41 to 4.20 corresponded to a score of 4 described as "Very Satisfactory," indicating that the athlete is well above the average physical requirement for Arnis. A mean range of 2.61 to 3.40 corresponded to a score of 3 described as "Satisfactory," indicating that the athlete meets the standard physiological requirements for the sport. A mean range of 1.81 to 2.60 corresponded to a score of 2 described as "Fair," indicating that the athlete

possesses the minimum required physical condition. Finally, a mean range of 1.00 to 1.80 corresponded to a score of 1 described as "Needs Improvement," indicating that the athlete requires focused conditioning to reach competitive standards.

RESULTS AND DISCUSSION

This chapter presents the analysis and interpretation of data gathered from 52 Arnis athletes purposively selected from five secondary schools in the Division of Capiz for the academic year 2025 to 2026. The study employed a quantitative descriptive research design utilizing two primary data collection instruments: the standardized Philippine Physical Fitness Test (PPFT) and a researcher-made questionnaire with a computed Cronbach Alpha reliability coefficient of 0.959. Statistical tools applied in the analysis included frequency, percentage, mean, and standard deviation. The results are organized and interpreted in direct relation to the research objectives, addressing the physiological profiles of athletes when classified according to age, sex, weight category, years of playing experience, and level of competition, as well as the training strategies employed by their coaches across pre-competition, during-competition, and post-competition phases. The discussion is grounded entirely in the data gathered and is further contextualized through relevant scholarly literature to support and deepen interpretive understanding.

Physiological aspects of Arnis athletes when classified according to age

The physiological profiles of the 52 Arnis athletes exhibited meaningful patterns across age groups, reflecting the influence of biological maturation and developmental stage on sport-specific fitness components. In terms of body composition, the overall mean of 18.74 fell within the Normal classification. When disaggregated by age, athletes aged 19 years and above recorded the highest mean of 25.60, followed by the 13 to 15 age group with 18.99, the 16 to 18 group with 18.27, and the 10 to 12 group with the lowest mean of 17.67, all of which were classified as Normal. While these values generally reflected appropriate body composition for athletic participation, the relatively elevated mean among the oldest age group warrants closer monitoring in relation to optimal performance standards.

Cardiovascular endurance yielded an overall mean of 87.83, classified as Good. Notably, the youngest athletes aged 10 to 12 recorded the highest mean of 92.50, followed by the 13 to 15 group at 89.83, the 19 and above group at 85.00, and the 16 to 18 group at 82.63. This pattern of superior aerobic capacity among the youngest athletes is consistent with the aerobic adaptability reported by Koral et al. (2018), suggesting that early athletic development establishes a strong physiological engine in younger Arnis practitioners. Muscular endurance demonstrated an overall mean of 50.33, classified as Excellent. The 16 to 18 age group recorded the highest mean of 54.56, followed by the 13 to 15 group at 52.10, the 19 and above group at 40.00, and the 10 to 12 group at 32.17, indicating that mid-adolescent athletes show the most developed muscular endurance, a finding relevant to the sustained striking and defensive demands of Arnis competition.

Muscular strength yielded an overall mean of 16.52, classified as Fair, with the 19 and above group recording the highest mean of 20.00, followed by the 16 to 18 group at 19.38, the 13 to 15 group at 15.76, and the 10 to 12 group at 12.00. The progressive increase in muscular strength across age groups confirms that this component continues to develop with biological maturation, although even the oldest group has not yet reached a Good classification. Flexibility recorded an overall mean of 50.25, classified as Very Good, with the 16 to 18 group leading at 52.25, followed by the 13 to 15 group at 51.93, the 19 and above group at 46.00, and the 10 to 12 group at 37.50. Balance, rated Very Good with an overall mean of 78.19, similarly

increased with age, with the 19 and above group recording the highest mean of 113.00, followed by the 16 to 18 group at 99.63, the 13 to 15 group at 72.21, and the 10 to 12 group at 44.17.

Speed recorded an overall mean of 6.1575, classified as Good. The 16 to 18 group showed the highest speed mean at 6.4644, followed by the 10 to 12 group at 6.9283, the 13 to 15 group at 5.9007, and the 19 and above group at the lowest mean of 4.0700. Power yielded an overall mean of 166.48, classified as Very Good, with the 16 to 18 group recording 174.00, the 13 to 15 group at 171.83, and the 10 to 12 group at 128.33. Agility showed an overall mean of 6.7350, classified as Very Good, with the 10 to 12 group recording the highest mean of 11.3833, while the 13 to 15, 16 to 18, and 19 and above groups recorded means of 6.3562, 5.7681, and 5.3000, respectively, indicating that agility efficiency improves with age. Reaction time showed an overall mean of 7.40, classified as Very Good, with the 19 and above group recording the highest mean of 9.00, followed by the 16 to 18 group at 7.75, the 13 to 15 group at 7.38, and the 10 to 12 group at 6.33. Coordination recorded an overall mean of 18.92, classified as Fair, with the 16 to 18 group recording the highest mean of 22.25, followed by the 13 to 15 group at 18.83, the 19 and above group at 16.00, and the 10 to 12 group at 11.00.

Taken together, these findings suggest that Arnis training should be age-specific, with younger athletes benefiting from a focus on technique, coordination, and gradual strength development, while older athletes require more advanced strength, power, and sport-specific conditioning. Progressive and age-appropriate training regimens are essential for promoting balanced development, performance enhancement, and long-term athlete growth. These findings align with Origua et al. (2018) and Lobo (2025), who proposed that long-term martial arts exercise improved body control and structural mass.

Physiological aspects of Arnis athletes when classified according to sex

When the physiological profiles of athletes were examined according to sex, a nuanced pattern of differential performance emerged across fitness components. Body composition recorded an overall mean of 18.7448, classified as Normal, with female athletes averaging slightly higher at 18.91 compared to male athletes at 18.57. Cardiovascular endurance yielded an overall mean of 87.83, classified as Good, with male athletes averaging 90.32 and female athletes at 85.52, indicating that both sexes maintained adequate aerobic capacity, though male athletes performed marginally better in this component. Muscular endurance showed an overall mean of 50.33, classified as Excellent, with male athletes recording 52.96 and female athletes 47.89. Muscular strength yielded an overall mean of 16.52, classified as Fair, with male athletes averaging 17.48 and female athletes 15.63, indicating that both groups are still developing this component with male athletes demonstrating slightly higher values.

Flexibility yielded an overall mean of 50.25, classified as Very Good, with male athletes averaging 51.92 and female athletes 48.70, indicating that both sexes possessed adequate flexibility for executing Arnis techniques. Balance showed an overall mean of 78.19, classified as Very Good, with female athletes recording a higher mean of 79.89 compared to male athletes at 76.36. Speed recorded an overall mean of 6.1575, classified as Good, with male athletes at 6.23 and female athletes at 6.09, indicating that both sexes demonstrated comparable speed attributes essential to Arnis performance. Power yielded an overall mean of 166.48, classified as Very Good, with male athletes averaging 174.44 and female athletes 159.11, suggesting stronger explosive capacity among male athletes. Agility recorded an overall mean of 6.74, classified as Very Good, with female athletes demonstrating a higher mean of 7.06 compared to male athletes at 6.39, suggesting that female athletes in the sample exhibited

relatively better agility performance. Reaction time showed an overall mean of 7.40, classified as Very Good, with female athletes recording a slightly higher mean of 7.44 compared to male athletes at 7.36, indicating that both groups exhibited strong performance with a marginal advantage among female athletes. Coordination yielded an overall mean of 18.92, classified as Fair, with female athletes averaging 19.74 and male athletes 18.04, indicating that female athletes demonstrated a slight advantage in this component despite both groups remaining within the Fair classification.

These findings collectively imply that Arnis training should be tailored according to sex to address specific physiological strengths and developmental needs. Male athletes, who performed better in cardiovascular endurance, muscular endurance, muscular strength, speed, and power, should focus on further improving coordination, balance, and reaction time. Female athletes, who demonstrated superior balance, agility, reaction time, and coordination, should prioritize developing muscular strength, endurance, and power to achieve more comprehensive competitive readiness. The results conform to Lee et al. (2019), who emphasized the benefits of consistent training in combat sports, and are consistent with Pérez et al. (2017) and Koral et al. (2018) with respect to Good to Very Good levels of cardiovascular endurance, speed, and power. The Excellent muscular endurance observed in both sexes aligns with Dela Cruz et al. (2016), while the superior performance of female athletes in balance, agility, reaction time, and coordination supports Sarabia's (2017) assertion regarding the sport's reliance on mental agility, strategic movement, and rapid neural pathways. The Fair classification observed in both sexes for muscular strength and coordination is consistent with Gonzales (2015) and Peralta (2025), indicating persistent gaps in current training methods.

Physiological aspects of Arnis athletes when classified according to weight category

Physiological performance across weight categories, consisting of Pin with 33 athletes, Fly with 10, Feather with 3, Bantam with 4, and Heavy with 2, revealed a complex pattern of strengths and areas requiring development. Body composition across weight categories yielded means of 17.6803 for Pin, 18.9300 for Fly, 23.4367 for Feather, 20.4775 for Bantam, and 24.8800 for Heavy, producing an overall mean of 18.7448, classified as Normal. This indicated that athletes across all weight divisions generally maintained appropriate body mass relative to their respective categories. Cardiovascular endurance means of 89.94 for Pin, 78.60 for Fly, 99.00 for Feather, 85.75 for Bantam, and 86.50 for Heavy produced an overall mean of 87.83, classified as Good, indicating consistent heart and lung efficiency across all divisions. Muscular endurance yielded means of 48.73 for Pin, 57.50 for Fly, 43.33 for Feather, 53.50 for Bantam, and 45.00 for Heavy, with an overall mean of 50.33, classified as Excellent.

Muscular strength yielded means of 15.00 for Pin, 23.70 for Fly, 15.00 for Feather, 10.25 for Bantam, and 20.50 for Heavy, resulting in an overall mean of 16.52, classified as Fair. This indicated that while Fly and Heavy categories demonstrated relatively higher strength values, overall muscular strength remained moderate across weight divisions and warrants further development. Flexibility yielded means of 49.06 for Pin, 53.60 for Fly, 51.00 for Feather, 54.75 for Bantam, and 43.00 for Heavy, with an overall mean of 50.25, classified as Very Good. Balance produced means of 70.61 for Pin, 94.80 for Fly, 85.00 for Feather, 74.75 for Bantam, and 117.00 for Heavy, with an overall mean of 78.19, also classified as Very Good, suggesting well-developed movement control and stability essential for effective Arnis performance and injury prevention.

Speed recorded means of 6.1197 for Pin, 6.2030 for Fly, 6.1200 for Feather, 6.8450 for Bantam, and 5.2350 for Heavy, yielding an overall mean of 6.1575, classified as Good. Power showed means of 167.00 for Pin, 172.40 for Fly, 147.67 for Feather, 167.25 for Bantam, and 155.00 for Heavy, with an overall mean of 166.48, classified as Very Good, indicating strong

explosive capabilities particularly in the Fly and Pin categories. Agility yielded means of 7.3382 for Pin, 4.9980 for Fly, 8.9333 for Feather, 5.5625 for Bantam, and 4.5150 for Heavy, with an overall mean of 6.7350, classified as Very Good. Reaction time showed means of 8.00 for Pin, 6.30 for Fly, 11.00 for Feather, 3.75 for Bantam, and 5.00 for Heavy, with an overall mean of 7.40, classified as Very Good. Coordination recorded means of 17.79 for Pin, 23.00 for Fly, 21.00 for Feather, 12.50 for Bantam, and 27.00 for Heavy, yielding an overall mean of 18.92, classified as Fair, indicating that while athletes excelled in speed-related and reactive components, coordination remained an area requiring further development.

These findings imply that Arnis training programs should be adjusted according to weight categories. Lighter weight classes such as Pin and Fly, which demonstrated good endurance, speed, and agility, should maintain quickness and stamina while gradually improving muscular strength to enhance striking power. Heavier weight categories, which showed higher body mass and strength but lower relative speed and agility, require training that emphasizes movement efficiency, agility, and cardiovascular endurance. The findings confirmed the holistic fitness profile developed through Arnis training, as supported by Sanchez et al. (2020), and are consistent with Januszko and Lange (2021), who noted that appropriate weight control was essential for sustaining muscular strength and endurance across competitive divisions.

Physiological aspects of Arnis athletes when classified according to years in playing Arnis

Physiological data organized by years of playing experience, encompassing less than 1 year with 18 athletes, 1 to 3 years with 16 athletes, 4 to 6 years with 10 athletes, and 7 years and above with 8 athletes, revealed a consistent pattern of improvement across most fitness components as experience increased. Body composition means of 18.4922, 18.2325, 19.6920, and 19.1538 for the four experience groups respectively yielded an overall mean of 18.7448, classified as Normal, indicating that athletes maintained appropriate body composition regardless of their level of experience. Cardiovascular endurance means of 93.94, 89.63, 81.80, and 78.00 across the four groups produced an overall mean of 87.83, classified as Good, suggesting that all athletes regardless of experience sustained adequate cardiovascular fitness, though a slight decline was noted with increasing years of experience, likely reflecting a shift in training emphasis toward strength and power components at more advanced stages.

Muscular endurance means of 41.39, 56.44, 55.30, and 52.00 yielded an overall mean of 50.33, classified as Excellent, while muscular strength means of 11.00, 15.50, 22.70, and 23.25 produced an overall mean of 16.52, classified as Fair. The progressive increase in muscular strength across experience groups clearly demonstrated that longer engagement in Arnis training contributed to greater strength development, although even the most experienced group remained within a Good to Fair classification depending on comparison. Flexibility means of 43.94, 50.19, 58.50, and 54.25 yielded an overall mean of 50.25, classified as Very Good, with values increasing alongside greater experience, confirming that sustained practice enhanced joint mobility and range of motion. Balance scores of 53.33, 81.00, 97.60, and 104.25 across the four groups produced an overall mean of 78.19, classified as Very Good, with a clear upward trend demonstrating that balance improved meaningfully with accumulated experience.

Speed means of 6.6211, 6.6069, 5.0860, and 5.5550 yielded an overall mean of 6.1575, classified as Good. Power means of 142.61, 193.25, 213.60, and 205.88 produced an overall mean of 166.48, classified as Very Good, with a clear increase in explosive power corresponding to greater years of experience. Agility means of 10.0583, 5.0331, 5.3240, and 4.4250 and reaction time means of 9.72, 6.63, 6.40, and 5.00 across the four experience groups,

all classified as Very Good, demonstrated that both agility and reaction time efficiency improved with more experience, as lower scores in these timed measures reflect faster and more efficient performance. Coordination showed the most striking improvement across experience groups, with means of 11.83, 22.00, 25.60, and 31.75 yielding an overall mean of 18.92, classified as Fair, yet exhibiting a pronounced upward trajectory that confirmed sustained engagement in Arnis produced significant gains in neuromuscular coordination over time.

These findings imply that training programs should be differentiated by experience level, with beginners focusing on foundational skills, technique, and basic strength, intermediate athletes receiving more structured progressive training, and advanced athletes pursuing performance optimization, precision, and tactical development. The results supported Sanchez et al. (2020) and Villanueva (2019), who emphasized that continuous and structured Arnis practice enhanced both physical fitness and skill-related abilities over time. The improvements in coordination, balance, and reaction time aligned with Santos (2017) and Garcia et al. (2014), who established that repeated practice enhanced motor skills and neuromuscular efficiency. These outcomes further reflect the findings of Dela Cruz et al. (2016) and Lee et al. (2021), who emphasized that long-term training produced significant physiological and neuromuscular development, and are consistent with Sanchez (2018), who noted a direct relationship between years of experience and improved physiological efficiency and economy of movement.

Level of competition participated by the Arnis athletes and their level of physiological aspects

The distribution of athletes across levels of competition revealed a markedly stratified landscape characterized by a strong funneling effect as athletes progressed up the competitive ladder. At the Unit Meet level, the largest concentration of athletes was observed, comprising 59.6% of the study sample. These athletes demonstrated strong foundational physiological capabilities, with cardiovascular endurance peaking at this level with a mean of 94.13%, classified as Good, indicating that grassroots training heavily emphasized broad aerobic conditioning. However, power and strength at this level remained comparatively lower than those at higher competitive tiers. These findings are consistent with Villanueva (2019), who noted that while grassroots Arnis training effectively promotes general fitness and basic mechanics, it often lacks the targeted high-intensity specificity required for athletes to advance beyond local brackets.

At the Division Meet level, athlete representation declined sharply to 19.2%, signaling an immediate structural and performance bottleneck. Athletes at this tier demonstrated clear physiological adaptations, with body composition averaging a mean of 19.70%, classified as Normal, and muscular endurance reaching an Excellent classification with a mean of 53.30%, reflecting the development of specific physical resilience required for the escalating intensity of division-level competition. The Provincial Meet level represented the most pronounced bottleneck in the study, retaining only 1.9% of the surveyed athletes. Due to the highly restricted representation at this tier, statistical means exhibited sharp fluctuation, with body composition registering an isolated mean of 7.40%, classified as Normal, and flexibility remaining strong at 52.00%, classified as Very Good. This dramatic attrition at the provincial level implies a significant developmental gap between intermediate and regional competition, consistent with Chaabène and Tabben (2019), who emphasized that combat sports progression depends on systematic and progressive training pathways.

Athletes who advanced to the Regional Meet level accounted for 11.5% of the sample and demonstrated superior physiological markers reflective of the explosive and skill-driven demands of advanced competition. Muscular strength at this level achieved the highest overall average of 23.33%, classified as Good, while flexibility soared to 61.17%, classified as

Excellent, and power reached 208.00%, also classified as Excellent. These values indicate that regional-level competition selects for athletes capable of generating maximal force rapidly while maintaining wide dynamic joint ranges, supporting the conclusions of Dela Cruz et al. (2016) and Lee et al. (2021), who argued that long-term high-intensity conditioning yields significant neuromuscular adaptations. At the National Meet, the elite 7.7% of athletes displayed the most specialized physiological adaptations. Muscular power reached its absolute peak with a mean of 230.25%, classified as Excellent, while flexibility remained at 61.50%, classified as Excellent. Coordination, which remained at a Fair classification across lower competitive tiers, increased substantially to 38.50%, classified as Very Good, among national-level athletes. Agility means of 4.42% at this level were classified as Excellent, and reaction time means of 5.00% were classified as Very Good. Conversely, cardiovascular endurance reached its lowest recorded mean of 66.00%, classified as Good, at the national tier, reflecting an evolutionary shift in training priority toward explosive speed, rapid reaction, and maximum striking power rather than prolonged aerobic output. Agility means for Unit Meet and Division Meet athletes were 7.91, classified as Very Good, and 5.09, classified as Excellent, respectively, while coordination means of 13.71, classified as Fair, and 21.00, classified as Fair, similarly demonstrated progressive improvement alongside competitive advancement.

These findings collectively imply that while many Arnis athletes actively participate at grassroots levels, only a small fraction progress to higher levels of competition, pointing to significant gaps in training, preparation, and athlete development infrastructure. The data suggest that current programs may be oriented more toward participation than performance advancement, and that a more structured and progressive development approach incorporating improved coaching strategies, sport-specific training, access to advanced equipment, increased exposure to high-level competition, and mentorship from elite athletes is essential to bridge the gap between local participation and national-level performance in Arnis.

Training strategies utilized by the Arnis coaches across competition phases

The training strategies of Arnis coaches were assessed across three phases of competition, namely pre-competition, during-competition, and post-competition, and the results consistently reflected an Outstanding level of implementation throughout all phases. The grand mean across all categories was 4.38 (SD = 0.4460), interpreted as Outstanding, indicating that coaches demonstrated a strong, well-structured, and phase-based coaching approach. Post-competition coaching strategies recorded the highest mean of 4.40 (SD = 0.4056), during-competition strategies yielded a mean of 4.38 (SD = 0.5272), and pre-competition strategies recorded a mean of 4.37 (SD = 0.4053), all of which fell under the Outstanding classification. The slightly elevated standard deviation during competition suggested that coaches employed variable and adaptive strategies in response to situational demands during matches. These findings are consistent with the Periodization Theory proposed by Matveyev (1964), as they demonstrated that training strategies were effectively applied across distinct competitive phases in a well-organized manner, and with Gonzales (2019), who highlighted the importance of tactical and scenario-based coaching.

Pre-competition training strategies, which recorded a grand mean of 4.37 (SD = 0.4053), revealed that coaches provided highly effective preparation across physical conditioning, technical and tactical preparation, and mental and psychological readiness. Within physical conditioning, the highest-rated item was the provision of exercises to enhance muscular endurance in key muscle groups used for striking, blocking, and footwork during matches, with a mean of 4.67 (SD = 0.550), classified as Outstanding. Conditioning programs

incorporating agility drills and reaction time development received means of 4.52 (SD = 0.641) and 4.52 (SD = 0.610) respectively, both Outstanding, while overall physical conditioning yielded a subcategory mean of 4.473 (SD = 0.4411), Outstanding. Nutritional guidance and hydration strategies recorded the comparatively lower mean of 4.12 (SD = 0.808), classified as Very Satisfactory, indicating this area received less emphasis and may require further attention. Technical and tactical preparation yielded a subcategory mean of 4.365 (SD = 0.4990), Outstanding, with coaches engaging athletes in competition-specific sparring sessions at a mean of 4.40 (SD = 0.774), opponent analysis at 4.48 (SD = 0.754), multi-strategy practice at 4.37 (SD = 0.793), offense-to-defense transition drills at 4.27 (SD = 0.819), and mastery of legal target areas at 4.31 (SD = 0.755), all Outstanding. Mental and psychological preparation yielded a subcategory mean of 4.296 (SD = 0.5064), Outstanding, with sportsmanship and respect education receiving the highest rating at 4.62 (SD = 0.718), Outstanding, while strategies for managing pre-competition anxiety at 4.17 (SD = 0.857), building confidence at 4.17 (SD = 0.810), and maintaining focus at 4.19 (SD = 0.886) were classified as Very Satisfactory, indicating these areas were present but less consistently reinforced. These results supported Sanchez (2018), Gonzales (2019), and Lim (2017), who collectively emphasized structured preparation, continuous tactical learning, and psychological support as essential elements of effective Arnis coaching.

During-competition coaching strategies, which recorded a grand mean of 4.38 (SD = 0.5272), reflected a high level of organizational and responsive coaching during both pre-match preparation and active match management. The pre-match and warm-up subcategory yielded a mean of 4.404 (SD = 0.6586), Outstanding, with clear communication regarding competition schedules and ring assignments receiving the highest mean of 4.58 (SD = 0.667), followed by equipment checks at 4.44 (SD = 0.958) and final tactical instructions at 4.44 (SD = 0.752), all Outstanding. Managing immediate pre-match anxiety yielded a slightly lower mean of 4.15 (SD = 1.017), classified as Very Satisfactory, suggesting this area warranted more individualized attention. The during-match subcategory recorded a mean of 4.373 (SD = 0.4786), Outstanding, with helping athletes remain calm under pressure receiving the highest mean of 4.52 (SD = 0.727), followed by encouraging proper breathing and mental reset between rounds at 4.46 (SD = 0.699), identifying scoring opportunities at 4.37 (SD = 0.841), providing clear sideline instructions at 4.29 (SD = 0.776), and adapting strategies based on match dynamics at 4.23 (SD = 0.675), all Outstanding. These results supported Santos (2018), Gonzales (2019), Lim (2017), and Cruz (2022), who collectively affirmed that effective competition-phase coaching integrates scenario-based preparation, clear tactical communication, psychological conditioning, and rapid real-time decision support.

Post-competition coaching strategies, which recorded a grand mean of 4.38 (SD = 0.4460), Outstanding, demonstrated a comprehensive and development-oriented coaching approach extending beyond match outcomes. The immediate post-match subcategory yielded a mean of 4.412 (SD = 0.4760), Outstanding, with coaches focusing initial discussions on effort, learning, and character rather than solely on outcomes at a mean of 4.48 (SD = 0.671), providing emotional processing support at 4.46 (SD = 0.641), immediate physical recovery guidance at 4.42 (SD = 0.825), supportive immediate feedback at 4.42 (SD = 0.696), and preliminary performance assessment at 4.27 (SD = 0.717), all Outstanding. Performance analysis and debriefing yielded a subcategory mean of 4.404 (SD = 0.4437), Outstanding, with athlete reflection on lessons from both success and failure receiving the highest mean of 4.58 (SD = 0.723), evaluation of pre-competition strategies at 4.50 (SD = 0.780), athlete involvement in identifying future training priorities at 4.48 (SD = 0.542), review of strengths and weaknesses at 4.27 (SD = 0.910), all Outstanding, while video-based analysis received a comparatively lower mean of 4.19 (SD = 0.817), classified as Very Satisfactory. Future planning and development yielded a subcategory mean of 4.385 (SD = 0.5471), Outstanding,

encompassing revised training plans at 4.31 (SD = 0.875), specific improvement drills at 4.46 (SD = 0.699), long-term development mindset reinforcement at 4.40 (SD = 0.693), physical and mental condition assessment for recovery planning at 4.33 (SD = 1.004), and strategic adaptation discussions at 4.42 (SD = 0.776), all Outstanding. These findings supported Gonzales (2019), Dela Cruz (2016), Barrogo (2014), and Lim (2017), who collectively emphasized that effective post-competition coaching must integrate structured performance evaluation, systematic feedback, motivational development, and psychological recovery support to ensure holistic athlete growth.

Proposed program of activities to improve Arnis training strategies

The findings of the study identified specific gaps in both physiological and coaching strategy domains that necessitated the formulation of a structured evidence-based program of activities. While the overall physiological profiles of athletes were rated Good to Very Good across most components, muscular strength and coordination consistently fell within the Fair classification. Similarly, while coaching strategies across all phases were rated Outstanding, specific items related to nutritional guidance, anxiety management, tactical adjustment, and video-based analysis received comparatively lower ratings within the Very Satisfactory range. To systematically address these deficiencies, a comprehensive and tiered program of activities was formulated integrating physical, psychological, tactical, and evaluative components.

The program proposed a Progressive Strength Development Program involving resistance training, body weight circuits, core training, and strength cycles, implemented by coaches, a strength and conditioning trainer, and athletes at a frequency of 3 to 4 times per week during off-season and pre-season periods, targeting upper and lower body power essential for striking, blocking, and stability in Arnis. Coordination Enhancement Drills, incorporating ladder drills, reaction ball drills, partner stick drills, and combination strike sequences, were proposed for inclusion at least 2 to 3 times per week to address neuromuscular control and timing. A Sports Nutrition and Hydration Seminar, facilitated by a nutritionist in collaboration with coaches and athletes on a quarterly basis, was proposed to address the limited emphasis on dietary awareness and hydration strategies. A Mental Skills Training Workshop incorporating visualization, breathing techniques, stress management, and positive self-talk, facilitated by a sports psychologist and coaches on a monthly basis, was proposed to strengthen pre-competition psychological readiness and anxiety management. Tactical Simulation and Game Adjustment Sessions were proposed on a bi-weekly basis to enhance strategic flexibility and real-time decision-making. A Video Analysis and Performance Review Program was proposed to be implemented after every major competition to provide structured feedback on strengths, weaknesses, and tactical errors. Finally, a Tier-Based Athlete Development Plan covering Unit, Division, Regional, and National levels was proposed as a year-round structured program administered by coaches and school administrators to progressively develop strength, power, coordination, and competitive readiness in alignment with the developmental demands of each competitive tier.

These programmatic recommendations are supported by Moore (2020), who emphasized that psychological skills training improves athlete performance stability; by Origua (2018), who demonstrated that martial arts practice enhances coordination, balance, and cognitive function; by Januszko (2021), who highlighted the importance of nutrition and weight management for athletic performance; and by Cruz (2022), who affirmed that video analysis and tactical simulation are essential for enhancing strategic decision-making and competitive adaptability.

Taken together, the findings of this study presented a coherent and evidence-grounded portrait of Arnis athlete performance and coaching effectiveness in the Division of Capiz. Physiologically, athletes demonstrated commendable profiles across most fitness components, with particularly strong performance in muscular endurance, flexibility, balance, power, agility, and reaction time, while muscular strength and coordination were consistently identified as areas requiring targeted intervention across all classification variables. Coaching strategies across pre-competition, during-competition, and post-competition phases were uniformly rated as Outstanding, affirming that Arnis coaches in the division applied a structured, responsive, and phase-based approach to athlete preparation and development. The convergence of these findings directly addressed the research objectives and provided a substantive empirical foundation for formulating the proposed program of activities, which sought to bridge identified physiological and strategic gaps through an integrated, evidence-based, and tiered development framework. These results contribute meaningfully to the existing body of knowledge on Filipino martial arts, sport-specific coaching, and physical education by offering locally contextualized, data-driven insights that support the advancement of Arnis as both a competitive discipline and a vehicle for long-term athlete development. The conclusions drawn from this chapter provide the basis for the recommendations and programmatic proposals presented in the succeeding chapter of this manuscript.

CONCLUSION

This study examined the physiological aspects and training strategies of 52 Arnis athletes from selected secondary schools in the Division of Capiz for the academic year 2025 to 2026. The participants, most of whom were aged 13 to 15 years with a slightly higher number of female athletes compared to males, predominantly belonged to the Pin weight division, had less than one year of playing experience, and competed primarily at the Unit Meet level. These demographic characteristics provided the contextual foundation upon which the physiological and coaching dimensions of the study were analyzed and interpreted.

The overall physiological profiles of the athletes reflected a generally favorable level of physical readiness. Cardiovascular endurance, flexibility, balance, agility, speed, power, and reaction time were consistently rated from Good to Very Good across the various classification variables, while muscular endurance was notably rated as Excellent. These results affirm that current Arnis training programs are effective in developing the essential fitness components required for competitive performance. However, muscular strength and coordination were persistently rated as Fair across all groupings, regardless of age, sex, weight category, years of playing experience, or competition level. This consistent pattern across all classification variables signals a structural gap in existing training methods and underscores the necessity of more focused, targeted, and evidence-based interventions specifically designed to develop these two components toward balanced physical readiness.

Physiological performance was found to be meaningfully influenced by age, with older athletes demonstrating advantages in muscular strength, balance, and power. Younger athletes, particularly those in the 10 to 12 age group, exhibited superior cardiovascular endurance, consistent with the aerobic adaptability characteristic of early athletic development. These findings confirm that physiological maturation and sustained training exposure contribute incrementally to fitness development and that training programs for Arnis must be age-differentiated to address the developmental needs appropriate to each stage of athletic growth. Similarly, when athletes were grouped according to sex, both male and female athletes demonstrated broadly comparable physiological profiles, with males exhibiting slightly higher muscular strength and power and females demonstrating slight advantages in balance, agility, coordination, and reaction time. These differences imply that training programs must be sex-

sensitive to ensure well-rounded development across all fitness dimensions rather than applying uniform approaches that may leave specific physiological gaps unaddressed for either group.

Across weight categories, athletes showed comparable physiological trends, with most components rated Good to Very Good and muscular endurance rated Excellent. Nevertheless, muscular strength and coordination remained at the Fair level across all weight divisions, reinforcing the conclusion that these areas represent a pervasive developmental gap not adequately addressed by current training protocols regardless of body mass or competitive division. The findings related to years of playing experience revealed a consistent and progressive improvement across most fitness components as experience increased, with muscular strength, balance, power, and coordination showing the most pronounced gains among athletes with longer engagement in Arnis. This trajectory confirms that continuous and structured training is essential for long-term athletic development and that training programs should be progressively designed to match the evolving physiological capacities of athletes at each stage of their competitive journey.

The analysis of athlete distribution across levels of competition revealed a marked funneling effect, with 59.6% of athletes competing only at the Unit Meet level and progressively fewer athletes advancing to Division, Provincial, Regional, and National levels at 19.2%, 1.9%, 11.5%, and 7.7% respectively. Athletes at higher competitive tiers demonstrated superior physiological profiles, particularly in muscular strength, power, flexibility, and coordination, while national-level athletes displayed the highest power mean of 230.25 and a Very Good coordination rating, contrasting with Fair coordination levels at lower tiers. This stratification implies that current athlete development pathways are insufficiently structured to facilitate broad progression beyond grassroots competition, and that the absence of targeted support systems, specialized coaching, and progressive competition exposure is a significant limiting factor in producing regionally and nationally competitive Arnis athletes.

Coaching strategies across all phases of training were rated as Outstanding, with a grand mean of 4.38 and a standard deviation of 0.4460 across pre-competition, during-competition, and post-competition categories. Pre-competition strategies yielded a mean of 4.37 (SD = 0.4053), with particular strengths in physical conditioning and technical and tactical preparation, while nutritional guidance at a mean of 4.12 (SD = 0.808) and psychological preparation components related to anxiety management and confidence building at means of 4.17 (SD = 0.857) and 4.17 (SD = 0.810) respectively were rated Very Satisfactory, indicating areas that require further reinforcement. During-competition coaching yielded a mean of 4.38 (SD = 0.5272), with coaches demonstrating strong organizational and real-time responsive capacities, though management of immediate pre-match anxiety at 4.15 (SD = 1.017) warranted additional attention. Post-competition coaching strategies recorded the highest mean of 4.40 (SD = 0.4056), reflecting a strong emphasis on athlete reflection, emotional recovery, and future planning, with video-based performance analysis at 4.19 (SD = 0.817) identified as an area for enhancement. These findings affirm that Arnis coaches in the Division of Capiz apply a well-structured, phase-based approach to athlete development, consistent with the principles of periodization and evidence-based coaching, while also indicating that specific refinements in nutritional guidance, psychological preparation, tactical flexibility, and systematic performance analysis are necessary to further optimize coaching effectiveness.

Based on the totality of the findings, a comprehensive program of activities was formulated to address the specific physiological and coaching gaps identified in the study. This program encompassed a Progressive Strength Development Program implemented three to four times per week during off-season and pre-season periods, Coordination Enhancement Drills

incorporated at least two to three times weekly into regular training, a Sports Nutrition and Hydration Seminar conducted quarterly, a Mental Skills Training Workshop held monthly, Tactical Simulation and Game Adjustment Sessions conducted bi-weekly, a Video Analysis and Performance Review Program implemented after every major competition, and a Tier-Based Athlete Development Plan structured as a year-round program spanning Unit, Division, Regional, and National competitive levels. These interventions were designed to be integrated, progressive, and contextually responsive to the needs of Arnis athletes at all stages of their development.

The recommendations derived from this study are addressed to a broad range of stakeholders. Athletes are encouraged to commit to disciplined participation in specialized training programs that target muscular strength and coordination, to prioritize nutrition, hydration, and mental preparation, and to utilize video analysis and coaching feedback as tools for continuous self-improvement. Coaches are encouraged to incorporate strength exercises, performance data analysis, and psychological support into their training practices, and to tailor their approaches to the individual needs of athletes based on physiological profiles and competition level. DepEd Sports Coordinators are encouraged to organize workshops on sports psychology and performance analysis, allocate resources for equipment and structured development programs, and establish clear athlete progression pathways across competitive tiers. Physical Education teachers are encouraged to introduce foundational Arnis-related drills in agility, balance, and injury prevention from an early stage of student development. School administrators are encouraged to support these programs through the provision of modern facilities and access to specialized professionals such as nutritionists and sports psychologists. Sports scientists and researchers are encouraged to apply interdisciplinary approaches to the analysis of physical and psychological performance factors in Arnis, while future researchers are encouraged to expand the scope of inquiry by including larger and more geographically diverse samples, conducting longitudinal observations, and examining additional variables such as injury incidence, motivational factors, and the potential relationship between Arnis participation and academic performance.

In summation, this study established that Arnis athletes in the Division of Capiz possess a generally strong physiological foundation and that their coaches demonstrate an Outstanding level of commitment to structured and phase-based training. Nevertheless, persistent gaps in muscular strength and coordination among athletes, combined with areas for improvement in nutritional guidance, psychological preparation, and systematic performance analysis in coaching practices, highlight the continuing need for evidence-based refinement of both training programs and coaching methodologies. The findings contribute meaningfully to the existing body of knowledge on Filipino martial arts, physical education, and sport-specific coaching by providing locally grounded empirical data that support the development of more targeted, progressive, and holistic approaches to Arnis athlete development. Addressing the identified gaps through the proposed program of activities and the recommendations directed at all relevant stakeholders will strengthen the foundation for producing more competitive, well-rounded, and resilient Arnis athletes while advancing the sport's role as both a competitive discipline and a vital expression of Filipino cultural heritage.

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