

A proposed enhanced resistance training program for the Special Program in Sports (SPS) Students

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Abstract

This study assessed the existing resistance training practices of Special Program in Sports (SPS) students at Basud National High School to develop an Enhanced Resistance Training Program for Grade 11 students. It evaluated the implementation level of training variables—including exercise selection, frequency, intensity, volume, rest intervals, progression, recovery, equipment, and individual factors—and analyzed perception differences between students and teachers.

The study was anchored on the Motor Learning Theory, Constructivist Learning Theory, Experiential Learning Theory, and the researcher's Learner-Centered and Contextualized Resistance Training Theory. These frameworks emphasize guided practice, experiential learning, proper skill execution, and learner-centered materials.

Findings revealed that the overall implementation of existing practices was "High" (WM = 3.44). Training progression ranked highest (WM = 3.49), followed by recovery (WM = 3.47) and frequency (WM = 3.46). Individual factors scored lowest (WM = 3.40), highlighting a need for greater personalization based on student needs and physical conditions.

Consequently, the study concluded that while practices are generally well-implemented, areas like individualized programming, fatigue monitoring, progression, and equipment availability require enhancement. To address these gaps, an Enhanced Resistance Training Program was proposed to improve safety, participation, and performance.

The study recommends continuous improvement through individualized training plans, clearer objective communication, better recovery monitoring, and structured, learner-friendly materials. School administrators, Physical Education teachers, and curriculum developers are encouraged to adopt the proposed program to foster safer, scientifically guided training.

Keywords: Resistance Training; Program In Sports; Individualized Training; Instructional Design; Physical Education

1. Introduction

Physical Education serves a vital role in developing students' physical fitness. Among its core components, resistance training is essential for improving muscular strength, endurance, posture, and injury prevention when performed correctly and safely. However, effective instruction in resistance training requires clear, structured, and appropriate learning materials to guide both teachers and students. Globally, many developing countries continue to face challenges regarding instructional resources, which limit students' understanding of correct exercise techniques and lower engagement in physical activities. Without adequate learning modules, students are more prone to improper movement execution, increasing the risk of muscle strain, overtraining, and other exercise-related injuries.

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This situation is also observed at Basud National High School, where the lack of a structured resistance-training program limits students' understanding of proper techniques and safety precautions. Furthermore, students lack sufficient equipment for resistance training, which may jeopardize both learning outcomes and safety. This local scenario embodies the broader national and global issue of insufficient learning materials in Physical Education and underscores the need for a contextualized, learner-friendly program that supports effective instruction.

The relevance of this study hits close to home for the researcher as a Special Program in Sports (SPS) teacher. As an educator directly involved in promoting students' physical fitness, athletic performance, and overall wellness, the researcher has observed the daily challenges learners face when performing resistance training without adequate instructional guidance. Many students struggle with proper exercise execution and safety precautions, which frequently lead to ineffective training practices and an increased risk of injury. These observations motivated the researcher to develop a structured, learner-friendly program tailored to address the specific learning needs of Grade 11 students.

Through this study, the researcher aims to foster safer, more effective participation in physical fitness activities while supporting the educational goals of both the school and the Department of Education. Moreover, the implementation of this resistance training program is firmly anchored in the Philippine legal framework, which recognizes Physical Education as an essential component of basic education. Republic Act No. 10533, also known as the Enhanced Basic Education Act of 2013, stresses the promotion of physical fitness and well-being as essential parts of the core curriculum. Furthermore, DepEd Order No. 13, s. 2018 provides clear policies and guidelines for implementing the K-12 Physical Education curriculum and highlights the importance of adequate instructional materials to ensure effective instruction. These legal bases justify the need to develop specialized programs that directly address resource gaps in Physical Education.

Given these circumstances, this study proposes the development of an enhanced resistance training program for SPS students at Basud National High School. The program intends to provide clear, structured, and accessible learning materials that address existing gaps in students' knowledge and daily practice of resistance training. By improving students' technical understanding and promoting safe participation in physical fitness activities, the study ultimately aims to foster lifelong health and wellness habits within the learners.

Statement of the Problem

This study aims to determine the perceived level of implementation of the resistance training program for Special Program in Sports (SPS) students at Basud National High School, Schools Division of Camarines Norte, during the School Year 2025–2026. The findings will serve as the baseline and basis for developing an enhanced resistance training program.

Specifically, it seeks answers to the following questions:

- What is the level of implementation of the resistance training program as perceived by the respondents along the following components: a. Exercise selection and order b. Frequency c. Intensity d. Volume e. Rest interval f. Progression g. Recovery h. Equipment i. Individual factors?
- Is there a significant difference in the implementation of the existing resistance training program as perceived by the two groups of respondents?
- What are the strengths and weaknesses of the existing resistance training program?
- What enhanced resistance training program can be proposed based on the findings of the study?

1.1. Hypothesis

There is no significant difference in the level of implementation of the existing resistance training program at Basud National High School as perceived by the two groups of respondents.

1.2. Scope and Delimitation

This study aims to assess the implementation of the existing resistance training program practices for Special Program in Sports (SPS) students at Basud National High School, SDO Camarines Norte, as the foundation for designing an enhanced training curriculum. Data collection was bound within the School Year 2025–2026.

The respondents were delimited to the active SPS students of Basud National High School and selected external experts specialized in instructional module validation. The investigation was confined to the existing program's level of

implementation, its strengths and weaknesses, and the structural enhancements required for a renewed curriculum. Other components of Physical Education or alternative sports specializations were excluded from this study.

2. Materials and Methods

2.1. Research Design

This study utilized a descriptive-evaluative research design, split into a descriptive assessment phase and a developmental phase. The descriptive phase assessed the current level of implementation of the existing resistance training program at Basud National High School, identifying its systemic strengths and weaknesses. The developmental phase focused on designing and constructing an enhanced resistance training program directly informed by those baseline findings. This combined approach was highly suitable because the study aimed to evaluate local physical education practices against standard sports science principles and subsequently engineer a targeted instructional intervention to bridge the identified gaps.

The descriptive phase employed a researcher-designed survey checklist consisting of items aligned with the core variables of resistance training: exercise selection and order, frequency, intensity, volume, rest intervals, progression, recovery, equipment utilization, and individual factors. This instrument quantified the perceived extent of the current program's implementation. To complement this quantitative data, qualitative insights were gathered through open-ended questionnaires administered to Physical Education teachers and selected students. This dual-method approach combining numeric scores with narrative responses provided a comprehensive, well-rounded diagnosis of the state of resistance training implementation in the school.

During the developmental phase, the data synthesized from the initial assessment served as the architectural blueprint for designing the updated curriculum. The proposed program was built to integrate scientific principles of resistance training, explicit safety protocols, structured lesson progressions, and localized coaching strategies. Crucially, the development process adopted a systematic instructional design approach to organize content, align practical tasks with national PE learning objectives, and adapt the training to the school's existing facilities and student population.

2.2. Respondents of the Study

The respondents of this study comprised ninety-three (93) students enrolled in the Special Program in Sports (SPS) and ten (10) Physical Education (PE) specialists at Basud National High School. These two distinct groups were chosen because they possessed direct, first-hand experience with the school's daily sports training and PE implementation. Their combined involvement provided a balanced evaluation, pairing the practical, ground-level insights of the learners with the pedagogical expertise of the teachers.

To ensure sample validity, the criteria for selecting the student respondents required that they were: currently enrolled under the Special Program in Sports (SPS) track at Basud National High School during the conduct of the study; exposed to prior resistance training activities as part of their academic PE or sport-specific training classes; physically cleared to participate in physical conditioning activities; and willing to participate, as evidenced by signed informed consent forms.

Conversely, the criteria for selecting the PE specialists required that they: were actively teaching Physical Education or managing sports training tracks at Basud National High School; maintained a minimum of one (1) year of active PE teaching experience; and possessed verified training or instructional experience in implementing resistance training and strength mechanics.

By gathering data from both students and specialists, the study captured the implementation challenges from both an instructional and participatory perspective, which was critical for ensuring the ELEVATE program would be relevant, practical, and highly acceptable to both groups.

2.3. Research Instrument

This study primarily utilized a researcher-constructed survey questionnaire as the main data-gathering instrument. The primary purpose of this tool was to assess the quantitative level of implementation of the existing resistance training practices and to identify their systemic strengths and weaknesses. Additionally, a standardized validation rubric was utilized by external physical education specialists to evaluate the content validity and structural acceptability of the proposed ELEVATE program. The data collected through these instruments rested entirely on the personal knowledge,

athletic experiences, and pedagogical observations of the Special Program in Sports (SPS) students and PE specialists at Basud National High School.

Survey Questionnaire. The survey questionnaire was developed by the researcher and directly anchored on the essential variables of strength and conditioning: exercise selection and order, frequency, intensity, volume, rest intervals, progression, recovery, equipment utilization, and individual factors. The instrument was divided into two distinct parts: Part I: A Likert-scale checklist designed to measure the specific level of implementation of the existing resistance training program. Part II: A separate Likert-scale checklist coupled with open-ended fields designed to identify the operational strengths and weaknesses of the current program.

Validation of the Instrument. To ensure accuracy and structural integrity, the creation of the data-gathering tools strictly followed established psychometric guidelines and parameters drawn from prior literature on youth strength conditioning and physical education resources. Before field deployment, the preliminary draft of the custom questionnaire was submitted to a panel of physical education and research specialists. These experts evaluated the items for clarity of language, contextual relevance, and alignment with the specific research objectives. The instrument was modified based on their expert feedback and was only administered to the actual respondents after securing formal validation approval.

Data Gathering Procedures. Upon receiving formal administrative approval from the school authorities and securing the necessary signed consent forms, the researcher personally administered the survey questionnaires to the SPS students and physical education specialists. To ensure data integrity, eliminate response bias, and maintain clarity, explicit structural guidelines and instructions were explained verbally to the respondents before the administration of the tool. The respondents completed the questionnaires within a designated, structured time block to ensure focus and prevent external consultation. Upon completion, all forms were immediately collected on-site by the researcher to ensure a one hundred percent retrieval rate and prevent data loss.

3. Results and Discussion

3.1. Summary of the Level of Implementation of Existing Resistance

3.1.1. Training Program

The extent of implementation refers to the degree to which various foundational training principles and conditioning modalities are systematically executed in alignment with the physical development and active participation of the learners.

Table 1 Summary of the Level of Implementation of Existing Resistance Training Practices as Perceived by Students and Teachers

Indicators	Students			Teacher			Overall		
	WM	VI	R	WM	VI	R	WM	VI	R
Exercise Selection/Order	3.19	M	9	3.68	H	3	3.42	H	6
Frequency	3.24	M	5	3.68	H	3	3.46	H	3
Intensity	3.16	M	4	3.74	H	1	3.45	H	4
Volume	3.22	M	7	3.68	H	3	3.45	H	4
Rest Interval	3.19	M	8	3.64	H	6	3.42	H	6
Progression	3.24	M	1	3.72	H	2	3.49	H	1
Recovery	3.29	M	2	3.64	H	6	3.47	H	2
Equipment	3.22	M	6	3.60	H	8	3.41	H	8
Individual Factor	3.29	M	3	3.50	H	9	3.40	H	9
Average Weighted Mean	3.23	MI		3.65	HI		3.44	HI	

A comprehensive evaluation of program implementation is critical to determine whether the prescribed athletic activities, safety procedures, and instructional methodologies are being properly adhered to and delivered to the Special Program in Sports (SPS) students. Ultimately, rigorous assessment of these structural components is mandatory to cultivate an effective, safe, and sustainable training framework that can successfully facilitate the comprehensive physiological maturation of student-athletes.

The empirical data suggests that within the Basud National High School athletic program, contemporary resistance training practices are effectively incorporated through a structured and systematized process for the student-athletes. Among all measured indicators, training progression (AWM = 3.49, Rank 1) garnered the highest statistical weight, followed sequentially by recovery protocols (AWM = 3.47, Rank 2) and training frequency (AWM = 3.46, Rank 3). This hierarchy demonstrates that macro-programmatic priorities are clearly focused on the gradual manipulation of workloads, consistent training opportunities, and deliberate rest allocation. Tied for the fourth rank were training intensity and total volume (AWM = 3.45 each), demonstrating that the baseline workloads align appropriately with standard strength and conditioning protocols.

In spite of these high cumulative scores, personal factors emerged as the lowest-rated dimension (AWM = 3.40, Rank 9) and constituted the sole categorical variable verbally interpreted within the "Moderate" range. This finding indicates that localized individualization remains a substantial barrier to optimal program delivery. Both the PE specialists and student-athletes reported that critical aspects of individualization—such as chronological age, biological maturation, personal athletic goals, and physical limitations—presented prominent programmatic bottlenecks. Additionally, equipment utilization (AWM = 3.41, Rank 8) and exercise selection/ordering (AWM = 3.42, tied for Rank 6.5 with rest intervals) also scored near the bottom of the implementation scale. While these variables technically remain within the "High" threshold, their lower rankings imply latent limitations in both material training resources and granular curriculum design.

A closer examination of the descriptive metrics reveals a stark divergence between the cohorts. While the PE specialists evaluated the overall program as highly implemented (group mean = 3.65), the student-athletes perceived it within the "Moderate" tier (group mean = 3.23). This imbalance indicates that while the curriculum is structured soundly from an instructional design perspective, the student-athletes do not actively encounter an identical training reality on the ground. Interestingly, training progression was prioritized near the top by both cohorts (student-athletes: WM = 3.24, Rank 1; PE specialists: WM = 3.72, Rank 2). However, nearly all other training categories—most notably intensity, rest intervals, and personal factors—were ranked profoundly lower by the student-athletes than by their coaches.

As posited by Lloyd and Oliver (2012)¹, an athletic training stimulus must not only be effectively implemented based on its structural design, but its physiological purpose must also be clearly understood by the athlete. In light of this framework, the perceptual gap identified between the students and faculty indicates that while the program may achieve high professional standards on paper, the literal athletic experience requires further contextual refinement. For the curriculum to mature into a truly elite model, individualized programming must be refined alongside a deliberate effort to elevate the student-athletes' comprehension of underlying training mechanics. When these foundational principles become coherent to both parties, the symbiotic alignment will ultimately enhance long-term athletic development and maximize training effectiveness.

Consequently, ascertaining whether a statistically significant difference exists between the perceptions of these two distinct respondent groups is necessary. Conducting this inferential analysis provides critical clarity regarding how both the student-athletes and the instructional faculty internalize, execute, and experience the resistance training program in practical effect.

3.2. Test of Significance Difference Implementation of the Existing Resistance Training Practices as Perceived by the Two Groups of Respondents

Testing for an existing difference between the student and teacher interpretations regarding the application of strength training methodologies provides a statistically sound verification of the empirical results. To determine whether the instructional environment is perceived identically by both cohorts, the group to whom the resistance training is administered (the student-athletes) and the group responsible for curriculum design (the PE specialists) were statistically compared. Establishing whether these two groups significantly differ in perception is critical. Any documented divergence indicates an operational disconnect in pedagogical communication or a mismatched physical experience between the program's developers and its recipients. Ultimately, identifying this perceptual variance is an essential prerequisite before any meaningful, data-driven intervention can be conceptualized and deployed.

Table 2 A Significant Difference on the Implementation of the Existing Resistance Training Practices as Perceived by the Two Groups of Respondents

Groups	N	Mean	SD	Computed t-value	p-value	Decision on H0	Interpretation
Group 1 (Students)	93	3.23	0.54	-4.045	0.00032	Reject H ₀	Significant
Group 2 (Teacher)	10	3.65	0.17				

Based on the inferential statistical analysis presented in Table 2, it is evident that the perceptions between the two respondent groups are divergent and quantifiable. The data reveals that Group 1 (student-athletes) achieved a cumulative mean score of 3.23 with a standard deviation (SD) of 0.54, corresponding to a "Moderate" verbal interpretation of program implementation. Conversely, Group 2 (PE specialists) demonstrated a significantly higher mean score of 3.65 and a narrower standard deviation (SD = 0.17), representing a "High" level of program implementation.

These descriptive statistics yield a calculated t-value of -4.045 with a corresponding p-value of 0.00032. Given that this p-value is substantially lower than the established alpha level of 0.05\$, the decision is to reject the null hypothesis (H₀). Consequently, the difference between the two cohorts is statistically highly significant. This empirical finding demonstrates that the instructional faculty and the student-athletes at Basud National High School experience highly asymmetrical training realities within the same operational environment.

Although the school coaches and administrators evaluate the resistance training curriculum as highly functional, safe, and science-based according to their instructional intent, the student-athletes perceive a significantly lower level of execution during their actual training sessions. This prominent "perception gap" indicates that the technical and safety-oriented design parameters established by the administration do not fully translate into the student-athletes' lived experiences.

This finding aligns with recent work by Bennie et al. (2021)², which suggests that structural disagreements regarding the relative merits of a training environment are frequently rooted in a lack of clear pedagogical communication and tailored feedback. Student-athletes' intrinsic motivation to perform a given exercise may degrade when they lack a fundamental comprehension of the underlying physiological mechanisms—specifically, why they must complete a precise volume of work or maintain a stimulus for a designated duration.

Therefore, to enact meaningful programmatic optimization, future interventions must deliberately target this communication deficit. Bridging this gap will enable student-athletes to internalize and trust the science-based intentions driving the curriculum. Coaches and educators must proactively instruct student-athletes regarding explicit training objectives, anticipated chronic adaptations, and the physiological rationale behind each resistance training variable, thereby empowering students to become active stakeholders in their own athletic development.

3.3. Strengths and Weaknesses of the Existing RTP

The process of diagnosing problems, concerns, and systemic issues within the current resistance training program at Basud National High School represents a deliberate progression from empirical assessment to strategic modification. This analytical diagnostic requires a comprehensive examination of the technical, instructional, and safety indicators embedded within the current curriculum. Specifically, the evaluation balances both the highly functional operational mechanisms and the underlying systemic deficits of the program. Investigating critical programming variables—such as exercise selection and ordering, training frequency, recovery protocols, safety standards, equipment logistics, and performance assessment methodologies—helps isolate the precise bottlenecks hindering the athletic development of the student-athletes. Ultimately, the conclusions derived from this assessment provide actionable data to assist coaches, teachers, and school administrators in institutional decision-making.

Table 3 Identified Strength and Weaknesses of the Existing Resistance Training Program

Indicators	Students			Teachers			Overall		
	WM	VI	R	WM	VI	R	WM	VI	R
Clear defined goals and objectives in the resistance training program.	3.26	NI	5	3.40	S	8	3.33	NI	8
Selected exercises are aligned with the intended goals.	3.15	NI	14	3.30	NI	11	3.23	NI	13
The order of exercises is organized in a logical and effective manner	3.16	NI	12	3.60	S	2	3.38	NI	4
Training sessions are held on a regular and consistent schedule	3.14	NI	15	3.50	S	6	3.32	NI	9
The scheduling of training sessions provides sufficient time for recovery.	3.31	NI	1	3.60	S	2	3.46	S	1
Exercise intensity is suited to the participants' current strength capacities.	3.23	NI	8	3.50	S	6	3.37	NI	5
Training resistance and workloads are modified according to participants' strength levels.	3.16	NI	12	3.10	NI	17	3.13	NI	19
The prescribed training volume (sets and repetitions) contribute to performance enhancement.	3.14	NI	15	3.20	NI	13	3.17	NI	15
Appropriate rest periods are maintained between sets and exercises.	3.29	NI	3	3.40	NI	8	3.35	NI	7
The program incorporates a progressive and systematic increase in training demands.	3.25	NI	6	3.20	NI	13	3.23	NI	13
Effective recovery methods are integrated into the training program.	3.23	NI	8	3.10	NI	17	3.17	NI	15
Warm-up and cool-down routines are consistently included in each session.	3.27	NI	4	3.20	NI	11	3.24	NI	12
The equipment available for training is adequate and in good working condition.	3.30	NI	2	3.30	NI	2	3.30	NI	10
Access to training equipment facilitates the effective conduct of training sessions.	3.24	NI	7	3.60	S	17	3.42	S	3
The program is designed with consideration for individual differences, including age and fitness level.	3.23	NI	8	3.10	NI	17	3.17	NI	15
Participants' health status and physical limitations are taken into account when planning training activities.	3.11	NI	18	3.20	NI	13	3.16	NI	18
Proper guidance and supervision throughout training sessions is needed by the participants.	3.14	NI	15	3.10	NI	17	3.12	NI	20
Safety measures are consistently followed during all training activities.	3.18	NI	11	3.70	S	1	3.44	S	2
Participants' performance and progress are regularly assessed and monitored.	3.10	NI	19	3.40	NI	8	3.25	NI	11
The program effectively promotes participants' physical fitness and athletic performance.	3.12	NI	17	3.60	S	2	3.36	NI	6
<i>Average Weighted Mean</i>	3.20	NI		3.36	NI		3.28	NI	

The results showed that the program in Basud National High School did achieve its goal of being functional and safe but needs to have a much higher degree of structural and technical changes to increase effectiveness. The higher ranking of

logistical factors than instructional factors indicate a need for a more planned and strategic shift toward personalized programming, appropriate load manipulation and closer coach supervision. The lowering of ranked "Needs Improvement" categories would mean that the program would move from merely functioning to an optimum and scientific method that enhances athlete's performance, safety, and development.

4. ELEVATE: Enhanced Resistance Training Program for the Special Program in Sports in Basud National High School

The ELEVATE: Enhanced Resistance Training Program for the Special Program in Sports (SPS) at Basud National High School is a structured, learner-centered, and developmentally appropriate conditioning framework designed specifically for Junior High School student-athletes. The curriculum was engineered directly from the study's empirical findings to systematically address the documented deficits and concerns within the existing program, specifically targeting exercise selection and ordering, training frequency, intensity, total volume, rest intervals, progression models, recovery protocols, equipment utilization, and individual differences.

ELEVATE aims to mitigate the operational deficits observed in the current curriculum implementation by providing highly organized training matrices and advancing technical lifting proficiencies. Structurally, the program integrates progressive routines to optimize metabolic fitness, incorporates learner-centered pedagogical strategies tailored for adolescent populations, and strictly adheres to the foundational training principles of progressive overload, specificity, recovery, continuity, structural balance, individualization, and safety.

Consequently, this framework serves as a practical, evidence-based guide for teachers, coaches, trainers, and school administrators, facilitating the execution of resistance training activities that safely enhance muscular strength, muscular endurance, holistic physical fitness, and sport-specific skill performance. Beyond physiological adaptation, the curriculum is designed to cultivate personal discipline, psychological confidence, and athletic teamwork, while simultaneously prioritizing injury prevention and embedding a lifelong commitment to physical health. Ultimately, it is anticipated that this intervention will substantially reinforce the efficacy of school-based resistance training, physical education, and sports development programs at Basud National High School.

5. Conclusion

Based on the findings of the study, the following conclusions are drawn:

- The current resistance training program at Basud National High School is generally well-structured, providing a solid framework for athlete progression by clearly outlining exercise selection, frequency, intensity, volume, recovery, and equipment usage. However, the moderate implementation of individual factors indicates a critical need for transition toward personalized training methodologies.
- A significant perceptual gap exists between student-athletes and professionals regarding program implementation. Professionals view the program as highly implemented, whereas students experience it as only moderately implemented. This variance points to potential communication gaps, inconsistent execution, and a misalignment between instructional delivery and the students' actual training experiences.
- While the program excels in safety measures, recovery schedules, and equipment availability, it requires urgent improvement in direct training supervision, individualized load adjustments, and objective progress monitoring. The personal profiles and fitness variations of the athletes are not currently being adequately addressed.
- The proposed ELEVATE program serves as a comprehensive, learner-centered, and developmentally appropriate intervention to optimize the school's sports framework. By addressing the specific deficiencies across all nine training variables, this enhanced program is poised to improve athletic performance, safety, and motivation, while effectively bridging the communication and perceptual gap between coaches and student-athletes.

Compliance with ethical standards

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Disclosure of conflict of interest

I declare that I have no conflicts of interest related to this research. I have no personal or financial relationships that could influence my work.

Statement of informed consent

Informed consent was obtained from all individual participants included in the study

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