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Preliminary Analysis of a Youth Soccer Talent Identification Program in North Sumatra

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Keywords

Talent identification; youth soccer; relative age effect; CIPP evaluation; physical development

Abstract

Youth soccer talent identification programs are foundational to long-term athlete development, yet systematic empirical scrutiny of regional programs in developing countries remains limited. To address this, a preliminary analysis was conducted using a descriptive mixed-methods design, drawing on field observation, official athlete registry documents, quarterly physical condition reports, and competition records from 18 active male athletes aged 15–17 years. A complete absence of Q3-born athletes (July–September) was confirmed statistically significant via binomial test ($p = .006$, $w = .577$), suggestive of maturational bias consistent with the Relative Age Effect. While explosive power improved consistently across all position groups, aerobic capacity (VO2Max) remained largely stagnant throughout the monitoring period. Beyond physical development, technical assessment relied predominantly on subjective coach evaluation without standardized instruments, limiting the objectivity of talent identification decisions. These gaps across selection methodology, aerobic development, and assessment objectivity collectively justify a full-scale CIPP evaluation, which should employ structured interviews, validated questionnaires, and direct observation across all four CIPP components to generate evidence-based program improvement recommendations.

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INTRODUCTION

Competitive sports development is a long-term process requiring systematic planning, equitable athlete selection, and evidence-based program management (Kartomo and Slameto, 2016; Stufflebeam, 2003). In Indonesia, this process is legally grounded in Law Number 11 of 2022 on Sports and operationalized through Presidential Regulation Number 86 of 2021 on the National Sports Grand Design (DBON), which mandates a tiered, sustainable talent identification and development system as the foundation of the national sports achievement pyramid. The most recent structural manifestation of this policy is the transformation of the Student Sports Education and Training Center (PPLP) into the National Sports Achievement Development Center (SPOBNAS) under Ministerial Regulation of Youth and Sports Number 11 of 2024, representing a significant institutional reform in the architecture of Indonesian youth athlete development. Despite this transformation, empirical evaluation of how regional SPOBNAS programs actually implement talent identification in practice remains critically absent from the literature, creating a substantive knowledge gap that limits evidence-based program improvement at the provincial level.

Talent identification constitutes the critical first stage of any long-term athlete development system, as it determines which individuals receive access to structured development resources and pathways (Baker et al., 2020; Williams & Reilly, 2000). Errors at this stage carry compounding consequences: athletes with genuine long-term potential may be systematically excluded while those with transient maturational advantages are preferentially selected, resulting in both individual inequity and systemic inefficiency (Cobley et al., 2020; Ruparell & LaBella, 2022). This problem is particularly acute in regional programs in developing countries, where limited resources amplify the cost of selection errors and where informal, non-standardized selection practices remain prevalent (Ferdinandus et al., 2024; Teshome et al., 2022). Yet despite these well-documented risks, the existing Indonesian sports development literature has focused predominantly on national-level program structures and outcomes, with regional SPOBNAS implementations receiving little to no systematic empirical scrutiny.

In soccer specifically, the multidimensional nature of the sport encompassing physical, technical, tactical, cognitive, and psychological demands simultaneously within dynamic and unpredictable match environments makes single-criterion talent identification especially problematic (Silvino et al., 2024; Williams & Reilly, 2000). Scientific consensus affirms that effective soccer talent identification must adopt a multidimensional and longitudinal approach to accurately predict long-term developmental potential rather than current performance (Hohmann & Siener, 2021; King et al., 2024). Yet evidence consistently demonstrates that coaches in practice tend to prioritize immediately observable physical attributes over technical, tactical, and psychological indicators, partly due to the greater measurability of physical parameters (Daga et al., 2024; Fuhre et al., 2022). This divergence between science and practice introduces systematic bias into selection decisions, particularly when physical assessment tools are not complemented by validated technical and psychological instruments (Bergkamp et al., 2022; Sieghartsleitner et al., 2019).

A particularly well-documented manifestation of selection bias in youth soccer is the Relative Age Effect (RAE), defined as the systematic overrepresentation of athletes born earlier in the annual selection year due to their maturational advantage over relatively younger peers (Charbonnet et al., 2022; Finnegan et al., 2024). RAE has been documented across youth soccer programs at multiple levels globally, including in structured national academy systems (Figueiredo et al., 2021; Morganti et al., 2025), and tends to intensify as competition level increases and selection pressures become more acute (Sweeney et al., 2024). Critically, Wenger & Csapo (2025) demonstrated that chronologically older athletes are disproportionately selected even in cases where actual technical performance differences between early- and late-born athletes are negligible, confirming that RAE-driven selection reflects maturational bias rather than genuine talent differentiation. The consequences are significant: late-born athletes with high developmental potential are systematically underrepresented in formal development programs, limiting both individual opportunity and the overall quality of the identified talent pool (Figueiredo et al., 2021; Silvino et al., 2024). Notably, no study to date has

examined whether RAE patterns manifest within Indonesian regional SPOBNAS soccer programs, representing a specific and addressable gap in the existing evidence base.

The SPOBNAS Soccer Program in North Sumatra Province, managed by the UPTD for Sports Talent Development under the Department of Youth and Sports of North Sumatra Province, represents one such unevaluated regional implementation. Managing 18 active male athletes in the 2026 cohort recruited through tiered provincial selection, the program has demonstrated inconsistent competitive outcomes: a Bronze Medal at the 2023 National PPLP Championship followed by elimination at the group stage of the 2025 National Student Sports Week (POPNAS) in Jakarta. Field observation conducted in December 2025 revealed that the program's selection process assigns approximately 60% of its initial weighting to physical testing, while technical and tactical assessment remains predominantly subjective without standardized instruments, a configuration empirically associated with heightened RAE bias and reduced selection accuracy (King et al., 2024; Sieghartsleitner et al., 2019). This competitive regression, combined with the observed reliance on non-standardized selection practices and the broader absence of empirical evaluation of regional SPOBNAS programs, collectively signal the presence of systemic gaps warranting rigorous program-level investigation (Humam et al., 2024).

Addressing such gaps requires a comprehensive, evidence-based program evaluation. The CIPP (Context, Input, Process, Product) model developed by Stufflebeam (2003) is widely recognized as among the most suitable frameworks for this purpose, as it examines a program holistically across its policy context, resource inputs, implementation processes, and outcome achievement, rather than focusing narrowly on outcomes alone (Hidayat et al., 2022; Munthe, 2015). CIPP-based evaluations have been applied effectively to sports development programs across diverse national contexts, consistently demonstrating their capacity to generate actionable, system-level recommendations for program improvement (Hafidz et al., 2024; Irmansyah, 2017; Teshome et al., 2022). As a prerequisite to such a comprehensive evaluation, however, a preliminary empirical analysis is necessary to document the program's current conditions, identify indicators of systemic gaps, and establish the scientific rationale for the subsequent evaluation (Sugiyono, 2019). This article therefore presents a preliminary analysis of the SPOBNAS Soccer Talent Identification Program in North Sumatra, encompassing athlete demographic profiles and RAE patterns, physical development trends, technical skill assessment, and competitive achievement outcomes, with the explicit aim of establishing the empirical foundation for a subsequent full-scale CIPP evaluation.

METHODS

Research Design

This study employed a descriptive preliminary analysis design with a mixed-methods approach, integrating quantitative descriptive analysis, qualitative document review, and direct field observation. A preliminary study of this nature is conducted prior to the main evaluation research in order to obtain an empirical picture of the program's existing conditions, identify potential issues requiring deeper investigation, and establish the scientific foundation for a subsequent comprehensive evaluation (Sugiyono, 2019). The findings of this preliminary analysis will serve as the primary basis for constructing the instruments and research framework of a full CIPP (Context, Input, Process, Product) model evaluation study to follow.

Research Setting and Participants

This study was conducted at the SPOBNAS Soccer Program under the Regional Technical Implementation Unit (UPTD) for Sports Talent Development, Department of Youth and Sports of North Sumatra Province (Dinas Kepemudaan dan Olahraga Provinsi Sumatera Utara). The participants consisted of all 18 active male athletes registered in the 2026 cohort, making this study a total population study rather than a sampled one. The athletes ranged in age from 15 to 17 years (born between 2008 and 2010), were recruited from various regencies and cities across North Sumatra, and were residing in the program's boarding facility at the time of the study. All athletes were enrolled in secondary schools in the Medan metropolitan area during

the program period. In addition to the athletes, the program's coaching staff served as key informants during the field observation phase of data collection.

Data Sources

This study utilized two categories of data sources: primary data obtained through direct field observation, and secondary data derived from official program documentation.

Primary data were gathered through a field observation visit to the SPOBNAS facility conducted in December 2025. During this visit, direct observation of the program's training environment and facility conditions was carried out, alongside an informal observational dialogue with the head coach and technical staff. The observational field notes documented key information pertaining to the talent identification process, selection criteria and instruments, coaching staff qualifications, curriculum implementation, and the program's internal analysis of recent competitive outcomes. This approach aligns with the preliminary nature of the study, in which field observation serves to contextualize and triangulate the documentary data (Etikan et al., 2016).

Secondary data were drawn from three official documentary sources. First, the official athlete registry document provided demographic information including each athlete's date and place of birth, home regency, school enrollment, and year of entry into the program. Second, the Quarterly Physical Condition Report for Quarter 3 and Quarter 4 provided longitudinal physical performance data collected at three time points: the initial baseline measurement in July 2025, Quarter 3 in September 2025, and Quarter 4 in November 2025. Third, official competition records documenting the program's competitive achievements in the 2023 National PPLP Championship and the 2025 National Student Sports Week (POPNAS) were used to assess performance outcomes.

Data Collection Procedure

Data collection was carried out in two sequential stages. In the first stage, the researcher conducted a formal field observation visit to the SPOBNAS facility in December 2025, following receipt of institutional access permission from program management. During this visit, the training environment was directly observed, and informal observational dialogues were held with the coaching staff to gather contextual information about the program's talent identification mechanism, selection process, and coaching structure. Field notes were systematically recorded and subsequently transcribed for analytical purposes. In the second stage, official documentary data comprising the athlete registry, quarterly physical reports, and competition records were obtained through formal institutional channels and subjected to systematic document review.

Data Analysis

Four analytical procedures were applied corresponding to the dimensions examined in this study. For the athlete demographic profile and Relative Age Effect (RAE) analysis, birth dates of all 18 athletes were classified into four birth quartiles (Q1: January–March; Q2: April–June; Q3: July–September; Q4: October–December), following the standard RAE analytical convention established in international youth sport research (Figueiredo et al., 2021; Finnegan et al., 2024). The distribution of athletes across quartiles was then described and interpreted in relation to the potential influence of relative age on the selection process. To examine whether the observed birth quarter distribution differed significantly from the theoretically equal distribution, a chi-square goodness-of-fit test was conducted with expected probabilities set at 25% per quartile, supplemented by a binomial test specifically for the Q3 quartile and effect size estimation using Cohen's w (Cohen, 1988).

For physical development analysis, longitudinal data on four biomotor components such as power (vertical jump, cm), speed (30-meter sprint, seconds), agility (Illinois agility test, seconds), and aerobic capacity (VO2Max, ml/kg/min) as well as the composite physical condition score (%) were analyzed descriptively across three measurement time points (July, September, and November 2025). Trends in each parameter were described per playing

position group (goalkeepers, defenders, midfielders, and forwards), and notable individual cases including injuries and athlete attrition were documented.

For technical skill assessment, coach-rated scores on four technical components (passing, ball control, dribbling, and ball positioning) recorded in the quarterly report were analyzed descriptively using the program's internal rating scale (1 = Good, 2 = Very Good). The overall technical development trend reported by the coaching staff was incorporated into the analysis. Finally, field observation data were analyzed thematically, with key themes identified across the following domains: selection instrument characteristics, subjectivity in technical and tactical assessment, coaching staff qualifications and structure, curriculum implementation, and program self-evaluation of competitive outcomes. Triangulation between field observation findings and documentary data was applied throughout to enhance the credibility of the preliminary analysis (Sugiyono, 2019).

RESULTS AND DISCUSSION

Athlete Demographic Profile and Relative Age Effect (RAE)

The SPOBNAS North Sumatra Soccer Program in the 2026 cohort comprises 18 male athletes, all of whom were born between 2008 and 2010, corresponding to an age range of 15 to 17 years. As presented in Table 1, the majority of athletes (61.1%, n=11) were born in 2009, followed by those born in 2010 (22.2%, n=4) and 2008 (16.7%, n=3). In terms of geographic origin, athletes were drawn from seven distinct regencies and cities across North Sumatra, with the largest representations from Medan (38.9%, n=7) and Langkat (27.8%, n=5). This geographic concentration from urban and peri-urban areas warrants attention in the context of equitable talent identification, as access to quality coaching infrastructure, competition exposure, and training facilities is systematically greater in urban centers than in rural and remote areas (Ferdinandus et al., 2024; Silvino et al., 2024). Williams et al. (2020) emphasized that environmental constraints, including geographic proximity to development centers, constitute an underappreciated yet influential factor in shaping who ultimately enters formal talent pathways, often producing structural inequities that are difficult to reverse once athletes have been streamed into programs. The overrepresentation of athletes from Medan in this cohort may therefore reflect not only genuine talent concentration but also differential access to pre-selection developmental opportunities, a limitation that the forthcoming CIPP evaluation should explicitly address at the Context and Input components.

Table 1. Athlete Demographic Profile by Birth Year

Birth Year	N	%
2008	3	16.7%
2009	11	61.1%
2010	4	22.2%
Total	18	100%

Table 2. Athlete Demographic Profile by Regional Origin

Region	n	%
Medan	7	38.9%
Langkat	5	27.8%
Deli Serdang	2	11.1%
Binjai	1	5.6%
Karo	1	5.6%
Simalungun	1	5.6%
Batu Bara	1	5.6%
Total	18	100%

The RAE analysis reveals a striking distributional pattern among the 18 athletes. When birth months were categorized into four standard quartiles, Q1 (January–March), Q2 (April–June), Q3 (July–September), and Q4 (October–December), an equal distribution of six athletes (33.3%) was found in Q1, Q2, and Q4 respectively, while no athlete whatsoever was born in Q3 (July–September). This complete absence of Q3-born athletes is a notable anomaly, as an equal

distribution across quartiles would be expected if birth quarter had no influence on the selection process (Figueiredo et al., 2021).

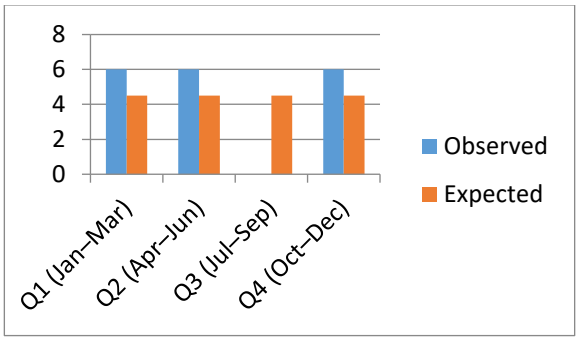

Figure 1. Birth Quarter Distribution

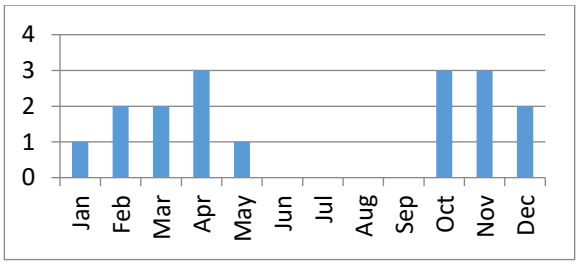

Figure 2. Birth Month Distribution

Table 3. Birth Quarter Distribution and RAE Analysis

Quarter	Months	n	Observed %	Expected %	χ^2 Contribution	95% CI
Q1	Jan – Mar	6	33.3%	25.0%	0.500	16.3% – 56.3%
Q2	Apr – Jun	6	33.3%	25.0%	0.500	16.3% – 56.3%
Q3	Jul – Sep	0	0.0%	25.0%	4.500	0.0% – 17.6%
Q4	Oct – Dec	6	33.3%	25.0%	0.500	16.3% – 56.3%
Total		18	100%	100%		

A chi-square goodness-of-fit test was conducted to examine whether the observed birth quarter distribution differed significantly from an equal theoretical distribution (25% per quartile). The overall test did not reach conventional statistical significance, $\chi^2(3) = 6.000$, $p = .112$; however, the effect size was large ($w = .577$), indicating that the distributional deviation carries substantial practical significance despite the limited statistical power attributable to the small sample size ($n = 18$) (Cohen, 1988). Notably, the complete absence of Q3-born athletes yielded the largest chi-square contribution (4.500 out of 6.000 total), and a supplementary binomial test confirmed that the probability of observing zero Q3-born athletes under a null hypothesis of equal probability ($p = .25$) is statistically significant ($p = .006$). Furthermore, athletes born in the first half of the year (Q1+Q2) outnumbered those born in the second half (Q3+Q4) at a ratio of 2:1 (66.7% vs. 33.3%), with the 95% confidence interval for Q3 (0.0%–17.6%) entirely excluding the expected value of 25%. These combined findings a non-significant omnibus chi-square alongside a significant binomial test for Q3 and a large effect size are consistent with the pattern expected when a genuine distributional anomaly exists but sample size is insufficient to achieve adequate statistical power. This interpretation aligns with Finnegan et al. (2024) and Figueiredo et al. (2021), who noted that RAE studies with small cohort sizes frequently yield non-significant chi-square results despite meaningful underlying distributional patterns, and who recommended reporting effect sizes and quartile-specific statistics alongside omnibus tests.

Physical Development

Physical performance data were collected at three time points: baseline (T0, July 2025), Quarter 3 (T1, September 2025), and Quarter 4 (T2, November 2025), approximately two weeks prior to and following the POPNAS 2025 competition in Jakarta. Four biomotor parameters were assessed: explosive power (vertical jump, cm), sprint speed (30m, seconds), agility (seconds), and aerobic capacity (VO2Max, ml/kg/min), along with an overall physical condition composite score (%). Table 4 presents the group mean values per playing position across all three measurement time points.

Table 4. Mean Physical Parameter Values by Position Group across Three Measurement Points

Position	Parameter	T0 (Jul) Baseline	T1 (Sep) Quarter 3	T2 (Nov) Quarter 4
Goalkeeper (n=3)	Power (cm)	55.0	60.7	60.7
	Speed (s)	3.23	3.16	3.14
	Agility (s)	9.06	9.47	8.81
	VO2Max	50.0	50.3	51.0
	Condition (%)	80.7	82.7	84.0
Defender (n=6)	Power (cm)	48.8	53.5	53.0
	Speed (s)	3.03	3.05	3.04
	Agility (s)	8.79	8.51	8.60
	VO2Max	50.2	51.5	51.5
	Condition (%)	81.3	83.8	83.0
Midfielder (n=2)	Power (cm)	48.5	56.5	53.0
	Speed (s)	2.96	3.05	3.08
	Agility (s)	8.88	8.50	8.61
	VO2Max	52.5	54.0	55.5
	Condition (%)	82.0	86.0	84.5
Forward (n=5)	Power (cm)	49.4	56.6	57.6
	Speed (s)	3.04	2.98	3.00
	Agility (s)	8.72	8.44	8.49
	VO2Max	50.8	52.0	53.0
	Condition (%)	81.8	85.6	86.0

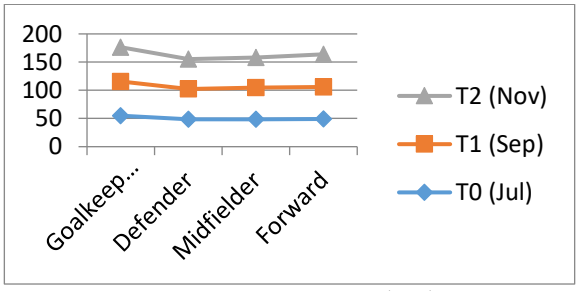

Figure 3. Mean Explosive Power (cm) by Position

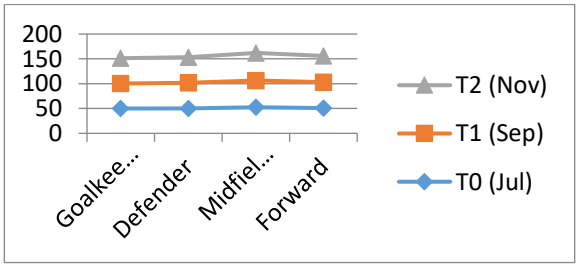

Figure 4. Mean VO2Max (ml/kg/min) by Position

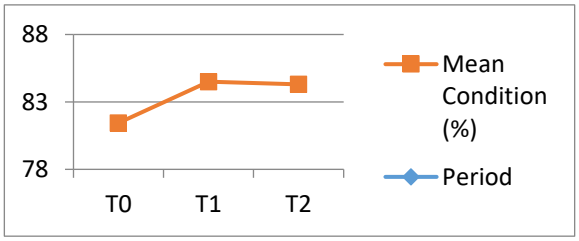

Figure 5. Overall Mean Physical Condition Score (%)

Overall, physical development trends across the three measurement periods reveal a generally positive trajectory, with mean overall physical condition scores improving from 81.4% at baseline to 84.3% at T2. Explosive power showed the most consistent improvement across all position groups, with the most notable gains observed among forwards (49.4 to 57.6 cm, +16.6%) and midfielders (48.5 to 53.0 cm, +9.3%). These gains are consistent with the established literature on plyometric and strength training adaptations in adolescent soccer players, where significant improvements in vertical jump performance are commonly reported following structured precompetition training phases (Bompa & Buzzichelli, 2019; Szymanek-Pilarczyk et al., 2024). Szymanek-Pilarczyk et al. (2024) in their normative study of youth soccer players, affirmed that explosive power of the lower limbs is among the most trainable physical qualities in adolescent athletes and is highly responsive to structured periodized training during the competitive preparation phase.

However, several findings merit critical attention. First, aerobic capacity (VO2Max) demonstrated the most limited improvement across all position groups, with overall mean values increasing only marginally from 50.6 ml/kg/min at baseline to 52.4 ml/kg/min at T2. Given that VO2Max is widely recognized as one of the most critical physiological determinants of performance in youth soccer, with higher aerobic capacity directly associated with greater high-intensity running distance, faster recovery between efforts, and superior match performance consistency (Clemente et al., 2023; Williams & Reilly, 2000), the modest gains observed over a five-month monitoring period represent a substantive concern. Elite male youth soccer players of comparable age groups are typically expected to demonstrate VO2Max values in the range of 54 to 62 ml/kg/min (Helgerud et al., 2001; Szymanek-Pilarczyk et al., 2024), suggesting that the current cohort's aerobic capacity remains below benchmarks associated with competitive excellence at the national level. Research has consistently demonstrated that meaningful VO2Max improvements in youth soccer players require deliberately structured high-intensity aerobic training protocols, and that conventional soccer training alone is frequently insufficient to elicit significant aerobic adaptations (Arslanoglu et al., 2024; Clemente et al., 2023). The limited VO2Max progression observed in this cohort therefore suggests that the program's current training methodology and periodization approach requires reassessment specifically with respect to aerobic capacity development.

Second, three injury cases were documented during the monitoring period: Bintang Fairuz Ihsan (goalkeeper, inner thigh injury), Satria Bintara (goalkeeper, shoulder injury), and Fahri Faturrahman (defender, knee injury sustained during POPNAS preparation). The occurrence of multiple injuries during the critical precompetition phase is consistent with the broader literature on injury epidemiology in youth soccer, where the preseason and early-competition periods are consistently identified as the highest-risk phases for musculoskeletal injury, particularly in the absence of structured training load monitoring systems (Mandorino et al., 2023). Mandorino et al. (2023), in their systematic review of injury risk factors in youth soccer, emphasized that programs lacking systematic athlete monitoring and workload management mechanisms demonstrate significantly higher injury rates, particularly among athletes aged 15 to 17 years undergoing rapid physiological growth. The timing of Fahri's knee injury occurring immediately prior to POPNAS may have directly contributed to the team's suboptimal competitive performance at that tournament. Third, two midfield athletes (M. Nur Ikhsan and Kevin Al-Hafiz) withdrew from the program between T1 and T2, reducing the total active squad and potentially disrupting tactical coherence and preparation quality for POPNAS 2025. Athlete attrition during active development phases represents a recognized risk factor

in regional sport programs, often linked to inadequate welfare support, unaddressed academic pressures, or perceived lack of development progress (Ruparell & LaBella, 2022).

Technical Skill Assessment

Technical skills were assessed by the coaching staff using a two-point rating scale (1 = Good, 2 = Very Good) across four components: passing, ball control, dribbling, and ball positioning. As presented in Table 5, the majority of athletes across all playing positions were rated at level 1 (Good) for most technical components, with ball positioning being the most consistently rated component at level 2 (Very Good) across all positions. According to the coaching staff's quarterly report, overall technical competency improved by 20–30% across all four components relative to the initial assessment period, while performance in game-based indicators (internal games and trial matches) reached 70–80% of the target benchmark.

Table 5. Technical Skill Ratings by Playing Position

Position	Passing	Control	Dribbling	Ball Position
Defender	2	1	1	2
	1	1	1	2
	1	2	1	2
	1	1	1	2
Midfielder	2	1	1	2
	1	2	2	2
	2	2	1	2
	1	1	1	2
Forward	1	2	2	2
	2	1	1	2
	1	1	1	2
	2	1	2	2
	2	1	1	2

While the reported improvements in technical competency are encouraging, the assessment methodology itself raises important questions regarding objectivity and standardization. As confirmed through field observation, technical and tactical evaluations in this program remain largely dependent on the subjective judgment of the coaching staff, without the application of validated standardized measurement instruments. This is consistent with findings across the broader talent identification literature, where coach-based subjective assessments, while practically valuable, are prone to systematic bias when not corroborated by objective measurement tools (Daga et al., 2024; Fuhre et al., 2022). Bergkamp et al. (2022) found that scouts' and coaches' subjective assessments of technical attributes tend to be influenced by physical appearance and maturational status rather than technical execution quality alone, leading to systematic undervaluation of technically skilled but physically less imposing athletes. Sieghartsleitner et al. (2019) specifically argued that the most effective talent identification systems combine multidimensional objective measurements with coach assessments, rather than relying exclusively on either approach. Furthermore, the simplified two-point rating scale used in this program provides an extremely limited discriminatory resolution, making it difficult to track nuanced technical development trajectories or differentiate meaningfully between athletes at similar skill levels. Barraclough et al. (2024), in their work on multidisciplinary athlete profiling tools in youth soccer academies, demonstrated that the implementation of standardized multi-criteria technical assessment frameworks significantly improves both the accuracy of talent identification decisions and the developmental feedback provided to athletes. The current program's reliance on this simplified instrument, alongside the absence of documented standardized technical testing protocols, represents a gap that warrants direct address in the forthcoming CIPP evaluation.

Competitive Achievement and Performance Gap

The program's competitive trajectory over its two most recent major national championships reveals a significant and concerning performance gap, as illustrated in Figure 6. In the 2023 National PPLP Championship, the North Sumatra team achieved the Bronze Medal, placing among the top four teams nationally and demonstrating credible competitive performance at the national level. However, at the 2025 POPNAS held in Jakarta (November 2–9, 2025), the team was eliminated at the group stage, representing a substantial regression in competitive standing.

This performance regression from a bronze medal finish to group stage elimination cannot be attributed to a single isolated factor. Through field observation, the coaching staff acknowledged multiple contributing variables, including differences in age-group regulations between competitions and the relatively limited competitive experience of the current cohort compared to opposing teams. Nevertheless, from an evaluative perspective, the performance gap is a critical signal that demands systematic investigation at the program level rather than surface-level contextual attribution. Stufflebeam's (2003) CIPP model posits that product-level outcomes, in this case competitive achievement, are ultimately the result of the cumulative quality of the context, input, and process components of the program. A decline in product outcomes therefore necessitates a comprehensive backward analysis of the entire program system. This aligns with Humam et al. (2024) and Badaruddin et al. (2023), who found in their evaluations of Indonesian football development programs that competitive underperformance is frequently traceable to structural weaknesses in the input and process components of the program rather than to isolated external circumstances.

Taken together, the four dimensions examined in this preliminary analysis, namely RAE patterns in athlete demographics, physical development trends, technical assessment limitations, and competitive achievement regression, collectively point to the existence of substantive gaps in the program's talent identification and development framework. These findings provide the empirical foundation and justification for a full-scale CIPP evaluation of the SPOBNAS Soccer Talent Identification Program in North Sumatra, which will constitute the primary focus of the forthcoming research.

CONCLUSION

The preliminary analysis of the SPOBNAS North Sumatra Soccer Talent Identification Program reveals several critical findings encompassing biological, physical, and technical aspects. The distribution of athlete birth quarters shows a significant anomaly, with a complete absence of athletes born in the third quarter, suggesting a potential maturational bias or Relative Age Effect in the selection process. While general physical development shows a positive trend, aerobic capacity remains stagnant and below the optimal level for elite soccer performance. Furthermore, the reliance on subjective rating scales without standardized instruments for technical evaluation, alongside occurrences of injuries and athlete withdrawals, highlights gaps in measurement objectivity and athlete welfare management.

Overall, the decline in competitive achievement from a bronze medal in the 2023 national championship to a group-stage elimination in 2025 underscores the urgent need for a comprehensive systemic evaluation. The discrepancy between current practices and scientific methodologies in talent development validates the necessity of a full-scale CIPP model evaluation. By conducting a deep review of the context, input, process, and product components, the subsequent research aims to provide evidence-based recommendations to strengthen the soccer talent identification and development system in North Sumatra, ensuring it becomes more effective and sustainable.

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