



## Training Evaluation To Improve The Performance Of Women's Rowing Athletes In Dragon Boat Tanjung Jabung Barat

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### ABSTRACT

Dragon Boat rowing demands a high level of strength, endurance, technique, and team cohesion. Problems encountered among female rowers in West Tanjung Jabung include mid-race fatigue, slowing of their paddling technique, and the lack of regular and systematic training evaluations. This study aims to analyze training evaluations to improve the performance of female rowers using the CIRO (Context, Input, Reaction, Outcome) evaluation model. The study used a descriptive qualitative approach, with the participants being the head of the board, coaches, assistant coaches, and athletes. Data were collected through field observations, semi-structured interviews, and documentation of training programs and performance data. Data analysis was conducted using NVivo 12 Pro through thematic coding. The results show: (1) Context: coaches design periodization based on four pillars (physical, technical, mental, and competition simulation) with the vision of making West Tanjung Jabung a regional barometer; (2) Input: infrastructure is adequate but requires equipment upgrades, with funding support from KONI and private sponsors; (3) Reaction: all stakeholders demonstrated a positive and supportive response; (4) Outcome: The women's team won second place at the 2025 Jambi Provincial Championship and is targeting advancement towards PORPROV and PON. It was concluded that the CIRO-based evaluation effectively identified strengths and areas for improvement in the training program and supported sustainable performance improvement.

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A. Conception and design of the study;

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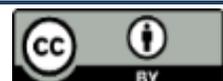
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## INTRODUCTION

Sport is a physical activity carried out in a planned, systematic, and sustainable manner to improve physical, spiritual, and social quality. In a national context, the National Sports System Law Number 11 of 2022 affirms that sport serves as a vehicle for fostering and developing comprehensive human potential. One of the rapidly growing sports in Indonesia is rowing, under the auspices of the Indonesian Rowing Sports Association (PODSI), which encompasses rowing, canoeing, and traditional boat racing. Among the traditional events, Dragon Boat is a team event that demands physical strength, technical synchronization, aerobic-anaerobic endurance, and high team cohesion. Events competed include the 200m, 500m, and 1000m TBR, each with distinct physiological characteristics, particularly in the



dominance of energy systems and pacing strategy distribution. Recent studies have shown that dragon boat performance is significantly influenced by a combination of upper body muscle strength, explosive power,  $VO_2$ max capacity, and intrateam coordination (Smith et al., 2019; Li & Gong, 2020; Scopus). However, empirical evidence from the West Tanjung Jabung Dragon Boat Club indicates that female rowers have not yet achieved optimal performance in regional and provincial championships. Field observations indicate that initial speed (start phase) is relatively good, but there is a significant decline in mid-race fatigue. This condition is characterized by a slowing stroke rate, decreased movement synchronization, and unstable team rhythm. This phenomenon indicates problems with training periodization, load management, and a lack of systematic evaluation of training programs (Effendi, 2016; Bompá & Buzzichelli, 2019). Athlete performance is essentially the result of the integration of physical, technical, tactical, and mental components (Ruslani, 2019; Ministry of National Education, 2020). Without structured evaluation, training programs can potentially become routine without measurable indicators of success. However, recent research in sports performance confirms that monitoring and evaluation are key to optimizing training adaptation and preventing overtraining (Halsón, 2018; Impellizzeri et al., 2019). Therefore, the main problem in this study lies in the lack of a comprehensive evaluation of the training program implemented by the female Dragon Boat rowers from West Tanjung Jabung.

In sports science literature, training program evaluation is positioned as a strategic instrument in performance coaching management. The widely used evaluation model in education and training is CIPP (Context, Input, Process, Product). However, the development of the CIRO (Context, Input, Reaction, Outcome) model by Warr, Bird, and Rackman offers a more applicable approach in the context of performance-based training because it incorporates participant reactions as an indicator of program acceptability (Winaryati, 2021; Srivastava, 2018). Context evaluation focuses on analyzing the program's needs, objectives, and environmental conditions (Stufflebeam, 2016; Scopus). In a sports context, these aspects include the coaching vision, performance targets, and organizational support. Input evaluation assesses resources such as coach quality, infrastructure, budget support, and periodization systems (Rusmulyadi, 2023). Reaction evaluation assesses athletes' responses to training intensity, variety, and relevance, which have been shown to influence intrinsic motivation and training adherence (Deci & Ryan, 2017; Scopus). Outcome evaluation assesses performance in both objective indicators (elapsed time, ranking) and physiological indicators ( $VO_2$ max, lactate threshold) (Hermanto, 2021; Mujika, 2018). International research in rowing and canoe sprinting shows that training programs based on structured periodization and regular evaluation can improve performance by 5–8% over a single competitive season (Plews et al., 2017; Scopus). Another study of female rowers in East Asia revealed that upper limb strength and trunk stability significantly correlate with increased power stroke (Zhang et al., 2021). In a national context, several SINTA studies demonstrate the importance of evaluating regional sports development programs to improve program effectiveness (Abdillah, 2023; Putri, 2019; Choiriyah, 2016). However, most research still

focuses on the CIPP model or descriptive analysis without comprehensive integration between training components and quantitative performance outcomes.

Although global literature has extensively discussed periodization and performance monitoring in rowing, there is a research gap in the context of regional clubs in Indonesia, particularly for female rowers. First, there are few studies that specifically evaluate dragon boat training programs using the CIRO model as a systematic analytical framework. Second, previous research tends to separate physiological and managerial aspects, thus not providing a comprehensive picture of the effectiveness of development programs. Third, the lack of integration between evaluations of the organizational context, resource input readiness, athlete response to training, and performance outcomes results in less data-driven development decisions. In practice, many clubs still rely on coaches' experience without the support of structured scientific evaluation (Herman et al., 2020). Fourth, in female athletes, physiological factors such as body composition, relative strength, and hormonal adaptation require a more specific training approach (Sandbakk et al., 2018). However, studies on the evaluation of women's rowing development at the district level are still very limited. Therefore, comprehensive evaluative research is needed to systematically identify the strengths and weaknesses of training programs.

Based on the aforementioned research problems and gaps, this study aims to evaluate the effectiveness of training programs in improving the performance of female dragon boat rowers in West Tanjung Jabung using the CIRO evaluation model. Specifically, this study analyzes: The suitability of the training program context to the needs and performance targets. The quality of resource input (coaches, facilities, periodization, and organizational support). Athletes' reactions to the implementation of the training program. Program outcomes in the form of achievement and performance indicators. The novelty of this study lies in the integration of the CIRO model in the context of women's rowing development at the district level, with an evaluative approach that simultaneously connects managerial and physiological performance dimensions. This study not only describes the program's conditions but also provides data-based recommendations for optimizing development.

Theoretically, this study enriches the limited literature on sport evaluation in dragon boat racing in Indonesia. Practically, the research results are expected to serve as a reference for regional Indonesian Rowing Associations (APRIs) in designing evidence-based monitoring and evaluation systems. With this approach, the research contributes to strengthening regional sports development governance, improving the quality of training, and accelerating the achievement of women's rowing athletes in a sustainable and competitive manner at the regional and national levels.

## **METHODS**

### **Type of Research**

This study used a qualitative approach with an evaluative design to analyze the effectiveness of a training program in improving the performance of female Dragon Boat rowers in West Tanjung Jabung. A qualitative approach was chosen because it yielded

descriptive data in the form of written and spoken words from informants directly observed in a natural context (Qomariah, 2019; Creswell & Poth, 2018). The evaluation model used was CIRO (Context, Input, Reaction, Outcome), which is relevant for evaluating performance-based training programs (Srivastava, 2018; Winaryati, 2021). The study was conducted in December 2025 at the West Tanjung Jabung Female Dragon Boat Rowing Club. This approach allowed for an in-depth exploration of the appropriateness of the coaching context, resource readiness, athlete responses to the training program, and the resulting performance (Stufflebeam & Zhang, 2017; Hermanto, 2021).

### Population and Sample

Research subjects were selected using purposive sampling techniques as recommended in qualitative evaluative research (Sugiyono, 2017; Palinkas et al., 2015). Informant selection was based on their direct involvement in the planning and implementation of the training program. A total of six informants were recruited: the chairman (1), coach (1), assistant coach (1), secretary (1), and female rowing athletes (2). This composition was deemed representative to simultaneously capture both managerial and training implementer perspectives (Patton, 2015).

**Table 1.**  
 Characteristics of Research Informants

No	Informant	Amount	Roles in the Program
1	Chairman of the Board	1	Policymakers
2	Coach	1	Program designers
3	Assistant Coach	1	Technical implementers
4	Secretary	1	Administration & documentation
5	Female Athlete	2	Program participants
<b>Total</b>		<b>6</b>	

### Data Collection Instruments and Techniques

The primary research instrument was the researcher herself (human instrument) with the assistance of CIRO component-based observation and interview guidelines (Miles, Huberman, & Saldaña, 2018).

Data collection techniques included: Field observations, conducted over three days to observe the training process, intensity, team interactions, and implementation of periodization. Participatory observation was used to understand performance dynamics and training load (Halson, 2018). Semi-structured interviews, using CIRO-based guidelines, explored aspects of context (vision and targets), input (human resources and facilities), reaction (athlete response to training), and outcome (achievements and performance indicators). Documentation, in the form of training program documents, periodization schedules, championship results data, and internal club evaluation records.

**Table 2.**  
 CIRO-Based Data Collection Techniques Matrix

CIRO Components	Techniques	Data Source	Evaluation Focus
Context	Interviews, Documents	Chairman, Coach	Vision, targets, needs
Inputs	Observation, Documents	Coach, Secretary	SDM, facilities, periodization
Reaction	Interviews	Athlete	Motivation, training satisfaction
Outcomes	Documents	Achievement Data	Time achievement & ranking

## **Data Validity**

Data validity was tested through source triangulation and time triangulation (Lincoln & Guba, 2018). Source triangulation was conducted by comparing information between informants, while time triangulation was conducted through repeated observations over three days to ensure consistency of findings. This strategy is crucial for increasing the credibility and dependability of sports evaluative research (Tracy, 2020).

## **Data Analysis Techniques**

Data analysis was conducted using NVivo 12 Pro software through the interactive analysis stages of Miles & Huberman (2018), namely: Open coding to identify initial themes. Axial coding to connect categories between CIRO components. Selective coding to formulate the core evaluation findings. Matrix coding queries to examine relationships between informants and themes. Word frequency queries to identify dominant evaluative issues. Project maps and framework matrices to visualize the context-input-reaction-outcome relationships. This analytical approach allows for systematic interpretation of the effectiveness of training programs and provides evidence-based recommendations for the sustainable optimization of female rowing athlete development (Mujika, 2018; Impellizzeri et al., 2019).

## **RESULTS AND DISCUSSION**

### **Training Evaluation: Context Evaluation**

The research results show that the management planning for the development of female Dragon Boat rowers in West Tanjung Jabung has been systematically developed and oriented towards the long term. The training program is designed in an annual periodic manner, encompassing four main pillars: (1) improving physical quality (aerobic and anaerobic endurance, and muscle strength), (2) strengthening rowing technique and stroke synchronization, (3) strengthening the competitive mentality, and (4) regular evaluation through race simulations (time trials and race simulations). In the lead-up to the competition, athletes attend the Training Center (TC) with a tapering strategy, which involves reducing training volume and maintaining high intensity to achieve peak performance on race day. This strategy aligns with sports performance literature, which confirms that tapering effectively improves performance by 2-5% in endurance and power-based sports (Mujika & Padilla, 2018; Bosquet et al., 2019).

The club's vision of making West Tanjung Jabung a barometer of regional and national dragon boat strength serves as both a normative and operational foundation. Athlete recruitment is conducted openly through physical tests (back muscle strength, VO<sub>2</sub>max, team rhythm) and a trial period of on-water training. Additionally, talent scouting is conducted at schools through the "PODSI Goes to School" program, affiliated with the Indonesian Rowing Association. These findings reinforce Stufflebeam's (2016) view that context evaluation assesses goals, needs, and available opportunities. Conceptually, the vision-recruitment-periodization structure indicates that the coaching context aligns with modern sport development principles (De Bosscher et al., 2018). The clarity of the vision and the physical test-based recruitment system serve as

indicators of organizational readiness. However, strengthening performance data-based needs analysis (e.g., annual physiological profiling) still needs to be improved to ensure more evidence-based training planning (Impellizzeri et al., 2019).

### **Training Evaluation: Input Evaluation**

Regarding human resources, coaches focus on increasing anaerobic power and explosive strength through resistance training and on-water sprints. On the other hand, aerobic endurance is developed through interval rowing and medium-distance continuous paddling. The literature shows that a combination of trunk strength, upper body power, and aerobic capacity are the primary determinants of dragon boat performance (Smith et al., 2020; Zhang et al., 2021). Infrastructure is relatively adequate for regular training, although it still requires upgrades such as lightweight carbon oars and modernization of gym equipment. The dragon boats are partly assets of the local government/KONI (Indonesian National Sports Committee) loaned to PODSI Tanjabbar. Funding comes from local government grants through KONI, internal contributions, and private sector CSR support. The main obstacle lies in the delay in disbursement of funds, which impacts the flexibility of the training program. To overcome this, the management has implemented alternative funding strategies to maintain the continuity of training. Internal regulations are implemented through a promotion-relegation system, weekly time trials, video evaluations, monthly monitoring-evaluation (Monev), and the implementation of a Household Budget (ART). Theoretically, input evaluation aims to assess the quality of resources and readiness for program implementation (Sugiyono, 2018; Mulyatiningsih, 2017). These findings indicate that the quality of coaching human resources and the regulatory system are adequate, but improving facilities and funding stability are areas for improvement. International studies confirm that investment in equipment and sports science support significantly correlate with improved elite team performance (Sandbakk et al., 2018).

### **Training Evaluation: Reaction Evaluation**

The management's reaction to achievements is reflective and progressive. Success is celebrated as a form of appreciation, but is accompanied by evaluation to prevent complacency or "star syndrome." When failure occurs, a thorough evaluation is conducted along with additional motivation. Coaches demonstrate a supportive attitude, both in wins and losses. Recognition in the form of bonuses or meals increases a sense of belonging and team cohesion. When losing, coaches conduct immediate technical evaluations and encourage athletes to use failure as a catalyst for improvement. Athletes respond to wins with increased self-confidence, while losses evoke sad emotions but are balanced by mental support from the management. This approach aligns with self-determination theory, which emphasizes the importance of autonomy and competence support in building intrinsic motivation (Deci & Ryan, 2017). Srivastava (2018) emphasized that reaction evaluation is crucial to ensuring program acceptance by participants. A supportive organizational climate has been shown to increase training adherence and mental resilience in athletes (Hanton et al., 2017). Thus, the psychological dimension of coaching has been positive.

## **Training Evaluation: Outcome Evaluation**

The outcome evaluation showed significant progress. The Tanjung Jabung Barat women's dragon boat team won second place (silver medal) at the 2025 Jambi Provincial Championship. This achievement demonstrates improvement compared to the previous period and serves as an indicator of the effectiveness of the training program. Long-term targets include a gold medal for the Provincial Sports Week (PORPROV), qualification for the National Sports Week (PON) National Selection, and consistent championships at regional festivals. The coach sets progressive standards each year to maintain the trend of improving performance. These results are consistent with the findings of Ahmad Muflih Anshory (2024) and Pitnawati (2019) that structured planning and regular evaluation have a direct impact on performance output. Conceptually, strong context-input-reaction integration produces positive outcomes. The high-performance sport literature also confirms that successful output is a reflection of systemic coaching governance (De Bosscher et al., 2018). However, to reach the national level, further integration of sports science is needed, such as lactate monitoring, biomechanical stroke analysis, and individual data-based periodization.

## **CONCLUSION**

Based on research results using the CIRO (Context, Input, Reaction, Outcome) evaluation model, it can be concluded that the training program for the West Tanjung Jabung Dragon Boat women's rowing athletes has been implemented systematically and demonstrated measurable progress.

First, in terms of context evaluation, the coaches have structured training schedules based on four main pillars endurance and strength development, rowing technique consolidation, mental fortitude for competition, and evaluation through competition simulations. The club's vision and mission have been clearly formulated as the operational foundation, with a transparent athlete and coach recruitment system that includes physical testing, technical selection, and competency verification.

Second, in terms of input evaluation, human resources and internal regulations (promotion-relegation, weekly time trials, monthly monitoring-evaluation) are deemed adequate. Functional infrastructure is available, although equipment such as carbon oars and modern gym equipment is in need of upgrades. Funding comes from the Indonesian National Sports Committee (KONI), management self-funding, and private corporate social responsibility (CSR), but continues to face delays in disbursement.

Third, the reaction evaluation demonstrated a positive response from administrators, coaches, and athletes, creating a supportive and conducive organizational climate for developing achievements.

Fourth, the outcome evaluation demonstrated the achievement of second place (silver medal) in the 2025 Jambi Provincial Championship, with the goal of advancing to the PORPROV and the PON National Selection.

Recommendations are directed to the Regency Government for increased budgetary support, administrators for strengthened management, coaches for

innovation based on regular evaluations, and future researchers to expand the sample and study variables to produce more comprehensive and precise analyses.

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We hope that the results of this research will make a tangible contribution to the development of training programs, improving the quality of coaching management, and accelerating the performance of female rowers at the regional and national levels.

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