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Trust as a Mechanism of Role-Dependent Regulation in Acrobatic Pairs

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Abstract

Objectives. This study aimed to examine how cognitive and affective trust are organized within acrobatic pairs depending on compatibility type and partner role. It was hypothesized that trust organization varies across compatibility configurations and partner roles, and that the balance between cognitive and affective trust reflects distinct mechanisms of interaction regulation associated with responsibility distribution and regulatory tension within the dyadic system.

Materials and Methods. The study involved 25 acrobatic pairs (N = 50 athletes) aged 11–16 years competing in acrobatic gymnastics at the stage of preliminary basic training. Compatibility types were determined according to a typology of acrobatic pair compatibility previously developed by the authors. The typology integrates indicators of technical execution reliability, postural and phase coordination, and emotional–expressive coherence. Interpersonal trust was assessed using an adapted version of Daniel J. McAllister's Affect- and Cognition-Based Trust Scale. Nonparametric statistical procedures were applied, including Kruskal–Wallis tests, Mann–Whitney U tests, and Dwass–Steel–Critchlow–Fligner post-hoc comparisons.

Results. The findings revealed generally high levels of interpersonal trust between partners. No statistically significant differences between partner roles were identified. However, the structure of trust organization differed across compatibility types. Functionally oriented pairs demonstrated relatively higher cognitive trust, whereas expressively oriented pairs exhibited relatively higher affective trust. Complex synergy pairs showed consistently high levels of both trust components and demonstrated the highest values on the trust balance index, indicating a more integrated mechanism of interaction regulation.

Conclusions. Trust in acrobatic pairs functions not only as an individual psychological characteristic but also as a mechanism regulating interaction within a functionally asymmetric partnership. Variations in the balance between cognitive and affective trust reflect different coordination mechanisms associated with the distribution of responsibility, emotional synchronization, and interaction stability in acrobatic pairs.

Keywords: interpersonal trust, partner compatibility, dyadic interaction, interpersonal coordination, functional role asymmetry, acrobatic gymnastics.

Introduction

In sports that require close coordination between two athletes, such as sports acrobatics, pair figure skating, and other synchronized disciplines, competitive success largely depends on the quality of interaction between partners. The execution of complex elements requires precise temporal and spatial coordination, continuous prediction of a partner's actions, and the ability to maintain stability within the pair (Eccles & Tenenbaum, 2004).

In acrobatic gymnastics, such coordination unfolds during the execution of competitive routines, where partners must continuously adjust their movements within a shared performance structure.

Sports acrobatics provides a particularly clear example of such interdependence. Acrobatic elements require constant

coordination between partners performing different functional roles within the pair. Typically, the base partner maintains the stability of the support system, whereas the top partner performs complex dynamic and balance elements that depend on the base's reliability. This structure creates pronounced role asymmetry and a high level of mutual dependence during performance (Denysenko, 2020).

Interaction between partners in technical-aesthetic sports, including sports acrobatics and pair figure skating, may involve at least two complementary dimensions of joint performance. The first concerns functional coordination and the distribution of motor roles within the pair, particularly in tasks requiring asymmetric contributions from partners. Research within ecological dynamics and joint action frameworks shows that such coordination emerges through continuous perceptual-motor coupling between performers, allowing them to stabilize joint actions within a shared action space under changing task constraints (Araújo et al., 2006; Passos et al., 2012; Vicaria & Dickens, 2016). In this perspective, stable performance emerges through interpersonal coupling that links partners into a coordinated system. In sports acrobatics, this functional dimension of interaction has been described through the concept of technical coordination reliability between partners (Maksymov & Denysenko, 2025).

The second dimension concerns expressive and interpersonal synchronization reflecting emotional and communicative aspects of interaction (Hoehl et al., 2021). In technical-aesthetic sports, competitive routines combine technical execution with artistic and expressive components contributing to performance evaluation (FIG, 2024; Odynets et al., 2023). In sports acrobatics, expressive coordination between partners has also been identified as an important component of partner compatibility and performance interaction (Maksymov et al., 2026). Within this discipline, partners must maintain functional coordination of movement while simultaneously creating expressive unity of performance.

Effective interaction in highly interdependent tasks depends not only on technical coordination but also on psychological mechanisms supporting joint action (Marsh et al., 2009; Sebanz & Knoblich, 2021). Studies on interpersonal coordination show that successful cooperative performance requires partners to anticipate each other's actions and continuously adjust their movements (Hoehl et al., 2021; Marschner et al., 2024; Dockendorff et al., 2025). More broadly, coordinated behavior emerges through dynamic coupling and mutual adjustment between interacting individuals (Schmidt & Richardson, 2008; Richardson et al., 2007), while similarity in movement dynamics may facilitate coordination and stabilize cooperative performance (Słowiński et al., 2016). Research on joint action also suggests that efficient coordination depends on how interacting individuals distribute effort and responsibility within the shared action system (Török et al., 2019).

Within sport contexts, trust is considered an important psychological factor facilitating cooperation, decision-making, and interaction stability in both team and dyadic activities (McAllister, 1995; Mayer et al., 1995; Carron et al., 2012; Filho, 2020; McGuire et al., 2025). In social psychology, trust is conceptualized as a mechanism enabling individuals to accept vulnerability under conditions of uncertainty and interdependence (Simpson, 2007; Rotenberg et al., 2025). Trust increases the predictability of a partner's behavior and supports the willingness to rely on another person in situations involving uncertainty and shared responsibility.

In acrobatic pairs, complex elements often place one partner in a physically vulnerable position, requiring strong mutual reliance between athletes. Trust is commonly defined as a willingness to accept vulnerability based on positive expectations regarding another person's actions (Mayer et al., 1995). In highly interdependent motor tasks such as acrobatic pair performance, this willingness may involve relying on a partner for control and responsibility during complex elements. Under conditions of role asymmetry between the top and the base partner, such delegation becomes a necessary component of coordinated performance. Trust may therefore function as a psychological mechanism regulating the tension between maintaining individual control and delegating part of this control to a partner during joint performance.

From the perspective of joint action research, successful cooperation emerges through dynamic regulation of shared action and continuous mutual adjustment (Marsh et al., 2009; Sebanz & Knoblich, 2021; Boukarras et al., 2025). In this context, trust may facilitate interpersonal coordination during joint performance. The interaction between individual motor control and the need to coordinate actions with a partner may create a state of regulatory tension reflecting the balance between individual and shared control of movement. Similar dynamics between synchrony and individual action have been discussed in broader frameworks of social interaction (Mayo & Gordon, 2025). In dyadic performance contexts, the quality of partnership interaction has also been linked to athlete engagement and competitive outcomes (Liu et al., 2023). Neuroscientific studies further suggest that successful interpersonal interaction may be accompanied by neural synchronization between partners, supporting a multi-level understanding of coordination in dyadic performance (Zhao et al., 2024).

Despite the recognized importance of trust in cooperative activities, its role in regulating dyadic interaction in sports acrobatics remains insufficiently understood. Most studies have examined trust primarily as an individual psychological characteristic. However, in highly interdependent motor tasks such as acrobatic pair performance, trust may function as a property of dyadic interaction itself. Little attention has been given to the balance between cognitive and affective components of trust and their potential role in stabilizing coordinated performance between partners. Such regulatory dynamics may vary depending on how interaction is organized within the pair, suggesting that different compatibility configurations may be associated with distinct patterns of trust organization. Previous research in sports acrobatics indicates that pair interaction may be organized through different compatibility configurations integrating technical coordination reliability and emotional–expressive coherence (Maksymov & Maksymova, 2025). Biomechanical research also emphasizes the importance of precise inter-partner coordination and interaction dynamics in partner-assisted acrobatic elements (Leite, 2025; Leite et al., 2023).

In highly interdependent sports such as Acrobatic Gymnastics, the stability of joint routine execution may therefore depend on how psychological mechanisms

support interpersonal coupling between partners. Within this framework, trust may represent one of the psychological mechanisms through which different compatibility configurations regulate interaction between partners during joint performance. The aim of this study was to determine how cognitive and affective trust are distributed within acrobatic pairs depending on compatibility type and partner role. It was hypothesized that trust organization differs across compatibility types and partner roles, and that the balance between cognitive and affective trust reflects distinct patterns of dyadic regulation during joint performance.

Materials and Methods

Study Design

The study employed a cross-sectional descriptive–comparative design focusing on structural configurations rather than solely on mean-level differences. The analytical framework emphasized the role-based organization of cognitive and affective trust within asymmetric dyadic interaction.

Participants

The initial sample consisted of 30 acrobatic pairs (N = 60 athletes) aged 11–16 years competing in sports acrobatics at the stage of preliminary basic training. Inclusion criteria required at least three years of shared training experience and the absence of acute injuries at the time of data collection.

Following compatibility profiling procedures (see Sample and Analytical Strategy), 25 pairs (N = 50 athletes) representing stable regulatory configurations were included in inferential analyses.

The mean age of top partners was 15.48 years (SD = .58), whereas base partners had a mean age of 12.12 years (SD = 1.08). Data collection was conducted during the regular training period.

Ethical Considerations

The study was conducted in collaboration with sports clubs specializing in acrobatic gymnastics. Participation was voluntary, and written informed consent was obtained from all athletes and their legal guardians. The procedures involved performance assessment and psychometric evaluation and were conducted in accordance with the ethical standards for research involving human participants and the principles of the Declaration of Helsinki.

Sample and Analytical Strategy

All 30 pairs were initially profiled within a two-dimensional compatibility matrix integrating technical coordination reliability and emotional–expressive coherence, based on a previously developed typology of acrobatic pair compatibility (Maksymov & Maksymova, 2025).

Within this framework, pair interaction is evaluated through two complementary dimensions: technical coordination reliability and emotional–expressive coherence.

Technical coordination reliability was operationalized through a combination of postural stability and temporal coordination indicators. Postural stability was assessed using stabilography (stabilometric platform "Stabilan") during a handstand position of the top partner supported by the base partner, with statokinesiogram length as the primary parameter. Temporal coordination was analyzed during the execution of a dynamic element ("tempo from hands to hands") using an optoelectronic 3D motion capture system (Qualisys). The temporal difference between movement initiation phases was calculated, and anticipatory actions of the base partner were treated as synchronization errors and incorporated as a penalty component. These parameters were combined into a composite index of technical coordination reliability.

Emotional–expressive coherence was assessed through expert evaluation of partner interaction during routine performance, including emotional synchrony, coherence of movement character, stylistic unity, correspondence of expressive behavior to the routine content, and coordination of tempo and rhythm in expressive movements. A composite index was calculated based on expert ratings.

The indicators of technical coordination reliability demonstrated high test–retest reliability (r = 0.82–0.88) and significant correlations with technical performance scores in competition routines (r = 0.41–0.47, $p < .05$) (Maksymov & Denysenko, 2025). The emotional–expressive coordination scale demonstrated satisfactory internal consistency (Cronbach's $\alpha = 0.82$), high inter-rater reliability (Kendall's W = 0.91), and significant associations with indicators of performance coherence and artistic evaluation in competition (r = 0.38–0.45; $p < .05$) (Maksymov et al., 2026).

To ensure comparability, both indices were standardized using z-transformation. Standardized values reflected the relative position of each pair within the sample distribution. Based on these standardized indicators, a rule-based compatibility classifier was applied, in which each pair was assigned to a compatibility type according to the sign combination of the two dimensions. This procedure allowed formalized classification of dyadic interaction patterns and ensured consistency of group assignment across the sample.

Compatibility types were assigned according to the sign combination of the standardized indices. Pairs with positive values on both dimensions ($z > 0$; $z > 0$) were classified as complex synergy (CS). Pairs with positive technical coordination reliability and negative emotional–expressive coherence ($z > 0$; $z < 0$) were classified as functionally oriented (FO). Pairs with negative technical coordination reliability and positive emotional–expressive coherence ($z < 0$; $z > 0$) were classified as expressively oriented (EO). Pairs with negative values on both dimensions ($z < 0$; $z < 0$) were classified as were classified as low integration.

Thus, classification was based on the relative positioning of pairs within the sample rather than fixed normative cut-offs, ensuring reproducibility while avoiding arbitrary thresholds.

Pairs classified as low integration (n = 5) were excluded from inferential analyses, as the study focused on stable regulatory configurations. Accordingly, comparative analyses were conducted on 25 pairs representing three compatibility configurations: complex synergy (CS; n = 7), functionally oriented (FO; n = 10), and expressively oriented (EO; n = 8).

The proposed typological framework provides a structured tool for identifying distinct configurations of

partner interaction and may support the optimization of training processes in acrobatic pairs.

Trust variables were not used for classification but were analyzed as outcome indicators reflecting role-dependent regulation within the identified compatibility types.

Trust Measures

Interpersonal trust was assessed at the individual level. Each athlete evaluated their partner using an adapted version of McAllister's (1995) Affect- and Cognition-Based Trust Scale.

The instrument conceptualizes trust as a two-component construct comprising cognitive trust (belief in a partner's competence and reliability) and affective trust (emotional bond and mutual care). The scale consisted of 11 items: six measuring cognitive trust and five assessing affective trust. Responses were recorded on a 5-point Likert scale (1 = strongly disagree, 5 = strongly agree).

Item wording was adapted to reflect the context of acrobatic pair training and competition while preserving the original construct structure.

Composite scores were calculated for each participant (N = 50) as mean subscale scores. Higher scores indicated stronger perceived trust toward the partner.

These measures served as the primary variables for examining trust distribution across compatibility types.

Statistical Analysis

All statistical analyses were conducted using nonparametric procedures due to the sample size and non-normal distribution of variables.

Descriptive statistics are presented as medians (Me) and interquartile ranges (IQR). Group differences across compatibility configurations (CS, FO, EO) were examined using the Kruskal–Wallis test. When significant effects were identified, post hoc pairwise comparisons were performed using the Mann–Whitney U test with adjusted significance levels.

Given the dyadic structure of the data, trust ratings were analyzed at the individual level (N = 50 athletes), with compatibility configuration treated as a between-group factor. This approach reflects the conceptual structure of the construct, as trust represents an individual perception directed toward a partner while being embedded within a dyadic interaction system.

Role-specific differences in trust were examined using the Mann–Whitney U test.

Statistical significance was set at $p < .05$.

The study corresponds to a cross-sectional observational design and is reported in accordance with the STROBE guidelines. Given its exploratory nature, the analyses focused on structural patterns of interaction within asymmetric dyadic performance systems.

Results

Descriptive statistics of trust indicators

Descriptive statistics of trust variables are presented in Table 1.

Table 1. Descriptive statistics of trust variables in acrobatic pairs

Variable	Median	IQR	Min	Max
Cognitive trust	4.64	0.43	3.86	5.00
Affective trust	4.57	0.57	4.00	5.00
Balance (Cog – Aff)	0.00	0.57	−0.71	0.86

A trust balance index was calculated to reflect the proportional relationship between cognitive and affective trust within the dyad.

Both cognitive and affective trust showed high median values (Me = 4.64 and Me = 4.57), indicating generally high levels of trust between partners. The trust balance index showed moderate variability (IQR = 0.57), suggesting individual differences in the proportional relationship between cognitive and affective components of trust.

The balance between cognitive and affective trust represents an additional dimension of interaction organization within acrobatic pairs.

Differences in trust indicators between partner roles

The comparison between partner roles (top vs. base) did not reveal statistically significant differences in any of the trust indicators (Table 2). Although top partners demonstrated slightly higher cognitive trust and base partners slightly higher affective trust, these differences did not reach statistical significance ($p > .05$).

Table 2. Role differences in trust variables (Mann–Whitney test)

Variable	Top partner (Me)	Base partner (Me)	U	p
Cognitive trust	4.86	4.57	228	.092
Affective trust	4.43	4.57	273	.438
Balance	0.14	0.00	221	.072

These findings suggest that trust operates as a dyadic characteristic, without pronounced overall role differences.

Trust indicators across compatibility types

The trust indicators across compatibility types are presented in Table 3.

Table 3. Median values of cognitive trust, affective trust, and trust balance across compatibility types and partner roles

Compatibility type	Partner role	Cog_trust (Me)	Aff_trust (Me)	Balance (Me)
FO	Top	5.00	4.86	0.14
	Base	4.14	4.14	0.00
EO	Top	4.07	4.21	0.00
	Base	4.57	4.86	−0.21
CS	Top	5.00	4.43	0.57
	Base	4.86	4.43	0.43

Note. Medians (Me) are presented separately for Top and Base partners within each compatibility type. Balance represents the difference between cognitive and affective trust scores.

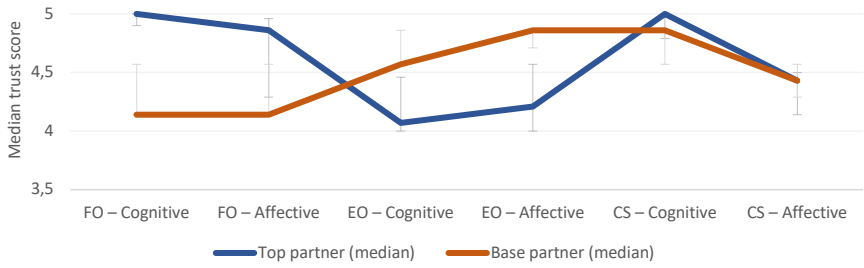

Fig. 1. Median profiles of cognitive and affective trust in top and base partners across compatibility types. Error bars represent interquartile ranges.

As shown in Table 3, compatibility types demonstrate distinct trust configurations. Figure 1 illustrates the corresponding trust profiles. Figure 1 illustrates the characteristic trust profiles associated with each compatibility configuration.

Functionally oriented (FO) pairs demonstrate relatively higher cognitive trust, particularly among top partners, whereas expressively oriented (EO) pairs show relatively higher affective trust, especially among base partners. Complex synergy (CS) pairs demonstrate consistently high levels of both trust components together with the highest balance values of the trust balance index, indicating a more integrated configuration of dyadic trust within the pair.

Kruskal–Wallis tests revealed significant differences between compatibility types for cognitive trust ($\chi^2_{(2)} = 9.95$, $p = .007$) and the trust balance index ($\chi^2_{(2)} = 11.73$, $p = .003$), whereas affective trust did not differ significantly ($\chi^2_{(2)} = 2.43$, $p = .297$).

Pairwise comparisons between compatibility types

Post-hoc pairwise comparisons using the Dwass–Steel–Critchlow–Fligner test revealed significant differences between expressively oriented (EO) and complex synergy (CS) pairs for cognitive trust ($p = .006$). No significant differences were observed between FO and EO pairs ($p = .089$) or between FO and CS pairs ($p = .449$).

For the trust balance index, significant differences were also observed between EO and CS pairs ($p = .001$), whereas differences between EO and FO ($p = .209$) and between FO and CS pairs ($p = .171$) were not statistically significant.

Role-specific patterns of trust organization

Pairwise comparisons of compatibility types within partner roles are presented in Table 4.

Role-specific analyses revealed differentiated patterns of trust organization. Among top partners, significant differences were observed for cognitive trust, with expressively oriented pairs demonstrating lower values than both functionally oriented and complex synergy pairs. In contrast, among base partners significant differences were observed mainly for affective trust, with expressively oriented pairs demonstrating higher affective trust compared with the other configurations. These findings suggest that trust regulation in acrobatic pairs may be role-dependent.

Overall, the results indicate that trust in acrobatic pairs is regulated through different interaction mechanisms depending on compatibility type, with complex synergy pairs demonstrating the most integrated trust configuration.

These patterns provide an empirical basis for understanding the role of trust in regulating dyadic interaction in acrobatic pairs.

Discussion

The present results indicate that trust in acrobatic pairs is organized not only at the level of individual attitudes but also at the level of dyadic regulation. These findings demonstrate that trust operates as a regulatory mechanism of interaction within acrobatic pairs, with different compatibility types characterized by distinct balances between cognitive and affective trust. This perspective suggests that trust represents a component of a broader system regulating interpersonal coordination in acrobatic pairs. Overall trust levels were relatively high, which is consistent with the strong interpersonal dependence and physical risk inherent in acrobatic pair performance. At the same time, the organization of trust varied by compatibility type and partner role. Significant differences were found for cognitive trust and the trust balance index, whereas affective trust did not differ significantly across compatibility types. Functionally

Table 4. Pairwise comparisons of compatibility types within partner roles (DSCF test)

Role	Variable	EO–CS	EO–FO	CS–FO
Top partners	Cognitive trust	4.198 (.008)	5.201 (<.001)	0.430 (.950)
	Affective trust	0.840 (.824)	2.813 (.115)	2.233 (.255)
	Balance	3.810 (.019)	2.440 (.196)	−1.530 (.524)
Base partners	Cognitive trust	1.310 (.623)	−2.870 (.105)	−3.170 (.065)
	Affective trust	−4.667 (.003)	−4.992 (.001)	−0.822 (.830)
	Balance	3.400 (.043)	1.170 (.687)	−2.240 (.251)

Note. Values represent W statistics with corresponding p-values in parentheses.

oriented pairs showed relatively higher cognitive trust, especially in top partners, whereas expressively oriented pairs showed relatively higher affective trust, particularly in base partners. In contrast, complex synergy pairs demonstrated consistently high trust indicators together with the highest values of the trust balance index, suggesting a more integrated organization of trust within the dyad.

Trust in acrobatic pairs should not be viewed merely as a stable interpersonal attitude. Rather, it functions as a regulatory mechanism involved in the organization of joint performance under conditions of strong interdependence. Differences between compatibility types indicate that trust participates in structuring how partners coordinate responsibility, stabilize interaction, and maintain role-dependent cooperation during the execution of complex elements. It is therefore not simply an individual characteristic but part of the regulatory architecture of dyadic action.

An important methodological contribution of the present study is the proposed trust balance index, which reflects the proportional relationship between cognitive and affective trust within the pair. Unlike approaches that examine these components separately, this index allows trust to be interpreted as a systemic characteristic of dyadic interaction. This approach opens the possibility of examining trust as a structural element within multi-level models of dyadic performance regulation. The index was not intended as a diagnostic classification criterion but as an analytical indicator of how trust is functionally organized within the pair. Higher relative cognitive trust may reflect a stronger orientation toward predictability and competence in the partner, whereas higher affective trust may indicate greater reliance on emotional security and interpersonal support. In asymmetric sports dyads such as acrobatic pairs, the balance between these components provides an additional perspective for understanding how coordination is stabilized during performance.

The general comparison between top and base partners did not reveal statistically significant role-related differences in trust indicators. This suggests that trust in acrobatic pairs is not simply tied to one role being "more trusting" than the other, but operates primarily as a dyadic characteristic shared by the interaction system as a whole. However, analyses within compatibility types revealed role-specific patterns. Role asymmetry in trust therefore does not emerge uniformly across all pairs, but depends on how coordination is organized within a particular compatibility configuration.

These role-specific differences are theoretically meaningful in sports acrobatics, where partners perform clearly asymmetric functional roles. During the execution of pair elements, the top partner is placed in a position of physical vulnerability and must partially relinquish control over body stability and safety, whereas the base partner assumes primary responsibility for maintaining the stability of the shared motor system. Trust is therefore directly linked to the sharing control. In functionally oriented pairs, the higher cognitive trust observed in top partners may reflect a greater readiness to rely on the base partner's competence during technically demanding elements. In expressively oriented pairs, by contrast, the higher affective trust in base partners may indicate that the stabilizing role of the base is supported not only through technical reliability but also through emotional involvement and interpersonal attunement.

Interaction in acrobatic pairs may thus be interpreted as a regulatory system arising from the dynamic balance between maintaining individual motor control and sharing part of this control with the partner. This state may be described as regulatory tension. During performance, the top partner must preserve body organization while simultaneously entrusting a substantial part of stability and safety to the base partner. The base partner, in turn, must maintain control over the support system while adapting to the top partner's movements and timing. Coordinated performance depends on the ability of both athletes to balance individual control with delegated responsibility.

Trust patterns should also be interpreted in relation to structural differences between compatibility types. According to the typology of acrobatic pair compatibility proposed by Maksymov and Maksymova (2025), interaction within pairs may be organized through different configurations combining technical coordination reliability and emotional–expressive coherence. Functionally oriented pairs are organized primarily around technical coordination reliability and rigid role distribution. In such pairs, shared control may emerge more readily because the interaction system is stabilized through functional predictability and acceptance of role distribution. Expressively oriented pairs rely more strongly on emotional–expressive interaction, which may shift the regulatory center toward the base partner and increase the importance of affective trust as a stabilizing resource. Complex synergy pairs combine high technical coordination with strong emotional–expressive integration, which may explain the more symmetrical and integrated trust organization observed in these dyads.

These findings can also be interpreted within the broader framework of joint action and interpersonal coordination. Research in this field shows that successful cooperation in highly interdependent tasks requires continuous prediction of a partner's actions, dynamic adjustment of one's own behavior, and the formation of shared action spaces in which movements are regulated relative to one another (Marsh et al., 2009; Sebanz & Knoblich, 2021; Vicaria & Dickens, 2016). Coordinated behavior emerges through dynamic coupling between interacting individuals rather than through isolated motor control (Schmidt & Richardson, 2008). In acrobatic pairs, such coupling must remain stable throughout routine execution despite role asymmetry and rapidly changing movement dynamics. Interpersonal coordination arises through continuous mutual adjustment of movement patterns (Richardson et al., 2007). Similarity in movement dynamics may further facilitate coordination and stabilize cooperative performance (Słowiński et al., 2016).

Within this framework, trust may function as a psychological condition that stabilizes joint action in asymmetric dyads. Studies of synchronous joint action indicate that cooperative performance involves continuous negotiation between self-related and shared control of action (Marschner et al., 2024). Research on communicative adaptation in joint action further shows that partners actively modify their behavior to make their goals more predictable to one another (Dockendorff et al., 2025). Efficient cooperation also depends on how interacting individuals distribute effort and responsibility within the joint system (Török et al., 2019). In social psychology, trust is conceptualized as a mechanism that allows individuals to accept vulnerability under conditions of uncertainty and interdependence

(Simpson, 2007). In cooperative contexts, it reduces the perceived risk associated with relying on another person and thereby facilitates coordinated action. In this sense, trust may contribute to stabilizing interpersonal coupling during joint routine execution. Recent integrative perspectives further emphasize its role in regulating interpersonal behavior within complex social systems (Rotenberg et al., 2025).

Recent research also highlights the importance of synchrony and engagement in cooperative performance contexts. Studies of DanceSport couples demonstrate that the quality of partnership interaction influences competitive performance through increased athlete engagement (Liu et al., 2023). More broadly, contemporary theoretical models suggest that synchrony and segregation between interacting individuals depend on contextual constraints and task demands (Mayo & Gordon, 2025). Neuroscientific evidence further indicates that successful interpersonal interaction is associated with increased neural synchronization between partners (Zhao et al., 2024). Although such neural processes were not directly examined in the present study, these findings support the idea that coordination in pair sports involves multi-level mechanisms integrating motor, psychological, and interpersonal processes.

In sports acrobatics, these findings suggest that trust functions as a regulatory mechanism of dyadic coordination, whereby the balance between cognitive and affective trust stabilizes joint action and reflects distinct patterns of interaction across compatibility types.

Conclusions

The results indicate that trust in acrobatic pairs is organized not only as an individual characteristic but also as a property of dyadic interaction. Different compatibility types demonstrate distinct configurations of cognitive and affective trust, reflecting different patterns of interaction regulation within the pair. Functionally oriented pairs are characterized by relatively higher cognitive trust, whereas expressively oriented pairs demonstrate relatively higher affective trust. Complex synergy pairs show the most integrated configuration of trust indicators. These findings suggest that the balance between cognitive and affective trust may represent one of the mechanisms supporting the stability of coordinated routine execution in acrobatic pairs under conditions of role asymmetry and physical interdependence.

Future Research

Future studies may further examine the dynamic role of trust in regulating interaction processes within acrobatic pairs using longitudinal and experimental designs. In particular, investigating the relationship between trust organization, interpersonal interaction styles, and psychophysiological regulation may provide deeper insight into the multi-level mechanisms underlying compatibility in dyadic sports. The analysis of interpersonal positioning based on Leary's interpersonal circumplex may further clarify how role distribution and interaction patterns are organized within acrobatic pairs.

Ethical Approval

The study was conducted in accordance with the ethical principles of the Declaration of Helsinki. The research protocol involved non-invasive psychometric assessment and observation during regular training sessions and did not include any experimental intervention. According to institutional regulations, formal ethical committee approval was not required for this type of study.

Informed Consent

Written informed consent was obtained from the parents or legal guardians of all participants prior to data collection. The athletes were informed about the purpose and procedures of the study and voluntarily agreed to participate.

Data Availability

The datasets generated and analyzed during the current study are available from the corresponding author upon reasonable request.

AI Use Statement

The authors used artificial intelligence tools for language editing and text refinement. The authors take full responsibility for the content of the manuscript.

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Conflict of Interest

The authors declare no conflict of interest.

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Довіра як механізм рольової регуляції взаємодії в акробатичних парах

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Авторський вклад: A – дизайн дослідження; B – збір даних; C – статаналіз; D – підготовка рукопису; E – збір коштів

Реферат. Стаття: 9 с., 4 табл., 4 рис., 39 джерел.

Мета дослідження. Метою дослідження було вивчити організацію когнітивної та афективної довіри в акробатичних парах залежно від типу сумісності та партнерської ролі. Передбачалося, що організація довіри відрізняється залежно від конфігурації сумісності та партнерських ролей, а баланс між когнітивною та афективною довірою відображає різні механізми регуляції взаємодії, пов'язані з розподілом відповідальності та регуляторною напруженістю в діадичній системі.

Матеріали і методи. У дослідженні взяли участь 25 акробатичних пар (N = 50 спортсменів) віком 11–16 років, які займалися спортивною акробатикою на етапі попередньої базової підготовки. Типи сумісності визначалися відповідно до типології сумісності акробатичних пар, раніше розробленої авторами. Типологія інтегрує показники надійності технічного виконання, постуральної та фазової координації, а також емоційно-експресивної узгодженості. Міжособистісну довіру оцінювали за допомогою адаптованої версії шкали афективної та когнітивної довіри Daniel J. McAllister. Для статистичного аналізу застосовували непараметричні методи, зокрема критерій Краскела–Уолліса, U-критерій Манна–Уїтні та post-hoc порівняння Dwass–Steel–Critchlow–Fligner.

Результати. Результати дослідження виявили загалом високий рівень міжособистісної довіри між партнерами. Відмінності між партнерськими ролями були обмеженими та не досягли статистичної значущості. Водночас структура організації довіри відрізнялася залежно від типу сумісності. Функціонально орієнтовані пари демонстрували відносно вищий рівень когнітивної довіри, тоді як експресивно орієнтовані пари характеризувалися відносно вищим рівнем афективної довіри. Пари зі складною синергією показали стабільно високі значення обох компонентів довіри та найвищі показники індексу балансу довіри, що свідчить про більш інтегрований механізм регуляції взаємодії.

Висновки. Довіра в акробатичних парах функціонує не лише як індивідуальна психологічна характеристика, але й як механізм регуляції взаємодії у функціонально асиметричному партнерстві. Відмінності у балансі між когнітивною та афективною довірою відображають різні механізми координації, пов'язані з розподілом відповідальності, емоційною синхронізацією та стабільністю взаємодії в акробатичних парах.

Ключові слова: міжособистісна довіра, партнерська сумісність, діадична взаємодія, міжособистісна координація, функціональна асиметрія ролей, спортивна акробатика.

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