

## Advanced self-organization strategies of junior athletes with different time perspective profiles

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### Abstract:

**The aim** is to empirically examine and theoretically substantiate how extreme self-organization strategies function among junior athletes with different time perspective profiles. **Methods.** The random sample accurately represented the general population. The sample comprised  $n = 120$  junior athletes who systematically participated in sports at Olympic reserve sports schools for children and youth in Ukraine or professional academies of leading football and handball teams. The respondents were participants in National, European, and World junior championships. Junior athletes aged 15–19 ( $M = 18.23$ ;  $SD = \pm 3.35$ ) played for the U-15, U-17, and U-19 teams or represented individual sports. A valid, reliable, and representative diagnostic toolkit was used to examine coping strategies and time perspective parameters. **Results.** Nine direct correlations were identified between time perspectives and coping strategies. "Positive Past" was found to be the most autonomous time perspective in respondents' use of extreme self-organisation strategies. "Fatalistic Present" was found to be the most dependent time perspective, with the largest number of correlations: two correlations with non-productive coping strategies, "Confrontation" ( $p \leq .050$ ) and "Distancing" ( $p \leq .010$ ), and one correlation with the productive coping strategy "Self-Controlling" ( $p \leq .010$ ). The "Future" was identified as the most constructive time perspective, correlating only with productive coping strategies: "Accepting Responsibility" ( $p \leq .050$ ) and "Planful Problem-Solving" ( $p < .001$ ). Respondents were divided into five groups based on time perspective values. It was established that Group 1, with the Future as a dominant time perspective ( $n = 30$ ; 25.00%), had the most balanced profile. Comparison between Group 1 and the other studied groups allowed recording significant superiority of Group 1 only in productive coping strategies for junior athletes' extreme self-organisation. At the same time, the other studied groups (Group 2, Group 3, Group 4, and Group 5) demonstrated the dominance of all non-productive coping strategies and one productive coping strategy, "Self-Controlling". "Self-Controlling" was found to be the most effective strategy provided that the "Future" time perspective prevailed. In all other cases, excessive self-control had a destructive effect. **Discussion and conclusions.** Junior athletes' extreme self-organisation strategies, compared across time perspectives, allowed for revealing probable behavioural scenarios in extreme competitive situations. The study suggests that established patterns and substantiated empirical findings on time perspectives and coping strategies should be used in methodological support for training coaching and teaching staff working with junior athletes.

**Keywords:** time perspective, stress, mental health, coping strategy, extreme state, distress, self-control.

### Introduction

Time perspective in junior athletes' extreme self-organisation strategies reflects the process and outcomes of perceiving their past, present, and future under the influence of a threat that causes severe stress, which may lead to frustration and a crisis. In extreme conditions of sports activities, important team competitions and individual performances commonly cause severe stress. During such competitions, the individual's mind is under excessive pressure. Such pressure is accompanied by the transformation of junior athletes' steady lifestyle and instant mobilisation of inner resources. The stable and reliable aspects of the young unhardened mind are put to the test, and attentional focus shifts to ensure survival. Survival is possible when integrity is maintained. To preserve physical and mental integrity, the subject resorts to choosing extreme self-organisation strategies. This choice is determined by a number of conditions, including learned behavioural patterns that work in such situations.

Time perspective is the temporal unity of past, present, and future modes that possesses a strong assimilative capacity and correlates with the individual's extreme self-organisation strategies. The optimal profile of time perspective was proposed by P. Zimbardo and J. Boyd (2014). The researchers analysed a large number of

respondents' profiles and found that the optimal profile is characterised by medium and high values on the future and fatalistic present scales. At the same time, the values for the other time perspectives must not exceed low or medium levels. Researchers H. Baird et al. (2021) refer to the best combination of time perspectives as a balanced time perspective, which closely resembles the optimal profile.

The authors argue that there is a certain balance that is an optimal combination of temporal dimensions for the individual's mental and physical health and ability to overcome difficulties. In difficult competitive situations, time perspective may narrow, leading the athlete to focus on the problem in line with the "here and now" principle. This phenomenon is referred to as the future reduction since what arises in the very next moment is the most valuable and important. Consequently, another temporal mechanism, the present actualisation, works.

The junior athlete uses all available mental resources to address current threats. Such extreme circumstances quickly exhaust inexperienced athletes; therefore, the issue of extreme self-organisation strategies in the context of time perspective is particularly important. In fact, the individual's ability to consider time perspective in activity is considered their time competence (Shostrom, 1964). It is important for adolescents to develop this competence. To summarise, time "shrinks" in extreme situations of sports activities. Images of a possible defeat, the loss of a winning outcome or prize, or the opportunity to qualify for the next round of competitions flash before the athletes' eyes, i.e., the past is perceived through the prism of losses. The future takes shape in the face of sudden security.

A number of studies that address challenging extreme trials (Haletska et al., 2022; Plokhikh et al., 2026) established that, despite negative changes, people with high resilience can retain the ability to plan the future, which helps them adapt to adverse conditions. Another study found that respondents with the dominant time perspective "Future" took a proactive stance, demonstrating internal integrity, a sense of control, and beliefs in positive change (Synhaivska & Kotsiubynska, 2025).

The examined psychophysiological and age-related patterns in adolescents who actively engage in physical culture and sports (Kozin et al., 2023) suggest the need to attend to youthful idealism. Youthful idealism in sports manifests in categorical judgments, uncompromising beliefs, and a quest for instant results. However, it is more important that youthful idealism focuses on thoughts and intentions oriented towards the future. This certainly affects time perspective. It is good that junior athletes focus on the future, but it is also important that their views are mature and time-tested. Junior athletes who endured difficult competitive situations caused by the COVID-19 pandemic faced new challenges and, at the same time, had to deal with excessive loads (Samsudin et al., 2023).

Research by F. Lebrun et al. (2019) shows that even elite athletes need training to learn effective coping strategies, which should be used in difficult competitive situations and civilian life. Researchers A. Nicholls and R. Polman (2007) drew an interesting conclusion in their exploration of coping strategies in sports. To overcome difficulties effectively, both time perspective and the content component of a trial, which significantly affect practical activity, are important.

Adolescence in the context of developing time competence is a sensitive period. The data on the optimal profile developed by P. Zimbardo et al. (1997) were verified on a sample of juniors in the study by S. Chan et al. (2019). The researchers proposed a new sixth factor, "current impulsive". It is assumed that the sample of juniors and maximalist intentions prompted them to generate this factor. We considered a number of psychometric adaptations of the aforementioned inventory (Senyk, 2012; Skogen & Nesvåg, 2019; Zimbardo & Boyd, 1999) and chose the classic five-factor version.

Retrospective analysis does not attest to an in-depth study of the research subject. Many researchers outline individual aspects and focus on their importance without providing statistical data. Therefore, it is particularly important to empirically study and theoretically substantiate junior athletes' extreme self-organisation strategies in relation to time perspectives during the sensitive period of their development.

Junior athletes' extreme self-organisation strategies are viewed as psycho-complexes for managing their physical and emotional states, readiness for learning, training, competitive, and rehabilitative activities, using adaptive methods to deal with stressful and difficult competitive situations, managing time and concentration to improve athletic performance without getting exhausted or injured.

Junior athletes' extreme self-organisation strategies compared across time perspectives will allow for the identification of behavioural scenarios in extreme competitive situations. The established patterns and substantiated empirical facts of time perspectives and coping strategies will allow for revealing the content features of juniors' extreme self-organisation strategies and providing methodological support for coaching and teaching staff.

*Hypothesis.* We assume that 1) junior athletes with different time perspective profiles will implement different self-organisation strategies; 2) the "Future" time perspective will surpass other time perspectives in the effectiveness of productive coping strategies.

*Aim.* To empirically study and theoretically substantiate how extreme self-organisation strategies of junior athletes with different time perspective profiles work.

## Methods

**Participants.** The random sample is considered representative as it accurately reflected the general population. The sample comprised  $n = 120$  junior athletes who systematically engaged in sports. The subjects were students of the Olympic reserve sports schools for children and youth in Ukraine or trained at professional academies of leading football and handball clubs.

The respondents had participated in the National, European, and World junior championships. The junior athletes, aged 15 to 19 ( $M = 18.23$ ;  $SD = \pm 3.35$ ), played for the U-15, U-17, and U-19 teams or represented individual sports. The gender ratio was as follows: male junior athletes ( $n = 39$ ; 32.50%) and female junior athletes ( $n = 81$ ; 67.50%).

**Procedures and instruments.** To assess junior athletes' time perspectives, the "Time Perspective Inventory" (TPI) (Zimbardo & Boyd, 1999), successfully adapted for a Ukrainian sample by O. Senyk (2012), was used. The classic five-factor model included the following dimensions: Negative Past (NP), Hedonic Present (HP), Future (F), Positive Past (PP) and Fatalistic Present (FP). Empirical dataset was tested for statistical reliability. Cronbach's alpha ( $\alpha$ ) indicated a high level (.956) of data homogeneity for the questionnaire. The "Ways of Coping Questionnaire" (WCQ) (Lazarus & Folkman, 1984) was used to identify strategies for coping with stress. The proposed methodology was numerously tested in studies involving junior athletes and proved to be a reliable and comprehensive psychodiagnostic tool (Popovych et al., 2026).

This questionnaire allows for differentiating between eight coping strategies, grouped into productive and non-productive coping strategies. Non-productive coping strategies include confrontation aimed at changing the situation and characterized by hostility; distancing, which is observed in diminishing the importance of the situation and shifting attention; and escape-avoidance as ignoring the problem and unwillingness to solve it. Productive coping strategies include self-control as a desire to manage one's feelings and actions; seeking social support, which manifests in expecting assistance and sympathising with others; accepting responsibility as readiness to identify one's role in the current situation; planful problem-solving as analysing the situation and developing a plan of action; and positive reappraisal as a desire to find the bright side of a difficult situation. Respondents identify their attempts to deal with difficult situations through realising extreme self-organisation strategies. Cronbach's alpha ( $\alpha$ ) was recorded at a high level (.896).

**Organisation of Research.** The research plan was based on a confirmatory strategy. The key feature of the study is that empirical data were collected on the eve of crucial matches. In other words, the respondents were under heightened stress caused by preparation for the competition and anticipation of the upcoming match. This research design ensured high ecological validity and the relevance of examining junior athletes' extreme self-organisation strategies. Valid methodologies were employed to identify and measure the features of the studied phenomena. No distinction was made between dependent and independent variables. Notably, time perspective was assigned the role of a grouping variable.

It was empirically found that the "Future" time perspective was the closest to the optimal profile proposed by P. Zimbardo and J. Boyd (2014). This determined the logic of comparison between "Future" and all other time perspectives. Consent to conduct research was given by the Ethics Committee and the Scientific and Methodological Council of Kherson State University. Informed consents were obtained, and respondents were surveyed between March and April of this year. A mixed-methods approach was used to collect empirical data, i. e. the group was surveyed using paper forms and Google Forms. Voluntariness, confidentiality, and awareness ensured the credibility and consistency of the empirical dataset, which was confirmed by the coefficients of statistical reliability.

**Statistical Analysis.** The computer software "IBM SPSS Statistics", version 29.0.2.0 (20), and Microsoft 365 applications were used to perform statistical operations. Standardised statistical coefficients allowed for recording the values of the studied phenomena and descriptive frequency characteristics, testing data for a normal distribution and statistical consistency, establishing correlations, identifying statistical differences, measuring the effect size, and generating the figure of time perspective profiles using the median rank. Statistical correlations and differences at  $p \leq .050$ ;  $p \leq .010$ ;  $p \leq .001$  were interpreted and explained.

## Results

The first stage of statistical analysis involved identifying the main descriptive frequency characteristics of the empirical dataset. The empirical data across all scales were found to follow a normal distribution. The mean ( $M$ ), the median ( $Me$ ), and the squared deviation ( $SD$ ) relevantly defined the sample's reproducibility. The descriptive frequency characteristics, asymmetry ( $A$ ), and excess ( $E$ ) indicated a normal distribution across all studied scales. The normal distribution hypothesis was tested using the one-sample Kolmogorov-Smirnov test ( $\lambda$ ). The studied parameters were measured using the "TPI" (Zimbardo & Boyd, 1999) and "WCQ" (Lazarus & Folkman, 1984). The results are presented in Tabl. 1.

**Table 1.** Descriptive frequency characteristics and parameters of a normal distribution across the studied scales (n = 210)

| Scale                           | M     | Me    | SD    | Normal distribution <sup>a</sup> |       |                       |
|---------------------------------|-------|-------|-------|----------------------------------|-------|-----------------------|
|                                 |       |       |       | A                                | E     | K-Sb (p) <sup>b</sup> |
| "TPI" (Zimbardo & Boyd, 1999)   |       |       |       |                                  |       |                       |
| Negative Past (NP)              | 3.01  | 2.90  | ±.78  | .137                             | -.236 | .020                  |
| Hedonic Present (HP)            | 3.12  | 3.10  | ±.78  | -.060                            | .309  | .200 <sup>c</sup>     |
| Future (F)                      | 3.24  | 3.30  | ±.61  | -.035                            | .997  | .190                  |
| Positive Past (PP)              | 3.29  | 3.30  | ±.86  | .389                             | .643  | .200 <sup>c</sup>     |
| Fatalistic Present (FP)         | 2.82  | 2.80  | ±.93  | .468                             | .949  | <.001                 |
| "WCQ" (Lazarus & Folkman, 1984) |       |       |       |                                  |       |                       |
| Confrontation (C)               | 9.52  | 9.00  | ±2.63 | .144                             | -.606 | .011                  |
| Distancing (D)                  | 9.70  | 9.00  | ±3.05 | .309                             | .306  | <.001                 |
| Self-controlling (SC)           | 11.64 | 11.00 | ±2.76 | .305                             | -.675 | <.001                 |
| Seeking Social Support (SSS)    | 10.96 | 10.50 | ±3.08 | .040                             | -.720 | <.001                 |
| Accepting Responsibility (AR)   | 12.60 | 10.00 | ±3.31 | .331                             | .646  | <.001                 |
| Escape-Avoidance (E-A)          | 11.28 | 10.00 | ±3.75 | .244                             | -.451 | <.001                 |
| Planful Problem-Solving (PPS)   | 11.27 | 10.00 | ±3.74 | .545                             | -.434 | .002                  |
| Positive Reappraisal (PR)       | 11.88 | 11.00 | ±2.73 | .806                             | -.240 | <.001                 |

Note: M – the mean; Me – the median (given *in italics*); SD – the squared deviation; <sup>a</sup> – follows a normal distribution; <sup>b</sup> – by the one-sample Kolmogorov-Smirnov Test ( $\lambda$ ); p – the level of significance; <sup>c</sup> – the lower bound of true significance; A – asymmetry; E – excess; K-Sb – Kolmogorov-Smirnov Test ( $\lambda$ ).

Source: Own research.

Notably, time perspective parameters showed the expected uniform distribution across all time perspectives. Slight superiority was recorded for "Positive Past" (M = 3.29; SD = ± .86) and "Future" (M = 3.24; SD = ± .61). The lowest values were recorded for the time perspectives "Fatalistic Present" (M = 2.82; SD = ± .93) and "Negative Past" (M = 3.01; SD = ± .78). These data do not contradict the empirical results obtained from another sample of junior athletes in a study by I. Popovych et al. (2022), since no statistically significant differences were found. A normal distribution was observed and confirmed across all time perspective scales. The "WCQ" (Lazarus & Folkman, 1984) was used to assess productive and non-productive coping strategies. "Accepting Responsibility" (M = 12.60; SD = ± 3.31) was found to be the most pronounced productive coping strategy, whereas "Seeking Social Support" (M = 10.96; SD = ± 3.08) was found to be the least pronounced productive coping strategy. "Escape-Avoidance" (M = 11.28; SD = ± 3.75) was found to be the most pronounced non-productive coping strategy, whereas "Confrontation" (M = 9.52; SD = ± 2.63) was found to be the least pronounced non-productive coping strategy. Similar results regarding productive coping strategies were obtained in a study by I. Popovych et al. (2026) with a sample of juniors. A normal distribution was observed and confirmed across all coping strategy scales. The research design involved establishing correlations. Since the Kolmogorov-Smirnov Test ( $\lambda$ ) confirmed a normal distribution across all scales, Pearson's coefficient (*R*) was used. Tabl. 2 presents a correlation matrix of junior athletes' coping strategies and time perspectives in extreme competitive situations.

**Table 2.** Correlation matrix of the studied parameters in extreme competitive situations (n = 120)

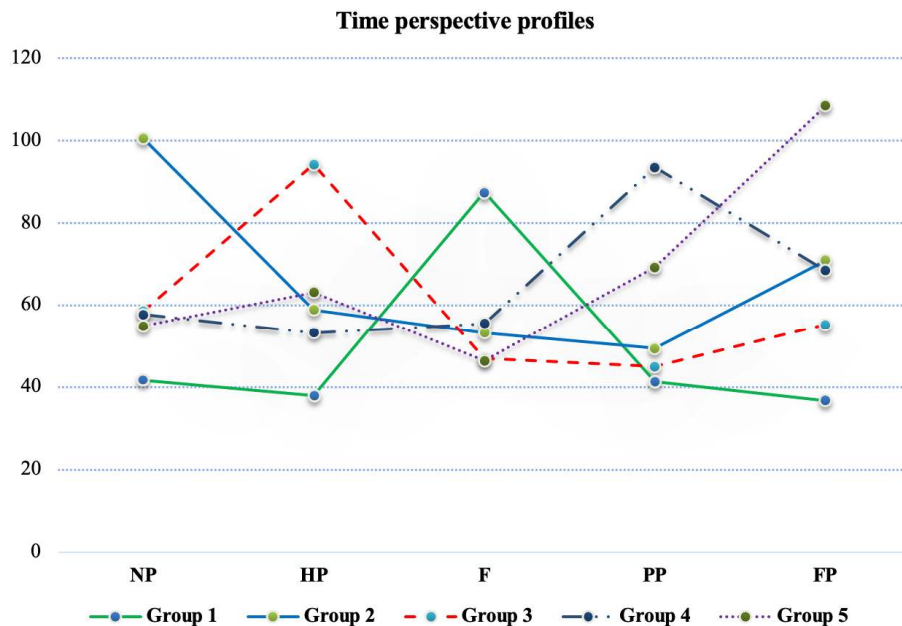
| Scale | Pearson's coefficient | Time perspective |        |         |       |        |
|-------|-----------------------|------------------|--------|---------|-------|--------|
|       |                       | NP               | HP     | F       | PP    | FP     |
| C     | <i>R</i>              | .093             | .125   | .104    | .097  | .202*  |
|       | <i>p</i>              | .313             | .174   | .259    | .293  | .027   |
| D     | <i>R</i>              | .316***          | .240** | .033    | .038  | .249** |
|       | <i>p</i>              | < .001           | .008   | .722    | .678  | .006   |
| SC    | <i>R</i>              | .332***          | .272** | -.107   | .164  | .270** |
|       | <i>p</i>              | < .001           | .003   | .243    | .073  | .003   |
| SSS   | <i>R</i>              | .085             | -.003  | .005    | -.060 | -.050  |
|       | <i>p</i>              | .357             | .972   | .960    | .515  | .584   |
| AR    | <i>R</i>              | -.049            | .050   | .183*   | -.063 | -.052  |
|       | <i>p</i>              | .595             | .586   | .046    | .494  | .574   |
| E-A   | <i>R</i>              | .133             | .051   | -.084   | .132  | .093   |
|       | <i>p</i>              | .148             | .578   | .363    | .150  | .311   |
| PPS   | <i>R</i>              | -.029            | .066   | .306*** | -.021 | -.096  |
|       | <i>p</i>              | .751             | .471   | < .001  | .820  | .299   |
| PR    | <i>R</i>              | -.064            | -.031  | .121    | -.118 | -.117  |
|       | <i>p</i>              | .486             | .736   | .190    | .199  | .202   |

Note: C – confrontation; D – distancing; SC – self-controlling; SSS – seeking social support; AR – accepting responsibility; E-A – escape-avoidance; PPS – planful problem-solving; PR – positive reappraisal; NP – negative past; HP – hedonic present; F – future; PP – positive past; FP – fatalistic present; \* –  $p \leq .050$ ; \*\* –  $p \leq .010$ ; \*\*\* –  $p \leq .001$ .

Source: Own research.

Nine statistically significant correlations were established for four time perspectives. Notably, only direct correlations were established. The "Positive Past" time perspective, with no significant correlations, was an exception. It is considered the most autonomous time perspective in the context of respondents' extreme self-organisation strategies. "Fatalistic Present" has the largest number of correlations: two with non-productive coping strategies, "Confrontation" ( $R = .202$ ;  $p = .027$ ) and "Distancing" ( $R = .249$ ;  $p = .006$ ), and one with a productive coping strategy, "Self-Controlling" ( $R = .270$ ;  $p = .003$ ). The "Future" time perspective correlates only with productive coping strategies, including "Accepting Responsibility" ( $R = .183$ ;  $p = .046$ ) and "Planful Problem-Solving" ( $R = .306$ ;  $p < .001$ ). The coping strategy "Self-Controlling" showed the largest number of significant correlations – three. The strongest correlation was observed between "Self-Controlling" and "Negative Past" ( $R = .332$ ;  $p < .001$ ). This correlation poses the greatest latent threat. No correlations were established for the following coping strategies: "Seeking Social Support", "Escape-Avoidance", and "Positive Reappraisal".

Time perspectives allowed differentiating between five groups: Group 1 comprised respondents with the dominant "Future" time perspective ( $n = 30$ ; 25.00%); Group 2 consisted of respondents with the dominant "Negative Past" time perspective ( $n = 19$ ; 15.83%); Group 3 included respondents with the dominant "Hedonistic Present" time perspective ( $n = 28$ ; 23.33%); Group 4 comprised respondents with the dominant "Positive Past" time perspective ( $n = 35$ ; 29.17%); and Group 5 consisted of respondents with the dominant "Fatalistic Present" time perspective ( $n = 8$ ; 6.67%). It was important to illustrate the values of time perspective parameters based on the most sensitive measure – the mean rank. Fig. I shows respondents' time perspective profiles, which visualises the distribution of parameter values for each group.



Note: NP – negative past; HP – hedonic present; F – future; PP – positive past; FP – fatalistic present; Group 1 – respondents with the dominant "Future"; Group 2 – respondents with the dominant "Negative Past"; Group 3 – respondents with the dominant "Hedonistic Present"; Group 4 – respondents with the dominant "Positive Past"; Group 5 – respondents with the dominant "Fatalistic Present".

Source: Own research.

**Fig. I.** Time Perspective Profiles of the Studied Groups of Junior Athletes

The figure shows the location of each parameter across all groups. According to the empirical research design and hypotheses, it was important to compare the parameters most loaded in extreme competitive situations that constitute extreme self-organisation strategies. P. Zimbardo and J. Boyd (2014) found that the optimal time perspective profile is most effective for mental and physical health in the context of professional activity. Researchers H. Baird et al. (2021) refer to the optimal combination of time perspectives as a balanced time perspective. Analysis suggests that the group of respondents with the dominant focus on the future (Group 1) is the closest to the optimal profile in the context of our research. The next step was to compare the four studied groups with Group 1. Using Student's t-test, Cohen's d, and Levene's test (F) allowed assessing the effect size in these comparisons. Tabl. 3 shows the results demonstrating the significant superiority of junior athletes' extreme self-organisation strategies in comparing Group 1 and Group 2.

**Table 3.** Results of the comparison between the studied parameters of respondents in Group 1 and Group 2

| Scale | Levene's test |       | Student's t-test for the equality of variances |                |          |          | Cohen's d |
|-------|---------------|-------|------------------------------------------------|----------------|----------|----------|-----------|
|       | F             | p     | t                                              | p <sup>a</sup> | 95 CI    |          |           |
|       |               |       |                                                |                | Lower    | Upper    |           |
| C     | .760          | .388  | -.790                                          | .054           | -2.22765 | .97151   | -.232     |
| D     | .548          | .463  | -2.606                                         | .002           | -3.68665 | -.47475  | -.764     |
| SC*   | 5.747         | .021  | -3.041                                         | <.001          | -4.39585 | -.86029  | -.966     |
| SSS   | 2.023         | .162  | .389                                           | .087           | -1.56753 | 2.31841  | .114      |
| AR*   | 6.496         | .014  | 1.661                                          | .013           | -2.34664 | 22.80278 | .388      |
| E-A*  | 13.483        | <.001 | -2.592                                         | .016           | -5.29090 | -.59331  | -.883     |
| PPS   | .018          | .894  | 1.113                                          | .002           | -.73359  | 2.55113  | .326      |
| PR    | .660          | .421  | .841                                           | .063           | -3.83700 | 9.34577  | .246      |

Note: Group 1 – respondents with a dominant time perspective of the future; Group 2 – respondents with a dominant time perspective of the negative past; \* – Welch's test was used; F – Levene's test for the equality of variances (bivariate); p – significance level; <sup>a</sup> – Bonferroni correction (*a*); t – Student's t-test; 95 CI – confidence interval; Cohen's d – effect size;  $p \leq .050$ ;  $p \leq .010$  and  $p < .001$ , the data is given *in italics*; C – confrontation; D – distancing; SC – self-controlling; SSS – seeking social support; AR – accepting responsibility; E-A – escape-avoidance; PPS – planful problem-solving; PR – positive reappraisal. Source: Own research.

Five significant differences were identified. Two differences were found in Group 1 in the coping strategies "Accepting Responsibility" ( $t = 1.661$ ;  $p = .013$ ) and "Planful Problem-Solving" ( $t = 1.113$ ;  $p = .002$ ). Group 2 demonstrated superiority in three coping strategies: "Distancing" ( $t = -2.606$ ;  $p = .002$ ), "Self-Controlling" ( $t = -3.041$ ;  $p < .001$ ), and "Escape-Avoidance" ( $t = -2.592$ ;  $p = .016$ ). Tabl. 4 presents the comparison of junior athletes' coping strategies in Group 1 and Group 3.

**Table 4.** Results of the comparison of the studied parameters among the respondents in Group 1 and Group 3

| Scale | Levene's test |      | Student's t-test for the equality of variances |                |          |          | Cohen's d |
|-------|---------------|------|------------------------------------------------|----------------|----------|----------|-----------|
|       | F             | p    | t                                              | p <sup>a</sup> | 95 CI    |          |           |
|       |               |      |                                                |                | Lower    | Upper    |           |
| C     | .709          | .403 | .075                                           | .117           | -1.35548 | 1.46024  | .020      |
| D     | .634          | .429 | -.680                                          | .063           | -2.07714 | 1.02475  | -.179     |
| SC*   | 4.373         | .041 | -2.426                                         | .002           | -3.16861 | -.29805  | -.644     |
| SSS   | .301          | .585 | 1.337                                          | .023           | -.51493  | 2.58160  | .351      |
| AR*   | 10.314        | .002 | 1.674                                          | .013           | -2.26887 | 22.79268 | .425      |
| E-A   | 2.583         | .114 | -.043                                          | .120           | -1.36054 | 1.30339  | -.011     |
| PPS   | .105          | .747 | 1.874                                          | .008           | -.09840  | 2.94602  | .492      |
| PR    | 1.638         | .206 | 1.303                                          | .024           | -1.88784 | 8.91165  | .342      |

Note: Group 1 – respondents with a dominant time perspective of the future; Group 2 – respondents with a dominant time perspective of the negative past; \* – Welch's test was used; F – Levene's test for the equality of variances (bivariate); p – significance level; <sup>a</sup> – Bonferroni correction (*a*); t – Student's t-test; 95 CI – confidence interval; Cohen's d – effect size;  $p \leq .050$ ;  $p \leq .010$  and  $p < .001$ , the data is given *in italics*; C – confrontation; D – distancing; SC – self-controlling; SSS – seeking social support; AR – accepting responsibility; E-A – escape-avoidance; PPS – planful problem-solving; PR – positive reappraisal. Source: Own research.

Five significant differences were identified. Three differences were found in Group 1 in the coping strategies "Seeking Social Support" ( $t = 1.337$ ;  $p = .023$ ), "Accepting Responsibility" ( $t = 1.674$ ;  $p = .013$ ), "Planful Problem-Solving" ( $t = 1.874$ ;  $p = .008$ ), and "Positive Reappraisal" ( $t = 1.303$ ;  $p = .024$ ). Group 3 demonstrated superiority in the coping strategy "Self-Controlling" ( $t = -2.426$ ;  $p = .002$ ). Tabl. 5 presents the comparison of junior athletes' coping strategies in Group 1 and Group 4.

**Table 5.** Results of the comparison of the studied parameters among the respondents in Group 1 and Group 4

| Scale | Levene's test |       | Student's t-test for the equality of variances |                |          |          | Cohen's d |
|-------|---------------|-------|------------------------------------------------|----------------|----------|----------|-----------|
|       | F             | p     | t                                              | p <sup>a</sup> | 95 CI    |          |           |
|       |               |       |                                                |                | Lower    | Upper    |           |
| C     | .139          | .710  | -.686                                          | .062           | -1.63920 | .80111   | -.171     |
| D     | 1.221         | .273  | -1.555                                         | .016           | -2.39435 | .29911   | -.387     |
| SC    | .075          | .785  | -2.602                                         | .002           | -2.55941 | -.33583  | -.647     |
| SSS   | 1.146         | .288  | .506                                           | .077           | -1.06714 | 1.79095  | .126      |
| AR*   | 12.793        | <.001 | 1.659                                          | .014           | -2.36176 | 22.68557 | .446      |
| E-A   | 3.447         | .068  | -1.292                                         | .025           | -6.94972 | 1.49258  | -.321     |
| PPS*  | 5.587         | .021  | 1.171                                          | .031           | -.49673  | 1.88721  | .299      |
| PR    | 2.917         | .093  | 1.322                                          | .024           | -1.61761 | 7.94142  | .329      |

Note: Group 1 – respondents with a dominant time perspective of the future; Group 2 – respondents with a dominant time perspective of the negative past; \* – Welch's test was used; F – Levene's test for the equality of variances (bivariate); p – significance level; <sup>a</sup> – Bonferroni correction (*a*); t – Student's t-test; 95 CI – confidence interval; Cohen's d – effect size;  $p \leq .050$ ;  $p \leq .010$  and  $p < .001$ , the data is given *in italics*; C – confrontation; D – distancing; SC – self-controlling; SSS – seeking social support; AR – accepting responsibility; E-A – escape-avoidance; PPS – planful problem-solving; PR – positive reappraisal. Source: Own research.

Six significant differences were identified. Three differences were found in Group 1 in the coping strategies "Accepting Responsibility" ( $t = 1.659$ ;  $p = .014$ ), "Planful Problem-Solving" ( $t = 1.171$ ;  $p = .031$ ), and "Positive Reappraisal" ( $t = 1.322$ ;  $p = .024$ ). Group 4 demonstrated superiority in three coping strategies: "Distancing" ( $t = -1.555$ ;  $p = .016$ ), "Self-Controlling" ( $t = -2.602$ ;  $p = .002$ ), and "Escape-Avoidance" ( $t = -1.292$ ;  $p = .025$ ). Tabl. 6 presents the comparison of junior athletes' coping strategies in Group 1 and Group 5.

**Table 6.** Results of the comparison of the studied parameters among the respondents in Group 1 and Group 5

| Scale | Levene's test |      | Student's t-test for the equality of variances |                |           |          | Cohen's d |
|-------|---------------|------|------------------------------------------------|----------------|-----------|----------|-----------|
|       | F             | p    | t                                              | p <sup>a</sup> | 95 CI     |          |           |
|       |               |      |                                                |                | Lower     | Upper    |           |
| C     | .019          | .892 | -.612                                          | .068           | -2.62468  | 1.40801  | -.243     |
| D     | 3.791         | .059 | -.991                                          | .041           | -3.45309  | 1.18642  | -.394     |
| SC    | .036          | .851 | -2.107                                         | .005           | -3.89194  | -.07473  | -.839     |
| SSS   | .334          | .567 | 2.105                                          | .005           | .09199    | 4.97468  | .837      |
| AR    | 2.742         | .106 | .948                                           | .044           | -12.92473 | 35.59140 | .377      |
| E-A   | .176          | .677 | -1.815                                         | .010           | -3.38789  | .18789   | -.722     |
| PPS   | 1.536         | .223 | 1.523                                          | .017           | -.60197   | 4.23530  | .606      |
| PR    | .577          | .453 | .839                                           | .051           | -5.96005  | 14.37671 | .334      |

Note: Group 1 – respondents with a dominant time perspective of the future; Group 2 – respondents with a dominant time perspective of the negative past; \* – Welch's test was used; F – Levene's test for the equality of variances (bivariate); p – significance level; <sup>a</sup> – Bonferroni correction ( $\alpha$ ); t – Student's t-test; 95 CI – confidence interval; Cohen's d – effect size;  $p \leq .050$ ;  $p \leq .010$  and  $p < .001$ , the data is given in *italics*; C – confrontation; D – distancing; SC – self-controlling; SSS – seeking social support; AR – accepting responsibility; E-A – escape-avoidance; PPS – planful problem-solving; PR – positive reappraisal.

Source: Own research.

Six significant differences were identified. Three differences were found in Group 1 in the coping strategies "Seeking Social Support" ( $t = 2.105$ ;  $p = .005$ ), "Accepting Responsibility" ( $t = .948$ ;  $p = .044$ ), and "Planful Problem-Solving" ( $t = 1.523$ ;  $p = .017$ ). Group 5 demonstrated superiority in three coping strategies: "Distancing" ( $t = -.991$ ;  $p = .041$ ), "Self-Controlling" ( $t = -2.107$ ;  $p = .005$ ), and "Escape-Avoidance" ( $t = -1.815$ ;  $p = .010$ ).

## Discussion

Psychological preparation of junior athletes is a key to a successful professional career. Our research into extreme self-organisation strategies of junior athletes with different time perspective profiles addresses the complex nature of developing self-regulation, time competence, and emotional intelligence and training emotional resilience and physical endurance. Rapid physical development, the formation of personal worldviews, and maximalist manifestations make adolescence a dynamic, complex, and critically important stage of the junior athlete's development. Psychological culture and continuous psychological preparation can increase the value of the achieved sports outcomes.

The dominance of the time perspectives "Positive Past" and "Future" (see Tabl. 1) suggests a relatively optimistic view of time perspective in the sample of juniors. Superiority of respondents with high "Future" values is associated with the profile characteristics closer to the optimal profile. However, the importance of "Positive Past" was paid less attention. We have to admit that memories of the positive past give junior athletes energy and inspire them to be active. The importance of regularly returning to positive moments shapes the junior athlete's new mental state of confidence, allowing them to achieve winning outcomes. Subjectively, extreme situations take on a form of extremity, which outlines a particular state of the human psyche, referred to as extreme states (Krusemark & Hackemann, 2019; Potts et al., 2019). Junior athletes' extreme states, caused by unusual or extraordinary conditions, lead to increased anxiety and particular emotional stress. An erratic pace and a lack of preparation for extreme physical loads cause rapid exhaustion, demotivation, injuries, and occupational burnout (Kozin et al., 2026).

In a balanced time perspective, focusing on the future and positive past is considered essential. However, in Group 1 (see Fig. 1), the positive past and the negative past are almost equal and reach the lowest values of the mean rank. The aforementioned scientific facts are confirmed in the study involving students who were exposed to traumatic events in extreme conditions (Plokhikh et al., 2025). Since the junior athlete's energy resources for stress resistance are depleted by the pressure of internal and external stressors in extreme conditions, they need to redistribute psycho-emotional and physical energy resources in the face of uncertainty and threat. This effect is significantly exacerbated by a reduction in these resources due to distress. Such a biological agent's intention to counteract the tendency towards increased disorder and minimise the entropy of sensory states, aligns with the "free energy principle" (Peters et al., 2017). Accordingly, junior athletes seek enhancement of their overall focus. They find this enhancement in unresolved contradictions from the past, which distracts from searching for a solid foundation in positive experience to set and achieve new goals and solve current problems. The given disputable arguments are confirmed in the study by C. Iranpour et al. (2023). The researchers outlined the individual's problematic shift in focus from current activities due to the extreme situation.

The values of coping strategies (see Tabl. 1) demonstrate pairs of polar dimensions, indicating the highest and lowest levels of productive strategies, "Accepting Responsibility" – "Seeking Social Support", and those of non-productive strategies, "Escape-Avoidance" – "Confrontation". The junior athlete's readiness to accept responsibility does not provide grounds for expecting positive competitive outcomes. The revealed dominance of coping strategies is quite unstable. At the same time, the correlation matrix (see Tabl. 2) showed only direct correlations. This is further corroborated by the fact that "Planful Problem-Solving" correlates only with the "Future" time perspective ( $p < .001$ ).

Comparing coping strategies based on the grouping variable "time perspective" allowed for obtaining valuable empirical data for consideration and discussion. In fact, the superiority of Group 1 (the highest "Future" values) over all other studied groups (see Tabl. 3–6) is of practical value for use in classes on tactical preparation. In the most difficult competitive situations, athletes' resort to tactics they have trained in class. This is true for individual and team sports. It is noteworthy that all compared groups (Group 2, 3, 4 and 5) showed significant superiority over Group 1 only in one productive coping strategy, "Self-Controlling". Group 1 demonstrated superiority in all other productive strategies. This can be explained by the fact that the dominance of "Self-Controlling" with the prevalence of the time perspectives "Positive Past", and "Negative Past", or "Hedonistic Present" and "Fatalistic Present" is an attempt to control the course of actions. At the same time, this combination cannot give a competitive advantage to junior athletes. Thus, "Self-Controlling" is the most effective extreme self-organisation strategy provided that the "Future" time perspective prevails.

The aim was achieved, and two hypotheses were tested. The study outlined junior athletes' extreme self-organisation strategies across five time perspectives and explained the values of the studied phenomena, correlations, and significant advantages for learning and training, competitive, and rehabilitative activities. The empirical results and theoretical substantiation possess scientific novelty, operationalise the use of time perspective profiles, and provide an in-depth look at the essence and value of junior athletes' coping strategies and defence mechanisms.

## Conclusions

The study shows that extreme self-organisation strategies, compared based on the grouping variable "time perspective", reveal probable behavioural scenarios of junior athletes in extreme competitive situations. The direct correlations established between time perspectives and coping strategies demonstrated the interdependence of the studied phenomena in junior sports. The "Future" time perspective, which correlates only with productive coping strategies, "Accepting Responsibility" ( $p \leq .050$ ) and "Planful Problem-Solving" ( $p < .001$ ), was found to be the most constructive. It was noted that "Positive Past" is the most autonomous time perspective used by respondents to implement extreme self-organisation strategies. "Fatalistic Present", which has the largest number of correlations, two with non-productive coping strategies, "Confrontation" ( $p \leq .050$ ) and "Distancing" ( $p \leq .010$ ), and one with a productive coping strategy, "Self-Controlling" ( $p \leq .010$ ), was found to be the most dependent time perspective.

Respondents were divided into five groups according to time perspective values. Group 1, with the dominant "Future" time perspective ( $n = 30$ ; 25.00%), was found to have the most balanced time perspective profile. Comparison between Group 1 and all other studied groups revealed significant superiority of Group 1 only in productive coping strategies of junior athletes' extreme self-organisation. At the same time, all non-productive coping strategies and only one productive coping strategy, "Self-Controlling", prevailed in the other studied groups (Group 2, Group 3, Group 4, and Group 5). This suggests that the dominance of "Self-Controlling" is an attempt to control the course of events in sports, since self-control alone cannot ensure a competitive advantage. It was highlighted that the extreme self-organisation strategy "Self-Controlling" is the most effective if the "Future" time perspective prevails.

To summarise, the empirical results and theoretical substantiation possess scientific novelty, operationalise the use of time perspective profiles, and provide an in-depth look at the essence and value of junior athletes' coping strategies and defence mechanisms.

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**Data availability statement** The datasets generated during and/or analysed during the current study are available from the corresponding author on reasonable request.

**Ethics Statement** This research was conducted in accordance with the principles of the Declaration of Helsinki. Respondents provided personal written consent to participate in the study, after which they received access to the questionnaires. **Conflict of Interests** The authors report there are no competing interests to declare. Authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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