RESEARCH ARTICLE

Retirement from elite sports: Key factors shaping athletes' transition to post-sport life in the Czech Republic

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ABSTRACT

This study, as part of the research work within the EEIG EU/P-Kr/06.12/23 project Are Elite Athletes Good Project Managers?, focusses on the process of elite sports career termination and the subsequent adaptation of athletes to post-sport life. The objective is to identify key factors that influence this transition and to analyse their impact on the quality of life of former elite athletes in the Czech Republic. Materials and Methods: The research is based on a previous study made by Kadlčík^[1] and uses a sequential mixed-methods design that combines qualitative and quantitative approaches. In the first phase, semi-structured interviews with 20 former elite athletes provided a deeper understanding of the issue. Based on these insights and international studies, two hypotheses were formulated for the second phase, in which 200 respondents were surveyed using a standard questionnaire. Results: The findings indicate that planned and voluntary career termination is positively correlated with successful adaptation. Key facilitating factors include transferable skills and effective coping strategies. Conversely, a strong athletic identity and nonacceptance of career termination acted as barriers. Conclusion: An adaptation to post-sport life is a highly individual process influenced by a wide range of variables. The study highlights the need for targeted support for athletes during this transition, highlighting the development of transferable skills and psychological preparation.

Keywords: elite athletes; sports career; sports career termination; transition process; quality of post-sport life

1. Introduction

The environment of elite sports is highly specific and fundamentally different from other areas of social life. Elite athletes often have to dedicate most of their lives to sport to achieve significant success and financial security. Werthner and Orlick^[2] describe the athlete's relationship with sport as one filled with love and hate, challenges, sacrifices, victories, and defeats. This relationship includes remarkable highs, but also painful setbacks.

However, many elite athletes face difficulties in both their personal and professional lives after retiring from their careers. The questions of whether these problems are exceptions or rather common occurrences and how best to assist these individuals remain highly relevant^[3-4]. It is undoubtedly that modern elite sport

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ARTICLE INFO

cannot be pursued without significant interventions in the daily life^[5]. Many athletes begin elite training at a young age when they are not yet mature in other aspects of life, such as psychosocial development or education^[6]. Recent studies, e.g. Daley et al.^[7] or Baker et al.^[8] confirm that premature entry into elite sport can have negative consequences for athletes' mental health, not only during their careers but especially during career termination and post-sport life. Athletes who enter elite sports at a young age are at increased risk of mental health problems such as anxiety and depression, which affects their overall well-being and professional integration after retirement^[9-10]. Following their sports careers, athletes may encounter difficulties not only with financial stability, but also with adjusting to a new lifestyle. They often experience a decline in the media and public interest, a loss of social identity, and challenges in finding new professional opportunities^[11,12]. Without adequate support, athletes face serious challenges in transitioning to post-sport life^[13], which negatively impacts their mental health^[4].

The issue of terminating a sports career has become a significant topic only in recent decades. Until 1980, only 20 studies had been published on this subject^{[14].} Interest increased significantly in the 1990s, when Wylleman et al.^[15] referred to more than 270 scientific papers. Since 2005, research has focused on a comprehensive approach to career termination that incorporates psychological, social, economic, and cultural factors. These studies frequently highlight the importance of support systems during transition^[16], indicating that athletes who develop alternative professional skills during their careers have a greater chance of successful adaptation^[17].

Since 2015, research has focused on the specifics of different sports disciplines. Studies have shown that athletes in individual sports face different challenges compared to those in team sports, and these studies have confirmed that individual athletes are more likely to experience anxiety and depression^[18]. In recent years (2019–2023), research has explored new approaches, such as the influence of media and public life on post-sport identity^[19]. These contemporary studies also indicate that early intervention and mental health support can significantly reduce the risk of psychological problems^[20]. Career counselling and preparation for transition to everyday life are key factors for successful adaptation^[21].

Studies on sports career termination use various methodological approaches. In the 1990s, qualitative studies that focused on athletes' personal experiences were predominant^[22]. Later, quantitative and mixed-method approaches gained prominence^[23]. Frequently used tools included questionnaires such as the *Revised Causal Dimension Scale (CDSII)* and the *Athletic Identity Measurement Scale (AIMS)* as cited in Brewer et al.^[24]. Since 2000, new research instruments have emerged, such as the *Athlete Career Transition Inventory (ACTI)*, which assesses the readiness of athletes for retirement^[25]. Schinke et al.^[26] used narrative analysis of former athletes, providing new insights into the cultural and social aspects of adaptation.

Since 2010, research has increasingly focused on gender-specific transition processes^[27]. The Brake and Kelly's study^[28] found that female athletes face different challenges, particularly in financial stability and redefining social identity. Meta-analyses, such as Fleischman et al.^[29], have confirmed that effective career transition strategies include not only psychological support, but also the development of transferable skills.

Since 2000, research on sports career termination has expanded in the Czech Republic, although it still lags behind international studies. Kadlčík^[1] identified key factors that influence successful adaptation after career termination. Svoboda^[30] or Stambulova^[31] have highlighted the need for mentoring programmes and broader support for athletes during their transition to everyday life. The *Dual Career Project* of the Czech Olympic Committee^[32] provides athletes with support in education and professional development during their sports careers; however, its impact remains limited.

Although research in the Czech Republic has advanced since 2000, significant gaps remain. There is a lack of long-term studies tracking athletes from the peak of their careers to their full integration into everyday life, and research on gender differences in career transitions should be further developed.

1.1. Literature review

A sporting career is a specific life trajectory that encompasses the period from an athlete's early sporting beginnings through to its termination. It is defined as a process during which the athlete gradually progresses from a recreational level to elite performance, thereby becoming part of a demanding system of training, competition, and social relationships within the sporting environment^[1]. An elite sporting career is typically time-limited, often peaking between the ages of 20 and 35, and usually concludes before reaching middle age^[79].

The termination of a sporting career represents a crucial transitional process for the athlete, associated with significant psychological, social, and professional changes. This process is frequently referred to in the literature as career transition and is considered one of the most critical moments in an athlete's life^[40,68]. These studies indicate that the success of this transition depends not only on objective factors but also on the athlete's subjective perception of the reasons for retirement.

The most common reasons for terminating a sporting career include, in particular, biological limitations associated with age and declining performance, which are often related to cumulative injuries and chronic pain^[1,42,80]. Injuries, in this context, are one of the main involuntary factors that accelerate the need for retirement, even among athletes who would otherwise wish to continue competing.

Personal and family factors also play a significant role. International studies confirm that changes in family circumstances, motherhood among female athletes, the pressure to secure the family financially, or the need to spend more time with loved ones are frequent causes of voluntary retirement^[68,54]. Loss of motivation and psychological burnout, which may result from prolonged stress and performance pressure, likewise significantly influence an athlete's decision to retire^{[[37]}.

Some athletes choose to terminate their careers voluntarily at a time when they are still at their peak in order to preserve a positive image of their sporting identity^[79,81]. This motivation is also recognised in international studies and relates to the maintenance of social prestige and personal dignity^[26,42]. However, other athletes are forced into retirement by circumstances, and if they are unprepared for this change, the transition may lead to feelings of loss of purpose, identity and social networks, which increases the risk of adjustment difficulties^[82].

The course and success of the adjustment process during the transition to post-sport life is therefore influenced by a number of external and internal factors which are interrelated, as illustrated in Figure 1.

The transition from elite sport to post-sport life represents a complex process, the success of which significantly affects the quality of life of former athletes. This process is conditioned by the interaction of individual, situational and environmental variables^[82]. A crucial factor is the degree of athletic identity, which may become an obstacle if it is too rigid and the athlete is unable to reconcile it with life beyond their sporting career^[1,71].





An important predictor is also the athlete's psychological preparedness and planning for retirement, which reduces the risk of an identity crisis and supports positive adaptation^[10,82]. In terms of external factors, social support plays a crucial role, particularly from family, coaches and close surroundings^[52,14]. Research confirms that athletes with a strong support network are better able to cope with the stress and uncertainty associated with this new life phase^[77].

The economic situation and financial security are other significant variables - athletes with a clear vision for a career outside of sport report higher life satisfaction^[36,83]. Equally important is the ability to make use of transferable skills, which help athletes to integrate more easily into civilian employment^[82].

It is essential to understand adaptation as a dynamic process in which individual variables interact with each other^[81]. Stambulova et al.^[10] emphasise that the balance between internal resilience and external conditions is key to overall wellbeing. A significant trend in recent years has been the development of dual career programmes, which reduce the negative impacts of the transition^[61].

Overall, it can be concluded that quality of life after the end of a sporting career is not the result of a single factor but rather the complex interplay of psychological, social and economic variables. Successful adjustment is particularly supported by preparedness, social support and the opportunity to build a new life role beyond sport.

1.2. Literature gap

Research into the transition of elite athletes to post-sport life shows that, despite the growing number of studies, many crucial questions remain unresolved. In particular, there is a lack of in-depth analysis of the specific factors that determine the success of this transition among elite athletes. Existing findings are often generalised to mixed samples of elite, semi-professional, and recreational athletes, which blurs understanding of the distinct features of the professional sporting context.

International studies confirm that the greatest risk of failed adaptation lies precisely with professionals who tend to have a very narrow athletic identity, significant economic dependence on income from sport, and fewer opportunities to develop transferable skills^[51,21]. Nonetheless, there is still a lack of detailed empirical comparison of how individual factors - such as the extent of planning, family support, institutional backing, or coping strategies - influence the quality of the transition and long-term life satisfaction.

In the Czechia and Central European context, only limited data are available on how effectively dual career programmes function for elute athletes who dedicate most of their productive years to full-time sport

and have less experience with civilian employment. A specific gap also lies in the lack of longitudinal studies that would monitor the development of the adaptation process among elite athletes over a longer time frame. While some factors, such as support from family and coaches, are relatively well documented, the relative importance of coping strategies and the ability to plan career termination remains mostly theoretical, without deeper quantitative validation. Yet it is precisely these factors that can significantly modulate the impact of retirement from sport on the psychosocial, professional, and health-related dimensions of quality of life.

Future research should therefore examine in greater detail which specific variables act as protective or risk mechanisms, focusing exclusively on elite athletes who face different conditions than amateur or semiprofessional athletes. A systematic combination of qualitative and quantitative methods and validated tools that take into account athletic identity, discipline type and cultural specificities is essential.

2. Materials and methods

The main objective of the research is to identify and analyse the key factors that influence the process of terminating a professional sports career and to assess their impact on the subsequent adaptation of athletes to everyday life in the context of the Czech Republic.

The formulation of the main objective is based on generally recognised models of transition in sport described in Taylor and Ogilvie^[42] and Stambulova^[25]. These models emphasise that the process of career termination is not one-dimensional but rather the result of the interplay between external (situational) and internal (individual) factors, which interact and determine whether the adaptation will be successful^[15]. The first research question (RQ1) therefore logically arises from the need to specify and distinguish these key determinants in greater detail.

RQ1: Which external and internal factors determine the course and effectiveness of the adaptation process during the transition to post-sport life?

This categorisation is supported, for example, by Stambulova^[25] as well as Park et al.^[82], who demonstrate that understanding transition without distinguishing between factors can lead to a superficial description and obscure the influence of individual variables. The second research question (RQ2) then builds upon the recommendations of these authors, who emphasise that merely identifying the factors is insufficient - it is essential to understand the relative importance of each variable for the athlete's quality of life after their sporting career^[24,72]. This approach makes it possible not only to describe which factors exist, but also to determine which of them have the greatest practical impact on the psychosocial, professional or health-related domains of life^[61]. In this way, the second part of the objective is directly fulfilled - to assess the impact of career termination and the quality of the adaptation process.

RQ2: What is the relative significance of individual variables involved in the transition process in relation to the overall quality of life of former elite athletes?

The literature review clearly shows that the key determinants of a successful transition to post-sport life include, for example, the degree of athletic identity, retirement planning, social support, transferable skills and the choice of coping strategies. Based on these findings, it was possible to formulate specific hypotheses that predict how individual factors behave in relation to adaptation and quality of life. The hypotheses thus specify the relationships indicated by the literature, enabling targeted testing.

This logical framework also builds on the first phase of the research, which was carried out through semi-structured interviews with former professional athletes. Qualitative data from this phase clarified how

athletes perceive the significance of individual factors and where they identify obstacles or support. The results of the interviews therefore served to validate and refine the hypotheses, which are now being tested in the second (quantitative) phase on a larger sample of respondents. This stepwise continuity is in line with the principles of a mixed-methods design.

Moreover, this research is conceived as part of the existing EEIG EU/P-Kr/06.12/23 project Are elite athletes good project managers?, which focuses on expanding knowledge about the transition of professional athletes in the Czech context. The hypotheses are therefore not isolated but build directly on insights already generated by the project and further develop them towards measurable verification.

Thanks to this integration, the hypotheses are firmly theoretically and empirically grounded and are not detached from the real context or the practical experiences of the respondents. This corresponds to recommended procedures for hypothesis formulation in social and sports.

H1: Former elite athletes who have voluntarily terminated their sports careers exhibit a higher level of perceived quality of life in the post-sport period in the dimensions of psychosocial, social, professional/educational, health, and overall life satisfaction compared to athletes whose careers were terminated involuntarily.

This is based on evidence showing that the manner of career termination is among the key predictors of satisfaction and quality of life in the post-sport life. Voluntary retirement enables athletes to prepare psychologically, plan the transition and face changes with a sense of control over the situation. Such athletes demonstrate higher levels of psychosocial wellbeing, fewer symptoms of depression and anxiety, and generally higher life satisfaction^[37,43]. Conversely, athletes whose careers were terminated involuntarily, most often due to injury, declining performance or external circumstances, face a higher risk of identity crises, loss of purpose and reduced social status^[82]. This translates into lower quality of life, particularly in the psychosocial and professional/educational domains. Preparedness for civilian life also plays a significant role - athletes who have a plan and an alternative career pathway manage the transition more successfully^[51,52]. International studies confirm that voluntary retirement is associated with better outcomes across all dimensions of quality of life: health, social and economic^[14,77]. Therefore, experts recommend paying attention to early career assistance, which supports active planning and minimises the negative consequences of an involuntary exit.

H2: Extensive elite athletes will demonstrate a higher perceived quality of life in the post-sport period in the areas of psychosocial, social, professional/educational, health, and overall satisfaction will be exhibited by former elite athletes who:

- have attained a higher level of education,
- come from sports disciplines with significant state support, a long-standing tradition, high spectator appeal, and strong economic backing,
- have been more extensively involved in the state sports training system,
- have gained experience from international engagements,
- exhibit a lower degree of identification with their athletic identity;
- have acquired a higher level of transferable skills,
- planned their sports career termination in advance and took steps to prepare for the transition,
- received substantial support from their social environment during the transition period.

Hypothesis H2 is based on research confirming that the quality of life of athletes after their sporting career is influenced by a combination of individual, structural, and situational factors^[42,68]. Education is one of the strongest protective factors - athletes with a higher level of education report lower stress and greater professional employability^[36,61].

Sport discipline plays an important role - traditional and state-supported sports with higher prestige and financial backing provide better opportunities for dual careers and social recognition after retirement^[15]. Likewise, participation in international competitions is associated with broader networks, additional skills and often an extended network of social support. A strong athletic identity may paradoxically complicate adaptation - if it is too rigid, the athlete struggles to identify with another role^[40,70]. In contrast, transferable skills portfolios (e.g., communication, teamwork) support a successful transition^[82].

Planning for retirement has been shown to be crucial - athletes who plan their termination in advance and actively prepare for it report higher life satisfaction. Social support also plays a significant role - family, friends and coaches act as protective factors that reduce the risk of isolation and stress^[29,44]. Research indicates that these factors should not be understood in isolation. Rather, they interact with each other, and their alignment significantly increases the quality of life after retirement.

Based on the literature review, these individual factors can be regarded as independent variables that contribute to the quality of life of former elite athletes after career termination. Each factor should be clearly defined and measured in order to monitor their relative importance and interrelationships.

- Education: defined by the highest level of education attained (e.g., secondary, bachelor's, master's). Higher education increases employability prospects.
- Sport discipline: analysed in terms of the level of state support, tradition, and financial background. It may be categorised by sport type (individual vs. team) or popularity.
- Involvement in the national training system measured, for example, by the number of years in national representation or participation in official programmes (e.g., youth academies, junior squads).
- International experience can be minitored by the number of participations in top-level competitions (e.g., European Championships, World Championships, Olympic Games) and the length of international contracts.
- Athletic identity: the level of identification with the athletic role can be assessed using standardised questionnaires, such as the Athletic Identity Measurement Scale by Brewer et al.^[24].
- Transferable skills portfolios: skills applicable beyond sport (e.g., communication, teamwork, planning). These can be assessed by questionnaire or self-assessment.
- Retirement planning: captured through questions on preparedness, timing of exit and measures taken (e.g., courses, retraining).
- Social support: measured by the intensity of support from family, coaches, friends or institutions (e.g., mentoring, psychological support).

All these variables should be monitored separately, but their possible interactions must be considered in the analysis - for example, athletes with higher education often make better use of transferable skills.

The athlete's age at the time of career termination is recommended to be included as a covariate, as it may modify the effects of other factors - younger athletes often have a longer time horizon for adaptation and retraining.

A mixed research paradigm was chosen for the study, combining qualitative and quantitative approaches, as recommended by Hendl^[38], enabling an effective analysis of the complexity of the examined phenomenon. The research can be classified as an observational study.

The target population consists of former elite athletes who have ended their careers in the past five years and transitioned into post-sport life. The exact size of the population cannot be determined because there are no official records in the Czech Republic.

The research was carried out in two phases, as recommended by Kadlčík^[1]. The objective of the first research phase (January – June 2024) was to obtain fundamental insights into the phenomenon examined and its structure, leading to the formulation of hypotheses. Data collection was carried out through semistructured interviews with 20 open-ended questions supplemented by 10 questions using a Likert scale, based on the Kadlčík^[1]. Respondents answered questions about their sports identity and life satisfaction in three time periods: active career, transition, and current post-sport life.

The interviews were conducted online via the ZOOM platform. All invited respondents (N = 20) agreed to participate in the research. The interviews lasted between 30 and 44 minutes and were recorded with the consent of the respondents. The recordings were transcribed into text using the Google Speech-to-Text application. Each interview produced 8-10 pages of text. The textual data were analysed by hierarchical content following the methodology described in Patton^[39]. The key statements of the respondents were organised into thematic units and theoretical concepts were subsequently identified using both inductive and deductive approaches. Data were categorised based on transition models in sports careers^[40-43].

The selection was carried out using the 'snowball sampling' method, as recommended by Wolff et al.^[44], by coaches or other respondents. Selection was concluded when theoretical saturation, as defined by Hendl^[38].

The research sample consisted of 10 men and 10 women from various sports disciplines: athletics (N = 2), football (N = 2), ice hockey (N = 2), basketball (N = 1), rowing (N = 1), judo (N = 1), tennis (N = 4), beach volleyball (N = 2), sports aerobics (N = 3), weightlifting (N = 1) and powerlifting (N = 1). The ages ranged from 23 to 35 years (M = 26.3). The age of career termination ranged from 28 to 33 years (M = 29.8) and the length of their sports careers ranged from 10 to 20 years (M = 16.6). Respondents began their sports careers between the ages of 3 and 8 (M = 5.9), achieving their greatest success between the ages of 18 and 26 (M = 22.2).

The second research phase (July – November 2024), following the methodology of Kadlčík^{[1],} focused on the operationalisation and testing of hypotheses formulated in the first phase. Associative measurement was used, where the observed variables were latent and measured through indicators. The relationships between variables were evaluated as descriptive-associative. The perceived quality of post-sport life was considered the dependent variable, while the independent variables included:

- reasons for and the degree of voluntariness in career termination,
- level of education attained,
- type of sport,
- involvement in the state training system,
- experience with international engagements,
- perceived sports identity,
- degree of acquisition of transferable skills,

- transition planning, and
- social support.

The key instrument in this phase of the research was a questionnaire consisting of 21 questions with a total of 103 items, based on a questionnaire previously conducted and validated in Kadlčík^[1] and Kadlčík and Flemr^{[45].} The questions were designed as closed-ended responses with forced-choice responses on nominal or five-level Likert scales. The Likert scale was chosen to measure attitudes towards specific statements, with position 1 representing a strongly negative position and position 5 representing a strongly positive position.

The research sample for this phase was a subset of the target population, selected based on availability. The sample included 200 respondents who voluntarily participated and completed the questionnaire. Representatives of various sports disciplines were included: football, ice hockey, basketball, volleyball, athletics, swimming, skiing, rowing, cycling, tennis, biathlon, gymnastics, judo, figure skating, beach volleyball, sports aerobics, and wrestling. To be included in the sample, individuals had to meet all characteristics of the target population, with no restrictions on age or the age at which they ended their career.

The average age of the respondents was 45.6 years. The age distribution exhibited a bimodal pattern, with significant groups formed by individuals in their 30s and sixties. The average time since retiring from a professional sports career was 17.3 years. Regarding current occupations compared to the general Czech population, our research indicates that former elite athletes often secure more prestigious employment, a trend also confirmed by Conzelmann and Nagel^[46], with a strongly positive distribution being strongly positively skewed ($\gamma 1 = 1.43$).

The research sample demonstrated a high level of education. A total of the 55.1% of respondents had attained higher education, significantly above the national average in the Czech Republic, where in 2022, 26.67% of the population aged 25 to 64 had completed higher education, compared to the EU average of 37.67%. Additionally, 78% of the respondents were part of the state sports training system and 22% had international experience.

The average age of starting a sports career was around 8 years, while the average age of retirement from sport was approximately 30 years. The variation between different sports was evident, particularly in the age of career termination, where the range was 15.15 years, compared to a range in career start age. These differences suggest that career termination is more influenced by sport-specific factors than its initiation. The findings support the Wylleman's et al. study^[14] conclusions, which highlight the parallel development of athletic and non-athletic aspects of an athlete's life. The most common career start age was 6 years, corresponding to the beginning of compulsory schooling.

The results were evaluated graphically and in tabular form. Descriptive characteristics included frequencies, median (Me), mean (M), standard deviation (SD), and skewness measures. Qualitative dichotomous and polytomous variables were described using frequencies, while categorical ordinal variables were described using frequencies and measures of central tendency. Data were visualised using histograms or box plots.

The analysis of the findings provided a basis for verifying the established hypotheses and allowed for the description and evaluation of the relationships between the observed variables. The results were interpreted not only graphically and in tables, but also in verbal form.

3. Results

The content analysis of data from the first phase of the research identified ten key categories related to the process of termination a sports career and transitioning into post-sport life:

- Reasons for terminating a sports career.
- Planning for the termination of a sports career.
- Perceived internal resources.
- Perception of barriers to the adaptation transition.
- Social support during career termination.
- Coping strategies during career termination.
- Perceived sources of life satisfaction at the time of career termination.
- Perception of career termination.
- Changes in life and demands after career termination.
- Sources of satisfaction in the post-sport period.

These categories correspond to the theoretical models described in Stambulova^[40], Stambulova^[41], Taylor and Ogilvie^[42] or Taylor and Ogilvie^[43], which define the key variables of the transition process.

The research findings confirm the conclusions presented in Fleischman et al.^[29] or Young et al.^[47] indicating that career termination is a complex process influenced by both internal and external factors. Respondents' statements suggest that, despite individual differences, common variables influence this process. Among the key factors are the athlete's personality, his environment, and specific situational conditions^[48,49]. The transition process involves expected and unexpected factors and requires effective adaptation strategies^[14].

The decision to retire from a sports career is the result of a combination of multiple factors^{[14, 50, 51],} some of which may have roots deep in the past^[52]. This decision acts as a trigger for the transition process^[49]. Variables that influence the career termination process include both resources, such as self-confidence, awareness of limits and perseverance, and barriers, such as the inability to accept the reality of career termination, the desire to continue, or communication problems within the family^[41]. However, the division into positive and negative factors^[43] was not confirmed.

The transition process is highly individual^[53, 54], with the ability to navigate this process significantly affecting the quality of post-sport life. Support from coaches, family and sports organisations can greatly facilitate this process and positively affect integration into everyday life ^[14, 48].

In the second phase of the research, the reasons for career termination were analysed. The table below (**Table 1**) presents the ranking of reasons that respondents identified as highly important, which means that they expressed complete agreement with the importance of the reason for terminating their sports career.

Among the reasons considered important for ending a sporting career were a new life goal, a decline in motivation for competition and training, a decline or stagnation in performance, health problems, injuries, family reasons, age, or pursuing a new career. If the ranking of the reasons for career termination were to be established according to this criterion, then reasons related to health problems and injuries would come more to the forefront.

Table 1. Decisive reasons for terminating a sports career.

Reason

New life direction44,1Health problems, injuries40,8Decline in motivation36,2Family reasons33,4Age31,2Decline or stagnation in performance28,9New job, career28,5,Problematic relationships21,9Achievement of sports goals20,8Financial reasons18,3Studies18,6Desire to retire at the peak17,6Deselection13,9Lack of free time12,3Commuting, relocation9,9Sporting failure6,7Traumatic event2,0		
Decline in motivation36,2Family reasons33,4Age31,2Decline or stagnation in performance28,9New job, career28,5Problematic relationships21,9Achievement of sports goals20,8Financial reasons18,3Studies18,6Desire to retire at the peak17,6Deselection13,9Lack of free time12,3Commuting, relocation9,9Sporting failure6,7	New life direction	44,1
Family reasons33,4Age31,2Decline or stagnation in performance28,9New job, career28,5Problematic relationships21,9Achievement of sports goals20,8Financial reasons18,3Studies18,6Desire to retire at the peak17,6Deselection13,9Lack of free time12,3Commuting, relocation9,9Sporting failure6,7	Health problems, injuries	40,8
Age31,2Decline or stagnation in performance28,9New job, career28,5Problematic relationships21,9Achievement of sports goals20,8Financial reasons18,3Studies18,6Desire to retire at the peak17,6Deselection13,9Lack of free time12,3Commuting, relocation9,9Sporting failure6,7	Decline in motivation	36,2
Decline or stagnation in performance28,9New job, career28,5,Problematic relationships21,9Achievement of sports goals20,8Financial reasons18,3Studies18,6Desire to retire at the peak17,6Deselection13,9Lack of free time12,3Commuting, relocation9,9Sporting failure6,7	Family reasons	33,4
New job, career28,5,Problematic relationships21,9Achievement of sports goals20,8Financial reasons18,3Studies18,6Desire to retire at the peak17,6Deselection13,9Lack of free time12,3Commuting, relocation9,9Sporting failure6,7	Age	31,2
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Financial reasons18,3Studies18,6Desire to retire at the peak17,6Deselection13,9Lack of free time12,3Commuting, relocation9,9Sporting failure6,7	Problematic relationships	21,9
Studies18,6Desire to retire at the peak17,6Deselection13,9Lack of free time12,3Commuting, relocation9,9Sporting failure6,7	Achievement of sports goals	20,8
Desire to retire at the peak17,6Deselection13,9Lack of free time12,3Commuting, relocation9,9Sporting failure6,7	Financial reasons	18,3
Deselection13,9Lack of free time12,3Commuting, relocation9,9Sporting failure6,7	Studies	18,6
Lack of free time12,3Commuting, relocation9,9Sporting failure6,7	Desire to retire at the peak	17,6
Commuting, relocation9,9Sporting failure6,7	Deselection	13,9
Sporting failure 6,7	Lack of free time	12,3
	Commuting, relocation	9,9
Traumatic event 2,0	Sporting failure	6,7
	Traumatic event	2,0

Source: Own

The results correspond with findings from studies by Koukouris^[84,85], Stambulova^[86] or Swain^[87] (among others), which indicate that it is usually not a single factor, but rather a combination of various reasons that leads to the termination of a sporting career. Nevertheless, a total of 16 respondents indicated (on a scale of 1–5, where 1 = complete disagreement and 5 = complete agreement with the statement "The following reason was very important for ending my sporting career") only one of the offered reasons as decisive. These reasons were as follows: six times - health problems or injuries; four times - problematic relationships with a coach, teammates, or sports officials/organisations; twice - age; and once each - family matters, new employment, the desire to retire "at the peak", and achieving sporting goals.

The ranking of the importance of reasons for ending a sporting career does not fully align with the results of studies such as Ogilvie and Taylor^[43] and Werthner and Orlick^[2], which cite injuries, chronological age, deselection and personal choice as the most common reasons for retirement. If personal choice is linked to the voluntary nature of ending a sporting career, then the findings of this study confirm only three of these reasons as the most important. Only 25 respondents indicated this as an important reason.

The reason defined as "problematic relationships" corresponds to the frequency of this factor in earlier Czech research by Kopecká^[63], where disagreements with a coach were perceived by 47% of female respondents as having a strong influence on the development of their career, and a deterioration of relationships within the sporting collective was cited by 20% as an event with a decisive impact on their career trajectory.

An interesting result is the ranking of the reason "desire to retire at the peak", which has not been mentioned in previous research. This reason, identified in the first phase of this study, ranked even higher in importance than the frequently cited reason of deselection.

Previous research indicates that injury is one of the most common reasons for ending a sporting career - for example, in Mihovilovič's study^[88], this reason was given by one third of respondents; in Svoboda and

Vaněk's study^[89], it was 24%; and in the research by Allison and Meyer^[90], 15% of respondents cited it. The present findings confirm that injuries and health problems are indeed among the most common reasons, with 40.8% of respondents indicating this as important. Comparable results are seen for age: 31.2% of respondents mentioned age as an important reason for ending their career. For comparison, Mihovilovič^[88] reported this reason for 27% of his respondents. Other studies also identify age as one of the most frequent reasons - Svoboda and Vaněk ^[89] found it relevant for 13% of respondents, and Allison and Meyer^[90] for 10%.

Age, as these results show, plays a very significant role throughout a sporting career and affects, for example, the length of a career as well as the age at which peak performance is achieved, depending on the sport. These conclusions were already outlined in the preceding chapter and are consistent with Taylor and Ogilvie's^[91] statement: *"The impact of age on sport career termination is a function of physiological, psychological and social factors that have significant consequences for both older and younger athletes. For athletes in sports in which peak performance occurs during adolescence, the career termination process can take place during this life stage. This fact is especially evident in sports such as gymnastics, where puberty and the associated physical changes can represent a limitation rather than a contribution to development and improved performance."*

The need to take a new life direction, as mentioned by Werthner and Orlick^[92], was identified as important by 44.1% of respondents, making it the highest-rated reason for retirement in terms of importance (the exact name of the reason was "new life goal"). The decline in motivation, noted by Svoboda and Vaněk^[89] and Kopecká^[63], was also an important reason for 36.2% of respondents. Financial reasons, highlighted by Thomas and Ermler^[93], were important for 18,3% of respondents.

Respondents had the option to list other reasons not explicitly included in the questionnaire but which were significant for their decision to termnate their sporting career. Some respondents used this opportunity and provided a range of additional interesting reasons. These included "marriage", which was also mentioned by Kopecká^[63]. Five respondents specifically cited children as the reason for terminating their sporting career, for example: *"Elite career = children", "Birth of the second child."* Two respondents described health issues with the statement: *"Overall psychological and physical exhaustion of the organism."* A very specific reason, not mentioned in previous literature, was the inability to participate in a major sporting event for political reasons rather than deselection. The lack of participation in the Los Angeles Olympic Games was mentioned twice as an additional reason for retirement. Other reasons were highly specific and individual, such as: *"Undervalued", "Building a house", "Lack of sparring partners", "At the time of the creation of the SVS, I was forced (convinced) to start working as an Olympic preparation coach", "Insufficient support from the ČSTV to achieve absolute performance levels. I saw no possibility of further performance growth without improved training conditions", "I was unjustly expelled from the FTVS coaching school in Prague, enrolled at the Faculty of Civil Engineering in Brno, and after two years I stopped competing in sport", "Problems with investors, large debts with them."*

Thomas and Ermler^[93] already distinguished between voluntary and involuntary career termination. Webb et al.^[94] later divided the reasons for retirement into those involving an athlete's free choice and those forced by circumstances.

Researchers in earlier studies hypothesised that the degree of voluntariness in career termination influences the quality of the adaptation process in the post-sport life. Lavallee^[95], for example, argues that involuntary retirement is unexpected and sudden, and thus can be very difficult as athletes are rarely prepared for it. Conversely, Taylor and Ogilvie^[91] caution against generalising this claim, stating that

although voluntary retirement can be seen as preferable, the lack of empirical evidence means that it should not be assumed that voluntary retirement necessarily facilitates the career termination process and the subsequent transition to post-sport life.

An important part of the research was to examine the relationship between the degree of voluntariness in career termination and the perceived quality of post-sport life (see Hypothesis No. 1). The distribution of respondents in the research sample was almost even: 47.1% reported rather involuntary career termination, while 51.2% classified their retirement as rather voluntary, which correlates with available research (see **Table 2**).

	%
rather involuntary	47.1%
rather voluntary	51.2%
not specified	1.7%

Source: Own

In the context of Hypothesis H2, the perceived quality of post-sport life among former elite athletes was examined across the domains of psychosocial wellbeing, social life, employment/education, health, and overall perceived life satisfaction, depending on the degree of voluntariness of sport career termination. The relationship under study was assessed using analysis of variance (in this case, multivariate analysis of variance was employed), where, in addition to describing the values of differences between levels of the independent variable, the relative practical significance of the effect of the independent variable on the dependent variables was also examined, expressed as η^2 .

The voluntariness of sport career termination was defined at two levels. Respondents were divided into two groups: those whose reasons for terminating their sport career indicated rather a voluntary career termination and those whose reasons indicated rather an involuntary termination. The following table (**Table 3**) shows the mean values, standard deviations and z-scores for the levels of voluntariness of career termination across the domains of psychosocial wellbeing, social life, employment/education, health, and life satisfaction in the post-sport period.

Domain Group		Μ	SD	z-score
Psychosocial domain	Involuntary career termination (N=94)	12.89	3.843	0.22
	Voluntary career termination (N=106)	11.38	3.021	-0.22
	Total (N=200)	12.05	3.385	_
Social domain	Involuntary career termination (N=94)	12.16	3.503	0.26
	Voluntary career termination (N=106)	10.55	3.603	-0.21
	Total (N=200)	11.24	3.541	_
Employment/Education domain	Involuntary career termination (N=94)	12.05	4.478	0.15
	Voluntary career termination (N=106)	11.02	4.003	-0.14
	Total (N=200)	11.40	4.429	_
Health domain	Involuntary career termination (N=94)	11.55	3.508	0.17
	Voluntary career termination (N=106)	10.83	3.893	-0.15

Table 3. Values of differences in the degree of voluntariness of sport career termination across selected post-sport life domains

Domain	Group	Μ	SD	z-score
	Total (N=200)	11.14	3.750	_
Life satisfaction	Involuntary career termination (N=94)	20.58	4.407	-0.50
	Voluntary career termination (N=106)	22.75	4.143	0.24
	Total (N=200)	21.75	4.544	_

Table 3. (Continued)

Respondents who reported a rather voluntary sport career termination indicated fewer problems in their post-sport life in the psychosocial domain (M = 11.38; SD = 3.02) than those who terminated their sport career involuntarily (M = 12.89; SD = 3.84). Respondents who terminated their sport career voluntarily also reported fewer problems in the social domain (M = 10.49; SD = 3.53 versus M = 12.16; SD = 3.50), in the employment/educational domain (M = 10.88; SD = 3.34 versus M = 12.05; SD = 4.48), and in the health domain (M = 13.08; SD = 3.39 versus M = 14.21; SD = 3.21) than those who terminated their sport career involuntarily. Respondents who voluntarily terminated their sport career also reported higher life satisfaction in the post-sport life (M = 22.75; SD = 4.14 versus M = 20.51; SD = 4.71) than respondents whose sport career terminated involuntarily.

When comparing differences between groups, the degree of voluntariness of sport career termination had the greatest effect on perceived life satisfaction, where the difference in z-scores between the groups was 0.50, followed by the social domain (0.47 z-score), the psychosocial domain (0.44 z-score), the health domain (0.32 z-score), and the employment/educational domain (0.27 z-score).

The relative contribution of the degree of voluntariness of sport career termination to the variance of the observed variables (expressed as η^2) was as follows: psychosocial domain ($\eta^2 = 0.047$), social domain ($\eta^2 = 0.053$), employment/educational domain ($\eta^2 = 0.017$), health domain ($\eta^2 = 0.025$), and perceived life satisfaction ($\eta^2 = 0.061$) (for the results of the analysis of variance see Table 4).

Source	Dependent Variable	Sum of Squares	df	Mean Square	Partial Eta Squared
Corrected Model	Psychosocial domain	95.543	1	95.543	.047
	Social domain	115.149	1	115.149	.053
	Employment/Education domain	56.991	1	56.991	.017
	Health domain	53.774	1	53.774	.025
	Life satisfaction	209.442	1	209.442	.061
Intercept	Psychosocial domain	24454.734	1	24454.734	.927
	Social domain	21308.292	1	21308.292	.912
	Employment/Education domain	21839.086	1	21839.086	.872
	Health domain	30917.012	1	30917.012	.937
	Life satisfaction	77696.346	1	77696.346	.960
Voluntariness	Psychosocial domain	95.543	1	95.543	.047
	Social domain	115.149	1	115.149	.053

 Table 4. Values of differences in the degree of voluntariness of sport career termination across selected post-sport life domains tests of between-subjects effects

Source	Dependent Variable	Sum of Squares	df	Mean Square	Partial Eta Squared
	Employment/Education domain	56.991	1	56.991	.017
	Health domain	53.774	1	53.774	.025
	Life satisfaction	209.442	1	209.442	.061
Error	Psychosocial domain	1932.975	166	11.644	
	Social domain	2053.327	166	12.369	
	Employment/Education domain	3219.486	166	19.394	
	Health domain	2075.060	166	12.500	
	Life satisfaction	3238.058	166	19.506	
Total	Psychosocial domain	26437.000	168		
	Social domain	23386.000	168		
	Employment/Education domain	25128.000	168		
	Health domain	33126.000	168		
	Life satisfaction	82922.000	168		
Corrected Total	Psychosocial domain	2028.518	167		
	Social domain	2168.476	167		
	Employment/Education domain	3276.476	167		
	Health domain	2128.833	167		
	Life satisfaction	3447.500	167		

Table 4. (Continued)

Notes:

- b R Squared = .047
- c R Squared = .053
- d R Squared = .017
- *e R Squared* = .025
- fR Squared = .061

Athletes who ended their career involuntarily exhibited higher levels of psychological stress^[55]. However, this is not absolute, as some athletes who retired voluntarily may still face adaptation challenges^[56]. The athlete's readiness for change plays a crucial role in career termination, regardless of voluntariness^[57]. These results suggest that while voluntariness plays a role, it is not the sole determinant of a successful transition.

The perception of sports identity among the respondents was generally high ($\gamma 1 = -0.691$). After dividing the sample by median values, two groups emerged: one with high sports identity (N = 119) and another with low sports identity (N = 81). The transferable skills most frequently cited were determination, perseverance, strong will, and the ability to work under pressure, while organisational skills were rated less

important ($\gamma 1 = -0.83$). Respondents with a high level of acquisition of transferable skills totalled 115, while the group with a low level of acquisition included 85 individuals.

Parental support plays a key role in the early stages of a sports career, but as athletes age, its influence gradually diminishes. In our research, paternal support was more frequent than maternal support, and during the career termination, respondents most often cited their life partner as their main source of support, which corresponds to the life development model published in Wylleman et al.^[14], Pfeffer et al.^[58] or Alfermann and Würth^[59]. Social support from sports organisations and coaches was perceived rather negatively. Foundations, funds, and psychological support were only mentioned rarely. The distribution of career termination planning levels was relatively normal, with respondents perceiving high social support (N = 129) outnumbering those with low social support (N = 71).

Factor analysis identified five coping strategies: non-acceptance, escape, self-distraction, proactive, and sports-related strategies. The most common activity was continued participation in sports and maintaining contact with the sport, followed by focus on other activities and planning for the future. The most frequently used strategies were sports-related and self-distraction-related, while non-acceptance and escape strategies were less common.

The perceived quality of post-sport life was assessed in five areas: psychosocial, social, employmenteducational, health, and overall satisfaction with life. The psychosocial domain was classified mainly as unproblematic (Me = 12, $\gamma 1 = 0.75$), as was the social domain (Me = 11). In the employment-educational domain (Me = 11, $\gamma 1 = 0.88$) and the health domain (Me = 13, $\gamma 1 = 0.69$), positive evaluations prevailed. The most significant rating was for overall life satisfaction (Me = 23, $\gamma 1 = -0.53$), indicating a generally positive perception of post-sport life.

When comparing differences between groups, the degree of voluntariness in career termination had the most significant impact on perceived life satisfaction, where the difference in the z-scores achieved between groups was 0.52 z-points. Other notable differences were observed in the social domain (0.43 z-points), the psychosocial domain (0.24 z-points), the health domain (0.39 z-points), and the employment-educational domain (0.21 z-points).

The relative contribution of voluntariness in career termination to the variability of the observed variables (expressed as $\dot{\eta}^2$) was as follows:

- Psychosocial domain: $\hat{\eta}^2 = 0.051$
- Social domain: $\dot{\eta}^2 = 0.048$
- Employment-educational domain: $\dot{\eta}^2 = 0.021$
- Health domain: $\dot{\eta}^2 = 0.029$
- Perception of life satisfaction: ή² = 0.059

Perceived Quality of Post-Sport Life Depending on the Level of Attained Education, Type of Sport, Involvement in the Sports Training System, International Experience, Perceived Sports Identity, Acquisition of Transferable Skills, Career Termination Planning and Perceived Social Support at the Time of Career Termination

Multivariate covariance analysis showed that education had the greatest impact on perceived life satisfaction (difference in z-scores 3.07), followed by the employment/educational domain (2.0), health (1.84), psychosocial (1.16) and social domain (1.06). Respondents with only basic education (N = 2) reported the fewest problems in all domains, which may be influenced by the low number of respondents in

this category. Secondary education exhibited the most difficulties in the psychosocial social, and employment/educational domains, while those with higher vocational education reported the most significant health problems.

Former beach volleyball and basketball players reported the greatest difficulties in all areas of post-sport life and the lowest levels of life satisfaction. Football and ice hockey players followed, while athletes in individual sports experienced fewer problems and greater satisfaction, which is consistent with the findings in Kadlčík^[1] and Kadlčík and Flemr^[45].

Involvement in the state sports training system had a positive effect on life satisfaction, whereas those who were never part of the system reported the most significant difficulties in the psychosocial domain. However, in the employment/educational domain, those who had been part of the training system reported the greatest difficulties. Differences in z-scores had the most significant effect on life satisfaction (0.46), psychosocial (0.45), health (0.31), employment / education (0.31), and social domain (0.29).

The international sports experience did not show significant differences in results compared to those who had never competed internationally.

The level of identity as an athlete was a significant barrier to transitioning into post-sport life. Respondents with a stronger sports identity experienced greater difficulties in all areas, especially in life satisfaction (0.33 z-points), the psychosocial domain (0.29), and the least in the health domain (0.10). On the contrary, respondents with higher levels of transferable skills acquisition reported fewer problems and greater life satisfaction. The greatest differences were observed in perceived life satisfaction and health (0.41), the social domain (0.33), and the psychosocial domain (0.32).

Career termination planning was associated with fewer difficulties in most areas, particularly in the psychosocial domain (0.25 z-points) and life satisfaction (0.20). However, in the social domain, those who planned less reported fewer problems, though the difference was minimal (0.02).

Social support played a significant role, but paradoxically, a higher level of support was associated with greater difficulties in the social domain. However, in other areas, lower support led to more significant difficulties, particularly in the employment / education and health domains. The largest z-score differences were in life satisfaction (0.32) and in the employment / education domain (0.16).

In general, the variables of education level, involvement in the training system and career planning were more strongly associated with the psychosocial domain ($R^2 = 0.919$), and education being a key variable in all areas. The social domain and the employment / educational domain were also significantly influenced by the interactions of these variables.

The variation in life satisfaction was most affected by the type of sport and the age of retirement. All independent variables and their interactions explained 86.3% of the variability ($R^2 = 0.863$), which confirms the complexity of this phenomenon.

4. Discussion

Research results revealed that 49.2% of respondents identified the reasons for terminating their sports careers as rather voluntary. The reasons mentioned most frequently included a new life direction a decline in motivation, stagnation or a decrease in performance, health problems, injuries, family reasons, age, or

transitioning to a new professional career. On the contrary, the less frequently cited causes were traumatic life events, sporting failure, the need to commute or relocation, and deselection.

Our results correlate with the findings of studies by Tupacyupanqui^[60], Stambulova and Ryba^[61] or Schmidt et al.^[62] which confirm, as does our research, that the termination of a sports career is usually the result of a combination of multiple reasons rather than a single cause. However, the identified reasons do not correspond to some earlier studies by Werthner and Orlick^[2] or Taylor and Ogilvie^[42], which cite injuries, age, or deselection as the most common causes. These differences can be attributed to variations between the sports system in the USA, to which these studies refer, and the system in the Czech Republic.

Studies by Reardon et al.^[21] and Gustafsson et al.^[23] highlight that the reasons for terminating a career vary by region, sports discipline, and level of institutional support. Although in the United States, the reasons are often linked to the competitive structure of university sports, in the Czech context, personal and professional reasons associated with new life goals and career changes prevail. A specific finding unique to the Czech Republic is the reason for terminating a sports career due to "problematic relationships," which has not been mentioned in any previous international research. On the contrary, this reason is reported in studies by Kadlčík^[1] and Kopecká^[63], which state that disagreements with a coach were perceived by respondents as a significant influence on career development, and, for example, deteriorating relationships within a sports team were regarded as a decisive factor affecting the trajectory of a sports career.

Another intriguing result is the inclusion of the reason why one "*desires to retire at one's peak*." This reason, which is not mentioned in any previous research studies, was first identified in study by Kadlčík^[1] and later confirmed by our research.

Previous studies, such as Mihovilović^[64], Dana et al.^[65] or Allison and Meyer^[66], frequently cite injuries as one of the most common reasons for terminating a sports career. Studies by Gustafsson et al.^[19], Reardon^[20] or Schmidt et al.^[62], which emphasise the importance of health issues as a key factor in career termination decisions, particularly in individual sports. The results of our research also corroborate this, with 37.9% of the respondents identifying injuries and health problems as an important reason for career termination. This proportion is higher than in some previous studies, which may be related to a growing awareness of the long-term impact of injuries on the quality of life of athletes^[60-61].

Similar results can be observed with respect to the reason "age," which was identified as an important factor in career termination by 32.8% of our respondents. Age remains one of the main reasons for terminating a sports career, particularly in professional sports with high physical demands^[21, 23, 61]. Age is a key factor for athletes in physically demanding disciplines, whereas in sports where prolonged participation at an elite level is possible, it plays a lesser role^[60]. The increasing intensity of training and physical demands in modern elite sports may increase the significance of age as a reason for career termination^[62].

The results of our research confirm the presence of additional reasons for terminating a sports career that are mentioned in the contemporary literature:

- The need for a new direction of life, highlighted in Reardon et al.^[20] and Gustafsson et al.^[23], was an important factor for 40.9% of the respondents, making it the most popular reason in our research.
- A change in motivation, which, according to Tupacyupanqui^[60] and Green and Baker^[61], also plays a significant role in career termination, was cited as an important reason by 33.2% of the respondents.

• Economic factors, frequently mentioned in research focused on professional athletes by Schmidt et al.^[62] and Martinez et al.^[67], were significant for 22.3% of the respondents, who identified financial reasons as key in their decision to end their career.

Previous research suggests that the degree of voluntariness in completing a sports career may influence the quality of the adaptation process after retirement. A sudden and involuntary career termination is often challenging for athletes, as they are not prepared for the transition^[61]. However, there is a lack of sufficient empirical evidence to confirm that voluntary career termination always facilitates transition into post-sport life^[68]. Successful adaptation depends on individual factors rather than solely on the nature of career termination^[61].

The results of our research indicate that respondents who reported a rather voluntary termination of their sports careers experienced fewer difficulties in all monitored areas of post-sport life and demonstrated higher life satisfaction than those who described their career termination as involuntary. These findings align with studies by Lavallee and Wylleman^[69] and Cecič-Erpič^[37], which highlight that voluntary termination of a career may reduce the level of stress associated with adaptation. More recent studies such as by Tupacyupanqui^[60] emphasise the importance of planning career termination for a successful transition to post-sport life. Athletes who were prepared for the change and had the opportunity to gradually adapt to the transition exhibited better psychological well-being and greater satisfaction of life^[23].

Some research suggests that a strong athletic identity, defined as a high degree of identification with the role of an athlete, can be a barrier during the transition to post-sport life^[23,70]. Athletes with a well-developed social identity and a broader range of interests outside of sports navigated the transition to everyday life more easily and reported greater life satisfaction^[56,61]. On the contrary, athletes with a dominant athletic identity faced a longer and more challenging adaptation process, often associated with negative emotions and a lower quality of life. The results of our research support these conclusions. Respondents with a higher perceived level of athletic identity reported greater difficulties in all areas of post-sport life and exhibited lower life satisfaction than those who reported a lower level of athletic identity.

The acquisition of transferable skills, that is, skills applicable beyond the sports domain, significantly facilitates the adaptation process after the termination of a sports career ^[71,72]. The results of our research revealed that the transferable skills most frequently mentioned were determination, perseverance, and the ability to work under pressure. In contrast, the respondents attributed less importance to organisational skills and the development of social networks. Respondents with a higher level of transferable skills acquisition experienced fewer difficulties in all monitored areas of post-sport life and reported higher life satisfaction. Thus, the acquisition of these skills unequivocally represents a significant factor in optimal adaptation.

Career termination planning is often identified as a key factor in an effective transition into post-sport life. Athletes who were prepared for this change exhibited greater life satisfaction and fewer adaptation difficulties^[36,72]. Long-term preparation for career termination is crucial, as its absence can pose significant challenges^[2,73]. The results of our research partially confirm these claims. Respondents who engaged in greater career termination planning experienced fewer difficulties in the psychosocial, employment/education, and health domains and reported greater life satisfaction. However, in the social domain, they recorded slightly more difficulties compared to those who devoted less attention to planning, although the difference between the groups was minimal. Therefore, planning can be considered an important resource for a successful adaptation, although not unequivocally in all areas.

Social support is often cited as a key factor in facilitating the transition to post-sport life^[51,74]. Quality support from family and friends is essential for successful adaptation^[75]; however, Gorbett^[76] also

recommends institutional support through counselling services and preparatory programmes. The results of our research indicated that the most common sources of social support were partners, parents, and friends. On the contrary, support from sports organisations, coaches, or psychologists was less frequently reported. Paradoxically, respondents who perceived a higher level of social support exhibited greater difficulties in the social domain than those with less perceived support. In the psychosocial domain, this difference was negligible; however, in the employment/education and health domains, respondents with lower levels of support experienced more significant difficulties and lower life satisfaction. These results suggest that social support cannot be unequivocally identified as either a resource or a barrier to an optimal transition. Its influence depends on the source of support and the specific life situation of the athlete, as also confirmed by Cecič-Erpič^[37].

The quality of the adaptation process during sports career termination is strongly influenced by the choice of coping strategies^[40]. Although numerous studies focus on various factors affecting this process, such as Alfermann and Stambulova^[77], research directly examining the relationship between quality of post-sport life and the use of specific coping strategies remains limited, according to Erpič et al.^[36]. The results of our research indicate that the coping strategies of non-acceptance and escape act as barriers to an optimal transition, particularly in the social and employment/education domains, and reduce overall life satisfaction. The proactive strategy also demonstrated rather negative effects, with respondents who used it more frequently reporting greater difficulties in all areas except health. On the contrary, the self-distraction strategy was clearly a positive resource in all monitored areas and contributed to an improvement in the quality of post-sport life. The sports-related strategy had a positive impact primarily in the employment/education domain and in perceived life satisfaction, while its influence in other areas was minimal. These results are supported by a recent study by Knight et al.^[78], which highlights the importance of choosing coping strategies when managing the transition to post-sport life, with some strategies posing a risk factor while others serve as a protective mechanism.

4.1. Evaluation of hypotheses

Hypothesis 1 was fully confirmed. Respondents whose reasons for terminating their sports careers suggested a predominantly voluntary decision reported fewer difficulties in all monitored areas of post-sport life and higher life satisfaction compared to those who ended their sports careers involuntarily. This result aligns with research that highlights the importance of planned and voluntary career termination as a key factor in managing the transition to a new life stage.

In the test of Hypothesis 2, mixed results were observed. A higher level of education did not automatically lead to fewer difficulties in post-sport life or higher life satisfaction. The lowest difficulties and the highest life satisfaction were reported by respondents with only primary education, although their representation in the sample was very low. The second most successful group in terms of adaptation was university graduates. In contrast, respondents with secondary education experienced the greatest difficulties. These findings do not correspond to a direct hierarchy, making it impossible to clearly determine the level of education as a factor that facilitates or hinders the adaptation process. The same conclusion applies when comparing groups based on the type of sport.

Similarly, the level of involvement in the sports preparation system cannot be unequivocally identified as a factor that facilitates or complicates adaptation, as the results varied significantly between different groups. Similarly, mixed results were recorded for the variable of international experience, with minimal differences between groups that did not have a substantial impact on explaining adaptation success. On the contrary, the results regarding the perceived level of athletic identity were consistent. A high level of athletic identity was found to be a clear barrier to a smooth transition into post-sport life. Respondents with a stronger athletic identity experienced more difficulties in all monitored areas and reported lower life satisfaction compared to those with a weaker athletic identity. On the other hand, a high level of transferable skills acquisition was unequivocally identified as a factor that facilitates adaptation. These respondents reported fewer difficulties in all monitored areas and higher life satisfaction compared to those with lower proficiency in transferable skills.

Furthermore, it was found that the degree of career termination planning had a positive impact on the psychosocial, employment / education and health domains, and respondents who engaged in greater planning achieved higher life satisfaction. However, in the social domain, those who engaged in less planning, although this difference was minimal. Thus, a higher level of planning cannot be unequivocally identified as a key factor for optimal adaptation, although it had a positive effect in some areas.

The level of perceived social support produced unexpected results. Paradoxically, those who reported a higher level of social support faced greater difficulties in the social domain than respondents with less perceived support. In the psychosocial domain, this difference was negligible. However, in the employment/education and health domains, greater difficulties were observed among respondents with lower levels of social support, who also reported lower life satisfaction.

5. Conclusion

Based on the above research findings, the factors that influence the process of terminating a professional sports career and their impact on post-sport life can be clearly formulated as follows.

- Voluntary vs. involuntary career termination: Voluntary termination of a sports career is associated with fewer difficulties in all monitored areas (psychosocial, social, employment / education and health) and with higher life satisfaction. Involuntary termination leads to a higher incidence of problems and lower satisfaction with post-sport life.
- Level of education attained: Paradoxically, primary education was associated with the fewest difficulties and the highest life satisfaction, although the sample size for this group was small. University education resulted in the second most successful adaptation. Secondary education was associated with the greatest difficulties in all areas of post-sport life.
- Type of sport: Individual sports were linked to fewer difficulties and greater satisfaction. Team sports (especially volleyball and basketball) exhibited greater problems in all areas and lower life satisfaction.
- Degree of perceived athletic identity: A high level of athletic identity acts as a barrier to an optimal transition. Athletes with a stronger athletic identity experienced greater difficulty in all monitored areas and lower life satisfaction. A lower level of athletic identity facilitates adaptation and is associated with fewer challenges.
- Acquisition of transferable skills: A high level of transferable skills acquisition (for example, determination, perseverance, and the ability to work under pressure) significantly improves the transition process, leading to greater satisfaction and fewer difficulties in all monitored areas.
- Career termination planning: Career termination planning had a positive impact on reducing difficulties in the psychosocial, employment / education and health domains and also led to

greater satisfaction with life. However, in the social domain, the difference was minimal or inconclusive.

- Social support: Social support from family and close individuals is important, but it does not
 always guarantee a seamless transition. Paradoxically, higher perceived support was associated
 with greater difficulties in the social domain, while in the employment/education and health
 domains, it functioned more as a protective factor.
- Coping strategies:
 - Non-acceptance and escape strategies: A barrier to an optimal transition, leading to difficulties, particularly in the social and employment/education domains.
 - Proactive strategy: Negatively affects most monitored areas, except for the health domain.
 - Sports-related strategy: Provides benefits in the employment/education domain and enhances life satisfaction.
 - Self-distraction strategy: A clear source of positive adaptation in all monitored areas.

The adaptation process to post-sport life is complex and influenced by a combination of internal factors (e.g., level of athletic identity, coping strategies, transferable skills) and external factors (e.g., type of sport, social support, level of education attained). There is no universal factor that guarantees a seamless transition; however, certain variables, such as a low level of athletic identity, the high acquisition of transferable skills, and career termination planning, are clear positive predictors.

When interpreting the results, it is essential to consider the limitations of the research, which may affect the generalisation of the findings.

5.1. Research limits

The retrospective nature of the research presents a risk of response bias caused by the time gap between the investigated events and the moment of data collection. Respondents' recollections may have been inaccurate or selective, potentially leading to incomplete or distorted responses to some questionnaire items. This issue is particularly significant given that the average time since career termination was nearly 18 years, with 69.7% of the respondents having ended their careers more than 10 years ago.

Although a relatively high number of respondents was collected compared to previous studies, the lower representation of some subgroups may have resulted in distortions in the statistical results. In certain analyses, particularly when comparing groups based on the type of sport or level of education attained, the lower number of respondents may have reduced the reliability of the findings.

The questionnaire used, despite being validated and verified, may have influenced the interpretation of results in some cases. Certain variables, such as perceived social support or coping strategies, are highly subjective and may have been interpreted differently by the respondents. This subjectivity may have led to variability in the results, which does not necessarily reflect an objective reality.

The research sample does not represent a fully representative selection of former elite athletes. As mentioned above, there is no comprehensive database or statistical framework for selecting respondents, making it impossible to conduct a random sampling process. The sample, therefore, corresponds more closely to convenience and voluntary selection, which limits the ability to generalise the findings to the entire population of former elite athletes.

Therefore, when interpreting the results, these limitations must be taken into account. However, the data obtained provide valuable insight into the process of sports career and its impact on post-sport life. The findings may serve as a crucial foundation for future research, which could aim at a more precisely defined sample, a shorter retrospective time frame, and a deeper analysis of specific factors, such as coping strategies or social support.

5.2. Future research

The research findings encompass a wide range of sports disciplines and suggest that the trajectory of an elite sports career and the termination process vary significantly depending on the specific sport. For a more detailed analysis, future research would benefit from focussing on athletes from a narrower group of sports or concentrating on a single specific sport. This approach would allow for a more in-depth understanding of the specific factors influencing career transitions and adaptation to post-sport life.

An interesting direction for further research could be a comparison of career transitions across different sports and their post-sport adaptation. For example, examining the differences between gymnasts and rowers could provide valuable insight into how the nature of a sport and its demands affect adaptation to civilian life. Similarly, focussing on differences in transition processes between team and individual sports could yield important conclusions.

The current study predominantly targeted successful individuals, whether in terms of sporting achievements, professional careers, or educational attainment. These respondents generally experienced a smoother transition to post-sport life and greater satisfaction with life. However, for a more comprehensive understanding of the issue, it would be valuable to focus on less successful athletes or individuals who faced more significant challenges during their transition into post-sport life. The most suitable method for this type of research could be qualitative research using in-depth interviews, where the snowball sampling method might facilitate the identification and recruitment of these individuals. This approach would allow for a deeper insight into their personal experiences and help identify the factors contributing to a more difficult adaptation process.

Another key recommendation for future research concerns minimising errors caused by the long time lapse since career termination. It would be beneficial to define a specific time range for inclusion in the research sample. Ideally, respondents should be surveyed at least one year after retiring from professional sports, allowing them to reflect on the transition process more accurately. However, the period since retirement should not exceed 5 to 10 years, in order to avoid memory distortion. Such time constraints would help ensure a more accurate assessment of the adaptation process without resulting in a significant loss of respondents.

From a methodological perspective, longitudinal research would be particularly valuable, tracking athletes across different phases of their careers, from their peak performance, through the retirement process, to their adaptation to post-sport life. This approach would allow for a better understanding of the dynamics of career transitions and help identify the key factors that influence successful adaptation. Furthermore, triangulation of research methods would enhance validity and provide a more comprehensive perspective on the issue studied.

For follow-up studies, it would be advisable to increase the reliability of certain parts of the questionnaire by modifying or expanding the number of indicators. For some concepts, it would be desirable to verify their structure and validity before further use, ensuring more precise and better interpretable results.

In general, future research can build on the findings of this study and contribute to a better understanding of the processes associated with career termination and the transition to civilian life.

Author contributions

"Conceptualization, K.B., D.P. and J.L.; methodology, K.B., D.P. and J.H.; software, J.H.; validation, K.B., A.P. and J.H.; formal analysis, K.B., J.L. and J.H.; investigation, K.B., D.P. and J.H.; resources, K.B.; data curation, J.H.; writing - original draft preparation, K.B., D.P. and J.L.; writing - review and editing, K.B., visualization, J.L.; supervision, K.B.; project administration, K.B; funding acquisition, J.H.

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Conflict of interest

The authors declare no conflict of interest.

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