

CHALLENGES AND OPPORTUNITIES FOR SPORTS MANAGEMENT IN SUPPORTING PEOPLE WITH EPILEPSY IN SPORT

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ABSTRACT

Epilepsy is a chronic neurological disorder that affects millions of people worldwide, including professional athletes. Despite the historical stigma surrounding the condition, numerous prominent athletes have achieved elite-level careers, challenging stereotypes about its limitations. This paper explores the relationship between epilepsy and sport, focusing on successful athletes diagnosed with epilepsy and the impact of the condition on their careers. It also analyzes the role of sports management in creating an inclusive environment by identifying barriers, opportunities, and strategies for improving managerial practice. Through an interdisciplinary approach, the study offers concrete guidelines for sports institutions, educational systems, and public policy, with particular emphasis on comparative recommendations for Bosnia and Herzegovina and Serbia. From a management perspective, the research examines how sports programs can be designed, organized, and monitored to ensure that they are inclusive, safe, and sustainable. A managerial approach enables structured risk and resource management, thereby creating a sustainable, long-term support system for people with epilepsy in sport.

Keywords: epilepsy, ethics, inclusion, management, sport, risk management.

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IZAZOVI I MOGUĆNOSTI SPORTSKOG MENADŽMENTA U PODRŠCI OSOBAMA SA EPILEPSIJOM U SPORTU

APSTRAKT

Epilepsija je hronični neurološki poremećaj koji pogađa milione ljudi širom sveta, uključujući i profesionalne sportiste. Uprkos istorijskoj stigmatizaciji, brojni poznati sportisti uspeli su da ostvare vrhunske karijere, rušeći stereotipe o ograničenjima ove bolesti. Ovaj rad istražuje odnos između epilepsije i sporta, fokusirajući se na primere uspešnih sportista sa ovom dijagnozom i uticaj bolesti na njihove karijere. Pored toga, rad analizira ulogu sportskog menadžmenta u kreiranju inkluzivnog okruženja, prepoznajući prepreke, mogućnosti i strategije za unapređenje menadžerske prakse. Kroz interdisciplinarni pristup, rad nudi konkretne smernice za sportske institucije, obrazovne sisteme i javne politike, sa posebnim fokusom na komparativne preporuke za Bosnu i Hercegovinu i Srbiju. Sa aspekta menadžmenta, istraživanje otvara pitanje kako osmisliti, organizovati i kontrolisati sportske programe da budu inkluzivni, bezbedni i održivi. Menadžerski pristup omogućava strukturisano upravljanje rizicima i resursima, čime se stvara dugoročno održiv sistem podrške osobama sa epilepsijom u sportu.

Ključne reči: epilepsija, etika, inkluzija, menadžment, sport, upravljanje rizicima.

Introduction

Epilepsy is one of the oldest known and most common neurological disorders and is characterized by recurrent seizures resulting from abnormal brain activity. Although historical stigma and a lack of awareness have often excluded individuals with epilepsy from physical activity, modern medical and social advances now enable their active participation in both recreational and professional sport. As one of the most prevalent neurological conditions, epilepsy presents a range of challenges related to physical activity and sport. In this context, the management of modern sports systems faces demands for greater inclusivity, ethical responsibility, and organizational flexibility. The successful integration of athletes with epilepsy depends not only on appropriate pharmacological treatment but, above all, on the willingness of sports institutions to recognize and remove existing organizational and social barriers. Consequently, the role of sports management in creating a safe, inclusive, and informed environment for this population has emerged as a key challenge.

Methodology

This paper is based on descriptive analysis and a systematic review of relevant academic and professional literature. The aim of this methodological approach was to explore, through the synthesis of medical, economic, and ethical data, the

relationships among seizure control in athletes with epilepsy, ethical practices within sports systems, and the market dynamics of antiepileptic drugs.

Data sources and search strategy

A literature search was conducted between January and March 2025 using international electronic databases and repositories, such as PubMed, Scopus, Google Scholar, and the Cochrane Library, as well as the official platforms of the World Health Organization (WHO), the American Academy of Neurology (AAN), and the World Anti-Doping Agency (WADA).

Literature selection criteria

Strict criteria were applied during the literature selection process to ensure the scientific rigor of the study:

Inclusion criteria:

- Scientific papers published in peer-reviewed journals;
- Epidemiological studies, clinical reviews, and pharmacoeconomic reports;
- Guidelines and official documents from relevant health and sports organizations;
- Studies focusing on the impact of antiepileptic drugs on human cognitive and motor functions.

Exclusion criteria:

- Studies conducted exclusively on animal models;
- Papers lacking a clear methodological structure, as well as non-peer-reviewed sources from commercial blogs;
- Studies focused on neurological disorders unrelated to epilepsy.

The search timeframe was primarily limited to papers published over the last two decades, while historically pivotal studies were retained, thereby providing insight into the most recent aspects of molecular therapy and current legislation. The collected material underwent a screening process, followed by thematic categorization according to the study's main areas of analysis.

Epilepsy and physical activity

Long-standing misconceptions have suggested that sport may be dangerous for people with epilepsy because of the risk of seizures during physical exertion. However, numerous studies (Nakken et al., 1990; Arida et al., 2013) show that moderate physical activity is not only generally safe but may also have a positive impact on seizure frequency, cognitive function, and patients' psychological well-being. In a sporting context, managing epilepsy symptoms often requires carefully managed pharmacotherapy and an individualized

approach based on the specific type of epilepsy and the sport practiced by the individual (Sillanpää & Schmidt, 2020).

Despite the challenges, several athletes have achieved world-class success while living with epilepsy:

- Dai Greene – a British track-and-field athlete and 400-meter hurdles champion who was diagnosed with epilepsy in childhood and never allowed the condition to define his capabilities;
- Florence Griffith Joyner (Flo-Jo) – an American track-and-field athlete and Olympic champion whose death was linked to complications associated with epilepsy, although she did not publicly disclose her diagnosis during her career;
- Tony Greig – a former captain of the England cricket team who spoke openly about living with epilepsy;
- Chanda Gunn – an American ice hockey player and Olympic medalist who used her platform to raise awareness of epilepsy.

These examples demonstrate that, with proper treatment, support, and determination, epilepsy need not be a barrier to achieving elite athletic success. However, the training process and athletic performance depend directly on the pharmacological profile of the chosen antiepileptic drug (AED). Selecting a therapy in competitive sports involves a complex balancing act, as medication side effects can significantly alter an athlete's motor and cognitive abilities. A detailed overview of selected antiepileptic drugs and their clinical implications in a sports context is presented in Table 1.

Table 1. *Selected AEDs: side effects relevant to sport (synthesized).*

Drug	Most common side effects relevant to sport	Clinical implications for sport
Valproate (valproic acid)	Weight gain, fatigue, sedation	May affect endurance and body composition.
Carbamazepine	Sedation, ataxia, effects on bone health	Caution is advised in sports that require rapid reactions.
Levetiracetam	Irritability, fatigue	Possible psychological side effects; generally weight-neutral.
Topiramate	Cognitive impairment, weight loss	May cause weight loss, which can be advantageous in some sports, but its cognitive effects may be problematic.
Perampanel	Aggression, psychiatric symptoms	Potential risk of behavioral problems during competition.

Source: *Synthesized from clinical drug profiles and the literature identified through the search methodology.*

As shown in Table 1, pharmacotherapy is not a neutral factor. While certain newer molecules, such as levetiracetam, are weight-neutral, older-generation drugs, such as valproate, carry metabolic risks that may directly limit peak athletic performance. Consequently, transitioning to more modern and costly formulations often becomes a primary health and economic priority for athletes.

In addition to the pharmacological profile of the therapy, a key factor in managing athletic activity is assessing the inherent risk associated with the sport itself. According to guidelines from leading international and regional bodies, including the International League Against Epilepsy (ILAE), the Epilepsy Foundation (2024), the World Health Organization (WHO, 2019), and regional authors (Kraljić, 2023), sports are categorized into three groups based on the level of risk to an athlete’s health should an epileptic seizure occur during the activity. This integrated classification, together with the accompanying recommendations, is presented in Table 2.

Table 2. *Synthesized classification of sports according to the level of risk for people with epilepsy.*

Risk category	Description of risk and impact of a seizure	Examples of sports	Clinical and organizational recommendations
1. Low risk (No significant additional risk)	A seizure does not directly endanger life; the risk of serious injury is minimal.	Athletics (running, walking), tennis, most non-contact team sports.	Participation is permitted with standard precautions and regular monitoring of therapy.
2. Medium risk (Moderate additional risk)	A seizure may cause a fall or injury but rarely results in death.	Cycling, football, basketball, handball, martial arts.	Participation is permitted provided that the coaching staff are informed and that training is adapted and supervised.
3. High risk (Critical risk of serious injury or death)	A seizure occurring during the activity carries a direct risk of drowning, falling from a height, or fatal trauma.	Swimming, diving, solo mountaineering/hiking, solo sailing, paragliding.	Participation is strictly limited or prohibited and is possible only under special conditions (e.g., a multi-year seizure-free period).

Source: *Synthesized from data provided by the Epilepsy Foundation (2024), WHO (2019), and Kraljić (2023).*

Ethics, Public Health, and Sport

In modern society, where sport holds a prominent place in culture and public life, issues of equality, accessibility, and equity in treatment become particularly acute in the context of chronic conditions such as epilepsy. The relationship between pharmaceutical profits and access to treatment for athletes with epilepsy is a matter of particular concern, prompting important debate about ethics and health policy.

Prominent and successful athletes typically enjoy privileged access to healthcare, including the latest antiepileptic drugs, regular neurological monitoring, and tailored treatment plans. For them, the condition often does not represent an insurmountable barrier to athletic success. However, such access is not universal. Most people affected, especially those in countries with less developed healthcare systems, face a range of obstacles, including high medication costs, a limited selection of available drugs, and a shortage of specialists, as noted by the American Academy of Neurology (2021). These barriers significantly affect quality of life and, in a sporting context, the ability of individuals with epilepsy to participate in competitive activities on an equal footing.

The ethics of sport, grounded in the principles of fair play, equal opportunity, and inclusivity, demand a socially responsible approach to athletes with chronic conditions. When access to therapy depends on the financial means of an individual or a country, these principles are seriously compromised. When pharmaceutical companies, in pursuit of profit maximization, resort to strategies such as “evergreening,” delaying generic competition, or selectively distributing drugs, the fundamental ethical framework of health equity is undermined.

Furthermore, sport can play a pivotal role in destigmatizing epilepsy, particularly when athletes with epilepsy gain media visibility and are portrayed as role models. However, according to Capovilla et al. (2016), true inclusion requires systemic change, ranging from public policies that ensure subsidized or free medication to the education of coaches and staff within sports institutions about safe participation in sport for people living with epilepsy.

Ultimately, the treatment of epilepsy in athletes is not merely a medical or pharmaceutical matter; above all, it is a question of social justice and political will. Striking a balance between pharmaceutical profits and the public interest is imperative to achieving a truly inclusive and ethically sustainable sports system.

Market for Epilepsy Medications

The market for epilepsy medications represents a key sector of neurological pharmacotherapy and is of growing importance in both developed and developing countries. This market segment encompasses a wide range of products, from generic drugs to innovative molecules targeting specific forms of epilepsy and related comorbidities.

Market Size and Trends

According to World Health Organization reports (2019), the global market for antiepileptic drugs reached a value of approximately USD 9.4 billion in 2022. The market is expected to grow at a compound annual growth rate (CAGR) of approximately 3.2% between 2023 and 2030. This growth is driven by several factors, including:

1. Improved diagnosis of epilepsy due to advances in diagnostic methods;
2. An aging population and a rise in secondary epilepsy associated with neurodegenerative diseases;
3. The introduction of new drugs with improved efficacy and safety profiles;
4. The expansion of healthcare coverage in developing countries.

In addition to traditional markets such as North America and Western Europe, demand has grown significantly in Latin America, Asia, and Africa, where access to healthcare services is improving and awareness of neurological disorders is increasing.

Patent Protection and the Extension of Market Exclusivity

When patent protection expires, many antiepileptic drugs become available as generics, leading to a significant decline in prices and reduced revenue for the original manufacturers. However, the companies that developed the original products often retain part of their market share because of brand recognition, physician and patient loyalty, and the availability of “branded generics.” One of the key strategies used by pharmaceutical companies is intellectual property protection, primarily patents, to maintain the exclusive right to sell a specific drug for as long as possible.

1. The example of Keppra (levetiracetam): UCB Pharma generated annual revenue exceeding \$1.5 billion while Keppra was under patent. Following patent expiration, revenue fell significantly because of the market entry of generic products. In response, the company launched a new drug, Briviact (brivaracetam), as an innovative product with patent protection, enabling continued profitability within a similar therapeutic area.
2. Patent extension and “evergreening”: Pharmaceutical companies frequently employ so-called “evergreening” strategies, such as modified

formulations, new indications, or combinations with other drugs, to secure additional patents and thereby extend market exclusivity.

Product Differentiation

To maintain a competitive advantage over generic versions, original manufacturers rely on product differentiation. This may include:

1. Developing extended-release formulations (e.g., Keppra XR);
2. Introducing innovative dosage forms (e.g., orally dispersible tablets);
3. Integrating products with digital therapies (e.g., seizure-tracking apps and medication reminders).

Such modifications often offer no significant clinical advantage, yet they enable companies to retain patient loyalty and justify a higher price than that of generic alternatives. On average, after patent expiration, the prices of antiepileptic drugs fall by 70–90%, significantly reducing the revenue of original manufacturers. However, original brands often retain approximately 20–30% of the market even after generic competitors enter, owing to physician and patient loyalty and differences in formulation and perceived quality.

Profit and Treatment Accessibility

The market for epilepsy medications provides insight into the broader dynamics of the pharmaceutical industry, where medical needs and commercial interests intersect. Vuković and Jovanović (2024) note that, although pharmaceutical companies are entitled to earn profits as a reward for innovation and investment in research and development, it is important to consider the extent to which the pursuit of profit affects patient access to treatment. The high cost of innovative drugs often creates a barrier to access, particularly in low- and middle-income countries. Although differential pricing models are used, they are not always applied systematically and often depend on local negotiations. In this context, generic drugs play a crucial role in improving access to treatment, yet they face challenges such as delayed availability, perceptions of inferior quality, and regulatory hurdles (Top Selling Epilepsy Drugs, 2023).

Strategies for extending market exclusivity, such as “evergreening,” are frequently criticized as abuses of the intellectual property system. Although legally permissible, such practices can delay the market entry of generic alternatives, thereby prolonging the period of high treatment costs. Given the chronic nature of epilepsy and patients’ reliance on long-term therapy, this can have serious consequences for their health and financial stability (Light & Lexchin, 2012).

Unequal Global Distribution of Innovation: Balancing Innovation and the Public Interest

Most new and more effective antiepileptic drugs first become available in developed countries (Duerden et al., 2013). Countries with weaker healthcare infrastructure often continue to rely on older therapies with less favorable side-effect profiles. This creates global inequality in treatment and places the most vulnerable populations at the greatest disadvantage.

A key dilemma concerns how to balance rewarding innovation with protecting the public interest. Regulatory bodies and healthcare systems must foster pharmaceutical development while ensuring broad and equitable access to medicines (Engel, 1977). In this context, increasing importance is being placed on:

1. Legal restrictions on patent abuse;
2. Transparency in pricing;
3. Encouraging public-private partnerships to develop therapies that the market would otherwise neglect.

Classical Management Theories and Their Application to Healthcare and Sport

Management as a discipline is based on the principles of planning, organizing, leading, and controlling (Jovanović & Sajfert, 2021). Although these functions were developed in an industrial context, they are now widely applied in both healthcare and sports management. Sports management encompasses the functions of planning, organizing, leading, and controlling (Životić, 2020). The role of a sports manager requires the ability to make decisions, manage risks, communicate with athletes and teams, and develop sports programs strategically (Stokić, 2018). As a human activity in the broadest sense, sport is characterized by the following features (Đukić et al., 2024):

1. Competition;
2. Performance outcomes;
3. Specialization;
4. Utility – throughout history, sport has had utilitarian value, particularly in educational, health, and recreational contexts;
5. Social character – sport is viewed as a complex social phenomenon and a form of social activity.

Đukić, Jovanović, and Karlica (2024) emphasize that the tasks and goals of sports management are aimed at increasing sporting productivity while respecting the human dimensions of value creation. Management also assumes responsibility for the functioning of sports organizations, including their stability, sporting and business outcomes, and operational efficiency. Furthermore, sports management serves as a driving force for the development

of sport as a whole while also contributing to the development of individual sports organizations.

For individuals with epilepsy, classical management functions are applied through:

- **Planning health and sports programs.** Based on the research, managers of sports organizations must develop programs that promote safe participation in sport (e.g., running, cycling, and team sports) and ensure appropriate supervision. For example, a program in Norway (Nakken, 2019) successfully integrated recreational sport into the daily lives of people with epilepsy through collaboration between sports clubs and healthcare institutions.
- **Organizing human and material resources for inclusive sports activities.** Multidisciplinary teams involving physicians, coaches, psychologists, and managers are essential. Research by De Lima et al. (2020) shows that systematic coach training significantly reduces the number of incidents and increases participant confidence.
- **Leading through motivation and support.** Management must foster inclusive leadership. Leaders and coaches play a role not only in organization but also in motivating affected individuals and reducing stigma. A UK study (Ellis et al., 2018) demonstrated that sports team leaders who had received epilepsy training contributed significantly to the greater inclusion of people with epilepsy in competitive and recreational activities.
- **Monitoring health and sporting outcomes.** Programs must include clearly defined evaluation mechanisms, such as seizure frequency, quality of life, psychological well-being, and participant satisfaction. A longitudinal study from Brazil (Arida et al., 2019) showed that participation in a 12-month sports program reduced anxiety and depressive symptoms in people with epilepsy.
- The Epilepsy Foundation (2024) recommends educational programs for sports coaches and participants to reduce stigma and enhance safety.

These findings indicate that epilepsy should not be an automatic barrier to participation in sport but rather a factor requiring tailored management. Pharmacists play a pivotal role in balancing therapeutic efficacy, safety, and anti-doping regulations. The managerial role involves creating an inclusive sports environment and reducing stigma. Epilepsy is not a universal contraindication to sport; on the contrary, physical activity can improve neurological stability, alleviate depressive symptoms, and boost self-confidence (Modi & Rausch, 2019). Inclusion in sport is not merely a matter of access but also one of justice, dignity, and social responsibility. Coaches and sports

institutions have a moral obligation to ensure equal access for all athletes through reasonable accommodations and education. Jacoby and Austin (2007) highlight that the stigma surrounding individuals with epilepsy is deeply rooted in social narratives, a phenomenon also reflected in sports institutions. Coaches often avoid including athletes with epilepsy because of fear, insufficient knowledge, or institutional ambiguity. Most studies focus on medical and psychological aspects, while coaches' attitudes are rarely quantified. No globally standardized data are available on the proportion of coaches who support inclusion compared with those who view epilepsy as a barrier.

Human Resource Management and Inclusion Theories

Human relations theory emphasizes the importance of interpersonal relationships and motivation. In the context of epilepsy and sport, coaches and sports managers must develop an inclusive approach based on empathy, understanding, and support. This approach also aligns with transformational leadership theory, which emphasizes inspiring and motivating team members (Bass & Riggio, 2006).

Organizational Culture Theories

According to Schein (2017), organizational culture consists of a set of underlying assumptions and values that shape the behavior of an organization's members. Sports organizations that foster a culture of inclusion and social responsibility can contribute significantly to reducing the stigmatization of people with epilepsy.

Theoretical Framework for Sport and Health

Biopsychosocial Model of Health

Epilepsy is best understood through the biopsychosocial model, which connects biological, psychological, and social factors (Engel, 1977). In this context, sport emerges as an important psychosocial factor that:

- reduces stress,
- improves cognitive functions,
- strengthens social integration.

Social Capital Theory

According to Putnam's (2000) theory of social capital, social networks and trust among community members are crucial to the development of social cohesion. Including individuals with epilepsy in sport builds social capital by reducing discrimination and strengthening mutual trust. Athletes with epilepsy often face the risk of stigmatization, which can lead to reduced self-confidence and social isolation (Suurmeijer et al., 2001). According to UNIN (2023), team management must incorporate education for coaches, teammates, and sports

personnel to reduce prejudice. Psychological factors are particularly important because fear of seizures can diminish self-confidence and motivation. Quality of life is a multidimensional concept encompassing health, social relationships, and personal satisfaction (WHOQOL Group, 1998). Sport can have a positive impact on the quality of life of individuals with chronic illnesses, including epilepsy (Sillanpää & Schmidt, 2020).

Risk Management Theory in Sport

A Systematic Approach to Risk

According to the ISO 31000 standard, risk management involves risk identification, analysis, assessment, and control. In relation to epilepsy in sport, this requires the development of:

- **seizure-prevention protocols.** Because specialized staff may not always be available, coaches and teammates must be trained to provide first aid during an epileptic seizure:
 1. Ensure the athlete's safety (remove dangerous objects).
 2. Place the person on their side to help keep the airway clear.
 3. Do not place anything in the mouth.
 4. Call emergency services if the seizure lasts more than five minutes;
- **clear response procedures during sports activities;**
- **ongoing evaluation of performance and safety.**

Fear of liability in the event of a seizure during an activity can lead to managerial inaction and reluctance to include individuals with epilepsy.

Contingency Theory

Jovanović and Marković (2022) emphasize that there is no universal management style; the appropriate approach depends on the situation. Applied to epilepsy, this means that sports activities must be managed individually according to the type of epilepsy, seizure frequency, and the athlete's physical and psychological condition.

Integrating Theory and Practice

Combining the theoretical approaches discussed above (Bokanović, 2020) demonstrates that sports management for individuals with epilepsy is a complex process requiring a multidisciplinary approach.

- Fayol's functions provide the management structure.
- Human resource and leadership theories emphasize motivation and inclusion.
- The biopsychosocial model explains the impact of sport on health.
- Social capital theory highlights social benefits.
- ISO standards and contingency theory support safety and adaptability.

The Role of Sports Management in Supporting Individuals with Epilepsy

Sports management plays a pivotal role in creating an inclusive and safe environment for all athletes, including those with epilepsy. Although inclusion may initially appear to be primarily a medical issue, sports management establishes the systems and policies that enable safe and effective participation. In modern sports management, the inclusion of individuals with epilepsy presents a challenge requiring not only medical but also organizational, educational, and ethical interventions. Although physical activity can have therapeutic effects (Arida et al., 2019), institutional practices often fail to align with medical recommendations. Insufficient education, fear of liability, and social stigma can lead to the exclusion of individuals with epilepsy from sport. Modern approaches to inclusive management require policies that not only facilitate access but also actively encourage the participation of marginalized groups. In this context, sport becomes a setting for social integration, and coaches emerge as key agents of inclusion.

The Role of Sports Management in Inclusion

- **Strategic planning:** Developing national sports policies and programs for individuals with chronic conditions.
- **Human resource development:** Providing continuous training for coaches, teachers, and managers.
- **Marketing and social responsibility:** Conducting campaigns that promote successful athletes with epilepsy.
- **Financial management:** Securing grants, sponsorships, and donations for sports clubs that work with individuals with epilepsy.

Challenges

The most significant challenges stem from insufficient information and education. Many coaches, managers, and sports professionals are not sufficiently familiar with epilepsy, which can lead to fear, stigma, or inappropriate responses during seizures. This can result in the exclusion of athletes with epilepsy or unnecessary restrictions on their participation (Kraljić, 2023).

Additional challenges include:

- **Safety risks:** Concern about seizures during training or competition necessitates specific protocols and supervision.
- **Communication and privacy:** A clear and discreet communication channel must be established among the athlete, coach, manager, and medical staff while respecting medical privacy. Ethical considerations include avoiding discrimination and stigmatization and educating staff, parents, and athletes.
- **Lack of professional staff:** Many sports clubs lack medical support.

- **Training adaptation:** Inadequate training plans may trigger a seizure; therefore, individualized programs and an understanding of potential triggers (e.g., dehydration, fatigue, and stress) are essential.
- **Stigma and discrimination:** These are often greater obstacles than the condition itself.
- **Regulatory and legal frameworks:** Legal concerns or fears of liability in the event of an accident may hinder inclusion.

Opportunities

Despite these challenges, sports management has numerous opportunities to improve support for athletes with epilepsy. These opportunities not only benefit individuals but also contribute to the creation of a more ethical and inclusive sports system.

- **Education and awareness-raising:** Organizing seminars and workshops for coaches, managers, and other staff can significantly improve understanding of epilepsy. The focus should be on first aid during seizures, symptom recognition, and the elimination of prejudice.
- **Developing inclusive policies:** Creating clear protocols and policies that ensure athletes with epilepsy are treated on an equal basis with other athletes. This includes guidelines for adapting training, communication, and emergency management.
- **Collaboration with medical professionals:** Establishing partnerships with neurologists, physiotherapists, and other medical experts who can assist with individual risk assessments and the development of tailored training and emergency plans.
- **Promoting open dialogue:** Creating a safe environment in which athletes do not fear speaking openly about their diagnosis. This reduces stigma and facilitates planning and support.
- **Ensuring adequate equipment and environments:** Investing in safety equipment, such as helmets for specific sports, and ensuring that training facilities are safe and adapted to participants' needs.

Supporting athletes with epilepsy requires a proactive and empathetic approach (Epilepsija.info, 2025). Sports management is uniquely positioned to drive change and create inclusive sports communities. Overcoming challenges through education and the development of clear policies is crucial to realizing the full potential of all athletes, regardless of their health status. Sports organizations need to develop clear protocols, including:

- medical records containing information on diagnoses and medications;
- emergency response plans for training sessions and competitions;
- ongoing collaboration with pharmacists and neurologists.

Sports facilities rarely provide adequate arrangements for emergency intervention, privacy, and the safety of individuals with neurological conditions.

Inclusive Management Model

The proposed four-component model is presented in the following table:

Table 3. *Four-component inclusive management model.*

Component	Description
1. Individualization	Plan based on the type of epilepsy and seizure frequency
2. Education	Training for coaches, athletes, and parents
3. Collaboration	Partnership with healthcare institutions
4. Evaluation	Monitoring performance and adjusting the program

The model can be applied in school-based, recreational, and professional settings. Inclusion is based not merely on adherence to rules but also on fostering character and empathy among coaches and organizations. Sport becomes a setting for building community rather than merely a form of competition.

Regional Framework: Common Features of Bosnia and Herzegovina and Serbia

Bosnia and Herzegovina

- **“Igrajmo Zajedno” (IZI) initiative:** Focuses on inclusion through grassroots sport.
- **Key issue:** Lack of a national strategy for individuals with epilepsy in sport.
- **Positive aspects:** Active cooperation with the nongovernmental sector and international partners.

Serbia

- **ATINA Association:** Leads the “Sport Zajedno” (“Sport Together”) Erasmus+ project, which promotes inclusion and reconciliation.
- **Coach training:** Conducted in Belgrade in November 2024 and includes methods for organizing inclusive sporting events.
- **Key challenge:** Insufficient integration of inclusion into formal sports policies.

Although both countries are making progress toward inclusion, neither has yet developed specific protocols for individuals with epilepsy in sport. International projects such as “Sport Zajedno” provide a platform for knowledge exchange and local capacity-building. Findings reported by Kreni Zdravo (2019) confirm that education, prior experience, and institutional

policies significantly influence inclusivity. Regional differences highlight the need for a differentiated approach: Bosnia and Herzegovina requires systematic education and the formalization of protocols, whereas Serbia has greater institutional capacity but still lacks sufficient practical implementation.

Legal Framework

Bosnia and Herzegovina:

- **The Law on Sport of Bosnia and Herzegovina** (“Official Gazette of BiH, “ No. 12/21) contains no provisions specifically addressing the inclusion of persons with epilepsy; nor does the Law on Sport of Republika Srpska (“Official Gazette of RS, “ No. 79/2020).
- **The Law on Prohibition of Discrimination** (“Official Gazette of BiH, “ No. 59/09) provides a basis for inclusive measures but lacks specific guidelines for sport.

Serbia:

- **The Law on Sport of the Republic of Serbia** (“Official Gazette of RS, “ No. 10/16) recognizes the inclusion of persons with disabilities but does not explicitly mention epilepsy.
- **The Law on Prohibition of Discrimination** (“Official Gazette of RS, “ No. 22/09) allows inclusive measures to be expanded through subordinate legislation.

Recommendations for Bosnia and Herzegovina:

1. Development of a national strategy for inclusive sport:

- Include persons with neurological conditions (epilepsy, multiple sclerosis) in official sports policy documents.
- Establish a working group within the Ministry of Civil Affairs of BiH, in cooperation with entity-level sports federations.

2. Education for coaches and sports professionals:

- Introduce mandatory modules on epilepsy into coach licensing programs (in collaboration with faculties of sport and health sciences).
- Organize workshops in local communities with support from the non-governmental sector.

3. Pilot projects in school sport:

- Launch inclusive sports programs in primary and secondary schools (e.g., “Sport for All”).
- Involve school psychologists and pediatricians in the development of individual activity plans.

4. Partnerships with healthcare institutions:

- Formalize cooperation between sports clubs and the neurology departments of clinical centers in Banja Luka, Tuzla, and Sarajevo (tertiary healthcare level).
- Develop crisis protocols for sports events.

5. Monitoring and evaluation:

- Establish a system for monitoring the performance of inclusive programs (e.g., number of participants, seizure frequency, and participant satisfaction).
- Use the methodology from the Ljubić (2023) study as a model.

Recommendations for Serbia:

1. Integrating inclusion into the Law on Sport:

- Amend the Law on Sport of the Republic of Serbia to include provisions regarding the inclusion of persons with epilepsy and other chronic conditions.
- Involve the Ministry of Health and the Ministry of Youth and Sports in intersectoral coordination.

2. Coach training through national federations:

- Introduce mandatory epilepsy training as part of coaching certification programs (FSS, OSS, Handball Federation).
- Collaborate with the Serbian Neurological Society and the ATINA “Sport Together” project.

3. Development of local inclusive clubs:

- Support clubs such as FK Radnički Belgrade that already have inclusive sections.
- Introduce financial incentives for clubs that include persons with epilepsy.

4. Participation in international projects:

- Actively apply for Erasmus+ projects focusing on inclusion and neurodiversity.
- Develop regional networks with Bosnia and Herzegovina, Montenegro, and Croatia.

5. Ethics and professional conduct in sport:

- Introduce codes of ethics within sports federations that define the approach toward persons with epilepsy.
- Promote tact, discretion, and professional communication as standard practice.

Joint public policy and ethical recommendations:

- Mandatory coach training through certified modules.
- Financial incentives for inclusive clubs.
- Joint regional protocols developed in cooperation with neurologists.
- Sports management ethics as a mandatory component of education.
- Annual monitoring of an inclusivity index.

Conclusion

Epilepsy and sport need not be at odds; with appropriate therapy and social support, many athletes demonstrate that success is possible despite the condition. However, the economic interests of the pharmaceutical industry, which generates substantial profits from antiepileptic drugs, cannot be overlooked. By highlighting examples of prominent athletes and analyzing market dynamics, this paper calls for a balance between innovation, accessibility, and ethical responsibility.

The epilepsy pharmaceutical industry is a complex, dynamic system in which scientific advances, market competition, and societal health needs intersect. Although epilepsy medications have vastly improved the quality of life of millions of people worldwide, the profit motives of pharmaceutical companies often strongly influence pricing structures, treatment accessibility, and development strategies.

Companies employ sophisticated methods to maintain market dominance, including patent protection, modified formulations, branding, and expansion into new markets, thereby maximizing revenue but sometimes maintaining high prices at the expense of accessibility. Economic interests, however legitimate, must be balanced against the principles of ethics and equity. This requires greater pricing transparency, support for the development of affordable therapies in lower-income regions, and more responsible conduct by pharmaceutical companies within the global health landscape.

Further reforms of the pharmaceutical sector, combined with regulatory mechanisms and international cooperation, are crucial to ensuring a sustainable model in which the benefits of innovation are accessible to the largest possible number of patients. Epilepsy, as a serious chronic condition, requires a healthcare system in which treatment is not only effective but also accessible, equitable, and ethically justified.

Pharmacists, coaches, physicians, and managers must collaborate to ensure the health and safety of athletes while enabling them to achieve their sporting goals. Further empirical studies are needed to determine more precisely how different sports affect the frequency of epileptic seizures. Epilepsy need not be a barrier to participation in sport. With appropriate management, individuals with epilepsy can actively engage in sports activities, thereby improving their health and quality of life. Sports managers play a pivotal role in creating a safe, inclusive, and ethically responsible environment.

The management of sport and epilepsy is not limited to medical measures but encompasses a broader range of managerial functions: planning, organizing,

leading, and controlling. Through a strategic approach, management can create an inclusive and safe environment in which individuals with epilepsy participate in sports activities on an equal footing. Such an approach contributes to the physical and psychological well-being of individuals while also strengthening the social responsibility of sports organizations. By integrating management theory and sport science, it is possible to develop a holistic model for managing sports activities for individuals with epilepsy based on inclusion, safety, and social responsibility.

Inclusive sports policies provide a strategic framework for integrating marginalized groups, such as persons with disabilities, individuals with neurological conditions such as epilepsy, ethnic minorities, and women, into sports activities. In the Western Balkans, these policies are being developed through a combination of local initiatives, international projects, and institutional reforms. Evidence shows that programs involving athletes with epilepsy contribute significantly to their psychological well-being and social integration.

Bosnia and Herzegovina and Serbia have the institutional potential to develop inclusive sports policies, yet insufficient specific attention is given to individuals with epilepsy. The recommended measures can serve as a foundation for formulating national strategies, local programs, and international partnerships. Inclusion in sport is not merely a matter of health; it is also a question of ethics, organization, and social responsibility.

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