

THE IMPLICATIONS OF STRUCTURED PHYSICAL AND SPORTS ACTIVITY PROGRAMS IN REDUCING AGGRESSIVENESS IN PRISONERS – A SYSTEMATIC REVIEW ANALYSIS

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ABSTRACT. Structured and purposeful physical activity has demonstrated significant effects on personality traits and behaviors among offenders, especially in reducing maladaptive behaviors. The European Prison Rules strongly advocate for all prisoners to have regular access to organized sports and physical education. This systematic review aims to emphasize the role of physical activity in enhancing inmates' ability to control aggression, which in turn boosts their chances of successful social reintegration and lowers the risk of recidivism by improving self-esteem and locus of control. The review included eight relevant studies sourced from scientific platforms, analyzing research published between 2000 and 2023. The studies targeted both adult and young male and female inmates, regardless of their ethnicity, all of whom participated in structured physical education and sports programs within a prison environment. These programs varied in terms of physical activity, focusing on resistance and strength training, and were consistently associated with reduced aggression, improved self-esteem, and other benefits directly related to life in detention. Through the redirection of aggressive impulses and the enhancement of self-esteem and locus of control, physical activity plays a crucial role in preventing and reducing the harmful consequences of aggressive behavior in incarcerated populations.

Keywords: *physical activity, sports, prison, aggression control, self-esteem, locus of control.*

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REZUMAT. Implicațiile programelor structurate de activități fizice și sportive în reducerea agresivității deținuților –revizuire sistematică. Activitatea fizică structurată și intenționată are efecte semnificative asupra trăsăturilor de personalitate și comportamentelor infractorilor, în special în reducerea comportamentelor inadaptative. Regulile Penitenciare Europene recomandă ca toți deținuții să aibă acces regulat la sporturi organizate și educație fizică. Această revizuire sistematică își propune să evidențieze rolul activității fizice în dezvoltarea capacității deținuților de a-și controla agresivitatea, ceea ce contribuie la creșterea șanselor de reintegrare socială și la reducerea riscului de recidivă prin îmbunătățirea stimei de sine și a locusului de control. Revizuirea a inclus opt studii relevante, selectate de pe platforme științifice, analizând cercetări publicate între 2000 și 2023. Studiile au vizat atât populații adulte, cât și tineri, de sex masculin și feminin, indiferent de etnie, toți participanții fiind deținuți care au participat la programe structurate de educație fizică și sport în mediul penitenciar. Programele de exerciții au variat, concentrându-se pe antrenamente de rezistență și forță, și au fost corelate în mod constant cu reducerea agresivității, îmbunătățirea stimei de sine și alte aspecte legate de viața în detenție. Redirecționarea impulsurilor agresive, împreună cu îmbunătățirea stimei de sine și a locusului controlului, poate fi realizată prin antrenament și practică a abilităților fizice. Astfel, activitatea fizică contribuie semnificativ la prevenirea și reducerea comportamentului agresiv în detenție.

Cuvinte cheie: *activitate fizică, sport, penitenciar, controlul agresivității, stimă de sine, locul controlului.*

INTRODUCTION

The role of sports in correctional institutions has been widely studied, with evidence Physical activity can positively impact the psychological and behavioral outcomes of inmates. This systematic review synthesizes research on the relationship between sports, self-esteem, aggression, and locus of control among inmates. Education can encourage those striving not to reoffend, yet sports receive limited attention in prisons. Structured physical activity significantly contributes to reducing maladaptive behaviors, with aggressive behavior influenced by various psychological, physiological, and situational factors. Specialized interventions are necessary to help inmates develop skills to manage anger, aggression, and self-aggression.

Aggression is interconnected with inmates' self-esteem and locus of control, which shape their behavior and influence levels of aggression and self-esteem. Individuals' interpretations and evaluations of events significantly affect their anxiety and stress levels. While aggressive behaviors are common in prison, redirecting energy towards physical education can diminish these behaviors, aiding inmates' social reintegration.

THE IMPLICATIONS OF STRUCTURED PHYSICAL AND SPORTS ACTIVITY PROGRAMS IN REDUCING AGGRESSIVENESS IN PRISONERS- A SYSTEMATIC REVIEW ANALYSIS

Education in prison facilitates inmates' return to society and enhances penal effectiveness. Incarceration alters personality, but education can limit the damage inflicted on detainees. Additionally, many inmates have had limited and negative educational experiences; therefore, they should receive special support to address their disadvantaged educational situation. Education can also encourage inmates to avoid reoffending. Despite its potential, sports are undervalued in prison education. Nevertheless, research shows that structured physical activity can significantly help reduce maladaptive behaviors.

The purpose of this systematic review is to highlight the importance of physical activity in enhancing adaptive behaviors among inmates, reducing aggression, and improving self-esteem and locus of control in incarcerated individuals.

The objectives pursued in the systematic review were as follows:

- Through participation in structured physical and sports activity programs, inmates will quantitatively reduce aggressive and self-aggressive behaviors.
- After participating in structured physical and sports activity programs, inmates' self-esteem will increase, and they will develop a more internal locus of control.

MATERIALS AND METHODS

This article was conducted in accordance with the specific criteria for systematic review and meta-analysis (PRISMA, Moher, 2009).

Research Strategy

The research was carried out in January 2024 and involved the analysis of relevant literature from two major databases: PubMed and Web of Science. Additional potentially relevant articles were manually searched on the scholar.google.com platform. The research was conducted based on predefined keywords: "physical education in prison," "inmate aggression," "physical activity and self-esteem," "social reintegration," "prevention of inmate aggression."

The selection of studies was carried out through a 3-step process: title evaluation, abstract evaluation, and full-text evaluation. The selected studies focused on adult and young male and female populations, regardless of ethnicity, and were published between 2000 and 2023.

Eligibility Criteria

The inclusion criteria were as follows:

1. The sample must consist of individuals in detention.

2. The study must report an association between physical activity and muscle mass, muscle strength, and/or physical performance.

3. The study must be fully published in English.

4. The intervention program must last at least 8 weeks, which is the minimum recommended duration for increasing muscle strength and reducing aggression.

The exclusion criteria were as follows:

1. Inadequate data retrieval methods.

2. Incorrect classification of terms related to the prison environment.

3. Studies published in a language other than English.

From the eligible articles, data such as the author, year of publication, study type, sample size, participant characteristics (age, gender, nationality), methodology, parameters, and the definition of physical education in prison were extracted.

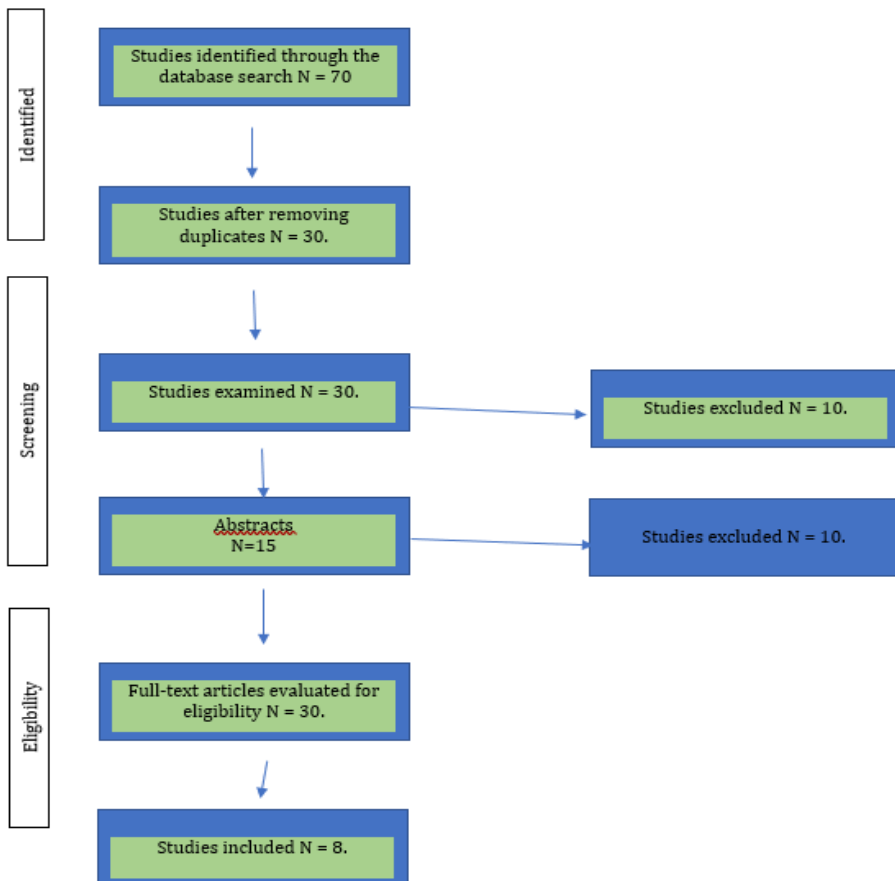


Figure 1. PRISMA diagram for study selection.

THE IMPLICATIONS OF STRUCTURED PHYSICAL AND SPORTS ACTIVITY PROGRAMS
IN REDUCING AGGRESSIVENESS IN PRISONERS- A SYSTEMATIC REVIEW ANALYSIS

RESULTS

As a result of extensive research, 70 studies were found, of which 30 were eliminated due to duplication. Additionally, the titles of the articles were analyzed to highlight the procedures. The abstracts and full texts were assessed based on the exclusion criteria. Consequently, a total of 8 articles remained for analysis. All 4,248 participants in the analyzed studies were inmates who participated in structured physical education and sports programs in the prison environment. The number of weeks of physical training the subjects participated in was 214 weeks. The average age of the studied groups was 34.6 years. The exercise protocols varied; there were training programs focused on resistance and strength training, and their effects were correlated with reduced aggression, increased self-esteem, as well as other aspects specific to prison life.

Table 1. Reviewed Studies

Study	Subjects	Program	Methodology	Results/Conclusions
Psychou, Kokaridas, Koulouris & colab. (2008)	60 male inmates randomly assigned to two groups (control and experimental) from Grevena Correctional Institution (Greece).	The duration of the circuit training program for the exercise group was 12 weeks, with a frequency of 3 training sessions per week, each lasting 60 minutes.	The SF-12 questionnaire on quality of life and the Rosenberg Self-Esteem Scale were administered to both groups before and after the physical exercise intervention.	The results showed significant differences in physical health ($F_{1,58} = 10.976$, $p < .01$, $\eta^2 = .16$), mental health ($F_{1,58} = 125.286$, $p < .001$, $\eta^2 = .68$), and self-esteem ($F_{1,58} = 101.250$, $p < .001$, $\eta^2 = .64$) between pre- and post-intervention measures (a, b, c) only for the experimental participants.
Cashin, Potter & Butler (2008)	747 male and 167 female inmates, forming a cross-sectional random sample of prisoners	Football training sessions occurred weekly, with 2 meetings per week, over a period of 12 months..	The Beck Hopelessness Scale was completed during the interview	An inverse correlation was found at $P < 0.05$ between total weekly exercise time (in minutes) reported in prison and both hopelessness and self-esteem ($r = -0.079$, $n = 838$, $P < 0.02$). As exercise time increased, hopelessness decreased, and self-esteem improved.

Study	Subjects	Program	Methodology	Results/Conclusions
Kimberley, Ozano (2008)	Fifteen female inmates aged 21 to 40 from HMP Drake Hall were interviewed.	Gymnastics activities were conducted at least three times a week.	This was a qualitative study. Questions focused on participants' perceived experiences and outcomes related to their involvement in sports and physical activities. The collected data were analyzed using open, axial, and selective coding.	87% of inmates reported a reduction in aggression, while 96% experienced an increase in self-esteem and a decrease in anxiety.
Frey & Delaney (2008)	1770 male inmates.	The study uses a mixed research methodology, combining both qualitative and quantitative data through interviews and survey questionnaires.	interviews and surveys	A significant positive correlation ($r = 0.65$, $p < 0.01$) was found between participation in physical activities and self-reported improvements in mental health. 80% of participants reported feeling less stressed and more mentally balanced.
Frigout, Degrenne, & Delafontaine (2020)	55 men and 20 women.	Sports activity occurred weekly, with 2 meetings per week, over a period of 26 months.	The Dugas observation grid was used in a semi-structured interview, along with Toulouse questionnaires and the Kolmogorov-Smirnov test.	The significance level after Bonferroni correction was set at $p < 0.003$. Effect size values (η^2) of 0.2, 0.5, and 0.8 were considered to represent small, medium, and large differences.
Parker, Meek, & Lewis (2014)	79 participants aged 18 to 21 participated	prison sports "academies."	Observations and self-esteem questionnaires were conducted	The Mann-Whitney U test for independent samples was used. A 57.5% increase in self-esteem was reported

THE IMPLICATIONS OF STRUCTURED PHYSICAL AND SPORTS ACTIVITY PROGRAMS
IN REDUCING AGGRESSIVENESS IN PRISONERS- A SYSTEMATIC REVIEW ANALYSIS

Study	Subjects	Program	Methodology	Results/Conclusions
			pre- and post-test.	for participants between the pretest and posttest, with statistical inference conducted at $p < 0.05$. Inmates who participated in team sports reported a 25% increase in internal locus of control.
Moscoso-Sánchez, De Léséleuc, Rodríguez-Morcillo, Fernández, Pérez-Flores & Muñoz-Sánchez (2017)	135 inmates from three different prisons. 63 staff members, including social workers, psychologists, and educators.	3 strength training sessions per week, lasting 1 hour each, for a duration of 12 weeks.	A specially designed questionnaire was used to gather perceptions on the expected outcomes of sports practice. It was administered to both inmates and staff, covering physical, psychological, social benefits, and associated risks of sports activities	Chi-square tests were used to evaluate the association between categorical variables. The focus was on the role of sports in the social rehabilitation of inmates, highlighting its potential to foster appropriate self-esteem in over 78% of participants and an internal locus of control in 68.4% of participants.
Jugl, Bender & Lösel (2021)	1,200 male inmates	Three strength training sessions per week, lasting 1 hour, for 34 weeks	Meta-analytic techniques were used to combine data from studies and evaluate the overall effectiveness of sports programs.	The global effect size indicating a small to medium effect of sports programs on reducing aggression, increasing self-esteem, and shifting the locus of control. There was a 58% reduction in the number of aggressions.

DISCUSSIONS

The structured environment and positive reinforcement provided by sports activities contribute to overall psychological well-being. There is a significant reduction in dysfunctional behaviors among inmates through physical education and sports programs. Sports activities play an important role in managing aggression and tension in correctional settings, as physical involvement leads to a substantial decrease in aggressive behavior, channeling energy constructively and promoting a safer prison environment.

Various studies have employed different tests and methods to evaluate the impact of physical activities on inmates' aggression levels. Psychou, Kokaridas, and Koulouris (2008) used repeated measures ANOVA to assess the effects of a circuit training program on aggression, revealing significant reductions in aggressive behaviors in the experimental group compared to controls ($F_{1,58} = 10.976$, $p < .01$, $\eta^2 = .16$). Cashin, Potter, and Butler (2008) explored the relationship between time spent in sports and reductions in hopelessness, finding a significant inverse correlation ($r = -0.079$, $p < 0.02$) between exercise duration and aggression levels. Regular physical activity was linked to reduced feelings of despair, which is often associated with aggression, thereby enhancing inmates' mental health. Studies indicate that physical and recreational activities in prisons positively impact self-esteem. Inmates who engage in these activities report improved self-image and increased confidence. The influence of physical activities on self-esteem and locus of control has been evaluated using various psychometric tools. Frey and Delaney (2008) found a significant positive correlation ($r = 0.70$, $p < 0.01$) between participation in physical activities and a shift from external to internal locus of control, suggesting increased responsibility and autonomy among inmates.

The relationship between self-esteem, aggression, and locus of control is complex and interdependent, significantly influenced by participation in sports. Inmates with higher self-esteem and an internal locus of control are less prone to aggressive behaviors. Cashin, Potter, and Butler (2008) demonstrated this correlation, showing that inmates regularly engaged in physical activities not only experienced improved self-esteem but also exhibited better control over aggressive impulses.

These studies suggest that sports can act as a catalyst for positive changes in self-esteem and locus of control, contributing to reduced aggression. This synergy between self-esteem, aggression, and locus of control is crucial for the long-term success of rehabilitation programs in correctional environments, making sports an essential tool for the psychological transformation and social reintegration of inmates.

CONCLUSIONS

Structured physical activities aimed at reducing conflict have proven effective in preventing and decreasing aggression-related harm. Tailored physical training in correctional environments fosters self-control and redirects aggressive impulses. The goal of these physical education and sports programs is to improve inmate behavior, optimize responses to frustration, and enhance chances of social reintegration.

The synergy among the analyzed tests and results highlights that sports activities not only reduce aggression and improve self-esteem but also promote an internal locus of control. These changes are crucial for inmates' rehabilitation and social reintegration, indicating the need for continued and expanded programs in correctional settings. Studies employing rigorous statistical methods demonstrate that sports play a central role in transforming inmates' behaviors and psychological perceptions, contributing to a safer prison environment and better preparation for reintegration.

Significant differences identified in the studies underline the variable impact of physical activities based on sport type, program frequency, duration, and individual participant characteristics. Thus, the systematic review supports international policies in prison education.

The analysis highlights the significant and beneficial effects of sports on self-esteem, aggression, and locus of control among inmates. By promoting physical health, mental well-being, and social skills, sports can be crucial for the rehabilitation and reintegration of inmates. Future research should focus on standardized measures and larger samples to further validate these findings.

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