

GENDER INEQUALITY IN HANDBALL: DIRECT, INSTITUTIONAL AND EPISTEMIC MECHANISMS OF DISCRIMINATION – A NARRATIVE REVIEW

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REVIEW ARTICLE

DOI: 10.5937/ATAVPA25168F

Abstract: Gender inequality in handball operates through three interconnected mechanisms that shape the development, performance, and health of female athletes. Direct discrimination appears in unequal salaries, visibility, and media investment, reflecting long-standing norms that privilege men's sport. Institutional discrimination is embedded in resource allocation, as women's teams receive limited access to high-quality training facilities, medical support, and experienced coaching staff, restricting both performance optimization and career sustainability. Epistemic discrimination, the systematic exclusion of female athletes from sports science research, results in training models, injury-prevention protocols, and recovery practices derived primarily from male physiology. Consequently, female handball players train and recover under conditions misaligned with their biological profiles, increasing injury risk and slowing long-term development. Recognizing that these forms of discrimination reinforce one another, the paper argues that achieving equality in handball requires coordinated structural change across financial, organizational, and scientific domains.

Key words: women's handball, gender pay gap, media representation, resource allocation, research bias

INTRODUCTION

Handball is a high-intensity intermittent team sport that requires a combination of explosive strength, speed, repeated sprint ability, jumping, throwing precision, and advanced perceptual-motor coordination (Aksović et al., 2021; Ilić, 2015; Ilić et al., 2023). The game alternates between phases of maximal physical effort, such as accelerations, rapid changes of direction and vertical jumps, and periods of lower-intensity movement (Póvoas et al., 2012). Because of these physiological demands, long-term athletic development in handball requires structured planning, especially during adolescence, when biological maturation and growth rates differ considerably both among individuals and between sexes (Filipović et al., 2019). Although handball has historically been perceived in Europe as a predominantly male sport, female participation has substantially increased in recent years, and women's leagues are steadily evolving toward a faster and more physically demanding style of play (Florin et al., 2023; Michalsik & Aagaard, 2015). As visibility grows, gender-based disparities in resources, representation, and scientific knowledge have become increasingly apparent, positioning handball as a relevant case study for examining structural gender inequality in sport.

One of the most persistent indicators of gender inequality in handball is the imbalance in scientific representation. A recent scoping review demonstrated that only 16.2% of studies using wearable technology to monitor training load in team sports included female athletes, while over 80% were conducted exclusively on men (Benson et al., 2020). This research gap means that many evidence-based recommendations for performance optimization, injury prevention, and workload management in women's handball are extrapolated from male data (Elliott-Sale et al., 2021; Emmonds et al., 2019). As a result, female athletes often train under methodologies that do not reflect sex-specific physiological characteristics.

Despite progress in participation rates, women now hold approximately 38% of all handball licenses in major European federations such as France and Spain (CSD, 2023; INJEP, 2023), substantial disparities remain in visibility and financial support. For example, the 2022/23 Women's EHF Champions League attracted 9.3 million broadcast viewers, compared to 81 million viewers of the men's edition, a nearly nine-fold difference (EHF, 2024a). Budget analyses show the same imbalance: the average operational budget of a top-tier French men's handball club exceeds €5.5 million, whereas women's leagues operate

with a fraction of that amount, often limiting access to professional infrastructure and full-time staff (Ayúcar-Sánchez et al., 2024).

Gender stratification in sport is grounded in what Coakley (2021) terms orthodox gender ideology, which assumes that biological sex represents a natural and fixed division between men and women, and that each category is associated with specific social roles and physical attributes. In sport, this ideology becomes visible through the classification of certain disciplines as “male” or “female,” shaping public perception, investment patterns, and institutional decisions regarding resource allocation.

Two sociological frameworks are particularly useful for explaining how these inequalities persist. Hegemonic masculinity theory (Connell & Messerschmidt, 1995) posits that societies construct hierarchies of masculinities in which the dominant form is linked to strength, aggression, competitiveness, and physical dominance, traits that align closely with handball’s symbolic identity. Gendered organization theory (Acker, 1990) argues that institutions embed gendered assumptions into their structures, procedures, and language, thereby systematically privileging men even when organizational practices appear neutral.

Direct discrimination is reflected in unequal pay, prize money, sponsorship structures, and media coverage. While several women’s sports have undergone rapid professionalization, elite female handball players continue to receive significantly lower salaries and reduced exposure relative to male athletes (Fink, 2015). Viewership data from the 2024 Men’s European Championships, over one million in-arena spectators, 45 million television viewers, and 400 million digital interactions—highlights the magnitude of this divide (EHF, 2024b).

Indirect discrimination emerges through structural mechanisms that are formally gender-neutral but systematically generate unequal opportunities. These include prioritizing men’s competitions in scheduling, investing more heavily in male coaching development, and distributing federation funds in ways that favour men’s leagues. Because elite handball requires specialized strength and conditioning support, performance-tracking technology, and expert staffing, unequal distribution of institutional resources directly constrains the professional development of women’s teams (Cooky & Messner, 2018).

The most overlooked but potentially most consequential form is epistemic discrimination, the exclusion of women from the scientific evidence used to design training and medical practice. Due to insufficient female-specific research, coaches frequently rely on male-derived models, despite known sex differences in muscle morphology, hormonal regulation, fatigue profiles, and injury risk (Elliott-Sale et al., 2021; Tingelstad et al., 2023; Ilić et al., 2025). This knowledge gap produces a silent but systemic disadvantage that shapes every stage of women’s athletic development.

The aim of this paper is to identify and critically analyse how gender inequality manifests within the sport of handball across three interconnected dimensions: direct discrimination, institutional discrimination, and epistemic discrimination. By synthesizing existing scientific evidence, the study seeks to demonstrate how these structural mechanisms influence the visibility, development, and performance of female handball players, and to highlight the consequences of relying on male-based research models when formulating training guidelines and performance standards in women’s handball.

METHODS

This study was conducted as a narrative literature review with the aim of synthesizing current scientific knowledge on gender inequality in handball. A narrative approach was selected because it enables the integration of heterogeneous sources, including empirical studies, theoretical frameworks, and institutional reports, which is necessary for addressing a complex and multidimensional sociocultural issue such as gender discrimination in sport (Snyder, 2019). The literature search was carried out in four major scientific databases (Scopus, Web of Science, PubMed, and SPORTDiscus), complemented by official documents published by the European Handball Federation, International Handball Federation, and national handball governing bodies.

The search strategy included combinations of keywords related to handball, gender inequality, women in sport, athlete development, and research bias. Only peer-reviewed publications, theses, and institutional reports published in English between 2010 and 2025 were considered. Studies were included if they addressed gendered aspects of handball in relation to performance, visibility,

institutional structures, or research representation. Works without methodological rigor or those not distinguishing between male and female athletes were excluded.

All relevant sources were screened and analysed through an interpretative, thematic lens, guided by the conceptual distinction between direct, institutional, and epistemic forms of discrimination. This analytical structure allowed for the identification of recurrent mechanisms underlying gender inequality in handball, as well as the recognition of knowledge gaps that continue to disadvantage female athletes. Because the study relied exclusively on publicly available secondary sources, no ethical approval was required.

MANIFESTATIONS OF GENDER INEQUALITY IN HANDBALL

Economic Disparities

Economic inequalities in handball represent one of the most visible forms of direct discrimination against female athletes, as they manifest clearly in salary differences, club budgets, and the distribution of prize money. Contemporary literature confirms that the gender pay gap is not limited to highly commercialized sports but persists even in traditional European disciplines such as handball, which possess strong institutional frameworks and long-standing competitive structures. Recent media analyses show that female athletes, despite carrying identical training loads and operating under comparable performance demands, continue to earn significantly lower incomes than their male counterparts. Comparisons with other sports clearly demonstrate that economic inequalities have a structural character. Research on economic inequality in professional basketball in the U.S. strongly illustrates this mechanism: the minimum salary in the NBA is 15.76 times higher than the minimum salary in the WNBA, the maximum salary is even 206.72 times higher, while the average salary is 79.77 times higher. This results in a gender pay gap of 98.75%, meaning that women earn only 1.25% of the male average (Báčová, 2021). These data clearly show that extreme salary gaps do not reflect differences in athlete performance but rather institutional mechanisms of resource distribution and historical patterns of valuing men's sports. Similarly, in English football, Premier League players earn over sixty times the weekly salary of athletes in the Women's Super League, reflecting a persistent structural imbalance in financial investment and valuation (Poppelwell-Scevak, 2022). Even in tennis, a sport often cited as a model of gender equality, total annual income remains substantially skewed toward men (Flake et al., 2013). Recent data further indicate that in semi-professional sport, where overall salaries are much lower, the gender pay gap still reaches 14.5% (Wicker et al., 2021), highlighting the persistence of economic discrimination even in contexts where market logic should not be dominant.

A similar pattern is observed in European handball. Analyses of the financial structure of handball leagues reveal that men's competitions accumulate significantly higher levels of capital, resulting in higher salaries, more robust sponsorship contracts, and greater availability of professional support services. Budgets of elite men's clubs commonly reach several million euros, approximately €5.5 million in the French league, €4.5 million in the German league, and around €1.3 million in the Spanish league (Ayúcar-Sánchez et al., 2024). In contrast, women's clubs operate with considerably more limited resources, which affects the degree of professionalization, staffing capacities, and contractual stability. These disparities also contribute to a reduction in competitive balance, particularly in leagues where only a small number of well-funded women's clubs consistently dominate. This was confirmed in a recent 15-year analysis of four major European handball leagues (Ayúcar-Sánchez et al., 2024).

Although arguments frequently rely on differences in revenue and popularity between men's and women's leagues, data from the European Handball Federation demonstrate that the gap in media exposure and financial investment is considerably larger than market criteria would suggest. According to the EHF report (2024), the men's EHF Champions League attracted approximately 81 million viewers in the 2022/23 season, while the women's competition recorded 9.3 million. While differences in viewership exist, investment in marketing and production resources fails to reflect the actual potential of women's handball, especially given that digital platforms consistently show high engagement for women's teams and players. The persistent lack of financial investment reinforces a self-perpetuating cycle: limited economic support lowers the professional standards and public visibility of women's

handball, which is then used as justification for the continued unequal distribution of financial and media resources.

The literature clearly emphasizes that such disparities do not stem from performance-based factors but from historically shaped norms of valuing sport. A recent study by Meier et al. (2025) shows that media narratives most commonly frame the gender pay gap as “unfair,” yet proposed solutions remain primarily market-oriented, suggesting that women’s sport must become commercially competitive before equal compensation can be justified. This narrative disregards the fact that men’s sports have benefited from decades of institutional privilege, media investment, and infrastructural support, while women’s sports have been systematically marginalized. As a result, female handball players are placed at a structural disadvantage, as they are expected to meet a standard of commercialization that men’s sports achieved due to long-standing advantages.

The study by Ayúcar-Sánchez et al. (2024) further confirms that unequal investment has direct sporting consequences. Women’s handball leagues exhibit higher concentration of success and fewer teams competing at the top level, a pattern linked to lower budgets and limited funds available for talent development. Thus, financial inequality becomes a performance-related inequality, directly influencing professional growth, training quality, and the overall sustainability of athletes’ careers.

Economic disparities are the core problem because they have shaped how handball develops over time. Women’s clubs simply don’t have the financial resources that men’s clubs do, and this is ultimately why women’s handball remains marginalized. This inequality operates at two levels: at the professional level, where salaries and prize money are significantly lower, and at the youth development level, where training conditions are inadequate and investment in talent development is minimal. The outcome is an uneven development of the sport overall and unstable careers for female athletes.

Media Representation

Female athletes receive considerably less media attention than male athletes. Research (Bruce, 2016; Cooky et al., 2015; Cooky et al., 2013) indicates that the disparity arises not only in the volume of coverage but also in its framing. Media narratives frequently emphasize women athletes’ appearance, emotional expressions, and personal lives, whereas men are predominantly portrayed through their athletic performance, tactical competence, and competitive achievements. This differentiation produces tangible effects. Female athletes are often mediated through male figures—such as coaches, partners, or commentators—rather than being represented as autonomous professionals. Salido-Fernández and Muñoz-Muñoz (2021) examined this dynamic and demonstrated its influence on audience perception, showing that women’s accomplishments are frequently interpreted as less significant. This constitutes a form of marginalization driven by representational practices rather than overt exclusion.

Research focusing on European media further shows that women’s handball receives significantly less broadcast time, fewer analytical segments, and far fewer prime-time placements compared to men’s competitions, despite comparable or stronger competitive results among women’s teams (Meier et al., 2025). Limited media exposure consequently reduces the commercial value and public visibility of female handball players.

Recent data from the European Handball Federation reinforce these findings, showing that the men’s EHF Champions League attracted approximately 81 million viewers in the 2022/23 season, while the women’s league reached only 9.3 million, illustrating a substantial gap in media reach and marketing investment (EHF, 2024). This restricted exposure generates a self-reinforcing cycle: reduced visibility limits audience engagement, which is then used to justify further unequal distribution of media resources.

Differences are also evident in production quality. Men’s handball matches are typically broadcast with higher technical investment, more experienced commentary teams, and superior production standards, further reinforcing their perceived prestige. Achieving equitable conditions requires media institutions to commit to proportional coverage, equal production standards, and improved promotional strategies.

Although digital media offer alternative avenues for increasing visibility, allowing female handball players and teams to communicate directly with audiences, these efforts still depend on institutional and

sponsorship support (Galván, 2021; Rogstad et al., 2024). Without such backing, digital engagement cannot fully compensate for structural inequalities in mainstream media coverage.

Access to training facilities

Gender inequality in handball becomes particularly evident in how training facilities are distributed and maintained. Men's teams routinely obtain preferential access to optimal training times and superior sports venues, while women's teams are relegated to less favourable time slots, often late at night, or to facilities of noticeably lower quality (UNI Europa Sport, 2024). Across various European leagues, notably in Spain, Romania, and Poland, players describe situations in which they "train whenever the hall is available," leading to shorter, irregular practices and environments that hinder both technical and tactical progression. Qualitative evidence further illustrates that women's teams are frequently situated in halls with deteriorated floors, insufficient lighting, or minimal equipment, whereas men's teams utilize the main club facilities, which are fully resourced and professionally maintained.

This disparity is not merely logistical; it directly affects training quality, elevates injury risk, and restricts long-term athletic development (UNI Europa Sport, 2024).

Medical support and healthcare provision in women's handball

Parallel to broader financial and institutional disparities, women's handball teams systematically operate with reduced access to medical support, sport-specific health professionals, and modern recovery technologies compared with their male counterparts. Evidence shows that women in professional sport have significantly less access to qualified medical staff, including orthopaedic surgeons, physiotherapists, strength-and-conditioning specialists, and team physicians, which directly affects injury prevention, training quality, and recovery timelines (Crossley et al., 2025; Wilson et al., 2023). While men's teams typically employ specialists with advanced expertise and continuous medical coverage, women's teams often function with minimal or fragmented medical structures, reflecting long-standing institutional bias in the allocation of funding and technical resources. These disparities are reinforced by the historical underrepresentation of women in leadership positions across sports-medicine organizations, such as the American Orthopaedic Society for Sports Medicine, where only 1 of 60 presidents has been a woman, perpetuating male-normed medical standards and practices (Sachdeva et al., 2022).

Handball-specific research further demonstrates the concrete consequences of these systemic inequalities. According to the UNI Europa Sport (2024) survey on working conditions in European handball, women's teams frequently lack on-site physicians, physiotherapists, and injury-prevention staff; many clubs do not provide immediate medical supervision during training, and several players report paying for their own rehabilitation or receiving delayed diagnostic evaluation. Additionally, players from Spain, Poland, and Romania report significantly higher injury-related work absences, often exceeding 40 days per season, alongside limited access to insurance, recovery equipment, and structured rehabilitation programs. These deficits stand in stark contrast to men's professional teams, which more consistently employ medical personnel and maintain formalized injury-management protocols. The European Handball Federation (EHF) has likewise recognized this structural gap, noting that women's teams receive substantially fewer medical resources and less advanced monitoring technologies, contributing to disproportionate injury burdens among female athletes (EHF Medical Commission, 2022).

As a result, female handball players more frequently experience delayed diagnosis, inadequate injury prevention, and non-individualized rehabilitation, which collectively increase the likelihood of reinjury and prolong return-to-play timelines. Research highlights that limited access to gender-specific sports-medicine knowledge, such as expertise in hormonal fluctuations, post-partum training, pelvic-floor injuries, and sex-specific neuromuscular profiles—places women at a systematic disadvantage compared with male athletes (Crossley et al., 2025). The lack of support staff, e.g., physiotherapists, S&C coaches, is strongly associated with higher injury prevalence, greater cumulative load, and reduced recovery quality throughout the season (Wilson et al., 2023). The combined effects of insufficient medical investment, reduced availability of recovery technologies, and lower staffing levels create conditions in

which women handball players face longer recovery trajectories, higher reinjury risk, and greater long-term health burdens, demonstrating that medical inequality is a central structural component of gender discrimination in the sport.

Coaching expertise and staffing imbalance

Structural gender inequality is deeply embedded in the distribution of coaching expertise within European handball: elite and highly qualified coaches are significantly more likely to assume leadership of men's teams, while women's teams are systematically deprived of equivalent levels of professional coaching staff. Research consistently demonstrates that men's professional leagues offer substantially higher financial compensation, better working conditions, and more stable contracts, which drives experienced coaches to "migrate" toward men's teams. As a result, women's teams frequently receive coaches with shorter professional experience, lower levels of formal education, or those at the early stages of their careers (LaVoi & Dutove, 2012; Norman, 2015). Importantly, this staffing asymmetry is not attributable to the athletic quality of female players but to institutional practices that historically associate "coaching prestige" with men's sport. Within the European context, studies by Fasting and colleagues reveal that women's teams often rely on less-qualified coaches and have limited access to ongoing professional development, which directly influences training planning, individualized preparation, injury prevention, and long-term talent development (Pfister, 2010).

Empirical evidence specific to handball further confirms that structural inequality in coaching expertise is particularly pronounced in women's leagues. The UNI Europa Sport (2014) analysis found that women's professional handball clubs in Spain, France, Poland, and Romania frequently lacked access to high-level licensed coaches, while men's clubs in the same countries employed more credentialed staff, secured better contracts, and maintained greater professional stability. This deficit in coaching specialization within women's teams is strongly associated with lower financial investment, club instability, limited training resources, and a systemic lack of support for women's advancement in coaching careers (Pfister, 2010). These inequalities produce measurable consequences: less-structured training processes, reduced individualization, weaker load-monitoring practices, and slower development of tactical and neuromuscular competencies among female athletes. Over time, this contributes not only to reduced competitiveness of women's clubs but also to increased injury risk and decreased sustainability of professional athletic careers, demonstrating that coaching inequality is a key mechanism through which gender discrimination is reproduced in handball.

Epistemic discrimination

Scientific knowledge in sport has been built primarily on male bodies. Epistemic discrimination does not manifest as explicit prohibition but rather as systematic disregard for female physiology in research design. Analyses of leading sports science journals show that only 4–13% of publications include exclusively female participants, while over 70% of studies use male samples or mixed samples without gender-specific analysis (Costello et al., 2014). The problem runs deeper than it appears: even when women are present as research subjects, investigations routinely fail to control for menstrual cycle and hormonal fluctuations. A systematic review of 299 sports medicine studies revealed a paradox, 71% of participants were female, yet only 7% of studies were designed to examine sex differences, and none controlled for hormonal status (Smith et al., 2022). This means women become visible as numbers but remain invisible as biology. Literature on young athlete development demonstrates the same asymmetry: systematic reviews of adolescent motor abilities predominantly analyse boys, while dramatic physiological differences between ages twelve and sixteen remain unexamined and unincorporated into training programs (Malina et al., 2004; Owen et al., 2020). The result is a global "gender data gap" in sport, where the absence of female-specific findings produces the absence of female-specific training models, which directly increases injury risk (Curran et al., 2019).

The epistemic lack of data has concrete consequences. Female handball players train according to programs developed for the male body, periodization models, load protocols, strength testing, and even injury prevention are all based on male physiology. Coaches have standards for men, and women fit into those standards, without consideration of their distinct neuromuscular structure, different adaptation

to intense training, or specific risks such as ACL injuries and pelvic floor dysfunction (Elliott-Sale et al., 2021). The absence of female-specific science produces measurable harm: athletes receive inadequate prevention protocols, recovery is designed without understanding hormonal change, and sports physicians and coaches lack the foundation to comprehend menstrual cycle effects, RED-S syndrome, iron deficiency, or postpartum adaptation (Smith et al., 2022). Women's handball pays the price. Young handball players are prepared according to programs misaligned with their physiology, resulting in higher dropout rates in adolescence, elevated injury rates in elite careers, and suboptimal early talent development.

CONCLUSION

Gender inequality in handball emerges through three mutually reinforcing mechanisms that permeate all layers of the sport. Direct discrimination manifests in unequal salaries, prize structures, and the volume and framing of media exposure—visible disparities rooted in long-standing traditions that prioritize men's competitions. Institutional discrimination is embedded in organizational routines that appear gender-neutral yet consistently produce unequal outcomes: disproportionate budget distribution restricts women's access to high-quality facilities and confines them to less favourable training times; medical and support staff remain concentrated in men's programs; and coaching expertise is drawn toward men's leagues due to greater financial security and professional advancement. The most pervasive form, epistemic discrimination, unfolds quietly through the dominance of male-centred research in sports science. Because training models, injury-prevention guidelines, and performance frameworks are largely derived from studies on male athletes, female handball players are required to follow protocols misaligned with their physiological profiles, resulting in structural disadvantages that shape their development, health, and long-term performance potential.

This knowledge gap produces a circular disadvantage: the absence of female-specific research creates the absence of female-specific training models, which results in inadequate injury prevention, prolonged recovery, and reduced optimization of performance.

These three forms of discrimination do not exist in isolation. Economic inequality produces institutional inequality, underfunded women's teams cannot employ qualified medical staff or high-level coaches. Institutional inequality perpetuates epistemic discrimination, under-resourced programs cannot invest in research or implement gender-specific practices. Epistemic discrimination then reinforces all previous forms, without scientific evidence of women's specific needs, decision-makers justify continued underinvestment as a matter of "market logic" rather than institutional choice. The result is that female handball players encounter systematic disadvantage at every stage of development: inadequate training conditions in youth, insufficient medical support and coaching expertise in elite careers, and recovery protocols designed for male bodies. The sustainability of women's professional careers is compromised not by women's athletic capacity but by structural choices made at institutional levels.

When structural barriers are dismantled, female athletes thrive. Addressing gender inequality in handball requires intervention at all three levels simultaneously. Direct discrimination must be confronted through equal pay policies and transparent media investment. Institutional discrimination requires deliberate resource reallocation, equitable facility access, investment in medical staff, and support for coaching development in women's leagues. Epistemic discrimination demands a commitment to female-specific research, integration of gender-informed practices into training design, and education of coaches and physicians in sex-specific physiology. Without action at all three levels, inequality will persist because each form sustains the others. The task ahead is not to wait for women's handball to become "commercially competitive" before offering equal support, but to recognize that equal support is the precondition for competitive development. Structural change in sport requires structural commitment.

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