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The African Child Provides Us with a New Mechanism for "Fall Astride Injury": A Narrative Review

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Abstract

Purpose: Fall-astride injuries are well recognized as a cause of anterior urethral trauma, typically following bicycle accidents, fence straddles, or bathtub slips. We aimed to describe a novel, culturally specific mechanism of pediatric fall-astride injury observed in a rural African setting ("the running stick mechanism") and contextualize it within existing literature. We use the term "running-stick mechanism" to describe an observed childhood play in Southeastern Ghana in which a child clasps a rigid stick between the thighs while running forward, positioning the perineum against a narrow, firm object. A trip or sudden deceleration can reproduce the classical fall-astride impact on the bulbar urethra. Materials and Methods: Through non-participant observation in serendipity, and digital reconstruction, we documented children simulating bicycle riding by clasping a rigid stick between their thighs while running ("running-stick mechanism"). A systematic literature search was then conducted across 11 databases (PubMed, PMC, ScienceDirect, BMC Surgery, Wiley Online Library, AJOL, etc.) using the terms *fall astride injury mechanisms* and *straddle trauma*. Findings were synthesized narratively, with illustrative diagrams created for health education. Results: Despite identifying 22 relevant sources on straddle injuries, no prior report described the running-stick mechanism. Biomechanical analysis confirmed parallels with classic fall-astride trauma, particularly risk of bulbar urethral injury, hematoma, and potential stricture formation. Immediate caregiver education discouraged repetition of the behavior during 16-week follow-up. Visual illustrations were produced to support clinical and public health awareness. Conclusions: The "running-stick" play represents a previously undocumented but biomechanically valid mechanism of pediatric fall-astride injury. Its identification highlights the need for culturally informed surveillance, early caregiver education, and preventive strategies in low-resource settings. Recognition of such mechanisms may improve diagnostic suspicion and reduce

the long-term burden of pediatric urethral trauma.

Keywords

Fall-Astride Injury, Straddle Trauma, Pediatric Urethral Injury, Bulbar Urethra, Trauma Prevention, Africa

1. Introduction and Background

In this review, "running-stick mechanism" denotes a culturally rooted play in which a child places a straight stick or pipe diagonally between the thighs, holds it firmly against the perineum, and runs. Loss of balance or stumbling can abruptly drive the perineum against the trailing rigid stick, generating the same compression-shear forces implicated in classic straddle/fall astride trauma to the anterior urethra.

The term "fall astride injury" is commonly used in urology to describe a specific type of blunt trauma that affects the perineum, external genitalia, or pelvic structures. It occurs when a person falls in such a way that their legs are parted, and the body descends astride a hard, narrow object. This results in direct and focused impact to the perineal region [1].

The phrase derives from the literal positioning of the injury mechanism-to "fall astride" implies that the individual landed with one leg on either side of a fixed object, often leading to straddle-type injuries. The term likely emerged in early clinical observations and has remained due to its descriptive simplicity. It has been popularized in urology and emergency medicine due to the high incidence of urethral and perineal trauma in such cases [1]-[4].

The concept of straddle injuries is not new. Ancient civilizations, such as the Greeks and Romans, depicted activities like horse riding and athletic sports that involved straddling postures. Injuries resulting from these were well-documented in early medical treatises, though not always termed as such. With the development of urological surgery and trauma medicine in the 19th and 20th centuries, the term "fall astride injury" began to be adopted more formally to denote injuries typically involving the urethra, scrotum, or penis [1] [4].

In summary, term "fall astride injury" reflects the mechanism of trauma whereby the body straddles a hard, narrow object, producing direct impact on the perineum. This term has origins in classical straddle injuries described since antiquity. Injuries involving horseback riding, pole vaulting, and military training were documented in ancient Greece and Rome [1]-[4]. The perineum, anatomically bordered by the pubic symphysis anteriorly and coccyx posteriorly, is richly vascularized and contains the bulbous urethra, vulnerable to compressive or shearing forces [1]-[4].

Typical Modern-Day Scenarios include bicycle injuries-Children or adults falling onto the crossbar of a bicycle, fence or railing falls-Falls in construction, outdoor environments, or accidents at home, slip-and-fall in bathrooms or public spaces—Resulting in impact with bathtubs, toilets, or sharp edges [1]-[4].

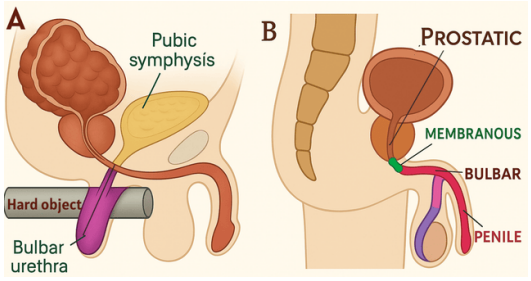
Common Urological Implications include bulbar urethral injury (most com-

mon), Scrotal hematoma, penile contusion or hematoma, perineal lacerations or bruising. The patient would typically experience burning pain on urination with varying degrees of haeamturia, and/or blood at the tip of the urethral meatus. There may also be an acute urinary retention, requiring a diversion of the urine in very severe injuries. The eventual sequelae of a fall astride injury are a bulbourethral stricture disease [1]-[4].

Visual Symbolism and Representation: A black-figure ceramic image (**Figure 1**) from ancient Greek pottery has been referenced to symbolically represent the straddling posture and potential for injury from ancient times. Other Schematic diagrams (**Figures 2-6**) complete the depictions.

Note: Source: Image created by Author 1 with Digital Illustrator, for illustrative purposes only. Original concept [2], stylistically based on Greek black-figure art, from Shutterstock. Isolated vector illustration: seated ancient Greek man with pointing hand. Black and white linear silhouette [Internet]. Shutterstock.com; c2019 [cited 2025 Sep. 11]. Available from: https://www.shutterstock.com/image-vector/isolated-vector-illustration-seated-ancient-greek-1401298358.

Figure 1. Ancient black-figure ceramic depicting human figures in astride posture-representative of the anatomical vulnerability during straddle movements.



Note: Source: Authors' creation with a digital image creator, following a review of the literature [1] [3] [4]. For illustrative purposes only.

Figure 2. Anatomic Correlates of the "Fall Astride Injury"; A: Classical impact of the fall astride injury; B: anatomy of the male urethra showing the delineation of the bulbar urethra in particular, in relation to the other parts of the male urethra (the Prostatic urethra, Membranous urethra and the Penile urethra).

A comprehensive search of peer-reviewed literature however did not find any documentation of "the running stick scenario" as a possible mechanism for fall astride injury. The "running stick mechanism" could be pictured as a child clasping a long stick (with its trailing end dragging on the ground behind) diagonally between the legs and pressed against the perineum while running forwards.

Fall astride injuries are frequently encountered in urological and emergency medicine settings. Typically resulting from blunt force trauma to the perineum, such injuries can lead to significant morbidity, particularly involving the bulbar urethra [1]-[22]. While literature abounds with scenarios involving bicycle accidents and falls on rigid structures, cultural-specific behaviors and play habits among children in different settings remain under-explored. This manuscript introduces an unreported mechanism unique to rural African contexts, emphasizing the implications for health education and clinical risk assessment.

2. Review

2.1. Methodology

Study design: We conducted a structured, systematic search to maximize capture of mechanism descriptions; however, given heterogeneity in sources and outcomes, evidence synthesis was performed narratively rather than meta-analytically. No formal PROSPERO registration was undertaken.

Setting: The index observation of the running-stick play was made in a peri-urban community in Southeastern Ghana.

2.2. Literature Search and Data Sources

A running-stick bicycle mechanism was observed in southeastern Ghana. Subsequent analysis included image reconstruction using digital medical illustration software and literature review via a search in PubMed, Google Scholar, and African Journals Online (AJOL) for peer-reviewed references.

Literature search strategy: We performed a structured search designed to be sensitive to mechanisms of straddle/fall-astride injuries and culturally specific variants. Databases and platforms included PubMed/MEDLINE, PubMed Central (PMC), Scopus or Embase (where available), ScienceDirect, Wiley Online Library, BMC, AJOL, Google Scholar (first 300 results), and WHO Global Index Medicus/African Index Medicus. The core string combined controlled vocabulary and free-text terms for mechanisms and injuries, for example: ("fall-astride" OR straddle OR "perineal trauma" OR "urethral injury" OR "bulbar urethra") AND (mechanism* OR cause* OR scenario* OR bicycle OR crossbar OR railing OR bathtub OR "play equipment" OR "running stick"). Searches were limited to humans, English-language publications, and the period 2000-2025. Reference lists of included studies were also screened.

Selection criteria: We included peer-reviewed primary studies, case reports/series, reviews, clinical overviews, and authoritative guidelines that described mechanisms of straddle or fall-astride injury and/or anterior urethral trauma, with suf-

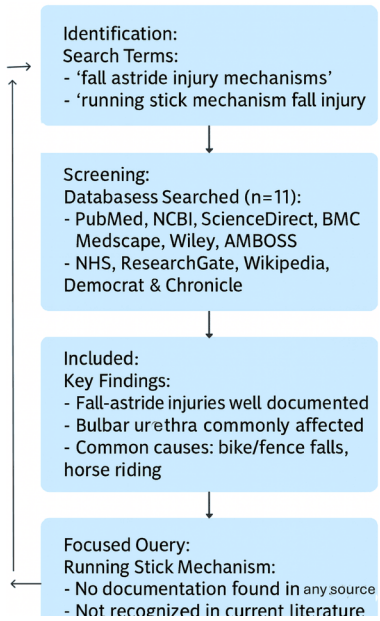
ficient detail to identify the causative scenario. We excluded editorials without mechanistic content, non-human studies, duplicated reports, and items lacking primary relevance to straddle/fall-astride mechanisms. Two reviewers independently screened titles/abstracts, reviewed full text where needed, and resolved discrepancies by discussion.

Yield: Of 120 records screened at title/abstract level, 38 were assessed in full, and 22 sources were included in the narrative synthesis.

Digital reconstruction and illustration: Field notes were translated into stepwise schematics to visualize the mechanism for education and clinical communication. The workflow comprised: (i) drafting proportional stick-figure poses to depict body–object alignment in neutral, pre-trip, and impact phases; (ii) overlaying pelvic/perineal anatomical landmarks (pubic arch, perineal membrane, bulbar urethra) to demonstrate compression vectors; (iii) refining line drawings and labels for clarity and anonymity; and (iv) exporting high-resolution figures (≥1600 dpi) for publication. "Vector artwork was produced in an OpenA1 image generator/Inkscape (v1.x) and raster post-processing in GIMP (v2.x)."

Ethical Considerations: This study was conducted with strict adherence to ethical principles outlined in the Declaration of Helsinki. The activity did not involve any invasive procedures, clinical interventions, or the collection of identifiable personal health data. Ethical clearance was not required for this study.

3. Results



Note: Source: Author's construct, 2025.

Figure 3. Results of a systematic literature search on the mechanisms for Fall Astride Injury; and whether the Running Stick Mechanism is recognized in current literature.

The observed "running-stick mechanism" demonstrated high-speed running with the hard sticks/objects compressing the perineum while simulating riding. No acute injury occurred, but the mechanical arrangement re-created classic features of a fall astride injury: a downward force of the body against a rigid perineal contact point (**Figure 6** and **Figure 7**). The risk of bulbar urethral rupture, haematoma formation, and potential future urethral strictures was noted. Illustrations were developed to support urological educational materials (**Figures 1-7**).

Out of the 11 databases searched in the literature, 10 databases yielded relevant information on fall astride injury mechanisms [1]-[22]. The only platform that did not provide pertinent content was a news-based outlet (Democrat and Chronicle), **Figure 3**. Twenty-two articles and sources were obtained and utilized in this narrative review.

Across the databases, straddle injuries were consistently reported as a well-known mechanism for anterior urethral trauma, especially affecting the bulbar urethra. These injuries commonly occur when the perineum is forcefully compressed against a hard object—a situation frequently seen in bicycle accidents, motorcycle mishaps, falls onto railings or fences, and equestrian-related trauma. The literature thoroughly describes the bio-mechanics, diagnostic criteria, and treatment options for such injuries [1]-[22].

However, no documented cases or studies were found that specifically identify or describe the "running stick mechanism"—in which a clasped stick (with its trailing end dragging on the ground behind), is positioned diagonally between the legs and pressed against the perineum while running—as a cause of fall astride injuries. This particular activity, though logically fitting within the biomechanical understanding of straddle trauma, appears to be unreported or unrecognized in formal medical literature [1]-[10]. We take this opportunity to report on it, and review the mechanism in context.

The findings from the literature search are depicted/re-constructed in **Figures 1-6** and **Table 1**.

Note: Source: Author's Re-creation of the concept of Falling into the Urban Pit, following a review of the literature [1]-[4]. Created with a digital medical illustrator, for illustrative purposes only.

Figure 4. Mechanism of injury; Falling into the Urban Pit-Related "Fall Astride" Injury on the Streets.

Note: This Straddle Posture is High Risk for Fall Astride Injuries (Source: Author's Recreation of the scenario for the "fall-on-the-bicycle bar injury" following a review of the literature [1]-[4]). Created with a digital medical illustrator, for illustrative purposes only.

Figure 5. Standing Astride across a Bicycle Bar, enjoying the beautiful scenery of nature.

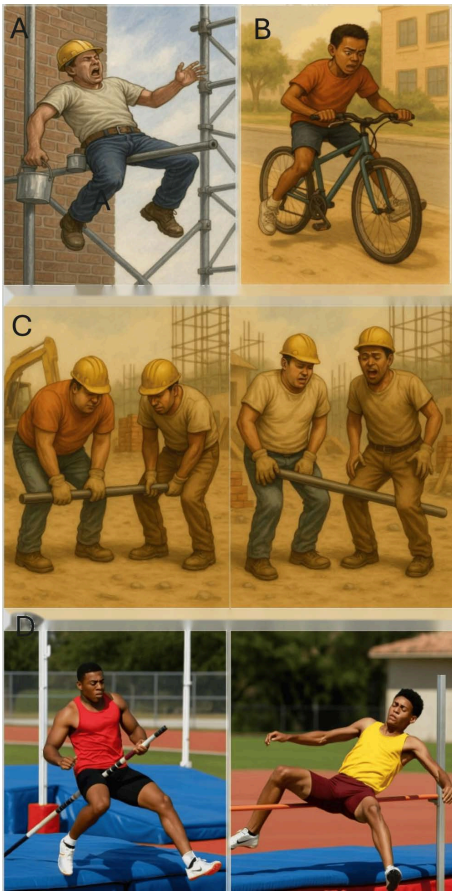
Table 1. Summary of fall astride injury mechanisms and urethral stricture risk factors in literature.

Study/Author(s)	Mechanism/Risk Factor	Population/Context	Key Findings
McAninch & Lue (2020), [1]	Bicycle falls, bathtub slips, straddle on fixed objects	General population (Urology Textbook)	Classic fall astride injuries; anterior urethra (esp. bulbar) most affected
Lumen *et al.* (2020), [22]	This study retrospectively reviewed 61 male patients with posttraumatic urethral strictures—most commonly involving the posterior urethra after pelvic fracture. Also, delivers a sharp summary of modern operative techniques—urethroplasty, vessel-sparing repair, and endoscopic reconstruction.	Adult trauma patients	Alluded to straddle injuries as usually resulting in complete or nearly complete obliteration of the bulbar urethra
Campbell-Walsh-Wein (Wein *et al.*, 2020), [3]	Iatrogenic (catheters, scopes), trauma, infection	Comprehensive review in urology	Instrumentation (20% - 40%) and fall astride (10% - 15%) as common stricture causes
Lax (1998), [4]	Pole vaulting, military training in ancient Greece	Historical analysis	Evidence of straddle injuries in classical athletics
Fenton *et al.* (2005), [5]	Prior trauma (fall astride), gonococcal urethritis	Retrospective review, 178 men	Fall astride responsible for ~13% of bulbar strictures

Continued

Santucci *et al.* (2007), [6]	Trauma, infection, lichen sclerosis	National Inpatient Sample, USA	15% - 20% infectious; ~10% traumatic including straddle injuries
Rourke & Jordan (2005), [7]	Fall astride and idiopathic cases	Single-center surgical outcomes	Direct correlation with bulbar strictures; successful primary repairs

Note: Source: [1]-[7].



Note: Source: Author's Re-creation after reviewing of the mechanisms of injury scenarios for fall astride injury [1]-[4]. Created with a digital medical illustrator, for illustrative purposes only. All images are generated by digital medical illustrator, and do not represent the identities of any known individuals.

Figure 6. Documented Mechanisms of Fall Astride Injury; (A) Manual Worker at a Height Falling Astride over a Scaffold-rung. Top Right; (B) Bicycle Fall Astride injury. Middle; (C) A Construction site heavy metal pole-lift by two tired and distracted construction workers. Lowest images; (D) A Pole-Vaulter and a High Jumper falling Astride at an Athletic Competition.

Figure 7, and Table 2 summarise the biomechanics of the novel mechanism of the "fall astride injury".

Figure 7. The simulated bicycle play by the African child; A: The African Child's Simulated Bicycle Play: A novel "Fall Astride" injury mechanism assumed (As recreated by Digital Illustrator from the Field Observation [23] [24]). For illustrative purposes only; B and C: The Recreated Images of the New Mechanism of "Fall Astride" as Provided by The African Child (Source: As re-created by Digital Illustrator from the Field Observation [23] [24]). Impalement injuries are possible with this kind of play as well, but the fall astride injury aspect is the main focus of this paper. For illustrative purposes only.

4. Discussion

Straddle injuries are a well-recognized cause of anterior urethral trauma, particularly to the bulbar segment, due to its anatomical vulnerability. The mechanism involves the perineum being forcibly compressed against a rigid object, commonly seen in falls involving bicycle crossbars, playground equipment, and bathroom edges [1]-[20]. This case-based review introduces a novel pediatric context: a stick-bike straddle injury in the southeastern Ghana-adding cultural specificity and biomechanical insight to an already complex injury mechanism.

Previous literature extensively details the kinetic nature and consequences of such impacts. Milton and McGaw presented a pediatric bathtub-related straddle injury, revealing moderate urethral involvement due to the constrained fall height and padded surfaces [12]. Similarly, the Nationwide Children's Hospital outlines how genital trauma in children, while often minor, may carry deeper urethral implications when involving high-force contact with firm surfaces [13]. These findings are crucial when comparing traditional Western injury contexts [1]-[22] with the unique terrain-induced risks faced by children in African rural or semi-urban environments [22].

Liao *et al.* described a definitive case of traumatic bulbar urethral disruption following a straddle injury, demonstrating how such injuries can fully rupture the urethra even in non-vehicular, low-speed scenarios [14]. Wang *et al.*, through a retrospective series, observed favorable outcomes using early endoscopic realignment after blunt straddle trauma, indicating that early, minimally invasive intervention is pivotal for preserving urethral patency [15].

Several authors have proposed an anatomical and mechanistic model to explain why the bulbar urethra is particularly susceptible. Doiron *et al.* emphasize that the anterior urethra-especially the bulbar segment-is exposed to crushing forces between the object and the inferior pubic ramus [16]. This anatomical principle, reinforced by radiologic evidence presented by Smith and Schauberger, illustrates how falls onto bicycle crossbars or railings generate high focal pressures sufficient to disrupt the urethral wall [17].

Elgammal's large cohort study revealed that fall-astride mechanisms accounted for over 64% of bulbar urethral injuries, emphasizing the epidemiological dominance of such trauma in urethral pathophysiology [18]. Also aligning with global trauma trends is the Osterberg *et al.* report that bicycle-related perineal trauma constituted a substantial portion of pediatric and young adult genitourinary injuries over two decades [20].

Beyond mechanical causality, Mundy provides a foundational perspective on the historical and diagnostic evolution of urethral trauma management, underscoring the necessity for prompt assessment and triage in anterior urethral injuries [19]. Hariwibowo *et al.* contribute a contemporary mechanistic model that visualizes how vertical deceleration forces in a straddle fall drive the perineum upward against the rigid pubic arch, leading to transverse shearing of the urethral wall [21]. This model is particularly applicable to missteps or trip-and-straddle

incidents on makeshift or non-standard play equipment, such as the stick-bike model described in our index case.

Patel's clinical overview synthesizes these injury types and advocates for high suspicion in any straddle injury involving a rigid object, rapid descent, and observable perineal bruising [11]. This narrative aligns well with the proposed new injury vector in our African case [23] [24], suggesting that despite cultural and environmental variability, the urethral biomechanical vulnerability remains universal.

Collectively, these literature sources underscore the significant morbidity associated with fall-astride mechanisms and validate the urgent need for context-specific awareness, especially in under-resourced regions where informal play structures increase the risk of urethral trauma. This review not only expands the known catalogue of urethral injury scenarios but also calls for preventative health education and improved access to diagnostic resources in low-income settings.

While bathtub straddle injuries, fence-related injuries, bicycle falls (classic scenario [3]), fence or railing straddles [2], playground equipment falls, bathtub/toilet straddles (slip and fall), horseback riding or high jump or pole-vault (field athletics) and gymnastics injuries [1] [4], construction or scaffolding falls (**Figures 1-6**) represent known mechanisms, improvised straddling play (as described in this report [23] [24], **Figure 7**) depicts a novel mechanism.

This novel mechanism observed in Southeastern Ghana-where children simulate a bicycle ride by placing a rigid stick or pipe between their thighs and running [22]-[24], demonstrates all the biomechanical hallmarks of a classical fall astride scenario. The object lies in direct apposition to the perineum and is subjected to the child's downward body weight during rapid forward locomotion. If the child were to trip or lose balance, the potential energy from motion would be converted into an abrupt compressive force on the perineum-identical to the mechanism seen in bicycle crossbar injuries [2] [5] [22]-[24].

Anatomical vulnerability, in fall astride injuries, stems from the unique anatomical arrangement, and the anatomical positioning of the bulbous urethra. It is located at the base of the perineum, suspended by the perineal membrane and lacks robust posterior support. When this area encounters a sudden upward thrust from a narrow object, the result can range from contusion and hematoma to partial or complete urethral disruption. This may present as blood at the tip of the external urethral meatus, burning dysuria, haematuria of various degrees, or frank acute urinary retention that may warrant a diversion of urine [1] [6], when the patient presents at the emergency department.

Classic literature describes common scenarios such as bicycle falls, falls on railings or fences, and bathtub slips as primary culprits for these injuries in children and young adults [2] [3] [5] [7]. The novel play-based mechanism, although not involving a true fall, sets up the exact anatomical precondition and kinetic sequence that could culminate in perineal trauma should a misstep occur [22]-[24]. Therefore, the mechanism conforms fully to the definition and structural prereq-

uisites of fall astride trauma. Furthermore, a side-by-side comparison with traditional mechanisms reveals remarkable parallels as summarised in Table 2.

Table 2. Important parallels between the new mechanism and already documented mechanisms of the "fall astride" injury.

Mechanism	Rigid Object in Perineum	Vertical or Kinetic Impact	Urethral Risk
Bicycle crossbar falls (Li W, *et al.*, 2024), [10]	Yes	Yes	High
Fence or railing straddle (Patel AB, 2023), [11]	Yes	Yes	High
Bathtub slip with straddle (Milton SH, McGaw E, 2014), [12]	Yes	Yes	Moderate

Note: Source: [10]-[12] [23] [24].

Given these similarities, the new mechanism can be confidently considered a variant presentation of fall astride injury, rooted in cultural pediatric behavior rather than manufactured environments.

We also hereby report on the Educational Response and Impact: Immediately after observation, the child's caregiver was educated on the anatomical dangers of such play-particularly the risk of urethral contusion, stricture formation, and future voiding complications [1] [3] [6]. The caregiver was notably receptive and has since reportedly discouraged the children from repeating the activity, suggesting a successful early intervention. This immediate community-based health education aligns with trauma prevention strategies advocated in pediatric urology literature [6].

Risk Factors for Urethral Strictures in History Taking: Prior fall astride injuries (prevalence 10% - 15% among anterior strictures) [3], pelvic fractures with posterior urethral involvement (pelvic fracture urethral injury/posterior distraction injury) [4], instrumentation (catheterization or endoscopy) 20% - 40% of iatrogenic strictures) [3], urethritis (e.g., gonococcal infections (15% - 20%) [3], lichen sclerosis et atrophicus (4% - 6%) [2], previous urethral surgery, congenital urethral anomalies, and trauma from sexual activity or abuse, especially in the adult male population.

Pediatric urethral stricture disease is relatively uncommon, but trauma is a significant cause when it does occur. Urethral injuries account for approximately 4% of all pediatric traumas [8]. Among children diagnosed with urethral strictures, about 37.4% have strictures located in the bulbar urethra [9]. Straddle injuries, such as falls astride on objects, are a common cause of anterior urethral trauma in children and often result in such bulbar urethral strictures [10]. However, precise percentages directly attributing urethral strictures to fall astride injuries are not explicitly reported in current literature. The contribution of these to strictures later in their adult lives is also unclear.

In the context of our setting, the running-stick mechanism represents a direct route to the "known fall-astride injury" which is a risk factor for urethral strictures. A stumble while running with a rigid stick fixed between the thighs can produce focal compression of the bulbar urethra comparable to bicycle-crossbar impacts, creating the same pathway to contusion, haematoma, anomalies of wound healing, extensive tissue scarring and subsequent stricture formation. Clinicians should therefore enquire specifically about this play pattern when assessing boys with suspected anterior urethral trauma or late-presenting voiding symptoms.

1. What Is Already Known About This Topic

Fall-astride injuries have long been recognized as a distinct mechanism of genitourinary trauma, particularly in pediatric and adolescent populations. These injuries frequently occur when individuals fall straddling rigid objects such as bicycle crossbars, playground railings, or the edges of bathtubs. In such events, the perineum is subjected to a sudden compressive force against the inferior pubic ramus, leading to mechanical disruption of underlying structures, including the bulbar urethra in males.

The most commonly affected anatomical site is the bulbar urethra, which lies in a fixed position and is anatomically predisposed to injury due to its proximity to the pubic arch. Clinical outcomes range from minor perineal bruising to complete urethral transection, often resulting in complications such as anterior urethral strictures, urinary retention, and incontinence.

Previous literature has thoroughly characterized these mechanisms in urban and Western contexts, particularly in relation to organized play environments, cycling accidents, and bathroom slips. However, there remains a relative paucity of data addressing culturally specific or under-reported mechanisms of fall-astride injury that may be prevalent in low-resource settings.

2. What This Study Adds?

This study introduces a novel, culturally rooted mechanism of fall-astride injury observed in African pediatric contexts, involving an improvised "stick-bike" play device commonly used by children in rural or semi-urban areas. Unlike commercial bicycles or playground equipment, this object is handmade, unstable, and lacks standardized dimensions, posing a distinct risk during play-induced straddle falls [23] [24].

Through detailed narrative analysis and case contextualization, this review expands the epidemiological and mechanistic understanding of anterior urethral trauma by documenting an unreported injury vector that is both socioeconomically and geographically specific. It underscores the need to recognize non-conventional play structures as potential trauma sources, particularly in environments where children engage in unsupervised, high-risk physical activity.

In addition to clinical insight, the study offers visual illustrations and schematic diagrams to aid in community health education, targeting caregivers, educators, and rural healthcare workers. These tools are designed to raise awareness about

the dangers of perineal trauma and encourage early presentation for medical evaluation.

Finally, the study advocates for public health engagement through culturally sensitive education campaigns and injury prevention strategies. These include community workshops, school-based interventions, and the incorporation of trauma awareness into existing child safety programs. By emphasizing prevention in resource-limited areas, the study proposes scalable, low-cost strategies that could reduce the incidence and morbidity of urethral injuries among children in similar socio-geographic contexts.

5. Conclusions

The term fall astride injury remains clinically relevant in urology, where trauma mechanisms inform both diagnosis and management. This paper introduces a novel, culturally-rooted mechanism, observed among African children, that broadens the understanding of environmental and behavioral risk factors for perineal trauma. Though the "running stick mechanism" lacks prior documentation, its biomechanics align with established straddle injury patterns. Educational outreach to caregivers in similar settings is essential to reduce injury risk at play. Clinicians should adopt culturally informed, context-sensitive approaches when evaluating lower urinary tract trauma and urethral stricture disease.

Further research is needed to formally characterize this undocumented mechanism for "fall astride" injuries.

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Ethics Statement

This study was conducted in accordance with the ethical principles of the Declaration of Helsinki. It did not involve invasive procedures, clinical interventions, or the collection of identifiable health data. Ethical clearance was therefore not required.

Written informed consent for publication was obtained from the child's legal guardian, using the official *Investigative and Clinical Urology* consent form, covering the use of observational notes and illustrative reconstructions of the novel injury mechanism.

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Conflicts of Interest

The authors declare that they have no competing interests.

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