

Digital Rectal Examination: Current Perspectives and Applications of a Timeless Clinical Art

Sajad Ahmad Salati

Qassim University, College of Medicine, Department of Surgery, Saudi Arabia
E-mail: docsajad@gmail.com
<https://orcid.org/0000-0003-2998-7542>
<https://ror.org/01wsfe280>

Faiza Riaz Malik

Qassim University Medical City, Department of Surgery, Saudi Arabia
E-mail: faiza.r.malik@hotmail.com
<https://orcid.org/0009-0007-3410-6021>
<https://ror.org/01wsfe280>

Abstract. *Background.* Digital Rectal Examination (DRE) is one of the earliest, easiest, and most cost-effective tools in clinical medicine. Its viability in contemporary practice has come under scrutiny due to advancements in imaging. This article revisits its clinical applications in light of the recent literature. *Methods.* A search of PubMed and Google Scholar was conducted using various MeSH subheadings related to digital rectal examination, and on the basis of available literature, the versatility of the DRE was examined, specifically focusing on its essential role in the initial detection and assessment of prostate disorders, anorectal pathology, and gastrointestinal emergencies. *Conclusion.* Recent trends show a decrease in the routine performance of DRE, often due to reliance on advanced diagnostics, evolving screening guidelines, and deficiencies in training. DRE is not obsolete but rather a timeless clinical art that can provide immediate and often life-saving diagnostic information cost-effectively, particularly when modern diagnostic facilities are not available. There is a need to improve the training of DRE and use it as per the evidence.

Keywords: digital rectal examination, anorectum, gastrointestinal bleed, prostate cancer, screening, trauma.

Introduction

Digital Rectal Examination (DRE) is one of the most important, yet increasingly contentious, steps in the clinical evaluation of a patient. The index finger has been the main instrument for examining the pelvic cavity and evaluating the genitourinary and terminal gastrointestinal tracts for generations. Its capacity to identify pathology, particularly rectal masses and prostate nodules, at a time when sophisticated imaging and blood biomarkers were nonexistent, provided the historical justification for its widespread usage. In fact, without DRE, the work-up of patients with colorectal or urogenital symptoms would be considered inadequate [1].

However, the development of modern diagnostics, changing guidelines, and shifting clinical practice patterns such as Prostate-Specific Antigen (PSA) testing, sophisticated MRI, and essentially universal access to colonoscopy characterize the current environment. This has prompted a thorough reassessment of the role of DRE [2–6].

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This review article has been drafted with an aim to summarize the available data and outline the DRE's current evidence-based role in urology, gastroenterology, and emergency medicine.

Methods

A search of PubMed and Google Scholar was conducted using the MeSH Subheadings/Qualifiers: "Digital Rectal Examination/utilization", "Digital Rectal Examination/standards", "Digital Rectal Examination/history" and "Digital Rectal Examination/training". No time frame was defined, but the English literature from 2000 to 2025 was preferred to analyze the recent data. The literature search was conducted in October 2025.

Historical background

The medical history of the digital rectal examination (DRE) is extensive and varied, going all the way back to ancient civilizations. Records from ancient Egypt that identify court physicians in charge of rectal procedures while assigning them names like "Shepherd of the King's Rectum" and "Shepherd of the Royal Anus" demonstrate an early understanding of anorectal assessment as a component of medical care [7].

Rectal examination was further highlighted for the diagnosis of disorders including hemorrhoids, impacted stools, rectal tumors, and urinary bladder stones by classical physicians like Hippocrates (460–377 BC) and later by medieval authors [7] like Abu al-Qasim al-Zahrawi (936–1013). Sir William Osler (1849–1919), one of the "greatest diagnosticians in the English-speaking world and often regarded as the 'Father of Modern Medicine', quoted a humorous aphorism, *One finger in the throat and one in the rectum makes a good diagnostician*". Hamilton Bailey, a distinguished English surgeon (1894–1961) would quote, *If you don't put your finger in, you will put your foot in it* [7–9].

By the early 20th century, DRE had become formalized in urologic practice. Before prostate-specific antigen (PSA) testing was developed in the 1980s, Hugh H. Young, a pioneer in urology, highlighted the DRE's significance in identifying early prostatic pathology in 1905. This helped establish the procedure as a cornerstone of prostate cancer screening [10]. DRE continued to be the predominant technique for detecting abnormalities in the prostate for many years.

Current perspectives and applications

I. The role of DRE in urology: focus on prostate

1.1. DRE as a screening tool: evidence and consensus

The primary controversy surrounding DRE revolves around its use in population-based screening for prostate cancer (PCa).

1.1.1. Evidence against routine screening. Multiple studies have demonstrated the poor sensitivity and specificity of DRE when used alone, as it often fails to detect early-stage, curable PCa, and conversely, suspicious DRE findings (induration, nodularity) can lead to unnecessary biopsies in the absence of an elevated PSA. Matsukawa et al. [11] conducted a comprehensive review and meta-analysis to assess the diagnostic value of DRE in screening for early detection of PCa and found that DRE exhibits a notably low diagnostic value, independently and as a supplement to PSA for PCa detection. They concluded that, in cases with no clinical symptoms and signs, DRE could be safely omitted from PCa screening and early detection strategies.

Krilaviciute et al. [12] conducted a multicentric, randomized trial wherein DRE was analyzed as a one-time, stand-alone screening tool at age 45 in 6 537 men in one arm of the trial, and in the second arm, PCa detection by DRE was evaluated at the time of PSA-screen-driven biopsies (n = 578). The study demonstrated the poor diagnostic performance of DRE in the screening for PCa in young men when used as a single tool or as a supplement to PSA-screen-detected PCa.

Many other studies have yielded similar results and de-emphasized DRE for screening in favor of more modern techniques [13–14]. Nagler et al. [15], after a prospectively conducted study, found DRE to be a significant barrier to population-based prostate cancer screening, as it adversely impacts the willingness of men to participate. Furthermore, PSA-plus-DRE-based programs result in the detection of fewer cases of PCa but significantly increase the number of negative biopsies and put a burden on healthcare logistics. The study concluded that mass screening efforts omit the DRE and rely only on PSA determination.

1.1.2. Current guideline consensus. Current guidelines from organizations like the American Urological Association (AUA) and the National Comprehensive Cancer Network (NCCN) do not recommend DRE as a standalone general screening tool. However, it remains a component of the shared decision-making process for men aged 55–69, typically performed alongside PSA measurement. DRE continues to serve as an accessible and cost-effective tool, particularly in low-resource settings or where advanced diagnostics are unavailable [5].

Guan et al. [16] sought to explore the trend of abnormal DRE (suspicious and non-suspicious) findings in men with and without prostate cancer by utilizing data on 34,756 men (1,713 Black and 33,043 White) from the Prostate, Lung, Colorectal, and Ovarian (PLCO) Cancer Screening Trial. The study demonstrated a rising probability of abnormal DRE findings in men with PCa but no significant temporal changes in men without PCa and hence supported the incorporation of serial DRE findings into screening programs to reduce false positives and improve early detection of clinically significant PCa. Morote et al. [17] also believe that DRE remains a powerful predictor of significant PCa in the MRI era, as it identifies cases with suspicious DRE findings, thereby allowing the detection of otherwise occult PCa cases.

1.2. DRE as a diagnostic and staging tool

DRE retains its role in local staging (in AJCC T staging) once PCa is confirmed by biopsy.

1.2.1. Clinical staging. The DRE is used to differentiate organ-confined disease (T2a/T2b) from locally advanced disease (T3a/T3b, indicating extension through the prostatic capsule). Palpable asymmetry, hardness, or fixation to the pelvic wall significantly alters the prognosis and treatment strategy [5].

1.2.2. Benign prostatic hyperplasia (BPH). DRE provides a clinical estimate of prostate size and consistency. The classic finding is a large, smooth, rubbery, and symmetrical gland with a distinct central sulcus. Recently, Bijit et al. [18] attempted to standardize the grading of BPH according to the DRE findings and successfully validated the Grade 1–4 classification in the clinical context, where patients can be categorized based on a rough estimate of the prostate volume.

II. The role of DRE in gastroenterology and general surgery

The highest diagnostic yield of the DRE lies in the assessment of the anorectum.

2.1. Assessment of anorectal structural disorders

For identifying benign and potentially malignant lesions that are within the inspecting finger's reach (7–10 cm), the DRE is an invaluable clinical tool [19].

2.1.1. Rectal masses. DRE can detect palpable rectal growths, noting their location, size, and mobility.

2.1.2. Perianal abscess/fistula. DRE can identify the internal entrance of a fistula-in-ano, or find sensitive, indurated, or fluctuating areas suggestive of a deep perirectal abscess.

2.1.3. Fecal impaction. The requirement for manual disimpaction is determined by the palpation of a large, hard stool mass, which is especially common in the elderly or people with persistent constipation.

2.1.4. Hemorrhoids and fissures. DRE can identify external hemorrhoids, skin tags, anal fissures or thrombosed internal hemorrhoids, although anoscopy is usually a preferable method for evaluating internal hemorrhoids.

2.1.5. Anal stenosis/strictures. DRE can identify ring-like narrowing of the anal canal due to congenital anomaly, inflammation, or fibrosis prior surgery.

2.1.6. Rectocele. It is an anterior rectal wall defect that bulges into the vaginal lumen and be felt during DRE, especially when the patient is requested to “bear down” or strain.

2.2. Assessment of anorectal function

DRE is a quick way to assess function integral to evaluating chronic constipation, fecal incontinence, and pelvic pain.

2.2.1. Anal tone. The function of the internal (resting tone) and external (squeeze tone) anal sphincters can be assessed. Weak tone is a sign of nerve or sphincter damage (e.g., following obstetric trauma), leading to fecal incontinence, while high tone/spasm might indicate spastic pelvic floor syndrome [19].

2.2.2. Defecatory dynamics. An act of defecation is simulated by asking the patient to “push” or bear down. During this phase, a normal response is relaxation of the puborectalis muscle and perineal descent, which can be assessed with DRE. Paradoxical contraction or inadequate relaxation of the anal sphincter are key indicators of functional defecation disorders, like anismus or dyssynergic defecation.

Tantiphlachiva et al. [20] examined the diagnostic yield of DRE in 187 patients with dyssynergic defecation and concluded that in chronic constipation, DRE is a reliable tool to identify dyssynergia and facilitate the selection of appropriate patients for further physiologic testing and management. The sensitivity and specificity of DRE for identifying dyssynergia were 75% and 87%, respectively; the positive predictive value was 97%. DRE could identify normal resting and normal squeeze pressure in 86% and 82% of dyssynergic patients, respectively.

Perez et al. [21] evaluated dyssynergic defecation in 42 children by comparing DRE with high-resolution anorectal manometry (HRAM). DRE and HRAM diagnosed dyssynergia in half of the patients, respectively. When compared to HRAM, DRE was found to have a sensitivity and specificity of 66% each for detecting an alteration in rectal propulsion in dyssynergia.

2.2.3. Neurological function. The anocutaneous reflex (anal wink) is tested by stroking the perianal skin. A brisk contraction of the external anal sphincter is the normal response that indicates an intact spinal nerve arc involving the pudendal nerve, which originates from the second to fourth sacral nerve roots [22].

2.2.4. Fecal consistency and content. Stool consistency can be assessed, and a sample can be obtained for analysis.

III. Role of DRE in emergency medicine and trauma

In acute care settings, DRE provides rapid, life-saving information.

3.1. Acute abdomen and gastrointestinal bleeding

While the routine use of DRE in every patient with abdominal pain is contested due to low yield, it is critical in specific scenarios.

3.1.1. Gastrointestinal bleeding. DRE is a vital assessment of patients presenting with acute gastrointestinal (GI) bleeding with some studies reporting its underutilization [23]. Hegazy et al. [24] retrospectively evaluated the effect of DRE on outcomes including timing of GI consultation, GI procedures, and days of hospitalization. They proved that GI consultation was more frequently sought in patients in whom DRE had been performed in the emergency room, resulting in prompt treatment and decreased days of hospitalization compared to patients in whom DRE was not performed on admission. The study concluded that DRE is a vital tool of initial assessment in patients with GI bleeding, and it can significantly impact management, timing of GI consultation, and duration of inpatient hospitalization. Shrestha et al. [25] also proved that DRE patients with acute GI bleeding can assist clinicians with clinical management and reduce admissions, endoscopies, and medical therapy.

3.1.2. Pelvic pathology. Tenderness high on the rectal wall can suggest a pelvic pathology, such as a ruptured appendix, diverticulitis, or a pelvic abscess [9].

3.2. Trauma and neurological assessment

As per the Advanced Trauma Life Support (ATLS) guidelines, DRE is an essential component of the primary and secondary survey of trauma victims. The idea is to help identify potential lower intestinal, urethral, and spinal cord injuries early. Nonetheless, a number of research studies indicate that the DRE test characteristics are not exactly credible and hence have called the blanket use of the DRE in each and every trauma patient into question [26–28].

Ahl et al. [29] retrospectively examined the records of 253 patients with a mean age of 44 ± 20 years and attempted to establish a relationship between DRE results and the diagnosis and treatment that followed. According to the study, DRE has poor sensitivity in trauma contexts and has no effect on subsequent treatment. Therefore, they recommended that DRE be excluded or delayed in cases of trauma. Ball et al. [30] reported that the DRE's sensitivity for identifying blunt urethral injuries was only 2%, making it an unreliable tool for that purpose.

Shlamovitz et al. [31] conducted a nonconcurrent, observational, chart review study of 213 pediatric trauma patients, for whom the trauma team was activated and who had a documented DRE. The DRE failed to detect (false-negative rate) 66% of spinal cord injuries and all (100%) of the bowel, rectal wall, pelvic ring, and urethral injuries. The study concluded that the DRE should not be routinely used in pediatric trauma patients. Similar findings from an adult study conducted by the same team indicated that the DRE should not be used as a screening tool for identifying injuries in adult trauma patients [31].

Esposito et al. [26] prospectively studied 512 cases of trauma (72% male, 28% female) ranging in age from 2 months to 102 years. They identified 30 index injuries and found that DRE was not superior to other clinical indicators for confirming or excluding the presence of those injuries and rarely provided any additional information that would have changed the management. They hence suggested that omission of DRE in virtually all trauma patients is safe and will presumably conserve time and resources, minimize unpleasant encounters, and protect patients and staff from the potential for further harm without any significant adverse effect on outcomes.

IV. Training standards in DRE

Traditional undergraduate education has traditionally emphasized the importance of being conversant with the DRE, which has been regarded as a crucial skill for a qualified medical professional. However, the quality and caliber of DRE training at the undergraduate level seem to have significantly declined

over time, and the correct learning of this ability no longer seems to be included in the core curriculum taught in medical schools.

Fitzgerald et al. [32] conducted a study and targeted final-year medical students in Ireland due to complete the undergraduate course. It was discovered that 44% of the students had either never attempted DRE or had only used mannequins. One third of the remaining 56% who conducted DRE on at least one patient said they had no trust in their capacity to appropriately interpret the results. Nensi and Chande [33] examined how DRE is taught and assessed in Canadian undergraduate medical programs. They discovered that even while DRE training is provided and evaluated using a range of methods in Canadian medical schools, very few DREs are actually performed by the students.

According to studies conducted in undeveloped and underdeveloped nations [34, 35], students are unwilling to learn and practice DRE because they believe it is less important. It has been suggested that a minimum number of DREs should be completed under supervision prior to the completion of the mandatory internship.

Several ideas have been tested to improve the situation, and some have yielded favorable outcomes. Ou and Yang [36] suggested that supervised DRE with real-time feedback in a transrectal sonography room can be tried as a feasible alternative method for teaching DRE, with greater skills acquisition. Isherwood and colleagues [37] demonstrated that utilizing volunteer patients for Digital Rectal Examination (DRE) instruction enhances the confidence of novice students. They recommend integrating this type of training into DRE curricula.

Conclusion and future directions

Digital rectal examination is a clinical skill with a long history. Although it is not outdated, its popularity has been challenged by more recent technology, especially in the areas of trauma and cancer detection. It still provides a quick, inexpensive, multifaceted examination option, especially in circumstances when more advanced diagnostic facilities are either unavailable or too expensive. To ensure that this vital, low-tech diagnostic tool is used correctly to optimize patient benefit, future initiatives must concentrate on standardizing methodology and enhancing clinician education.

Abbreviations

BPH – benign prostatic hyperplasia,
DRE – digital rectal examination,
GI – gastrointestinal,
HRAM – high-resolution anorectal manometry,
PCa – prostate cancer,
PSA – prostate specific antigen.

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