Blatantly injurious erotic anorectal violence—anoreceptive activity involving a combination of rapid thrusting, considerable girth, and a prolonged duration—is rampant worldwide, facilitated by widespread (willful) ignorance, apathy, and misinformation. It is impossible for resultant anorectal injuries and serious/chronic/permanent health consequences to be uncommon due to anorectal fragility relating to anatomy and neuromuscular physiology [References: Anorectal Risks 1-3]. Hence, when more than one person is involved such violence should constitute a severe crime for any penetrative person.

Pornography featuring that violence can have numerous effects on some viewers: inspiring them to emulate what they see, even using coercion; conditioning them to be aroused by suffering; and contributing to development of related mental pathology: sexual sadism disorder, sexual masochism disorder, and perhaps even psychopathy for younger individuals [References: Trends & Associations]. People with those inclinations are having a field day with such violence and spreading disinformation. That unrestrained hedonism is promoting societal decadence.

Traumatic risks of human anoreceptive activities include inflammation, abrasion and tearing, muscle and connective tissue damage, and colorectal perforation. Sequelae may arise, such as hemorrhage/hematoma, hemorrhoidal disease, ulceration, bacterial infection followed by abscess / fistula / life-threatening systemic sepsis, rectal prolapse, fecal incontinence, anal skin tag (remnant of external hemorrhoidal thrombosis, scar tissue from a healed tear, or a sentinel tag for a chronic anal fissure), and anatomic stenosis (narrowing due to constricting scar tissue). One instance of trauma can lead to multiple complications. Cumulative damage and preexisting conditions are concerns as well.

~2cm beyond the anal opening at the pectinate/dentate line, the epithelium transitions from stratified squamous (anoderm) to a simple columnar mucosal lining in part of the narrow surgical anal canal, continuing along the rectum. That lining is very fragile and easily damaged especially if its mucus barrier is removed by an enema or otherwise impaired. Furthermore, some enemas and lubricants can inflame the lining and even cause it to slough off entirely. Injury to that lining alone elicits no pain sensations due to a lack of somatic innervation, so resultant problems may remain undetected absent one or more obvious symptoms.

Neuromuscular physiology also contributes to anorectal fragility particularly for girthy and vigorous insertions, which are objectively foolish and very likely to be significantly injurious. The involuntary internal anal sphincter relaxes with rectal distension. The puborectalis and external sphincter completely relax when a person bears down, causing hemorrhoidal cushions to engorge and become more susceptible to injury by shear (frictional sliding) force.

[Medical references: Anorectal Risks 1-3]

The human anus when closed at rest should resemble an anteroposterior slit surrounded by shallow, semi-symmetrical, radial perianal skin folds. Healthy perianal skin commonly has a different, typically darker, color due to physiologic hyperpigmentation.

Anorectal trauma can result in persistent, externally-visible changes to the anus and its surroundings. Potential consequences include the anal orifice shrinking or becoming misshapen due to constricting

scar tissue formation, the perianal skin folds disappearing due to underlying anal sphincter damage, and one or more lumps appearing (e.g. an anal skin tag, prolapsed internal hemorrhoid, or thrombosed/diseased external hemorrhoid). If the perianal skin folds remain, pruritus and/or cutaneous thickening may result in exaggerated skin folds. [Medical references for paragraphs 1 and 2: Anatomy & Trauma]

A (strong) sexual fetish must be satisfied for sexual arousal, and a fetishist with partialism obsesses usually over a non-sexual body part[1]. A human anus resembling the anatomical ideal at rest has symmetrical features; symmetry is one aspect that humans consider when evaluating beauty[2]. Partly due to common prejudices against and denigration of the anus along with rampant, anus-mutilating erotic anorectal violence, developing an aesthetic anus fetish is highly unusual; and _accepting_ it, even moreso. This fetish does indeed seem to be very rare: otherwise that violence would have strong opposition. Some malicious people (such as sexual sadists and sadistic psychopaths) pretend to have such a fetish—and will even praise a clearly damaged/diseased anus typically without being challenged—because doing so facilitates and perpetuates anorectal violence.

1. "The DSM diagnostic criteria for fetishism." Archives of Sexual Behavior. 2010 Apr; 39(2): 357-62. PMID 19795202. doi:10.1007/s10508-009-9558-7.
2. "Symmetry, beauty and evolution." Nature. 1994 Nov 10; 372(6502): 169-72. PMID 7969448. doi:10.1038/372169a0.

• Strong, repeated shear force in the anal canal is likely to cause permanent damage to supporting tissues of the internal hemorrhoidal cushions at the least, leading to internal hemorrhoidal prolapse (progressively worsening with cumulative damage from repeated trauma). Since healthy internal and external anal cushions help to maintain fecal continence with a watertight seal, anal canal deformation due to their disease or removal can result in fecal incontinence.

• Internal rectal prolapse (IRP), aka rectal intussusception, is a common finding among asymptomatic individuals. Strong, repeated shear force in the rectum probably does contribute to development of full-thickness external rectal prolapse (aka procidentia) particularly when IRP is present. Internal hemorrhoidal prolapse—among other conditions—also may contribute to rectal prolapse development. Fecal incontinence can be a consequence of rectal prolapse as well.

• Overstretching the anal canal with girthy insertions is likely to cause disruption or fragmentation of one or both anal sphincter muscles, which results in permanent muscle weakening and is associated with fecal incontinence (especially with a damaged or dysfunctional puborectalis muscle). Stretching the anal canal repeatedly with insertions of progressively increasing circumference may cause cumulative muscle damage.

• Trauma—including erotic anoreceptive trauma—can instigate development of numerous other anorectal conditions that may cause or lead to fecal incontinence, including fistulas. Surgical treatments for anorectal conditions also can contribute to development of fecal incontinence.

[Medical references: Prolapse & Incontinence]

Logically-fallacious diversionary tactics:

• A red herring logical fallacy is a tangential topic introduced as a distraction. One _very_ common example is trying to create an irrelevant discussion about a messenger/claimant (often by introducing alleged personal attributes or asking about unstated opinions).
• An ad hominem logical fallacy is an argument or implication that at least one supposed characteristic about a messenger or source somehow affects the validity of one or more claims presented when any such characteristic is completely irrelevant — and this is nonsensical for cases in which information originates from others. (Sometimes such characteristics potentially _can be_ relevant: for example, it may be appropriate to question a person's honesty when she makes a claim about herself or her own experiences. However, the anecdotal evidence logical fallacy may apply in that situation.)
• Misrepresentation, or introducing a distorted version of something that is presented, is another form of red herring. Attacking such a fabrication as a means to suggest refutal of what was actually presented constitutes a straw man logical fallacy. (A refutation with one or more vague, sweeping claims for which no proof is provided may be related. The burden of proof rests on the claimant, so offering constructive criticism is a good idea: clear and specific, with citations if applicable.)

Purposely and repeatedly trying to divert attention away from anorectal anatomy and physiology, rampant anorectal abuse, associated traumatic risks, and an epidemic of ignorance and misinformation is suggestive of a nefarious agenda and/or psychopathy.

Anorectal Trends, Risks, and Anatomy compilation 20210101:

=== Trends & Associations ===
"In recent years, digital technologies have become increasingly important as a source of sexual health information, presenting both opportunities and challenges for people seeking sexual health information and services (Pound et al. 2017). Given the highly dynamic information landscape that we live within, we need to maintain up-to-date understandings of the contexts and sources of information that influence learning, knowledge, skills, expectations and norms around sexual health and wellbeing. There is a particular need for research that documents these changing means of sexual health learning and determines the extent to which sources meet information and learning needs (Tanton et al. 2015). As learning contexts, and the influence of different socio-cultural contexts on provision, access to and experience of sexual health education have changed over time, we sought to explore multi-generational perspectives on sexual health learning, combining qualitative data from two studies: the Deprivation, Masculinities and Sexual Health (DeMaSH) study (men and women aged 18–40), and the Young People’s Online Sexual Health Information Study (OSHI) (men and women aged 16–19)."
... "male participants across both studies were more likely to describe using pornography to learn about sexual norms and women’s bodies, echoing findings from previous literature (Buston and Wight 2006; Scarcelli 2015; Albury 2015; Parker et al, 2014; Tanton et al. 2015). For example, when asked about learning about sex, Luke (21, DeMaSH) described learning about sex positions predominantly from pornography rather than from school, explaining ‘ … when you get sex education at school you don’t actually ever see any sex, if that makes sense’. This perspective was reinforced from other participants’ criticism that depictions of sex in school-based sexual health and relationships education were too abstract to be of practical use and identified this as one reason why pornography might be used in an attempt to fill a perceived ‘gap’ in knowledge."

... "Although female researchers conducted the interviews for both studies, it is possible that female participants were reluctant to talk about their own pornography use due to possible stigma and perceived gender norms around ‘appropriate’ femininity. Gender differences in attitudes are likely symptomatic of wider, culturally ingrained gendered perceptions of pornography, which is continually presented as more acceptable for men than women (McKee, Albury, and Lumby 2008; Scarcelli 2015). Whether women used pornography or not, many expressed strong views against it, particularly in relation to concerns about generating unrealistic expectations of sex, disrespectful perceptions of women and potentially sexually coercive behaviours by men. For example, Emma (32, DeMaSH) worried that pornography made men ‘expect more from sex’, while Jodie (29, DeMaSH) worried that pornography caused men to view women as ‘like pieces of meat’. Some male participants also expressed criticism of pornography as an educational resource, indicating their recognition that it is ‘fantasy sex’ rather than a ‘healthy kind of sex’ (Shane, 33, DeMaSH). Indeed, while Joe (16, OSHI) explained he had learned about sex from pornography, he also said that sex as portrayed in pornography is ‘nothing like what sex is like in real life’. Thus, some male participants did critically engage with the dissonance between pornography and ‘real-life’ sexual encounters, providing some evidence of awareness of the limits of pornography as a learning source. Nonetheless, the continuing (or rather sole) use of pornography as a source of learning, particularly amongst men, is concerning, as it largely reinforces objectification and submission of women (Klaassen and Peter 2015) and prevailing gender norms about sex and hegemonic masculinity (Tylka 2015; Peter and Valkenburg 2016). It is particularly disappointing to see the persistence of these views over time."
"How men and women learn about sex: multi-generational perspectives on insufficient preparedness and prevailing gender norms in Scotland." Sex Education. 2020; 20(4): 441-456. PMC7455048. doi:10.1080/14681811.2019.1683534.

"Across Australia schools are bringing in specialist speakers to educate the kids on the perils of porn, and preach a message of safe sex. What they're hearing, however, isn't just that porn is leading to unrealistic expectations of sex, but that we're now facing a far more dangerous situation. Susan McLean is a cyber safety expert who advises the federal government and tours schools. The former police officer is one of several experts who have told the ABC they are hearing an increasing number of reports of high school girls sustaining serious injuries trying to replicate things they or their boyfriend have seen in porn."
... "Porn education organisation Reality and Risk estimates more than 90 per cent of boys and 60 per cent of girls have seen online porn. And that 88 per cent of the most popular porn includes physical aggression. This last point has been the subject of extensive research by RMIT senior lecturer Meagan Tyler, who has found pornographers overseas — most notably in the US — have made a conscious effort to make their content more violent. “A lot of producers would say they were pushed to do that from demand of primarily male customers,” she said. “There's no debate that it's happened, that the kind of things that were seen as pushing the boundaries in the late 1990s have become very much normal and mainstream. So things like double and triple anal ... and things like choking as well.”"
"Tasmanian GP and former Royal Australian College of General Practitioners president, Bastian Seidel, has seen how these activities, even when consensual, can go dangerously wrong. He can't confirm a link between porn and injuries, because he makes a point not to question his patients lest he be seen as judgemental and scare them from seeking future treatment. But there's no doubting the injuries are occurring, particularly because of anal sex, he said. “It's not actually that uncommon in general practice to come across injuries that occur caused by sexual activity,” he said. “We have seen anal fissures more and more. I've seen that more in women, so that's caused by men having anal sex with women.”"
"The private nature of these activities combined with doctors not being required to report injuries from “consensual” sex lead Ms McLean to fear we aren't grasping the gravity of the situation. “I don't think there's data on this, which I would suggest makes this a very underreported issue,” she said."

https://www.abc.net.au/news/2019-01-16/australias-porn-problem/10668940
[The article text was edited slightly: condensing it into paragraphs and using angled quotation marks, adjusted for consistency.]

"Recent decades witnessed a surge in pornography use, contributing to what some researchers referred to as problematic pornography use (PPU; excessive, compulsive, and uncontrollable pornography use). Informed by cognitive scripts theory, cross-sectional, longitudinal, and experimental research spanning several decades documented a positive association between men's pornography use and physical and sexual violence perpetration. However, there is a paucity of research investigating pornography use broadly, and PPU specifically, among men who perpetrate intimate partner violence (IPV). The present cross-sectional study investigated the association between self-reported PPU and physical and sexual IPV perpetration among 273 men in batterer intervention programs. After accounting for psychiatric symptomology and substance use and problems, results revealed a positive association between PPU and both physical and sexual IPV perpetration. Findings highlighted the need for continued investigation of the function of pornography use for violent men, particularly as it relates to physical and sexual IPV perpetration."
"Problematic Pornography Use and Physical and Sexual Intimate Partner Violence Perpetration Among Men in Batterer Intervention Programs." Journal of Interpersonal Violence. 2018 Nov 21; 886260518812806. PMID 30461344. doi:10.1177/0886260518812806. Online ahead of print.

"New technology has made pornography increasingly accessible to young people, and a growing evidence base has identified a relationship between viewing pornography and violent or abusive behavior in young men. This article reports findings from a large survey of 4,564 young people aged 14 to 17 in five European countries which illuminate the relationship between regular viewing of online pornography, sexual coercion and abuse and the sending and receiving of sexual images and messages, known as "sexting." In addition to the survey, which was completed in schools, 91 interviews were undertaken with young people who had direct experience of interpersonal violence and abuse in their own relationships. Rates for regularly viewing online pornography were very much higher among boys and most had chosen to watch pornography. Boys' perpetration of sexual coercion and abuse was significantly associated with regular viewing of online pornography. Viewing online pornography was also associated with a significantly increased probability of having sent sexual images/messages for boys in nearly all countries. In addition, boys who regularly watched online pornography were significantly more likely to hold negative gender attitudes. The qualitative interviews illustrated that, although sexting is normalized and perceived positively by most young people, it has the potential to reproduce sexist features of pornography such as control and humiliation. Sex and relationships education should aim to promote a critical understanding of pornography among young people that recognizes its abusive and gendered values."
"Pornography, Sexual Coercion and Abuse and Sexting in Young People's Intimate Relationships: A European Study." Journal of Interpersonal Violence. 2018 Oct; 33(19): 2919-2944. PMID 26951609. doi:10.1177/0886260516633204.

"OBJECTIVES: The aims of this study were to describe patterns of pornography consumption, investigate differences between consumers and non-consumers of pornography regarding sexual experiences, health and lifestyle and determine associations between pornography consumption and sexual experiences, health and lifestyle among adolescent girls. The hypotheses were that adolescent girls categorised as pornography consumers would report sexual experiences to a greater extent, and a riskier lifestyle and poorer health, compared with non-consumers.
METHODS: A classroom survey was conducted among 16-year-old girls (N = 393).

RESULTS: One-third (30%) consumed pornography. In this group, almost half (43%) had fantasies about trying to copy sexual acts seen in pornography and 39% had tried to copy sexual activities seen in pornography. A higher proportion of pornography-consuming girls reported sexual experiences compared with peers. A third (30%) reported experience of anal sex compared with 15% among non-consuming peers ($p = 0.001$). Furthermore, peer-relationship problems (17% vs 9%; $p = 0.015$), use of alcohol (85% vs 69%; $p = 0.001$) and daily smoking (27% vs 14%; $p = 0.002$) were reported to a greater extent than in non-consuming peers. Pornography consumption, use of alcohol and daily smoking were associated with experience of casual sex.
CONCLUSIONS: Pornography-consuming girls reported sexual experiences and a risky lifestyle to a greater extent compared with non-consuming girls. This indicates that pornography consumption may influence sexualisation and lifestyle. This is important to acknowledge when designing and implementing sexual health programmes for adolescents."
"Pornography consumption among adolescent girls in Sweden." The European Journal of Contraception & Reproductive Health Care. 2016 Aug; 21(4): 295-302. PMID 27218610. doi:10.1080/13625187.2016.1186268.

"Pornography has become a primary source of sexual education. At the same time, mainstream commercial pornography has coalesced around a relatively homogenous script involving violence and female degradation. Yet, little work has been done exploring the associations between pornography and dyadic sexual encounters: What role does pornography play inside real-world sexual encounters between a man and a woman? Cognitive script theory argues media scripts create a readily accessible heuristic model for decision-making. The more a user watches a particular media script, the more embedded those codes of behavior become in their worldview and the more likely they are to use those scripts to act upon real life experiences. We argue pornography creates a sexual script that then guides sexual experiences. To test this, we surveyed 487 college men (ages 18-29 years) in the United States to compare their rate of pornography use with sexual preferences and concerns. Results showed the more pornography a man watches, the more likely he was to use it during sex, request particular pornographic sex acts of his partner, [and] deliberately conjure images of pornography during sex to maintain arousal[...]."
"Pornography and the Male Sexual Script: An Analysis of Consumption and Sexual Relations." Archives of Sexual Behavior. 2016 May; 45(4): 983-94. PMID 25466233. doi:10.1007/s10508-014-0391-2.
[The abstract text was corrected — "Erratum To: Pornography and the Male Sexual Script: An Analysis of Consumption and Sexual Relations." Archives of Sexual Behavior. 2016 May; 45(4): 995. doi:10.1007/s10508-016-0744-0. (PMID 27025728)]

"Watching natural-looking people engaging in sex that is consensual, pleasurable and realistic may not be harmful-heck, it might be a good idea-but that is generally not what the $97 billion global porn industry is shilling. Its producers have one goal: to get men off hard and fast for profit. That means eroticizing the degradation of women. In a study of behaviors in popular porn, nearly 90% of 304 random scenes contained physical aggression toward women, who nearly always responded neutrally or with pleasure. More insidiously, women would sometimes beg their partners to stop, then acquiesce and begin to enjoy the activity, regardless of how painful or debasing."
"Over 40% of children ages 10 to 17 have been exposed to porn online, many accidentally. By college, according to a survey of more than 800 students titled 'Generation XXX,' 90% of men and one-third of women had viewed porn during the preceding year. Even if what kids watch is utterly vanilla, they're still learning that women's sexuality exists for the benefit of men. An 11th-grade girl confided to me, 'I watch porn because I'm a virgin and I want to figure out how sex works.'"

... "Perhaps because it depicts aggression as sexy, porn also seems to desensitize: female porn users are less likely to intervene when seeing another woman being threatened or assaulted and are slower to recognize when they're in danger themselves."
https://time.com/4277523/girls-sex-women-porn/
How Porn Is Changing a Generation of Girls (March 31, 2016)

"Experts say teenage girls are copying what they see in pornography and seeking treatment from family doctors for injuries sustained during "rough sex". They believe it's part of the dark side of the sexualisation of the internet generation."
... "According to Reality and Risk, more than 90 per cent of boys and 60 per cent of girls have watched pornography online. Of those videos, more than 88 per cent include physical aggression."
... "Allison Pearson, a columnist for The Telegraph in London, wrote earlier this year that young women are engaging in sex that their bodies are "simply not designed for". She said a GP she spoke with confessed a growing number of teenage girls were being treated for internal injuries caused by frequent anal sex "not because (they) wanted to, or because (they) enjoyed it — on the contrary — because a boy expected (them) to"."
... "[Dr Meagan Tyler, a research fellow at RMIT University] said research shows women are suffering from faecal incontinence as a result of anal sex and that they're "uncomfortable" with the assumption that it's become "the norm". "That's the brutal material reality for what it means for these young women's lives.""
... "Dr Tyler said tackling the problem is not easy but it's time educators had a more realistic conversation with young people about what they're seeing online. "You can't pretend pornography doesn't exist," she said. "I think we're getting somewhere in that there's more public discussion about it (but) we're going to need to start talking about more serious and comprehensive sex education.""
https://www.news.com.au/lifestyle/relationships/sex/boner-garage-posts-a-window-into-the-world-of-sexualised-young-women-online/news-story/f7d83a68c48e378027430fd8e93da349 (June 02, 2015)

"Little is known about painful receptive anal intercourse (RAI) and its relationship to HIV risk and protective behaviors among men who have sex with men (MSM). The purpose of this study was to identify attributions for and responses to painful RAI among Black MSM in South African townships. In-depth interviews were conducted with 81 Black MSM (ages 20-39 years) who were purposively recruited from four townships. The semi-structured interviews addressed sexual behavior and identity, alcohol use, and safer sex. Pain during RAI was brought up by many participants without specific prompting from the interviewer. Analysis of the interview transcripts revealed that pain was a common feature of first RAI experiences but was not limited to first-time experiences. The participants attributed pain during RAI to partner characteristics, interpersonal dynamics, lack of lubricant, and alcohol use or non-use. The main strategies participants used to address pain during RAI were setting sexual boundaries and lubricant use; a small number of participants reported purposefully consuming alcohol to prevent the pain associated with RAI."
"'This will not enter me': painful anal intercourse among Black men who have sex with men in South African townships." Archives of Sexual Behavior. 2015 Feb; 44(2): 317-28. PMID 25257257. doi:10.1007/s10508-014-0365-4.

"Information about the pornography-viewing habits of urban, low-income youth of color in the United States is lacking. This study was designed to answer the following using a sample of 16- to 18-year-old urban-residing, low-income Black or Hispanic youth: (1) What types of pornography do youth report watching; where and for what purpose? (2) Do youth feel that pornography exposure has an impact on their own sexual behaviors? and (3) How do parents react to their pornography use? The following themes emerged from interviews with 23 youth: (1) Youth primarily reported watching pornography

that featured one-on-one sexual intercourse but also reported having seen extreme pornography (e.g., public humiliation, incest); (2) youth reported watching pornography on home computers or smartphones, and that pornography was frequently watched in school; (3) youth reported watching for entertainment, for sexual stimulation, instructional purposes, and to alleviate boredom; many copied what they saw in pornography during their own sexual encounters; (4) pressure to make or to imitate pornography was an element of some unhealthy dating relationships; and (5) parents were generally described as unsupportive of youth's use of pornography but underequipped to discuss it."
"'Without Porn … I Wouldn't Know Half the Things I Know Now': A Qualitative Study of Pornography Use Among a Sample of Urban, Low-Income, Black and Hispanic Youth." The Journal of Sex Research. 2015; 52(7): 736-46. PMID 25350847. doi:10.1080/00224499.2014.960908.

"Anal heterosex often appeared to be painful, risky and coercive, particularly for women. Interviewees frequently cited pornography as the 'explanation' for anal sex, yet their accounts revealed a complex context with availability of pornography being only one element. Other key elements included competition between men; the claim that 'people must like it if they do it' (made alongside the seemingly contradictory expectation that it will be painful for women); and, crucially, normalisation of coercion and 'accidental' penetration. It seemed that men were expected to persuade or coerce reluctant partners."
"Anal heterosex among young people and implications for health promotion: a qualitative study in the UK." British Medical Journal Open. 2014 Jul 18; 4(8): e004996. PMC4156810. doi:10.1136/bmjopen-2014-004996.

"A 31-year-old male in analytic psychotherapy for mixed anxiety problems reported that he was experiencing difficulty becoming sexually aroused by his current partner. After much discussion about the woman, their relationship, possible latent conflicts or repressed emotional content (without arriving at a satisfactory explanation for his complaint), he provided the detail that he was relying on a particular fantasy to become aroused. Somewhat chagrined, he described a "scene" of an orgy involving several men and women that he had found on an Internet pornography site that had caught his fancy and become one of his favorites. Over the course of several sessions, he elaborated upon his use of Internet pornography, an activity in which he had engaged sporadically since his mid-20s. Relevant details about his use and the effects over time included clear descriptions of an increasing reliance on viewing and then recalling pornographic images in order to become sexually aroused. He also described the development of a "tolerance" to the arousing effects of any particular material after a period of time, which was followed by a search for new material with which he could achieve the prior, desired level of sexual arousal."
... "He also noted that he now could be aroused by pornographic material that he once had no interest in using. For example, he noted that five years ago he had little interest in viewing images of anal intercourse but now found such material stimulating. Similarly, material that he described as "edgier," by which he meant "almost violent or coercive," was something that now elicited a sexual response from him, whereas such material had been of no interest and was even off-putting. With some of these new subjects, he found himself anxious and uncomfortable even as he would become aroused."
... "The above background material and clinical vignettes constitute an introduction to the topic of Internet pornography and its potential for pathogenic influence in susceptible individuals."
"Clinical encounters with internet pornography." The Journal of the American Academy of Psychoanalysis and Dynamic Psychiatry. 2008 Winter; 36(4): 593-618. doi:10.1521/jaap.2008.36.4.593. (PMID 19113956)

"The Coolidge effect is the renewal of sexual behavior after the presentation of a novel sexual partner and possibly occurs as the result of habituation and dishabituation processes. This re-motivation to

copulate is well studied in males and is commonly related to sexual satiety, which involves several neurobiological changes in steroid receptors and their mRNA expression in the CNS [undefined — presumably central nervous system]."
"Hormones and the Coolidge effect." Molecular and Cellular Endocrinology. 2018 May 15; 467: 42-48. PMID 28912031. doi:10.1016/j.mce.2017.09.010.

"Men, more than women, are prone to fetishes and paraphilias, and easily pair sexual arousal with a given stimulus through classical conditioning (Rachman, 1966)."
"An evolutionary behaviorist perspective on orgasm." Socioaffective Neuroscience & Psychology. 2016 Oct 25; 6: 32130. PMC5087694. doi:10.3402/snp.v6.32130.

"Neuroplasticity, the capacity of brain cells to change in response to intrinsic and extrinsic factors, can have negative or positive influence at any age across the entire lifespan."
"Neuroplasticity and Clinical Practice: Building Brain Power for Health." Frontiers in Psychology. 2016; 7: 1118. PMC4960264. doi:10.3389/fpsyg.2016.01118.

"Psychopathy is a mental disorder marked by deficient emotional responses, lack of empathy, and poor behavioral controls, commonly resulting in persistent antisocial deviance and criminal behavior. Accumulating research suggests that psychopathy follows a developmental trajectory with strong genetic influences, and which precipitates deleterious effects on widespread functional networks, particularly within paralimbic regions of the brain. While traditional therapeutic interventions commonly administered in prisons and forensic institutions have been notoriously ineffective at combating these outcomes, alternative strategies informed by an understanding of these specific neuropsychological obstacles to healthy development, and which target younger individuals with nascent symptoms of psychopathy are more promising. Here we review recent neurobehavioral and neuroimaging literature that informs our understanding of the brain systems compromised in psychopathy, and apply these data to a broader understanding of its developmental course, ultimately promoting more proactive intervention strategies profiting from adaptive neuroplasticity in youth."
"Psychopathy: developmental perspectives and their implications for treatment." Restorative Neurology and Neuroscience. 2014; 32(1): 103-17. PMID 23542910. doi:10.3233/RNN-139001.

"Although Cooper et al. (1999) did not distinguish an antisocial-impulsivist subtype of sex-related Internet users, personality traits such as sensation-seeking have been associated with sexually explicit media use among adult as well as adolescent males (Peter and Valkenburg 2011) and among women (Vanwesenbeeck 2001). Moreover, Bogaert (2001) found that aggressive/antisocial tendencies were predictive of men’s preference for violent sexual media content."
"Lower Psychological Well-Being and Excessive Sexual Interest Predict Symptoms of Compulsive Use of Sexually Explicit Internet Material Among Adolescent Boys." Journal of Youth and Adolescence. 2016 Jan; 45(1): 73-84. PMC4698276. doi:10.1007/s10964-015-0326-9.

"This study aims to report the epidemiology of sexual violence (SV) perpetration for both female and male youth across a broad age spectrum. Additionally, the etiology of SV perpetration is examined by identifying prior exposures that predict a first SV perpetration. Six waves of data were collected nationally online, between 2006 and 2012, from 1586 youth between 10 and 21 years of age. Five types of SV were assessed: sexual harassment, sexual assault, coercive sex, attempted rape, and rape. To identify how prior exposures may predict the emergence of SV in adolescence, parsimonious lagged multivariable logistic regression models estimated the odds of first perpetrating each of the five types of SV within the context of other variables (e.g., rape attitudes). Average age at first perpetration was between 15 and 16 years of age, depending on SV type. Several characteristics were more commonly

reported by perpetrators than non-perpetrators (e.g., alcohol use, other types of SV perpetration and victimization). After adjusting for potentially influential characteristics, prior exposure to parental spousal abuse and current exposure to violent pornography were each strongly associated with the emergence of SV perpetration-attempted rape being the exception for violent pornography. Current aggressive behavior was also significantly implicated in all types of first SV perpetration except rape. Previous victimization of sexual harassment and current victimization of psychological abuse in relationships were additionally predictive of one's first SV perpetration, albeit in various patterns. In this national longitudinal study of different types of SV perpetration among adolescent men and women, findings suggest several malleable factors that need to be targeted, especially scripts of inter-personal violence that are being modeled by abusive parents in youths' homes and also reinforced by violent pornography. The predictive value of victimization for a subsequent first SV perpetration highlights the inter-relatedness of different types of violence involvement. Universal and holistic prevention programming that targets aggressive behaviors and violent scripts in inter-personal relationships is needed well before the age of 15 years."
"Predicting the Emergence of Sexual Violence in Adolescence." Prevention Science. 2018 May; 19(4): 403-415. PMID 28685211. doi:10.1007/s11121-017-0810-4.

"Past studies have found a rather consistent relationship between exposure to pornographic materials and sexually aggressive attitudes and behaviors (Caroll et al., 2008; Vega & Malamuth, 2007; Williams, Cooper, Howell, Yuille, & Paulhus, 2009). This relationship holds for both experimental and survey studies (Hald, Malamuth, & Yuen, 2010) and has been reported in European countries in addition to the United States (Bonino, Ciairano, Rabaglietti, & Cattelino, 2006). This relationship may be explained, in part, by the context or specifics of the depiction of violence during sex portrayed in sexually explicit material. Although the association between pornography and sexually aggressive attitudes and behaviors in men is strongest for violent pornography, the relationship also holds for nonviolent sexually explicit materials (Boeringer, 1994; Hald et al., 2010; Vega & Malamuth, 2007). Pornographic materials likely foster these attitudes and behaviors. A recent study by Bridges, Wosnitzer, Scharrer, Sun, and Liberman (2010) analyzed the content of best-selling pornographic videos and found high levels of both verbal and physical aggression. Nearly 90% of the scenes analyzed contained physical aggression (e.g., spanking, gagging, and slapping), while nearly half of the scenes contained verbal aggression. Overwhelmingly, the targets of this aggression were female, while the perpetrators were usually male. The most common responses of targets to the aggression were a show of pleasure or neutrality. Such messages are apt to produce acceptance of sexual violence toward women."
... "Our findings provide evidence that exposure to pornography is associated with increased rates of male perpetration of sexually coercive behaviors toward a female intimate partner and that these strategies are amplified by exposure to corporal punishment. Additionally, females who view pornography are more likely to be victims of sexually coercive behaviors from a male partner. This effect was strong regardless of experiences in the family of origin. However, even when female pornography use is minimal, paternal hostility increases the probability of sexual victimization."
"Exposure to harsh parenting and pornography as explanations for males' sexual coercion and females' sexual victimization." Violence and Victims. 2012; 27(3): 378-95. doi:10.1891/0886-6708.27.3.378. (PMID 22852438)

"Sexual sadism and psychopathy have been theoretically, clinically, and empirically linked to violence. Although both constructs are linked to predatory violence, few studies have sought to explore the covariation of the two constructs, and even fewer have sought to conceptualize the similarities of violence prediction in each. The current study considered all four Psychopathy Checklist-Revised (PCL-R) facets and employed well-defined, validated measures of sadism to elucidate the relation between sadism and psychopathy, as well as to determine the role of each in the prediction of non-

sexual violence and sexual crime behaviors. Study 1 assessed 314 adult, male sex offenders using archival ratings, as well as the self-report Multidimensional Inventory of Development, Sex, and Aggression (the MIDSA). Study 2 used archival ratings to assess 599 adult, male sex offenders. Exploratory and confirmatory factor analyses of crime scene descriptions yielded four sexual crime behavior factors: Violence, Physical Control, Sexual Behavior, and Paraphilic. Sadism and psychopathy covaried, but were not coextensive; sadism correlated with Total PCL-R, Facet 1, and Facet 4 scores. The constructs predicted all non-sexual violence measures, but predicted different sexual crime behavior factors. The PCL-R facets collectively predicted the Violence and Paraphilic factors, whereas sadism only predicted the Violence factor."
"Relating Sexual Sadism and Psychopathy to One Another, Non-Sexual Violence, and Sexual Crime Behaviors." Aggressive Behavior. 2014 Jan; 40(1): 12-23. PMID 24019144. doi:10.1002/ab.21505.

"Psychopathic personality disorder and sexual sadism share several common characteristics, such as emotional detachment from the suffering of others or the preparedness to inflict pain or injuries. Based on a sample of 100 male forensic patients (all of them sex offenders, half of them sadistic), the concept of psychopathy and sexual sadism as a unified construct was tested empirically. Pooling indicator variables for psychopathic and sexually sadistic disorders showed that a two-factorial solution yielded a better fit than a single-factor model. The two factors identified psychopathy and sexual sadism as separate latent variables. More specifically, the data were compatible with a path model in which affective deficits and behavioral disinhibition of the psychopathy domain are precursors to sexually sadistic conduct."
"Psychopathy and sexual sadism." Law and Human Behavior. 2011 Jun; 35(3): 188-99. PMID 20393872. doi:10.1007/s10979-010-9221-9.

"Although the definition of criminal behavior is fraught with controversy, with single acts “criminalized” or “decriminalized” according to time and place, and as such being observed in individuals of all sorts, there seems to be an agreement across the board that the truly dangerous subjects are psychopaths and the subjects affected by the Antisocial Personality Disorder (Janowsky, 2008), often repeat offenders. Psychopaths exhibit callousness, lack of empathy or emotional depth, and lack of genuine remorse for their antisocial actions. Although distinct in many regards, a subset of paraphilic subjects too can become dangerous, for instance those suffering sexual sadism, which may involve killing of the victim."
"Criminal Minds: Neuromodulation of the Psychopathic Brain." Frontiers in Human Neuroscience. 2014; 8: 124. PMC3942645. doi:10.3389/fnhum.2014.00124.

"Severe sexual sadism is a disorder of sexual preference that focuses on humiliation and subjugation of the victim, sometimes causing grievous injury or death. Sexual sadists pose a particular risk. However, the diagnosis as such is unreliable and prevalence estimates vary. In a sample of male high-security forensic inpatients who had committed sexual offenses, we found two-thirds of sexual sadists had not been identified as such prior to commitment. Possible reasons for missing the diagnosis are many fold. Present data support the notion that unrecognized sexual sadists more closely resembled non-sadistic sex offenders than accurately diagnosed sadists. In particular, initially unrecognized sexual sadists had less severe previous convictions, less vocational training, and experienced a less supportive upbringing than their correctly identified sadistic counterparts. The latter, in contrast, more often reached media coverage through their offense(s). We conclude that severe sexual sadism is likely an underdiagnosed, yet forensically highly relevant disorder."
"Severe sexual sadism--an underdiagnosed disorder? Evidence from a sample of forensic inpatients." Journal of Forensic Sciences. 2009 May; 54(3): 685-91. PMID 19368626. doi:10.1111/j.1556-4029.2009.01038.x.

"Sexual masochism is a disorder in which individuals use sexual fantasies, urges or behaviors involving the act (real, not simulated) of being humiliated, beaten or otherwise made to suffer in order to achieve sexual excitement and climax. These acts may be limited to verbal humiliation, or may involve being beaten, bound or otherwise abused. Masochists may act out their fantasies on themselves -- such as cutting or piercing their skin, or burning themselves -- or may seek out a partner who enjoys inflicting pain or humiliation on others (sadist)."
https://web.archive.org/web/20200803095058/https://www.medicinenet.com/script/main/art.asp?articlekey=46416

"Sexual masochism disorder is considered the most prevalent paraphilia among women. However, little is known about the etiology and clinical correlates involved in this disorder. We aimed at addressing this issue through a potentially high-risk clinical cohort. This case-control study consisted of 60 women who met DSM-IV criteria for borderline personality disorder (BPD) and 60 women with other personality disorders. For both groups, sexual masochism disorder comorbidity was assessed through the Structured Clinical Interview, Sexual Disorders Module. Several etiological, psychosexual, and personality features were measured. Sexual masochism disorder was 10 times higher in BPD women than in women with other personality disorders (10 vs. 0 %). Among BPD women, those with sexual masochism disorder reported more child sexual abuse, more hostile/dismissing attachments, higher sensation seeking, and more frequently exploratory/impersonal sexual fantasies than BPD without sexual masochism. Correlation analysis confirmed a significant positive relationship between disinhibition and sexual masochism severity for BPD women. Our findings point out that BPD women may represent a high-risk cohort, especially those with higher disinhibition and detached attachment. Childhood sexual abuse may also play a predispositional role on this comorbidity. Further research may help to elucidate the intriguing relationship between both disorders."
"Is There a Relationship Between Borderline Personality Disorder and Sexual Masochism in Women?" Archives of Sexual Behavior. 2017 Apr; 46(3): 747-754. PMID 27600835. doi:10.1007/s10508-016-0834-z.

"Anal penetration (gang jiao) is [or was at the time] widely discouraged, usually on medical grounds. 'The anus is full of bacteria and can easily be inflamed,' says one source... (Xing shenghuo 100 wen 1998). Wang Xingjuan, from the Beijing Women's Hotline, suggests the same. 'The disadvantages outweigh the advantages' because anal sex leads to incontinence (dabian shi jin) and is one of the main routes of transmission for HIV (Wang Xingjuan 1997: 97). Others allow it occasionally, but warn against repeated practice because it can lead to [rectal] prolapse (tuo[ ]gang). It might also become a compulsion, in which case it should be treated as a psychosexual disorder (Qin Yunfeng 1999a: 127). In [a] similar vein, the Chinese Encyclopedia for Sexology suggests that in the long term, anal sex can lead to serious psychological damage (Zhongguo xing kexue baike quanshu 1998: 374)."
Sex, Science, and Morality in China (2014) - Page 87

=== Anatomy & Trauma ===
"The anatomical anal canal starts at the dentate line and ends at the anal verge. However, a practical definition is the surgical anal canal, which extends from the termination of the muscular diaphragm of the pelvic floor to the anal verge. It is a 3- to 4-cm-long collapsed anteroposterior slit. The anal verge is the junction of the highly specialized anoderm of the anal canal and the surrounding perianal skin. The anal canal is "supported" by the surrounding anal sphincter mechanism, composed of the internal and external sphincters. The internal sphincter is a specialized continuation of the circular muscle of the

rectum. It is an involuntary muscle that is normally contracted at rest. The structure and function of the external sphincter are controversial; however, current evidence suggests that the external sphincter is the spout on a funnel of one continuous circumferential functional muscle mass that includes the external sphincter caudally and extends cranially to the conical puborectalis and levator ani muscles. The external sphincter is composed of voluntary striated muscle. The conjoined longitudinal muscle separates the internal and external sphincter. This intersphincteric plane is created by the continuation of the longitudinal muscle of the rectum, joined by fibers from the levator ani and puborectalis forming the conjoined muscle. Some fibers from this muscle become the corrugator cutis ani and insert on the perianal skin, creating rugal folds and a puckered appearance. Other fibers traverse the internal sphincter and support the internal hemorrhoids as the mucosal suspensory ligaments."
"Hemorrhoids are found in the subepithelial tissue above and below the dentate line. These are cushions composed of vascular and connective tissues and supportive muscle fibers. Internal hemorrhoids originate above the dentate line and are lined with insensate rectal columnar and transitional mucosa. External hemorrhoids are similar vascular complexes except that they are underlying the richly innervated anoderm rather than insensate rectal mucosa. As the rectum enters the narrow musculature of the pelvic floor and becomes the anal canal, the tissue is thrown into folds known as the columns of Morgagni. At the lower end of the columns lie small pockets called crypts, some of which communicate with the anal glands lying in the intersphincteric plane."
"HISTOLOGY
The rectum is composed of an innermost layer of mucosa that lies over the submucosa, two continuous sheaths of muscle, the circular and longitudinal muscles, and in the upper rectum, serosa. The mucosa is subdivided into three layers: (1) epithelial cells, (2) lamina propria, and (3) muscularis mucosa. The muscularis mucosa is a fine sheet of muscle containing a network of lymphatics. Lymphatics are not present above this level, making the muscularis mucosa critical in defining metastatic potential of malignancies."
"The epithelium of the [anal] canal is composed of three types: columnar epithelium in the upper anal canal, transitional (cuboidal) epithelium variably present for 6 to 12 mm above the dentate line, and anoderm, a specialized squamous epithelium, below the dentate line. The anoderm is rich in nerve fibers but lacking in secondary skin appendages (hair follicles, sebaceous glands, or sweat glands). The dentate line marks the true mucocutaneous junction. The anal verge marks the junction of the anoderm with perianal skin."
Surgery: Basic Science and Clinical Evidence (2012) - Pages 669-670

"Defecation is a complex process that occurs under both voluntary and involuntary control. The first stage of fecal evacuation is involuntary and involves the movement of colonic contents into the rectum. The second stage is the act of defecation. Normally, the rectum is collapsed and empty. As feces moves into the rectum, it distends to accommodate the bolus. This distention stretches sensory receptors within the rectal wall until the threshold is reached. At this point, the anal reflex is initiated, causing relaxation of the internal anal sphincter, contraction of the external anal sphincter, and a propulsive wave in the rectosigmoid pushing the fecal mass into the rectum. The external sphincter is reflexively contracted to prevent defecation, but can be voluntarily relaxed if it is appropriate and convenient at the time."
"Anorectal Physiologic Evaluation of Constipation." Clinics in Colon and Rectal Surgery. 2008 May; 21(2): 114-121. PMC2780203. doi:10.1055/s-2008-1075860.

"Hemorrhoids represent normal, submucosal, venous [or sinusoidal] structures in the lower rectum and anal canal that may be internal or external depending on their relationship to the dentate line: internal hemorrhoids are located above the dentate line, and external hemorrhoids originate below the dentate line."

"Internal hemorrhoids arise from the superior hemorrhoidal plexus. They are viscerally innervated with overlying rectal mucosa and are thus painless [when diseased or damaged]. External hemorrhoids arise from the inferior hemorrhoidal plexus, have somatic innervation that contains numerous pain receptors, and are covered by squamous epithelium (Figure 1)."
"External skin tags are not hemorrhoids but residual excess tissue. These occur from prior thrombosis of external hemorrhoids or from inflammatory conditions such as perianal Crohn's disease or anal fissures. As shown in Figure 1, the hemorrhoidal plexuses communicate and then drain to inferior pudendal veins and finally to the inferior vena cava."
"[Diseased] Internal hemorrhoids are graded from 1 to 4. Grade 1 hemorrhoids bulge into the lumen but do not extend distal to the dentate line. Grade 2 hemorrhoids prolapse out of the anal canal with straining but reduce spontaneously. Grade 3 hemorrhoids prolapse out of the anal canal with straining and require manual reduction into normal position. Grade 4 hemorrhoids are not able to be reduced and are at risk for strangulation. There is no conventionally used system for grading [diseased] external hemorrhoids."
"The pathogenesis of symptomatic hemorrhoids is not completely understood [mainly concerning external hemorrhoidal thrombosis] but likely involves weakening of the anchoring connective tissue, which can then cause prolapse of internal hemorrhoids into the anal canal and protrusion of external hemorrhoids below the anal sphincter. Swelling and engorgement of the hemorrhoidal plexi occur due to factors that increase intra-abdominal pressure, such as straining, constipation, pregnancy, and prolonged sitting."
"Common Anorectal Disorders." Gastroenterology & Hepatology. 2014 May; 10(5): 294-301. https://web.archive.org/web/20201209073615/https://www.gastroenterologyandhepatology.net/archives/may-2014-3/common-anorectal-disorders/ [PMC4076876; inconsistency in PMC text but not the PDF]

"[The interior of the anal canal] presents four landmarks

- The anocutaneous line or the anal verge or rim. It is the external margin of the walls of the anus in its normal state of apposition. The epithelium superior to this line usually is thrown into folds by the action of an involuntary muscle known as corrugator cutis ani.
- The intersphincteric groove is palpable rather than visible. It marks the linear interval between the internal and external sphincters. This interval lies half way between the anal verge and the pectinate line. ...
- The pectinate or the dentate line is at the level of the anal valves. The band of tissue between the intersphincteric groove and the pectinate line has a smooth surface and a glossy, shining appearance and is known as pecten. It may be likened to a circular sawblade whose teeth point upward. These dentations interdigitate with the anal columns (of Morgagni) which are connected at their distal ends by valve-like folds (the anal valves of [B]all) above which are anal sinuses into which 5-10 anal glands open. The appearance of this area with its dentations has resemblance to a comb and that is why it is known as pecten (comb). The lining of the pecten is stratified squamous epithelium, but is non-keratinizing and there are no hair follicles, sebaceous glands or sweat glands.
- The anorectal line lies about 1.5 cm proximal to the pectinate line. The mucous membrane between the two shows up[ ]to a dozen longitudinal ridges, the anal columns (of Morgagni).

Above the pectinate line the zone is lined with mixed columnar and stratified squamous epithelium so there is no abrupt line of change to columnar intestinal cells of the rectum."
Human Anatomy: Female Pelvis and Breast (2009) - Page 66

"The anal canal is an anteroposterior slit. The literature describes a longer "surgical" anal canal (4.0-4.5cm) and a shorter "anatomical" or "embryological" canal. The proximal 1 cm of the anal canal is

lined by columnar epithelium, the middle 1.5cm is lined by stratified (or modified columnar) epithelium, and the distal 1.5-2cm is lined by stratified or squamous epithelium."
Physiology of the Gastrointestinal Tract, Volume 1 (2012) - Page 1023

"The levator ani consists of the pubococcygeus, puborectalis, and iliococcygeus muscles. The pubococcygeus arises from the body of the pubis, splits to travel posteriorly along the lateral aspects of the urogenital hiatus and the anorectal region, and reunites posterior to the rectum to insert on the coccyx. The puborectalis is enclosed medially within the pubococcygeus with an anterior origin from the pubis. It creates the lateral borders of the urogenital hiatus and travels around the rectum to form a sling posterior to the anorectal junction that is important for fecal continence. The iliococcygeus arises from the ischial spines and arcus tendineus fascia and inserts on the coccyx. The coccygeus [aka ischiococcygeus] arises from the ischial spines and inserts on the distal sacrum and coccyx. The most inferior layer of the pelvic floor is called the urogenital diaphragm and is composed of connective tissue and the deep transverse muscle of the perineum. The urogenital diaphragm is anatomically divided into an anterior triangle extending to the pubic symphysis and a posterior triangle extending to the coccyx with the common base of the deep transverse muscle of the perineum."
Cross-Sectional Imaging of the Abdomen and Pelvis: A Practical Algorithmic Approach (2015) - Page 994

"The raphe of the human penis and scrotum is considered to develop secondarily after disappearance of the initial midline seam by fusion of the bilateral genital folds. However, the fetal development was still obscure. We examined histological sections of 30 fetuses (17 males and 13 females) at 10–15 weeks. In male fetuses, the scrotum was not yet clearly identified because of no descent of testis. The perineal raphe was thin and wavy at 10 weeks, and it was continuous with and took a direction same as the inferior wall of the closed penile urethra after physiological hypospadias. Depending on growth of the bulbospongiosus muscle and corpus spongiosus penis, the midline intermuscular septum obtained a connection to the subcutaneous wavy raphe and made the latter thick and straight at 12–15 weeks. Notably, the perineal raphe extended posteriorly to attach to the external anal sphincter. In female fetuses, an epithelial fusion occurred along a short distance at the posterior end of the vestibule. However, in front of the external anal sphincter, a large midline mesenchymal tissue from the urorectal septum did not contain a raphe-like structure. Moreover, since the bilateral bulbospongiosus muscles were separated widely by the vestibule, they did not provide a midline septum. Fetal development of the perineal raphe was accelerated by reinforcement from the muscular septum. In contrast, without such a muscular support, the female raphe could not maintain its growth even if the seed appeared at the posterior end of the vestibule."
"Perineal raphe with special reference to its extension to the anus: a histological study using human fetuses." Anatomy & Cell Biology. 2016 Jun; 49(2): 116-124. PMC4927426. doi:10.5115/acb.2016.49.2.116.

"To investigate intergender differences in muscle cleavage and joining during development of the external anal sphincter (EAS), we examined semiserial sections of 16 fetuses between 15 and 30 weeks of gestation (6 males and 10 females). The subcutaneous part of the EAS (EASsc) developed along the male perineal raphe and extended posteriorly. Thus, the male EAS was characterized by anterior protrusion of the subcutaneous muscle, in contrast to the almost circular female EAS. In both genders, the bulbospongiosus anlage (or the levator ani anlage) issued muscle fibers to form the superficial (or deep) part of the EAS. The EASsc communicated with the superficial part in males, whereas the female bulbospongiosus tended to communicate with the levator ani rather than the EAS. In both genders, the longitudinal muscle bundle(s) of the anorectum contributed to perineal body formation. However, the male perineal body also had a thick fascia between the rhabdosphincter and the levator. The

bulbospongiosus seems to play a critical role in forming the EAS. A strict intergender difference in subcutaneous muscle development is evident along the perineal raphe, as the raphe is not evident in females. These results help to explain variations in the EAS, including anal malformations."
"Development of the external anal sphincter with special reference to intergender difference: observations of mid-term fetuses (15-30 weeks of gestation)." Okajimas Folia Anatomica Japonica. 2010 Aug; 87(2): 49-58. PMID 20882767. doi:10.2535/ofaj.87.49.

"Physiologic hyperpigmentation occurs as symmetrical, flat, smooth-surfaced, asymptomatic darkening of the skin. The most commonly affected sites include the scrotum in male patients and the labia majora and outer edges of the labia minora in female patients. The perianal skin in both genders usually displays some degree of physiologic hyperpigmentation. Appreciable variation in hue occurs across racial groups and also from person to person even within a given racial group. The degree of hyperpigmentation can be so light that it is hardly noticeable or may be so dark as to be almost black in color."
"The diagnosis of physiologic hyperpigmentation is made on a clinical basis. The differential diagnosis includes postinflammatory hyperpigmentation but the latter tends to be patchier and is often less symmetrically distributed. If biopsy is carried out because of either patient or clinician concern, increased melanin will be found in both the melanocytes and keratinocytes which line the basal layer of the epithelium. Hyperpigmentation occurs preferentially in genital skin because of the greater density of melanocytes in this tissue compared to the surrounding skin. These areas of hyperpigmentation will darken further under the influence of both endogenous and exogenous sex hormones. This is particularly notable during pregnancy. Darkening will also occur due to the presence of increased melanocyte-stimulating hormone (MSH) in neonates and in patients with disorders such as Addison disease due to the marked disturbance in pituitary-adrenal axis function."
Genital Dermatology Atlas (2010) - Page 228

"Normally, the anal orifice is slit-like, running anteroposteriorly; surrounding skin shows marked natural folds due to the act of [the] corrugator cutis ani muscle. In cases where anal intercourse has taken place, commonly there are changes in the normal anatomy, and the extent of such changes is dependent upon the following factors:
• Frequency of acts of anal intercourse
• Time interval between the last act of intercourse and the examination
• Age, buil[d], and the size of the orifice in a particular individual
• Degree of force applied during the act
• Size of the penile organ
• Use of lubricant"
"First ever [anal] intercourse tends to produce changes in the appearance of [the] anal verge, which may vary from overt tearing of anal skin and underlying sphincter muscle or splitting of skin and production of anal fissure or to the mere abrasion/bruising of the verge. Abrasions may be seen frequently that may be superficial or deep and present on any part of the circumference of the anal verge. They can be produced by moderate frictional shearing [sliding force] of the penetrating penis..."
... "Signs of Habitual Anal Intercourse
The signs usually met in a passive agent habituated to the act of [receptive anal intercourse] may be as follows:
• Shaving of the anal hair but not necessarily the pubic hair.
• Dilated and patulous condition of the anus, as normal folds at the anal verge tend to be lost so that the anal margins appear to be much smoother.
• Thickening of the skin at the anal margins that may extend into the anal canal up to the mucocutaneous junction.

• Scars of the healed fissures may also be seen.
• In extreme cases of habitual [anal] intercourse, the anus may be 'deep-seated' so that the anal area looks as though it is situated in a funnel-shaped depression."
Textbook of Forensic Medicine & Toxicology: Principles & Practice (2014) - Page 321

"Table 19.1 Anogenital findings consistent with sexual abuse ... Criterion - Possible findings
... Anal region: acute abuse - Perianal swelling, marginal hematomas, radial (bleeding?) fissures, dilated anus, linear skin abrasions
Anal region: chronic abuse - Thickening of the anal skin, flattened anal folds, reduced sphincter tone, venous stasis, chronic fissures, wedge-shaped scarring and skin tags (not in the midline), warts; consider possibility of sexually transmitted diseases!"
Forensic Medicine: Fundamentals and Perspectives (2013) - Page 312

"PURPURA: a purple color caused by hemorrhage in the skin. Petechiae are pinpoint hemorrhagic macules and ecchymoses are hemorrhagic patches. A hematoma is extensive hemorrhage in a somewhat discrete locus in the reticular dermis and/or the subcutaneous fat. Purpura can be classified as subsequent to inflammatory disease, as in Schamberg's disease, leukocytoclastic vasculitis, and Mucha-Habermann disease, and as unaffiliated with an inflammatory disease, as is the case for solar purpura, thrombomcytopenia, and disseminated intravascular coagulopathy."
"Dermatopathology: An abridged compendium of words. A discussion of them and opinions about them. Part 8 (P-S)." Dermatology Practical & Conceptual. 2015 Apr; 5(2): 1-19. PMC4462893. doi:10.5826/dpc.0502a01.

"Haemorrhoids are made up of vascular, muscular and connective tissue elements. Thomson showed that the vasculature of the anal canal was condensed in 'cushions' of tissue, forming the superior (or internal) haemorrhoidal plexus. Within these veins [or sinusoids], he found discrete dilations. Those found below the dentate line were 'fewer in number and with a tendency to be larger in size', forming the inferior haemorrhoidal plexus. Thomson also demonstrated tiny arteriovenous communications between vessels. This explains why haemorrhoidal bleeding is bright red and has the same pH as arterial blood."
"A web of connective tissue surrounds the blood vessels of the superior haemorrhoidal plexus, derived from the conjoined longitudinal coat of the rectum. Smooth muscle elements are also present, termed 'Treitz's muscle'. Degeneration of these muscular and fibrous elements leads to hypertrophy and fragmentation of the fibres, and loss of the normal support to the submucosa and its vasculature. The muscle-to-collagen ratio is decreased in the haemorrhoids. When anal cushions bleed or prolapse, they become known as [diseased] haemorrhoids."
... "Prolapse of haemorrhoids is usually a chronic phenomenon, cumulative over time. Acute prolapse, where the haemorrhoidal mass becomes trapped by the sphincter outside the anus, can lead to obstruction of venous return, oedema and strangulation. Patients present with acute pain. If untreated, this can be severely incapacitating for several weeks."
... "Thrombosis of the veins of the inferior haemorrhoidal plexus often presents acutely as a so-called 'perianal haematoma'. Thomson described this histologically and favoured the term 'clotted venous saccule' since it was strictly subanodermal (rather than perianal) and not a true haematoma (as there was no evidence of haemorrhage). The term 'thrombosed perianal varix' is sometimes used."
... "Thrombosed perianal varices usually present as a single, tense, painful, bluish lump at the anal margin, with a clear line of demarcation between the swelling and the mucosa of the anal canal. When left, spontaneous resolution occurs over 7–10 days. Rarely, the clot may erode through the skin and discharge itself. If the presentation is delayed and the pain is resolving, the thrombosed varix can be treated conservatively with analgesics and reassurance."

... "The terms ‘acute haemorrhoids’, ‘thrombosed external haemorrhoids’, ‘strangulated haemorrhoids’, ‘perianal thrombosis’ and ‘perianal haematoma’ are often used interchangeably in the literature. These terms do not always reflect the anatomical and histological appearances of the pathology, and confuse two distinct conditions: the acutely prolapsed haemorrhoid that has become strangulated and the thrombosed perianal varix. These are separate pathological entities requiring different treatments. We propose the use of the term ‘strangulated haemorrhoids’ for internal haemorrhoids that have prolapsed acutely and become painful through oedema, ischaemia and sometimes gangrene. Thrombosis may or may not be present histologically and this may or may not be reflected clinically. The term ‘thrombosed perianal varix’ best describes a painful thrombosis in the inferior haemorrhoidal plexus – not strictly a [strangulated, prolapsed internal] haemorrhoid, nor a ‘perianal haematoma’. The use of the term ‘thrombosed external haemorrhoid’ to refer to both conditions is ambiguous and misleading."
"The acute management of haemorrhoids." Annals of The Royal College of Surgeons of England. 2014 Oct; 96(7): 508-511. PMC4473435. doi:10.1308/003588414X13946184900967.

"External hemorrhoids are located outside of the dentate line and covered by anoderm. Thrombosed external hemorrhoids are one of the frequent acute anorectal diseases which are treated successfully in the proctology outpatient room. The etiology of this disease is still unknown."
... "The analysis of the survey results shows a significant relationship of thrombosed external hemorrhoids and presence of [diseased] internal hemorrhoids, practice of anoreceptive sex and consumption of more alcohol products than usual. There was no statistical relationship between lifting heavy objects, eating spicy food, having hard stools or straining at toilet during motions and thrombosed external hemorrhoids."
"Etiology of thrombosed external hemorrhoids." Postępy Higieny i Medycyny Doświadczalnej. 2012 Jan 30; 66(0): 41-4. PMID 22371404.

"The anal canal consists of three fibrovascular [hemorrhoidal] cushions that are fed directly by arteriovenous communications. These cushions are supported within the anal canal by a connective tissue framework, and they are important in providing a watertight seal to the anus. The degenerative effects of ageing may weaken or fragment the supporting tissues, and this along with the repeated passage of hard stool and straining produces a shearing force on the cushions [as can anal insertions], leading to their descent and prolapse. The prolapsed cushions have impaired venous return, which results in engorgement that may be further exacerbated by straining, inadequate fibre intake, prolonged time on the lavatory, and conditions such as pregnancy that raise intra-abdominal pressure. Bleeding from the engorged prolapsed haemorrhoid occurs as a result of localised mucosal trauma or inflammation, which damages the underlying blood vessels."
... "Anal cancer can have a similar appearance to a prolapsed haemorrhoid"
"Management of haemorrhoids." British Medical Journal. 2008 February 16; 336(7640): 380-383. PMC2244760. doi:10.1136/bmj.39465.674745.80.

"Rectal prolapse, or procidentia, is the protrusion of the full thickness of rectum beyond the anal verge and is evidenced on examination by concentric rings. Occult or internal rectal prolapse occurs when the rectal wall is prolapsed, but not beyond the anus. Both must be distinguished from mucosal [or hemorrhoidal] prolapse, which is the protrusion of only the rectal or anal mucosa, and which manifests as radially oriented grooves. The definitive etiology of rectal prolapse is not yet clear, but anatomically it is ascribed to the rectum herniated through a deficient pelvic floor. Associated with this are findings such as weakened ligaments of the rectum and presacral fascia, a deep rectovaginal or rectovesical fossa, and a redundant sigmoid colon."
... "Rectal prolapse can lead to anatomic distortions. Permanent sphincter damage arises from the continuous stretch and trauma by the prolapsing rectum as well as the chronic stimulation of the

rectoanal inhibitory reflex. Pudendal neuropathy has been shown in 50% of patients with prolapse and may contribute to muscular atrophy of the external sphincter."
"Optimizing Treatment for Rectal Prolapse." Clinics in Colon and Rectal Surgery. 2016 Sep; 29(3): 271-276. PMC4991961. doi:10.1055/s-0036-1584505.

"Fecal incontinence occurs when the normal anatomy or physiology that maintains the structure and function of the anorectal unit is disrupted. Incontinence usually results from the interplay of multiple pathogenic mechanisms and is rarely attributable to a single factor. The internal anal sphincter (IAS) provides most of the resting anal pressure and is reinforced during voluntary squeeze by the external anal sphincter (EAS), the anal mucosal folds, and the anal endovascular cushions. Disruption or weakness of the EAS can cause urge-related or diarrhea-associated fecal incontinence. Damage to the endovascular cushions may produce a poor anal "seal" and an impaired anorectal sampling reflex. The ability of the rectum to perceive the presence of stool leads to the rectoanal contractile reflex response, an essential mechanism for maintaining continence. Pudendal neuropathy can diminish rectal sensation and lead to excessive accumulation of stool, causing fecal impaction, mega-rectum, and fecal overflow. The puborectalis muscle plays an integral role in maintaining the anorectal angle."
"Pathophysiology of adult fecal incontinence." Gastroenterology. 2004 Jan; 126: S14-22. PMID 14978634. doi:10.1053/j.gastro.2003.10.013.

"Since the epithelium of the lower [anal] canal is well supplied with sensory nerve endings, acute distension or invasive treatment of haemorrhoids in this area causes profuse discomfort, whereas treatment can be carried out with relatively few symptoms in the upper anal canal lined by insensate columnar epithelium. As a result of tonic circumferential contraction of the sphincter, the skin is arranged in radiating folds around the anus and is called the anal margin. These folds appear to be flat or ironed out when there is underlying sphincter damage."
Perineal and Anal Sphincter Trauma: Diagnosis and Clinical Management (2007) - Page 7

"Fecal continence involves a complex interplay of [anal] sphincter and levator tone with pudendal nerve function. Risk factors for postpartum AI [anal incontinence] include a history of operative delivery (forceps or vacuum) and an anal sphincter laceration. Third- and fourth-degree lacerations occur more frequently with macrosomic infants and the use of midline episiotomy."
... "Rectal exam will provide information on rectal tone and a sphincter defect may be diagnosed by clinical exam. A dovetail sign, where the anterior perianal folds are absent, indicates a defect in the external anal sphincter. Following the history and physical exam, if a sphincter defect is suspected based on clinical exam, radiographic studies can aid in confirming the diagnosis and guide treatment recommendations."
"Obstetrics and Fecal Incontinence." Clinics in Colon and Rectal Surgery. 2014 Sep; 27(3): 110-112. PMC4174184. doi:10.1055/s-0034-1383903.

"Minor lacerations usually heal completely but if repeatedly traumatized they may leave scarring, for example around the anal margin (although these may be concealed by the anal folds). Anal tags are said to be formed where anal fissures have healed."
Clinical Forensic Medicine (2009) - Page 149

"Whilst acute fissures heal spontaneously or with simple therapeutic measures, a proportion progress to form a chronic linear ulcer. Chronicity of a fissure relates to duration of greater than 6 weeks with fibres of the internal anal sphincter visible at the base of the fissure. Associated pathology may include a sentinel ‘pile’ [or tag] distally and a fibro-epithelial polyp at the apex."

"Modern Perspectives in the Treatment of Chronic Anal Fissures." Annals of The Royal College of Surgeons of England. 2007 Jul; 89(5): 472-478. PMC2048592. doi:10.1308/003588407x202137.

"Anal skin tag—a protrusion of anal verge tissue interrupting the symmetry of the perianal skin folds (a projection of perianal skin)."
Oxford Handbook of Forensic Medicine (2011) - Page 401

"[Anal stenosis] is a narrowing of the anal canal. This narrowing may result from a true anatomic stricture or a muscular and functional stenosis. In anatomic anal stenosis, the normal pliable anoderm, to a varying extent, is replaced with restrictive cicatrized [scarred] tissue. Stenosis produces a morphologic alteration of the anal canal and a consequent reduction of the region's functionality, leading to difficult or painful bowel movements... Anal stenosis may follow almost any condition that causes scarring of the anoderm. The causes of anal stenosis include surgery of the anal canal, trauma, inflammatory bowel disease, ..."
"Surgical treatment of anal stenosis." World Journal of Gastroenterology. 2009 April 28; 15(16): 1921-1928. PMC2675080. doi:10.3748/wjg.15.1921.

"Pruritus ani is an unpleasant cutaneous sensation characterized by varying degrees of itching. Men are affected more often than women in a ratio of four to one. Idiopathic forms of pruritus ani occur in approximately 50% to 90% of the cases. The remaining cases of pruritus are symptomatic presentations of either localized or systemic diseases (e.g., [diseased] hemorrhoids, diabetes)..."
... "In the early stages of the condition, examination may reveal only minimal erythema and excoriations. As the symptoms progress, the perianal skin becomes thin, friable, tender, blistered, ulcerated, and "weeping". In the later stages the skin is raw, red, lichenified, and oozing or pale, with exaggeration of the radiating folds of anal skin. Often, a secondary bacterial or fungal infection is present. A clinical classification used at Washington Hospital Center, Washington, D.C., is based on the appearance of the skin. Stage 0 skin appears normal. Stage 1 skin is red and inflamed. Stage 2 has white lichenified skin. Stage 3 has lichenified skin as well as coarse ridges of skin and often ulcerations secondary to scratching."
Principles and Practice of Surgery for the Colon, Rectum, and Anus, Third Edition (2007) - Pages 247-248

"Pruritus ani is defined as intense chronic itching affecting peri-anal skin. It affects 1–5% of the population, is four times more common in men and is most frequent between the fourth and sixth decades of life."
... "[Postinflammatory] Hyperpigmentation is the result of any chronic inflammation, so infection and chronic discharge should be sought. Lichen sclerosis nearly always involves the labia or perineum. Severe itch with multiple lesions suggests herpes and palpable groin nodes point to neoplasia and sexually transmitted infections. Idiopathic inflammation has indistinct borders and is non-specific visually. In severe cases, the skin becomes lichenified – thickened, leathery, exaggerated skin folds, fissures and erosions. Chronic trauma results in lichen simplex chronicus."
"Pruritus Ani." Annals of The Royal College of Surgeons of England. 2008 September; 90(6): 457-463. PMC2647235. doi:10.1308/003588408X317940.

=== Anorectal Risks 1 ===
"Traumatic complications of rectal intercourse include prolapsed hemorrhoids, anal fistulas and fissures, perirectal abscesses, rectal ulcers, and anal tears."

Primary Care Medicine: Office Evaluation and Management of the Adult Patient (2009) - Page 528

"Anal sex can also cause physical damage to the [anus and] rectum, increasing the risk of [diseased] hemorrhoids, fissures, rectal prolapse, and fecal incontinence."
What's Up Down There?: Questions You'd Only Ask Your Gynecologist If She Was Your Best Friend (2010) - Page 325

"Acute and massive injuries of the anal region, such as deep perianal tears and hematomas, are immediately evident consequences of acute anal penetration."
"Physical Examination in Child Sexual Abuse." Deutsches Ärzteblatt International. 2014 Oct; 111(41): 692-703. PMC4215093. doi:10.3238/arztebl.2014.0692.

"A 25 year old woman presented to the Emergency Department complaining of severe perineal pain and bleeding after intercourse. She reported that her partner was inebriated and aggressively pursued un-protected anal intercourse despite resistance. Her vital signs were normal upon presentation. The abdomen was soft and non-tender. Examination of the perineum revealed the presence of a laceration at the anal mucosa, extending through the entire thickness of the anal sphincter complex into the vagina. The ends of the sphincter complex had retracted laterally."
... "[Anal] Injuries are usually heralded by anodyspareunia – pain during receptive anal intercourse."
... "There are several potential dangers with anal intercourse including transmission of communicable diseases, mucosal lacerations, faecal incontinence and injury to the anal sphincters. We expect the incidence of anal injuries to increase parallel to the rising prevalence of anal intercourse in homosexual and heterosexual relationships. It is estimated that up to 40% of men and 35% of women engage in heterosexual anal intercourse. Of course the prevalence of this activity varies by demographics and nationalities, ranging from a low of 3.5% of survey respondents in South Korea to a high of 18.5% of survey respondents in France."
"Complete anal sphincter complex disruption from intercourse: A case report and literature review." International Journal of Surgery Case Reports. 2012; 3(11): 565-568. PMC3437385. doi:10.1016/j.ijscr.2012.07.014.

"An anal fissure is a crack or tear in the vertical axis of the squamous lining of the anal canal between the anal verge and the dentate line. The classic symptom is pain during and following defecation, lasting minutes to hours. Bright red bleeding is common, most often seen on the toilet tissue and occasionally streaked onto the stool itself. Fissures occur most often in the posterior midline in both men and women, although anterior midline fissures are more commonly seen in women. Acute fissures are superficial but may deepen to expose the underlying internal sphincter. Chronic fissures are associated with secondary changes, which may include a sentinel tag, hypertrophied anal papilla, induration of the edge of the fissure, and/or relative anal stenosis [narrowing] secondary to spasm or fibrosis of the internal sphincter."
"Anal Fissure." Clinics in Colon and Rectal Surgery. 2007; 20(2): 133-137. PMC2780181. doi:10.1055/s-2007-977492.

"Anal stenosis may be anatomic (stricture) or functional (muscular)."
"How I do it. Anal stenosis." American Journal of Surgery. 2000 Apr; 179(4): 325-9. PMID 10875995. doi:10.1016/s0002-9610(00)00344-5.

"Increased pressure and shearing [frictional sliding] force in the anal canal may lead to severe changes in topography with detachment of the hemorrhoids from the internal sphincter and fibromuscular

network resulting in bleeding, itching, pain and disordered anorectal function, even [fecal] incontinence."
"Hemorrhoidectomy: indications and risks." European Journal of Medical Research. 2004 Jan 26; 9(1): 18-36. PMID 14766336.

"The [anal] vascular cushions and the muscularis are normally only loosely attached to the underlying circular muscle."
Surgical Treatment of Haemorrhoids (2002) - Page 17

"Hemorrhoids are a normal component of anorectal anatomy. The terms "hemorrhoids" — as used by patients — or "hemorrhoidal disease" refer to the state of symptoms attributed to the vascular cushions present in the anal canal. It is critical for both surgeons and patients alike to consider this fact when evaluating and managing hemorrhoidal symptoms, as patients may desire removal of hemorrhoids, whereas control of symptoms should be the primary treatment goal."
"Thomson's classic description introduced the concept of hemorrhoids as anatomically distinct vascular cushions in 1975. The internal hemorrhoids are not merely a thickening of the mucosa or submucosa within the anal canal, [but] rather, discrete specialized structures with specific physiologic functions. Hemorrhoids, also known as piles [another term that may ambiguously refer to normal or pathologic anal cushions], are vascular cushions contained within the submucosal space of the anal canal. These cushions are a normal anatomic component of the anus, and serve to maintain closure of the anal canal, thus contributing toward fecal continence. The hemorrhoids are composed of blood vessels, connective tissue, smooth muscle, and elastic tissue. The smooth muscle contained within the submucosal space, and therefore within the hemorrhoids, known as [Treitz]'s muscle, originates from the conjoined longitudinal muscle and the internal anal sphincter. These fibers support the hemorrhoid, keeping it adherent to the internal sphincter. Hemorrhoids typically exist at three locations: the left lateral, right anterior, and right posterior positions of the anal canal. These positions are often referred [to] by the misnomer "quadrants." Hemorrhoidal tissue is not necessarily limited to these locations, and there is frequently additional hemorrhoidal tissue in between these three specific locations. In fact, less than 20% of cadavers were found to have the specific configuration of hemorrhoids at the three standard positions. Gross inspection of the hemorrhoids reveals a blue hue, which may suggest similarity to veins. However, histologic analysis of hemorrhoids reveals an absent muscular wall, characterizing the cushions as sinusoids, technically not veins or arteries. Furthermore, hemorrhoidal bleeding is typically described as "bright red," suggestive of well-oxygenated arterial blood. A pH analysis of hemorrhoidal blood is most consistent with arterial blood."
... "The anal canal, proximal to the dentate line, is innervated by sympathetic and parasympathetic nerves, as well as non-cholinergic/nonadrenergic mediators. The anal canal distal to the dentate line, as well as the anoderm, is innervated by somatic nerves. For this reason, the distal anal canal and the associated external hemorrhoids are sensitive to touch, pain, temperature, and stretch."
"There are multiple theories regarding the function of hemorrhoids. The most commonly believed hypothesis is that the hemorrhoids contribute toward maintaining fecal continence. Closure of the sphincter complex does not completely close the anal canal, and the bulkiness of the hemorrhoidal tissue provides closure of the central aspect of the anus. As one strains, sneezes, or exerts themselves, the vascular cushions engorge and distend, which completely closes the anus while at the highest risk of fecal leakage. It has been theorized that hemorrhoids contribute up to 20% of the resting pressure of the anus. The anal canal, including the hemorrhoids, is highly sensitive toward the discrimination of an empty rectum, gas, liquid, or solid stool. The loss of bulk and sensation within the anal canal may put patients with marginal continence at high risk for postoperative incontinence after hemorrhoidectomy. Besides aiding continence, the soft and pliable hemorrhoid tissue may protect the sphincters from trauma related to passing stool."

"Internal hemorrhoids are lined by columnar epithelium. Near the dentate line, there may be transitional epithelium. This mucosa is viscerally innervated, which means patients will report sensations such as vague fullness and pressure, but do not perceive touch, pain, stretch, or temperature such as on the skin. This makes office-based treatments possible with anesthesia."
"The anoderm is specialized squamous epithelium that lacks skin structures such as hair follicles or sweat glands. The distal most aspects are lined by normal skin, including the appendages. The anoderm and perianal skin are somatically innervated, which means external hemorrhoids are very sensitive to touch, requiring anesthesia for procedures."
... "Venous congestion with subsequent hypertrophy of the internal hemorrhoids is the most common event leading to symptomatic hemorrhoids. During normal straining and defecation, hemorrhoids engorge and then return to normal. If patients strain for prolonged periods, as with chronic constipation, the internal hemorrhoids become congested but do not rapidly decompress because the increased abdominal pressure impairs venous return. This process occurs as a result of constipation as well as pregnancy, chronic cough, pelvic mass, pelvic floor dysfunction, or ascites."
"The internal hemorrhoids are normally supported by the fibers of [Treitz]'s muscle and the elastic tissues in the submucosa. These supportive tissues can become attenuated [weakened], and therefore the hemorrhoids become progressively more mobile and begin to prolapse. As they prolapse, the venous return becomes obstructed, and the hemorrhoids will become more engorged. The bulk of the hemorrhoid will lead to further weakening of the supporting structures. Thomson described this cycle of progressive prolapse and engorgement as the sliding anal cushion theory. If the prolapse is outside the sphincter, then the pressure of the sphincter further impairs blood return and the hemorrhoids become further congested."
The ASCRS Textbook of Colon and Rectal Surgery: Second Edition (2011) - Pages 175-176

"[Diseased] External hemorrhoids may present with redundant tissue around the anus, bleeding, or difficulty in maintaining hygiene after bowel movements. In addition, they may become inflamed. Symptoms are typically less severe than those of [diseased] internal hemorrhoids, with the exception of acute thrombosis of an external hemorrhoid. Patients will experience the acute onset of mild to excruciating anal pain. This may be precipitated by an episode of diarrhea or constipation, but many times there is no identifiable inciting factor. Patients will also complain of a firm lump at the anus. Patients sometimes undertake unusual maneuvers in order to visualize their own anus, and may report a blue or purple color to the lump... Bleeding will not usually occur immediately following the onset of pain; however, when the pressure of the thrombus erodes through the skin, then the clot will spontaneously drain. The necrotic skin may become gangrenous and rarely cause surrounding cellulitis. After the external hemorrhoid thrombus drains spontaneously or is surgically evacuated, the expanded external hemorrhoid will reduce in size; however, patients are often left with resultant skin tags. These tags may reduce in size over time, but typically do not completely regress."
The ASCRS Textbook of Colon and Rectal Surgery: Second Edition (2011) - Page 178

"Proctitis is an acute or chronic inflammation of the rectal mucosa. The prognosis is good unless massive bleeding occurs... This condition [proctitis] occurs with high frequency among homosexual men and women who engage in anal intercourse."
Disease Management for Nurse Practitioners (2002) - Page 438

"Infectious proctitis is not uncommon in men who have anal intercourse with men."
... "Proctitis may be associated with crampy abdominal pain, fecal urgency, anal pain, perianal erosions or ulceration, anal pruritis, mucopurulent and/or bloody discharge, constipation, rectal fullness, or tenesmus. Infectious proctitis can be sexually transmitted via genital–anal or oral–anal mucosal contact.

N. gonorrhoea, C. trachomatis (including lymphogranuloma venereum), herpes simplex virus, and T. pallidum are the most common sexually transmitted pathogens."
"Purulent Proctitis Caused by Prevotella bivia in a Homosexual Male." ACG Case Reports Journal. 2016 Aug; 3(4): e178. PMC5171932. doi:10.14309/crj.2016.151.

"Inflammatory bowel disease (IBD) is a term used to describe a number of inflammatory diseases that affect the gastrointestinal tract. It is characterized by chronic inflammation of one or more regions of the gastrointestinal tract with reoccurring flare-ups. Crohn's disease and ulcerative colitis comprise the most common forms of IBD. These conditions share many clinical features but differ in location and the nature of the inflammatory changes. Crohn's disease manifests as transmural lesions found anywhere along the gastrointestinal tract and involves multiple cell layers and types. Ulcerative colitis is limited to the epithelial lining of the colon and rectum. A commonly used mouse model of IBD uses oral administration of dextran sulfate sodium (DSS). A recent study revealed that DSS feeding causes hyperosmolarity and hyperosmotic stress within the colon, which in turn triggers inflammation. Other studies in rats using alanine, mannitol, or NaCl as hyperosmotic stimuli produced similar results, suggesting any compound elevating colonic hypertonicity may have pathological consequences. These results corroborate observations in human patients with IBD, including neonatal necrotizing enterocolitis, Crohn's disease, and ulcerative colitis, where elevated osmolarity in fecal fluid within the colon is noted. Furthermore, the fecal osmolarity elevation in Crohn's disease patients shows a close correlation with disease severity."
"The role of hyperosmotic stress in inflammation and disease." Biomolecular Concepts. 2012 Aug; 3(4): 345-364. doi:10.1515/bmc-2012-0001. (PMID 22977648)

"Phillips et al. demonstrated that rectal application of N-9 [spermicide] resulted in sloughing of surface epithelia. Hyperosmolar fluids have been shown to induce similar changes in the distal colon. Because many water-based personal lubricants are hyperosmolar, such formulations, applied rectally, may induce similar damage."
"Hyperosmolar sexual lubricant causes epithelial damage in the distal colon: potential implication for HIV transmission." The Journal of Infectious Diseases. 2007 Mar 1; 195(5): 703-10. doi:10.1086/511279. (PMID 17262713)

"The most commonly used commercial enema formulations rely on their hyperosmolarity to thoroughly cleanse the rectal vault. We have shown that a hyperosmolar sexual lubricant gel causes significant loss of single columnar epithelium minutes after a single dose; this loss was not observed when an isoosmolar lubricant was used. Other studies have also reported mucosal damage due to hyperosmolar solutions, though the osmolality is only indirectly implicated by association. A large proportion of users simply use tap water (a hypoosmolar formulation) due to easy availability; however, epithelial loss has also been reported after its use."
"Isoosmolar Enemas Demonstrate Preferential Gastrointestinal Distribution, Safety, and Acceptability Compared with Hyperosmolar and Hypoosmolar Enemas as a Potential Delivery Vehicle for Rectal Microbicides." AIDS Research and Human Retroviruses. 2013 Nov; 29(11): 1487-1495. PMC3809953. doi:10.1089/aid.2013.0189.

"While cutting, crushing, or burning often fail to be detected, distention of hollow organs reliably causes sensations in humans, including pain at higher levels, and evokes visceromotor or pseudoaffective responses in animals... For the gut, numerous mechanosensitive sites are located near blood vessels in the mesenteric membranes and on the serosal surface of the gut. “Serosal” and “mesenteric” afferents comprise the majority of spinal mechanosensitive afferent nerves to the intestines. High-threshold mechanosensitive afferents can be activated by intraluminal distention

pressures of 25 mm Hg or more. A third, distinct type of spinal mechanoreceptor, characterized by low thresholds and slowly adapting responses to distention, has been studied extensively in the distal large bowel..."
"Identification of Medium/High-Threshold Extrinsic Mechanosensitive Afferent Nerves to the Gastrointestinal Tract." Gastroenterology. 2009 Jul; 137(1): 274-284.e1. doi:10.1053/j.gastro.2009.02.061. (PMID 19268671)

"The simple columnar epithelium lining the rectal mucosa is significantly more fragile than the stratified squamous epithelium found in the ectocervix and vagina."
"HIV Infection and Gut Mucosal Immune Function: Updates on Pathogenesis with Implications for Management and Intervention." Current Infectious Disease Reports. 2010 January; 12(1): 19-27. PMC2821616. doi:10.1007/s11908-009-0072-9.

"The area below the dentate line is not true skin because it is devoid of accessory skin structures (e.g., hair, sebaceous glands, and sweat glands). The pale, delicate, smooth, thin, and shiny stretched [stratified squamous] tissue is referred to as anoderm and runs for approximately 1.5cm below the dentate line. At the anal verge the lining becomes thicker and pigmented and acquires hair follicles, glands, and other histologic features of normal skin."
Principles and Practice of Surgery for the Colon, Rectum, and Anus, Third Edition (2007) - Page 9

"Anal disorders can significantly affect patients' quality of life. The discomfort caused by itching or 'poorly located' swelling, or from pain caused by abscess or [diseased] haemorrhoid, can affect the patient's activities. Some functional disorders, such as anal incontinence, can result in patients changing or discontinuing normal activities, and can significantly affect quality of life. In extreme cases, the damaging nature of an anal disorder results in patients becoming socially withdrawn. The stigma surrounding anal disorders can result in a delayed diagnosis with symptoms becoming chronic; for example, a fissure becoming infected; a simple fistula becoming complex with multiple ramifications; or cancer that metastasizes. While fissures diagnosed early can be treated medically without sequelae, fistulas require an anal sphincter section (fistulotomy) and may involve anal incontinence, which can be very difficult to treat."
"The prevalence of proctological symptoms amongst patients who see general practitioners in France." European Journal of General Practice. 2014 Dec; 20(4): 301-306. PMC4438346. doi:10.3109/13814788.2014.899578.

"On presentation, one patient had an acute abdomen with signs of peritonitis on clinical examination. This patient was treated by emergency laparotomy, extraction of the foreign body at the upper rectum, peritoneal toilet, and colostomy. This patient inserted an Irish potato 24 hours before presentation. By the time he presented to hospital, the potato was swollen and turgid after absorbing fluid in the rectum and had perforated the rectal wall. There was a tattered perforation of the upper rectum, minimal fecal contamination localized to the pelvis, and an edematous, unhealthy rectal wall. This prompted the surgeons' decision to close the rectal stump and create a diverting stoma."
"A Management Algorithm for Retained Rectal Foreign Bodies." American Journal of Men's Health. 2017 May; 11(3): 684-692. PMC5675215. doi:10.1177/1557988316680929.

"This retrospective study details the findings and outcome in 34 homosexual men, out of a total of 177 patients, who underwent surgery for non-condylomatous perianal disease over a 2-year period. Of 34 homosexuals 20 presented with anorectal sepsis compared with 11 of 79 heterosexual male patients... These findings suggest that the prevalence of anorectal sepsis in homosexual men is high..."

"Non-condylomatous, perianal disease in homosexual men." British Journal of Surgery. 1989 Oct; 76(10): 1064-6. PMID 2597952. doi:10.1002/bjs.1800761026.

"Anorectal infection and sepsis are common challenging problems. Although often used synonymously, sepsis and infection are different. Sepsis are the systemic responses to local infection, including hyperthermia, tachycardia, tachypnea, hypotension and altered mental status. Fortunately, most patients with infectious anorectal diseases present with a localized abscess or fistula, without systemic toxicity... Primary anorectal sepsis refers to bacterial invasion of the soft tissues in the peri-anal area, which is most commonly associated with Crohn's disease (CD) and immunocompromise."
Gervaz PA, Wexner SD. Complicated anorectal sepsis. In: Holzheimer RG, Mannick JA, editors. Surgical Treatment: Evidence-Based and Problem-Oriented. Munich: Zuckschwerdt; 2001.

"The human intestine provides a habitat that is rich in nutrients, permitting for the growth of over 500 different species of bacteria, with the highest concentration of bacteria found in the colon. In addition to bacteria, the human colon is frequently exposed to both pathogenic and nonpathogenic viruses. Normally, the bacteria found in the colon have a symbiotic relationship with their host and can even provide some protection against pathogens. However, some microbes that are normally or incidentally found in the colon are pathogenic or potentially pathogenic if they breech the host mucosal barrier."
"Infectious agents and colorectal cancer: A review of Helicobacter pylori, Streptococcus bovis, JC virus, and human papillomavirus." Cancer Epidemiology, Biomarkers & Prevention. 2008 Nov; 17(11): 2970-2979. doi:10.1158/1055-9965.EPI-08-0571. (PMID 18990738)

"The luminal surfaces of the gastrointestinal tract are covered by a mucus layer. This normally acts as a barrier that does not allow bacteria to reach the epithelial cells and thus limits the direct contact between the host and the bacteria. The mucus layer in the colon comprises an inner layer that is firmly adherent to the intestinal mucosa, and an outer layer that can be washed off with minimal rinsing. Some bacteria can dissolve the protective inner mucus layer. Defects in renewal and formation of the inner mucus layer allow bacteria to reach the epithelium and have implications for the causes of colitis."
"Ulcerative colitis as a polymicrobial infection characterized by sustained broken mucus barrier." World Journal of Gastroenterology. 2014 Jul 28; 20(28): 9468-9475. PMC4110578. doi:10.3748/wjg.v20.i28.9468.

"Three different clinical entities may coexist or be combined and inclusively called RP [rectal prolapse]: the mucosal prolapse (partial or pseudoprolapse), the internal prolapse (rectal intussusception) and the full thickness RP (complete or true). The mucosal prolapse concerns the protrusion of the rectal mucosa usually as a result of a lesion such as [prolapsed] hemorrhoids or polyps. Internal intussusception may be a full thickness or a partial wall disorder but the prolapsed tissue does not pass beyond the anal canal. Lastly, full thickness RP is a complete protrusion of the rectum (and/or the sigmoid) with its entire wall through the anus. Its course is usually progressive; initially it is reducible spontaneously, later manually and is finally irreducible. In any stage it may be complicated by incarceration and strangulation."
"Perineal rectosigmoidectomy for gangrenous rectal prolapse." World Journal of Gastroenterology. 2010 June 7; 16(21): 2689-2691. PMC2880784. doi:10.3748/wjg.v16.i21.2689.

"The precipitating factors in the development of complete rectal prolapse are not completely understood. Various theories have been put forth to explain the cause(s) of the prolapse. These include poor bowel habits, relaxation of the rectal suspensory ligaments, sliding herniation of a deep pouch of Douglas, and rectal wall intussusception. In 1968, Brodén and Snellman utilized cinedefecography to illustrate that rectal prolapse was in fact a full-thickness intussusception starting 8 to 10 cm above the

dentate line and terminating beyond the anal verge. Internal intussusception, defined as prolapse that does not project beyond the anal sphincter complex, is often demonstrated by defecography in otherwise normal patients without evidence of full-thickness rectal prolapse. Whether or not this internal intussusception represents an early finding in patients who eventually develop full-thickness prolapse is unclear. The inciting event may in fact be a result of a combination of factors related to functional disorders in the pelvic floor support mechanism, the abdominal wall musculature, and the anal sphincter complex. Numerous anatomic abnormalities are associated with rectal prolapse, and include an abnormally deep pouch of Douglas, lax and atonic muscles of the pelvic floor, weak anal sphincter muscles, nonrelaxing puborectalis, and poor sacral and lateral ligament fixation of the rectum."

"From a functional standpoint, 50 to 75% of patients with rectal prolapse exhibit fecal incontinence. This may be due to traumatic stretch injury to the sphincter complex, a finding that has been supported by endosonography. Alternatively, continuous stimulation of the rectoanal inhibitory reflex by the prolapse leads to chronic low internal anal sphincter pressures. This theory is supported by manometric studies comparing patients with fecal incontinence and rectal prolapse with patients with neurogenic fecal incontinence and with normal subjects that demonstrate the low resting pressures in patients with fecal incontinence and rectal prolapse. Fortunately, continence improves significantly after the repair of rectal prolapse, probably because of improvements in internal anal sphincter function."

... "Patients are usually aware of the prolapsing rectum unless they are at the very extremes of age. The prolapse initially occurs while evacuating the rectum or while straining but reduces spontaneously. Eventually the prolapse becomes more chronic, requiring manual reduction and making even the simplest of daily activities difficult. Patients frequently complain of mucous drainage, bleeding, soilage, incontinence, and rarely pain. Women may complain of concomitant anterior pelvic organ prolapse. Examination of the perineum often reveals soilage with a patulous anus. Rectal tone is often poor or absent. Proctoscopy should be performed to rule out neoplasia as a cause of the prolapse. Colonoscopy (or barium enema) should be scheduled if not recently performed. If the prolapse is not readily appreciated in the prone-jackknife or left lateral decubitus position, the patient should be asked to strain on the toilet. The prolapse can be viewed by a placing a small telescoping mirror beneath the patient. Rectal prolapse must be differentiated from prolapsing internal hemorrhoids and from mucosal prolapse. The former [prolapsing internal hemorrhoids] is diagnosed when the folds of mucosa project in a radial fashion. In true rectal prolapse, the folds of mucosa are always concentric."

... "The recurrence rates following repair of rectal prolapse have been reported to be as high as 29% and vary greatly between series and institutions. Recurrences tend to occur early after repair, with a mean interval of 24 to 44 months in larger series and close to one third occurring in the first 7 months. Recurrence has occurred up to 14 years after initial repair. Although the results of some studies suggest equivalent rates of recurrence between abdominal and perineal approaches to prolapse repair, the majority demonstrate higher rates of recurrence for the perineal approach. The cause of recurrent rectal prolapse is difficult to determine but often thought to be technical. Late recurrences suggest that alternative mechanisms, including inherent patient-related factors, may play a role."

"Benign Anorectal Conditions: Rectal Prolapse." Clinics in Colon and Rectal Surgery. 2007 May; 20(2): 125-132. PMC2780179. doi:10.1055/s-2007-977491.

"Increasing age was significantly associated with a weakening of anal function... Age leads to a consistent reduction in anal function and this is likely to increase the risk of faecal incontinence in old age. From the current data we suggest that in normal women with an uncomplicated obstetric history increasing age is associated with significant changes in anal function whereas long-term effects of vaginal deliveries play a minor role. Moreover our results suggest gradual changes throughout adult life, rather than large changes occurring after menopause."

"Effects of age on anal function in normal women." International Journal of Colorectal Disease. 1997; 12(4): 225-9. PMID 9272452. doi:10.1007/s003840050094.

"Anal sphincter complex muscles, the internal anal sphincter, external anal sphincter, and puborectalis muscles, play an important role in the anal continence mechanism. Patients with symptoms of fecal incontinence have weak anal sphincter complex muscles; however, their length-tension properties and relationship to anatomical disruption have never been studied."
... "The prevalence of injury to sphincter muscles is significantly greater in the incontinent patients than in the controls. Eighty-five percent of patients but only 9% controls reveal damage to ≥2 of the 3 muscles of the anal sphincter complex. Anal and vaginal squeeze pressures increased with the increase in the probe size (length-tension curve) in the majority of controls. In patients, the increase in anal and vaginal squeeze pressures was either significantly smaller than in controls or it decreased with the increasing probe size (abnormal length-tension)."
"Anatomical disruption and length-tension dysfunction of anal sphincter complex muscles in women with fecal incontinence." Diseases of the Colon and Rectum. 2013 Nov; 56(11): 1282-9. PMID 24105004. doi:10.1097/dcr.0b013e3182a18e87.

"Any break in the ring of the internal sphincter is abnormal, and easily recognized on endosonography. Examination of patients after lateral internal anal sphincterotomy has confirmed that sonographic defects correspond to the site of surgical division. After anal dilatation or stretch procedures there may be multiple defects or fragmentation of the sphincter. A number of studies have confirmed a fall in resting pressure with internal sphincter disruption."
... "Endosonography has made a contribution to the prevention of incontinence by showing exactly what procedures are associated with sphincter damage. Manual dilatation of the anus during anaesthesia is comparatively uncontrolled, and the internal sphincter may be damaged in more than half the patients undergoing such stretch procedures. In 32 consecutive cases sphincter defects were found in 65% with some degree of anal incontinence in 12.5%. The alternative procedure of lateral internal anal sphincterotomy, though more precise is not without risk. The operative objective is to divide the distal third of the internal sphincter up to the level of the dentate line. Endosonography has shown that this is achieved in men, but in women the shorter [anatomical] anal canal may result in a more extensive sphincterotomy than intended."
"Anal endosonography in faecal incontinence." Gut. 1995 Jul; 37(1): 4-6. PMC1382758. doi:10.1136/gut.37.1.4.

"The anal canal is ringed by the internal and external anal sphincter muscles. The internal anal sphincter (IAS) consists of a thickened continuation of the circular smooth muscle layer of the rectum and is innervated by the enteric nervous system and both sympathetic and parasympathetic nerves. It is tonically contracted and accounts for 80% to 85% of the anal canal resting pressure. The IAS relaxes transiently in response to rectal distension and this relaxation reflex, mediated by enteric nerves, is not under voluntary control. The external anal sphincter (EAS) consists of a striated muscle with somatic innervation from the pudendal nerve. The EAS represents the voluntary component of fecal continence. Contraction of this muscle approximately doubles the pressure in the anal canal, but this can only be maintained for a few minutes. A spinal reflex causes the EAS to contract during sudden increases in intra-abdominal pressure, such as coughing, thereby helping to maintain continence."
"The puborectalis muscle is another component of voluntary control of fecal continence. It is a striated muscle with somatic innervation from the pelvic branches of the S3 and S4 pudendal nerves. The puborectalis muscle wraps around the rectum and inserts on the symphysis pubis. It thus creates the anorectal angle (normally 60° to 105°) which further slows the progress of stool to the anal canal. The puborectalis muscle functions with both tonic contraction and voluntary control. The EAS and

puborectalis are unique skeletal muscles in that they both have tonic activity even at rest, thus allowing the tonically contracted EAS to provide 15% to 20% of the resting tone of the anal sphincter. These muscles only completely relax during defecation straining."
"Investigating and treating fecal incontinence: When and how." Canadian Journal of Gastroenterology. Apr 2009; 23(4): 301-308. PMC2711681. doi:10.1155/2009/905359.

"The [surgical] anal canal is defined as the caudal part of the large intestine extending from the anorectal ring to the anal verge and is ~3 to 5 cm in length. Outside of the anal verge lies the anal margin, also referred to as the perianal skin, which commonly encompasses a radius of 5 cm. The anal verge can be identified visually as the part of the anal canal remaining closed when the buttocks are gently retracted. The upper anal canal is lined by columnar tissue that transitions into squamous epithelium at the dentate line. The dentate line, identified by the termination of the anal columns, lies 1 to 2 cm above the anal verge."
"Neoplasms of Anal Canal and Perianal Skin." Clinics in Colon and Rectal Surgery. 2011 March; 24(1): 54-63. PMC3140334. doi:10.1055/s-0031-1272824.

"There are a number of commonly used definitions of the extent of the anal canal... The surgical anal canal varies from 3.0 to 5.3 cm in length and is on average slightly longer in the female. Pathologists typically define the anal canal as the area lying between the upper and lower borders of the internal anal sphincter whilst anatomists define the anal canal as lying between the dentate line and the anal verge."
Anus: Surgical Treatment and Pathology (2013) - Page 42

"Deep to (or surrounding) the internal anal sphincter lies the external anal sphincter, which consists of a cylindrical extension of the funnel-shaped striated or voluntary muscles of the pelvic floor. The external anal sphincter is primarily responsible for deferring defecation to a socially acceptable time and place. It takes on a somewhat slit like shape due to its attachment to the anococcygeal ligament posteriorly and the transverse perineal muscles of the perineal body anteriorly. The external anal sphincter extends slightly distal to the internal anal sphincter creating a palpable intersphincteric groove. The distal (or caudal) most aspect of the external anal sphincter is referred to as the subcutaneous external anal sphincter or corrugator cutis ani muscle and is responsible for the radially directed skin[ ]folds surrounding the anal opening."
... "The internal anal sphincter is arranged in an elliptical configuration creating the aforementioned anteroposterior slit of the anal canal at rest."
Handbook of Colorectal Surgery: Third Edition (2012) - Pages 341-342

=== Anorectal Risks 2 ===
"Proctologic complications of anal intercourse include allergic reactions to anal lubricants, prolapsed hemorrhoids, anal fistulas, and fissures. Rectosigmoid tears may result from fist, forearm, and foreign body penetration of the bowel."
"Sexually transmitted diseases and traumatic problems in homosexual men." Annals of Internal Medicine. 1980 Jun; 92(6): 805-8. doi:10.7326/0003-4819-92-6-805. (PMID 6992680) [PubMed text inconsistency]

"Frequent anal eroticism is associated with anorectal pain, ulcers or fissures, rectal prolapse or leakage, and [diseased] hemorrhoids."
Primary Care in Obstetrics and Gynecology: A Handbook for Clinicians (2008) - Page 408

"Dermatologists have evolved a long list of terms to describe the accumulation of blood in tissue. There are several ways in which blood can escape from a blood vessel and be deposited in the skin:

• Damage to the vessel wall, as through trauma or inflammation

... In the perianal region, the most common clinical hemorrhagic finding is a perianal hematoma, as the loose tissue of the region allows blood to accumulate more easily than in other sites. Most perianal hematomas are traumatic, caused by tissue or vessel damage during an operation, following the introduction of objects into the anus, associated with anal intercourse, or even as a result of increased straining and pressure during defecation."
Anorectal and Colon Diseases: Textbook and Color Atlas of Proctology (2012) - Page 128

"The anal canal has a triradiate lumen lined by three fibrovascular cushions of submucosal tissue. The cushions are suspended in the canal by a connective tissue framework derived from the internal anal sphincter and longitudinal muscle. Within each cushion is a venous plexus that is fed by arteriovenous communications. These specialised vascular structures allow for enlargement of the cushion to maintain fine continence. In health as in disease the anal cushions appear in the right anterior, right posterior, and left lateral positions."
"Fragmentation of the connective tissue supporting the cushions leads to their descent. This occurs with age and the passage of hard stools [or with anal insertions], which produce a shear [frictional sliding] force on the framework. Straining produces an increase in venous pressure and engorgement. The prolapsed cushion has an impaired venous return, which results in dilation of the plexus and venous stasis. Inflammation occurs with erosion of the cushion's epithelium, resulting in bleeding."
"[Diseased] Haemorrhoids result from the pathological changes in prolapsed anal cushions. This mechanism was proposed as the theory of sliding anal lining and has superseded notions that piles were a form of varicose veins."
"Managing haemorrhoids." British Medical Journal. 2003 October 11; 327(7419): 847-851. PMC214027. doi:10.1136/bmj.327.7419.847.

"Hemorrhoids are arteriovenous vascular plexuses that surround the distal rectum and anal canal. Hemorrhoids are present in all individuals from birth and become symptomatic when enlarged, inflamed, thrombosed, or prolapsed. The development of symptomatic hemorrhoids is related to a combination of factors including venous engorgement and weakening of the supportive scaffold of connective tissue that supports these vascular structures and the overlying mucosa."
... "Sometimes a thrombosed external hemorrhoid may be difficult to distinguish from a small perianal abscess. The thrombosed external hemorrhoids have a characteristic bluish color from the clot underlying the anoderm. Prolapsed internal hemorrhoids are distinguished from [diseased or temporarily engorged] external hemorrhoids in that the internal hemorrhoids are covered with mucosa and the external hemorrhoids are covered with anoderm."
"Hemorrhoids." Clinics in Colon and Rectal Surgery. 2007 May; 20(2): 77-85. PMC2780175. doi:10.1055/s-2007-977485.

"Haemorrhoidal disease is a frequently occurring entity in the western world and constitutes the most common proctologic disorder. Prevalence ranges from 4–10%. Hemorrhoids are highly vascular tissue in the submucosal space in the anal canal. They contribute to anal continence in providing complete closure of the anus. When haemorrhoidal tissue gives rise to symptoms, such as bleeding, prolapse or pruritis, one can speak of haemorrhoidal disease. Etiologic factors are multifactorial and include

prolonged straining, irregular bowel habits and heredity. Prolapsing internal haemorrhoids are classified according to their severity into four degrees."
"Treatment of grade III and IV haemorrhoidal disease with PPH or THD. A randomized trial on postoperative complications and short-term results." International Journal of Colorectal Disease. 2009 Dec; 24(12): 1401-5. doi:10.1007/s00384-009-0803-2. (PMID 19798507)

"Mechanical injury to connective tissue causes changes in collagen structure and material behaviour, but the role and mechanisms of molecular damage have not been established. In the case of mechanical subfailure damage, no apparent macroscale damage can be detected, yet this damage initiates and potentiates in pathological processes. Here, we utilize collagen hybridizing peptide (CHP), which binds unfolded collagen by triple helix formation, to detect molecular level subfailure damage to collagen in mechanically stretched rat tail tendon fascicle. Our results directly reveal that collagen triple helix unfolding occurs during tensile loading of collagenous tissues and thus is an important damage mechanism. Steered molecular dynamics simulations suggest that a likely mechanism for triple helix unfolding is intermolecular shearing of collagen α-chains. Our results elucidate a probable molecular failure mechanism associated with subfailure injuries, and demonstrate the potential of CHP targeting for diagnosis, treatment and monitoring of tissue disease and injury."
"Molecular level detection and localization of mechanical damage in collagen enabled by collagen hybridizing peptides." Nature Communications. 2017; 8: 14913. PMC5364439. doi:10.1038/ncomms14913.

"In this study, we focused on the unique vessels with smooth muscle dysplasia and sclerosing of internal hemorrhoids, and these vessels have not been well described in any published literatures, so we defined them to be myofibrotic malformation vessels (MMVs). The abnormal vessels in hemorrhoids are not accompanied with ulceration, and we have also found that the MMVs are indicators of the clinical stages of internal hemorrhoids in association with dysplasia of the muscularis mucosa by microscopic analysis combined with the histochemical/immunohistochemical features of the tissues removed by hemorrhoidectomy. MMVs might cause recurrent bleeding and the prolapse of hemorrhoids."
... "The histological examination revealed that the remarkable malformed vessels that we defined as MMVs appeared in the internal hemorrhoidal tissues; the MMVs were not observed in the control cases. In the control group, capillaries were found in the mucosal propria, and discernable arteries were not found; the muscularis mucosa showed a uniform smooth muscle layer without interruption or thinning/thickening, with a mean thickness of 67.9 μm and SD value of 12.4 μm (mean +1.96 SD as referred to be abnormal thickness, more than 100 μm); the walls of the vessels are uniform, without smooth muscle dysplasia and fibrosis, and the vessels are easily classified into veins, arteries, or capillaries (Figure 1A). The MMVs were increased in the mucosae propria, muscularis mucosa, and submucosae of the tissues removed by hemorrhoidectomy. The muscularis mucosa became thin and loose with fibrotic deposition, which was divided by the intruding MMVs. The walls of the MMVs became partially or completely thickened with smooth muscle dysplasia or sclerotic deposition. The MMVs had tortuous lumens, and it was difficult to classify them into veins or arteries. The MMVs in internal hemorrhoidal tissue were embedded in the connective tissues without ulceration. These changes were increasingly remarkable under microscopic observation in the Masson’s trichrome testing, CD34, and smooth muscle actin staining from degree I to III hemorrhoids (Figure 1B–D). Figure 1E shows enlarged and tortuous lumen with fibrotic wall and dysplasia of smooth muscle cells in degree III hemorrhoids. Pathological changes were not found in the walls of the arteries and veins in the control group and the hemorrhoidal tissues, and the amount of normal veins or arteries in the submucosae were not associated with the degrees of hemorrhoids (P=0.050, 0.453, Table 2)."

"Myofibrotic malformation vessels: unique angiodysplasia toward the progression of hemorrhoidal disease." Drug Design, Development, and Therapy. 2015; 9: 4649-4656. PMC4541538. doi:10.2147/DDDT.S90209.

"Anal fissures are common among male homosexuals, presumably as a consequence of traumatic anal intercourse. However, numerous anal and perianal ulcers occur in these individuals that may pose a problem in differential diagnosis. Certainly, a primary syphilitic chancre may be confused with anal fissure."
Colon and Rectal Surgery (2005) - Page 274

"Skin tags are often confused with symptomatic hemorrhoids. A skin tag is redundant fibrotic skin at the anal verge, often persisting as the residual of a thrombosed external hemorrhoid."
... "An anal fissure is a cut or split in the epithelial lining of the anal canal distal to the dentate line. A chronic anal fissure is usually categorized when the fissure fails to heal within 6-8 wk. Chronic fissures develop ulceration and heaped-up edges with exposure of the internal anal sphincter fiber at the base of the ulcer. There is often an associated external skin tag and/or an internal hypertrophied anal papilla."
"What every gastroenterologist needs to know about common anorectal disorders." World Journal of Gastroenterology. 2009 July 14; 15(26): 3201-3209. PMC2710774. doi:10.3748/wjg.15.3201.

"[Anal stenosis is] abnormal narrowing of the anal opening and/or anal canal... The most common form of anal stenosis arises from trauma, such as hemorrhoid operations, ... or recurrent and persistent trauma in connection with anal sex... Strictures may develop in relation to a chronic anal fissure."
Textbook of Anal Diseases (1998) - Page 140

"Proctitis is inflammation of the lining of the rectum. The rectum is a muscular tube that's connected to the end of your colon."
... "Proctitis symptoms can be short-lived, or they can become chronic."
... "Proctitis that isn't treated or that doesn't respond to treatment may lead to complications, including:
• Anemia. Chronic bleeding from your rectum can cause anemia. With anemia, you don't have enough red blood cells to carry adequate oxygen to your tissues. Anemia causes you to feel tired, and you may also experience dizziness, shortness of breath, headache, pale skin and irritability.
• Ulcers. Chronic inflammation in the rectum can lead to open sores (ulcers) on the inside lining of the rectum.
• Fistulas. Sometimes ulcers extend completely through the intestinal wall, creating a fistula, an abnormal connection that can occur between different parts of your intestine, between your intestine and skin, or between your intestine and other organs, such as the bladder and vagina."
https://web.archive.org/web/20201205122653/https://www.mayoclinic.org/diseases-conditions/proctitis/symptoms-causes/syc-20376933

"Anal intercourse is the main mode of transmission of pathogens causing proctitis, whereas anal/oral activities promote proctocolitis, colitis and enteritis. Giardia lamblia infection has been reported in promiscuous homosexual males. Symptoms of proctitis may include anorectal pain, tenesmus, constipation, bloody stools or mucopurulent discharge. Findings with sigmoidoscopy may include erythema, friability or ulceration within the first 15 cm of the rectal mucosa. The inflammation is usually due to direct inoculation of N gonorrhoeae, C trachomatis or herpes simplex virus (HSV). Treponema pallidum results in a focal, usually painless ulceration with little or no surrounding inflammation. Human papilloma virus results in wart-like lesions or dysplasia, but rarely inflammation. Symptoms of colitis or enteritis may include diarrhea, abdominal pain, bloating, cramps, nausea or fever. The colon beyond the rectal mucosa may be inflamed; this may be due to infection with

organisms not usually sexually transmitted, such as Entamoeba histolytica, Campylobacter or Shigella species, Clostridium difficile or Escherichia coli. In patients with HIV infection, other pathogens may be involved, such as Cryptosporidium, Isospora, Microsporidia, Mycobacterium avium complex or Salmonella species. Stools and anal or rectal swabs are appropriate for laboratory investigation. If anal ulcers are observed, material should be collected for HSV, syphilis culture or NAA testing."
"Syndromes associated with sexually transmitted infections." The Canadian Journal of Infectious Diseases and Medical Microbiology. 2005 Jan-Feb; 16(1): 13-14. PMC2095003. doi:10.1155/2005/216365.

"Although much of the proctitis in this population [of homosexual men in 'a major study'] is infectious in origin, culture-negative proctitis occurs with some frequency and has been linked to exposure to the coloring agents and scents found in some of the lubricants used for anal intercourse."
Primary Care Medicine: Office Evaluation and Management of the Adult Patient (2009) - Page 528

"Traumatic proctitis occurs from trauma including rectal prolapse, assault, enemas, manual disimpaction, or anal intercourse. It may also result from chemical irritants. This is usually discovered on anoscopy. As with anal ulcers from other etiologies, a biopsy to exclude malignancy must be obtained and treatment includes high-fiber diet, stool softeners, and warm sitz baths. Traumatic proctitis generally heals with discontinuation of the irritant."
Essentials of Emergency Medicine (2010) - Page 96

"N-9 [spermicide], used in this study as a chemical stressor, is associated with inflammatory changes evidenced by colposcopically visible erythema, proinflammatory cytokine release, and lamina propria CD8+ lymphocyte and macrophage infiltration. These changes may occur in the absence of visible mucosal damage, although erosions are also seen. Phillips et al have demonstrated that rectal administration of N-9 is associated with shedding of sheets of epithelia (the single layer of cells lining the rectal mucosal surface) 15 minutes after dosing, possibly increasing the likelihood of HIV transmission. Epithelial repair from a single dose of N-9 also occurs rapidly, with an intact epithelial barrier observed 2 hours after N-9 administration and an epithelial appearance indistinguishable from baseline by 8 hours after administration."
"Sigmoidoscopic sampling of the colonic mucosa, with or without simulated coital activity, may be performed during microbicide development to understand the pharmacokinetics or toxicity of a candidate microbicide or vehicle. Even without the trauma of endoscopic biopsies, endoscopy has been observed to occasionally induce submucosal bruising, with elevation of the mucosal layer and submucosal hemorrhage. Furthermore, the shearing and compressive forces associated with rectal intercourse might alter the epithelial layer. During rectal microbicide development, it is essential to understand whether such procedures or coital shearing stress may adversely affect the rectum by altering mucosal permeability, so that one can appropriately interpret the effects of topical microbicides on the mucosal lining of the distal colon."
"Quantitative Assessment of Altered Rectal Mucosal Permeability Due to Rectally Applied Nonoxynol-9, Biopsy, and Simulated Intercourse." The Journal of Infectious Diseases. 2013 May 1; 207(9): 1389-1396. PMC3693591. doi:10.1093/infdis/jit030.

"The results of this study show that many of the top-selling brands of water-based sexual lubricants available in SA [South Africa] are hyperosmolar. Given that hyperosmolar products have been shown in vitro and in vivo to cause epithelial injury, they may have the potential to increase HIV acquisition and transmission, if they are used during UAI [unprotected anal intercourse]. Awareness needs to be raised about the mucosal safety of lubricants designed for use during anal sex."

"Sexual lubricants in South Africa may potentially disrupt mucosal surfaces and increase HIV transmission risk among men who have sex with men." South African Medical Journal. 2013 Oct 11; 104(1): 49-51. PMID 24388089. doi:10.7196/samj.7002.

"The vagina possesses its own inherent defense mechanisms including the multilayered squamous epithelium which acts as a natural barrier to infection, the hydrogen peroxide producing vaginal flora (Lactobacillus) which maintains an acidic environmental pH, mucus which provides a physical barrier to virus transport, and the production of a variety of antimicrobial and innate defense molecules which directly and indirectly inactivate virus or suppress infection and virus replication."
... "The vulnerability of the fragile intestinal mucosa to HIV transmission yields a 20-fold greater infection risk per sex act compared to the infection risk from unprotected vaginal intercourse. Furthermore, the rectum, unlike the vagina, is an open ended, fragile, and poor barrier to pathogens, resulting in an increased risk of infection during URAI [unprotective receptive anal intercourse]. The mucosa accounts for approximately 10% of the colorectal wall thickness and is comprised of single layered epithelium, lamina propria, and muscularis mucosa... The fragile nature of the rectum makes it more susceptible to tears and damage during receptive anal intercourse (RAI) which also promotes infection."
... "There are some profound differences in the vaginal and rectal compartments that warrant the use of differently formulated products for each. Several safety studies have been performed evaluating the toxicity of vaginal gels in the rectal compartment. The results of these studies led to the design of microbicides specifically for rectal administration. One of the key differences in the design of these gels is that vaginal microbicides tend to be hyperosmolar resulting in a gel that is more concentrated than body fluid and ultimately one that will lead to rectal mucosal damage as they will swell with rectal application. Rectal microbicides will need to be isoosmolar to circumvent this potential problem. Additionally the surface area requiring protection by a rectal microbicide is much larger than that of the vagina since it is an open cavity, and the microbicide must be formulated so there is adequate protection in the areas where infectious virus and virus-infected cells in semen migrate."
"Factors Important to the Prioritization and Development of Successful Topical Microbicides for HIV-1." Molecular Biology International. 2012; 2012: 781305. PMC3403474. doi:10.1155/2012/781305.

"RFB [rectal foreign bodies] may cause long-term complications including rectal inflammation, perforation and resultant peritonitis, perirectal abscess, and fistulae."
"Anorectal Injuries due to Foreign Bodies: Case Reports and Review of the Management Options." Case Reports in Surgery. 2013; 2013: 809592. PMC3603618. doi:10.1155/2013/809592.

"Humans harbour nearly 100 trillion intestinal bacteria that are essential for health. Millions of years of co-evolution have moulded this human-microorganism interaction into a symbiotic relationship in which gut bacteria make essential contributions to human nutrient metabolism and in return occupy a nutrient-rich environment. Although intestinal microorganisms carry out essential functions for their hosts, they pose a constant threat of invasion owing to their sheer numbers and the large intestinal surface area. In this Review, we discuss the unique adaptations of the intestinal immune system that maintain homeostatic interactions with a diverse resident microbiota."
"Immune adaptations that maintain homeostasis with the intestinal microbiota." Nature Reviews Immunology. 2010 Mar; 10(3): 159-69. PMID 20182457. doi:10.1038/nri2710.

"The mucus layer is considered the first line of defense between the bacteria in the lumen and the host cells, and also serves as the initiation surface for host-microbe interactions. The GI-tract contains a complex ecosystem that is composed of trillions of microbial cells. Bacteria associated with mucus probably gain an advantage over the luminal or planktonic bacteria. Indeed, bacteria colonizing the

mucus gel are less susceptible to elimination by the passage of luminal contents, and have increased access to carbon sources provided by the mucus layer, compared to luminal bacteria. The mucus has a dual role in relation to microbiota; it protects the underlying mucosa from undesired interactions with microbes such as pathogens; besides it provides an initial adhesion site, nutrient source, and matrix on (and/or in) which bacteria can proliferate and thrive (Fig. 2). This dualistic role of mucins, i.e., keeping the bacteria at bay and at the same time provide attachment sites, has been noted earlier by Van Klinken et al."
"Mucin-bacterial interactions in the human oral cavity and digestive tract." Gut Microbes. 2010 Jul-Aug; 1(4): 254-268. PMC3023607. doi:10.4161/gmic.1.4.12778.

"Recently, numerous studies have shown that disruption of the mucus barrier plays an important role in the exacerbation of inflammatory bowel disease, particularly in ulcerative colitis."
... "With the implementation of new technologies, such as fluorescence in situ hybridization and Carnoy's fixation, the composition and function of the mucus barrier between the intestinal microbiota and the intestinal epithelium were able to be investigated more fully. The small intestine has one layer of unattached mucus and directly forms a soluble mucus gel. The mucus thus form a meshed matrix where the diffusion of large components or organisms is slow, and smaller digested nutrients pass more easily and reach the epithelial cells for uptake. The mucus acts as a matrix and antimicrobial products secreted from the epithelial cells can diffuse into this matrix and by this mechanism, limit the contact of microorganism with the cell surface. Colonic mucus consists of two layers: an inner "firmly" adherent mucus layer forms the physical barrier against bacteria, and outer "loose" non-adherent mucus layer generates the preferred habitat for the commensal microbes. Goblet cells secrete mucus into the inner mucus layer through so-called compound exocytosis, and the inner layer transforms into the outer layer. An estimate of the turnover of the inner mucus layer in live murine distal colonic tissue is fast, approximately 1–2 h, which is important for maintaining this inner mucus layer free from bacteria. The secretion of mucin from the apical surface is normally constitutive but increases in response to a variety of external stimuli, which helps to reinforce the barrier and flush bacteria from the normally sterile crypts. It was reported that mucin secretion was markedly increased in mice during infection compared to uninfected controls. Goblet cells in the upper crypt do not seem to synthesize enough mucin to meet a constant stimulus because the replenishment of new goblet cells is too slow (longer than 4–5 h) to replace or refill these mucin filled cells. This suggests that continuous stress will limit mucin availability and result in mucus defects."
... "It has been shown that in UC [ulcerative colitis] patients, the degree of mucosal inflammation correlates significantly with a decrease in MUC2 synthesis and secretion, implying that the thickness of the mucus gel is affected by the severity of UC. During active inflammation, the mucus layer thickness is reduced, the goblet cell population is depleted, and individual goblet cells contain less mucin than in healthy controls. Theodossi A et al., found that during periods of disease remission both the number and appearance of goblet cells return to normal. In addition, the disease course also influences the mucus barrier. Rectal biopsies of 59 UC patients showed that there was no global change of mucus protection until severe UC. As a consequence of large regions lacking mucus, the mucus layer was less effective due to decreased thickness, a loss of goblet cells and decreased secretory potential. Larsson and colleagues found significant alterations in MUC2 O-glycosylation with the most severe patient phenotype and that the glycan pattern reverted to normal when in remission. In active disease, there was a marked shift towards smaller glycans, but the MUC2 glycosylation patterns were similar in controls and UC patients in remission, which indicated that the magnitude of this shift of mucus quality was also significantly correlated with both the degree of inflammation and disease course."
"Therapeutic Potential to Modify the Mucus Barrier in Inflammatory Bowel Disease." Nutrients. 2016 Jan; 8(1): 44. PMC4728657. doi:10.3390/nu8010044.

"Anal intercourse may cause mucosal damage that introduces sepsis beneath that layer with subsequent fistula formation."
Immunology for Surgeons (2002) - Page 80

"Treatment of anorectal sepsis requires prompt surgical drainage, but it is important to identify any associated anal fistula for preventing recurrence. We evaluated whether microbiological analysis and/or endoanal ultrasonography could be used to predict anal fistula in patients with acute anorectal sepsis... Anorectal abscess with anal fistula was found in 418 patients, and anorectal abscess without anal fistula was found in 96 patients. Microbiological examination showed that Escherichia coli, Bacteroides, Bacillus, and Klebsiella species were significantly more prevalent in patients with fistula ($P<0.01$), and coagulase-negative Staphylococci and Peptostreptococcus species were significantly more prevalent in patients without fistula ($P<0.01$). Results of endoanal ultrasonography were concordant with the definitive surgical diagnosis in 421 (94%) of 448 patients studied."
"Microbiological analysis and endoanal ultrasonography for diagnosis of anal fistula in acute anorectal sepsis." International Journal of Colorectal Disease. 2007 Feb; 22(2): 209-13. PMID 16601946. doi:10.1007/s00384-006-0121-x.

"Midway up the [surgical] anal canal lies the dentate line (pectinate line). This marks the true mucocutaneous junction between somatically innervated squamous epithelium distally and the viscerally innervated columnar epithelium proximally."
... "A fistula-in-ano represents the chronic phase of ongoing perirectal sepsis. A previous history of perirectal abscess, drained either spontaneously or surgically, can usually be elicited. Patients often report a cyclical pattern of pain, swelling, and drainage. Moisture can cause skin irritation, excoriation, and pruritus. Crohn's disease should be excluded in a fistula patient reporting a history of chronic diarrhea or abdominal pain."
"Physical examination usually identifies one or more external openings with or without granulation tissue. Occasionally, the external opening may be subtle and appreciated only after closer inspection of an indurated area. Palpation may elicit tenderness, expression of pus, and a fibrotic cord extending in toward the anus."
"Perianal Abscess/Fistula Disease." Clinics in Colon and Rectal Surgery. 2007 May; 20(2): 102-109. PMC2780182. doi:10.1055/s-2007-977488.

"Chronic anal fissures have traditionally been managed with lateral internal sphincterotomy or anal dilatation. Sphincterotomy, however, has been associated with incontinence in up to 35% of patients. Furthermore, this does not take into account normal weakening of the sphincter with age as well as the possibility of future anorectal surgery or obstetrical trauma [or erotic anoreceptive trauma]. The risk of incontinence therefore is lifelong, to an often young, otherwise healthy person. Dilatation of the anal canal has also been associated with sphincteric tears and subsequent incontinence."
"Nonsurgical treatment of chronic anal fissure: nitroglycerin and dilatation versus nifedipine and botulinum toxin." Canadian Journal of Surgery. 2006 February; 49(1): 41-45. PMC3207506.

"Fecal incontinence may present as a late complication of anal fissure surgery. Incontinence may be associated with other cofactors accumulating over time or, more likely, anal fissure surgery may accelerate the physiologic age-related weakening of the anal sphincter mechanism."
"Delayed fecal incontinence following surgery for anal fissure." International Journal of Colorectal Disease. 2011 Dec; 26(12): 1595-9. PMID 21805112. doi:10.1007/s00384-011-1284-7.

"The internal anal sphincter (IAS) is anatomically continuous with the rectal circular muscle and forms a complete cylinder of muscle around the anal canal. As a smooth muscle structure, it is capable of

maintaining a continuous tonic state, with little problem of fatigue. It is the single most important contributor to anal resting pressure. By contrast, the external anal sphincter makes only a small contribution to resting pressure but may be recruited during periods of increased risk to continence, such as occurs during coughing or straining."
... "Manual dilatation of the anus is falling out of favour as a procedure. Incontinence may be seen in around one-quarter of patients. Endo-anal ultrasound demonstrates sphincter defects in a substantial number of patients, with fragmentation of the IAS being the most common abnormality."
"Towards Safer Treatments for Benign Anorectal Disease: The Pharmacological Manipulation of the Internal Anal Sphincter." Annals of The Royal College of Surgeons of England. 2007 September; 89(6): 574-579. PMC2121247. doi:10.1308/003588407x205576.

"A rectal prolapse is distinguished from an anal prolapse by the prolapse of the complete rectal wall. The differentiation can be made by bidigital rectal examination. The double wall of the rectum is felt in rectal prolapse, but only the double mucosa in anal prolapse. Rectal prolapse is often associated with symptoms of fecal incontinence. In most cases low tone [tension] of the sphincters is found."
Integrated Medical and Surgical Gastroenterology (2005) - Page 381

"Rectal prolapse involves intussusception of bowel, and is characterized by protrusion of all layers of the rectum through the anus. It may be confused with [prolapsed] hemorrhoids, and it is important to note that rectal prolapse involves concentric protrusion whereas a prolapsed hemorrhoid is a radial bulging of veins in the anal region."
"Case report: Sigmoid strangulation from evisceration through a perforated rectal prolapse ulcer – An unusual complication of rectal prolapse." International Journal of Surgery Case Reports. 2015; 10: 238-240. PMC4429951. doi:10.1016/j.ijscr.2015.02.003.

"Rectal prolapse (procidentia) is the protrusion of full thickness rectal wall through the anal canal. It is a relatively rare condition. Although rectal prolapse was described in Ebers Papyrus in 1500 BC, the etio-pathogenesis remains an enigma. Proposed etiologies [causes] include pregnancy, perineal nerve injury, chronic constipation straining, neurologic and psychiatric disorders, and other conditions resulting in increased intra-abdominal pressure."
"Evaluation of Clinical Outcomes after Abdominal Rectopexy and Delorme's Procedure for Rectal Prolapse: A Prospective Study." Journal of Clinical and Diagnostic Research. 2014 May; 8(5): NC04-NC07. PMC4080029. doi:10.7860/jcdr/2014/7787.4353.

"At the beginning, the [rectal] prolapse only occurs during defecation and is easy to reduce. Later, as the patient begins to suffer from incontinence, being unable to retain gas and then later stool, the rectal wall may prolapse with coughing, sneezing, or simply with standing and walking... Additional complications include ulcerations, prominent bleeding, thromboses, and if the sphincter tone is maintained, bowel incarceration with necrosis and even gangrene, mandating an emergency operation."
Anorectal and Colon Diseases: Textbook and Color Atlas of Proctology (2003) - Page 85

"The mechanism of fecal continence is extremely complex despite the simplicity that physicians often ascribe to it. The sphincter mechanism requires the ability to discriminate between solid, liquid, and gas; voluntarily allowing for the passage of one while holding the other components. Treating fecal incontinence requires an understanding of this complex pelvic floor musculature, innervation, and function, as well as what mechanisms must be present to ensure continence. The internal and external sphincters and the puborectalis muscle comprise the sphincter mechanism. The internal anal sphincter is a continuation of the circular, smooth, involuntary muscle of the rectum that accounts for the resting tone of the anus. The rectoanal inhibitory reflex allows the internal sphincter to relax in response to

rectal distension, preparing the anal canal for defecation. The external anal sphincter provides voluntary control over defecation and provides the squeezing pressure measured by anal manometry. The puborectalis is a U-shaped muscle that controls the rectoanal angle that increases during defecation. Both parasympathetic and sympathetic nerves provide the innervation of this sphincter complex. The pudendal nerve innervates both the puborectalis and external anal sphincters and when neurogenic incontinence is present, latency of this nerve can be detected."
... "Anorectal disease is a significant risk factor for incontinence, including [diseased] hemorrhoids, fissure or fistulae even without surgical intervention. Mucosal or full rectal prolapse may stent the anal canal open and stretch the sphincters, leading to their dysfunction. Other colorectal conditions may be associated with FI [fecal incontinence] such as inflammatory bowel disease, malignancies, or infectious diseases. Along with anorectal conditions, surgery for these disorders is a common causative factor of FI. A high incidence of soiling has been historically noted after internal sphincterotomy and fistulotomy (35–45%). The incidence of FI after these operations is due to numerous factors; however, if a well-planned, properly performed surgical procedure is done for the appropriately selected patient, the outcomes are much better with less resultant incontinence. FI can also result from hemorrhoidectomy, transanal advancement flaps or from internal sphincter dilation with a retractor. FI from hemorrhoidectomy is due to a poorly performed procedure with injury to the internal and possibly the external sphincters. Transanal excision with planned dilation of the anal sphincter can lead to uncontrolled, multiple tears of the sphincter mechanism."
"Fecal Incontinence: Etiology, Evaluation, and Treatment." Clinics in Colon and Rectal Surgery. 2011 March; 24(1): 64-70. PMC3140335. doi:10.1055/s-0031-1272825.

"... the subject should be asked to push and bear down as if to defecate. During this maneuver, the examiner should perceive relaxation of the external anal sphincter and/or the puborectalis muscle, together with perineal descent, and simultaneously a hand placed on the abdomen should feel a strong abdominal push effort. An absence of these normal findings should raise the index of suspicion for an evacuation disorder such as dyssynergic defecation."
"Diagnosis and Treatment of Dyssynergic Defecation." Journal of Neurogastroenterology and Motility. 2016 Jul; 22(3): 423-435. PMC4930297. doi:10.5056/jnm16060.

"The anal canal is an anteroposterior slit 3-4cm in length situated between the rectum above and the perianal skin below. Different workers use different anatomical landmarks to define its precise upper and lower limits; for example, pathologists tend to use the upper and lower borders of the internal anal sphincter, the definition which will be used in this account; while clinicians usually quote the level of the levator ani muscle (the site of the so-called anorectal angle) for the upper limit and the anal orifice for the lower; and anatomists frequently use the levels of the anal valves and the anal orifice, respectively."
Morson and Dawson's Gastrointestinal Pathology (2008) - Page 643

"The row of alternating anal columns and sinuses corresponds to the dentate line (pectinate line, crypt line) considered to be the junction between the endodermal (cloacal) and ectodermal (proctodeal) parts of the anal canal. Between the dentate line and the anocutaneous line extends the pale and delicate anoderm (squamous zone) for ca. 1.5 cm to the anal verge ("anatomical" anal canal). The anoderm is lined by a non-keratinised stratified squamous epithelium devoid of glands and hairs but richly equipped with sensory nerve endings highly sensitive to touch, pain, and temperature."
... "The longitudinal muscle layer of the rectum also changes its morphology approaching the anal canal. Diverging bundles of smooth muscle fibres extend between the internal and external anal sphincter towards the perianal region and are joined by striated muscle fibres from the puborectalis ("conjoined" longitudinal muscle). Distally, the muscular fibres become increasingly fibroelastic and

insert with small tendons in the perianal skin producing radial wrinkles ("corrugator" ani muscle). The most peripheral muscular septa radiate outwards and pass between the subcutaneous and superficial parts of the external anal sphincter into the ischioanal fossa."
Coloproctology (2008) - Pages 13-14

"The rectum extends from the dentate line to the sigmoid colon and is lined by columnar epithelium, as is the rest of the colon. The rectum is insensitive to pain caused by inflammation or damage to the mucosa and may be biopsied without the need for anesthetic agents. However, the rectum is able to appreciate the sensation of stretch, as with the urge to defecate, or with anorectal intercourse."
Sexually Transmitted Infections: Diagnosis, Management, and Treatment (2011) - Page 220

=== Anorectal Risks 3 ===
"Q: How do I make anal sex more comfortable?
A: Anal sex isn't pleasurable for everybody. Most women I hear from who want to make it more comfortable are having anal sex just to make their boyfriends happy. Are you kidding? If it hurts and it's awful, the answer should be, "Hey, dickhead, we're not doing this anymore." I'm telling you: Stop it, ladies!
If you have pain, your body is telling you something. There will be medical consequences. In the short term, there's the risk of tears, fissures, and fistulas. But I'm much more concerned about the long term. Go talk to a 75-year-old woman sometime who hasn't had anal sex, and you'll see that as you age, the rectal area has tons of problems associated with it anyway. You can get [diseased] hemorrhoids and abscesses, and the rectum can prolapse into the vagina [aka rectocele] or out of the anus — and that's without ever having anal sex. Yet you're setting yourself up for these things with this behavior! If you don't have pain with anal sex, then your body may be tolerating it, although you still run the risk of problems. I shudder to think what's going to happen to young women later on when they continue to have painful anal sex. —Drew Pinsky, M.D." (published February 19, 2000)
https://web.archive.org/web/20140408125813/http://www.marieclaire.com/sex-love/advice/sex-tips-pro

"An anal fissure is a defect in the epithelium of the anal canal from the ano-cutaneous border to the linea dentata [aka pectinate/dentate line]. Chronic fissures are characterised by a sentinel tag, hypert[r]ophic anal papillae, anal spasm, and/or fibrosis of the inner sphincter muscle. Chronic fissures are commonly seen at 6 o’clock with the patient in a recumbent position; fissures at any other position need further investigation as to the underlying cause. Possible causes are Crohn’s disease, anal intercourse, sexually transmitted disease, or anal carcinoma."
"Pharmacological Sphincterotomy for Chronic Anal Fissures by Botulinum Toxin A." Journal of Cutaneous and Aesthetic Surgery. 2008 Jul-Dec; 1(2): 58-63. PMC2840903. doi:10.4103/0974-2077.44160.

"Some of the possible complications of an anal fissure include:
• Chronic anal fissure – the tear fails to heal. Over time, this can cause extensive scar tissue at the site of the fissure (sentinel pile).
• Anal fistulas – abnormal ‘tunnels’ join the anal canal to surrounding organs, usually other parts of the bowel.
• Anal stenosis – the anal canal becomes abnormally narrowed either due to spasm of the anal sphincter or contraction of the resultant scar tissue."
https://web.archive.org/web/20201125052327/https://www.betterhealth.vic.gov.au/health/ConditionsAndTreatments/anal-fissure

"The recent advent of next generation sequencing techniques has greatly contributed to demonstrate that the human body harbours more than 1000 phylotypes at species-level, but most intestinal bacteria belong to just a few phyla. In adults, Bacteroidetes and Firmicutes usually dominate the intestinal microbiota, whereas Actinobacteria, Proteobacteria and Verrucomicrobia are in considerably minor proportion. Methanogenic archaea (represented by Methanobrevibacter smithii), eukaryotes (mainly yeast) and viruses (mainly bacteriophages) are also components of this microbiota."
"Intestinal microbiota in health and disease: Role of bifidobacteria in gut homeostasis." World Journal of Gastroenterology. 2014 Nov 7; 20(41): 15163-15176. PMC4223251. doi:10.3748/wjg.v20.i41.15163.

"Practically all types of faecal bacterial groups participate in the invasion of the mucosa when the barrier integrity is lost. It appears that the restitution of the intact mucus barrier is the only possibility to stop an inflammation in progress, to restore the immunological equilibrium and to maintain intestinal health."
"Comparative study of the intestinal mucus barrier in normal and inflamed colon." Gut. 2007 Mar; 56(3): 343-350. PMC1856798. doi:10.1136/gut.2006.098160.

"Anal intercourse (AI) without condoms represents one of the most efficient modes of sexual transmission of HIV and is a risk factor for the transmission of other sexually transmitted infections (STIs). A number of studies have raised concerns about the potential for rectal products used with AI to facilitate transmission of STIs including HIV. The COL-1492 trial provided evidence that vaginal application of Nonoxynol-9 (N9) was associated with increased risk of HIV infection, and further studies showed that rectal administration of N9 was associated with sloughing of rectal epithelia. Furthermore, in vitro and animal studies have demonstrated that some commercial lubricants may damage rectal tissue. In a clinical study, lubricant products caused short-term denudation of rectal epithelium, which was suggested to be induced by the lubricant’s osmotic effect on the rectal mucosa. Cell contact with hyperosmolar solutions (like many lubricants) can cause cells to dry up and collapse."
"Prevalence and types of rectal douches used for anal intercourse: results from an international survey." BMC Infectious Diseases. 2014; 14: 95. PMC4015843. doi:10.1186/1471-2334-14-95.

"The aspect of the rectal mucosa after administration of hypertonic [aka hyperosmolar] enemas is occasionally confused with the macroscopic appearance of quiescent ulcerative colitis. Criteria for a diagnosis of enema reaction were derived from a retrospective series and tested prospectively on 11 healthy volunteers. Photographs and biopsies were obtained before and after administration of a sodium phosphate hypertonic enema. Three observers evaluated blindly the "before" and "after" macroscopic and microscopic pictures, graded the features, and made an overall diagnosis. In random studies, two observers mistakenly classified a macroscopic picture, but all correct histologic diagnoses of "before" and "after" biopsies. In decreasing order of discriminating power, the following features of an enema reaction were found to be useful: separation and mucous depletion of the glands (no observer variation), increase in mucosal fragility in 91 per cent of cases (82--100 per cent), edema of the lamina propria in 88 per cent (73--100 per cent), straightening of the basal membrane in 82 per cent (73--91 per cent) and an increase in extruded mucus in 70 per cent (18--100 per cent). In 39 per cent of cases (36--45 per cent), erythrocytes appeared focally in the lamina propria. The effects of hypertonic enemas can be recognized on biopsy."
"Changes in the rectal mucosa induced by hypertonic enemas." Diseases of the Colon and Rectum. 1978 May-Jun; 21(4): 227-36. PMID 657932. doi:10.1007/bf02586697.

"Crohn's disease may present with isolated rectal involvement and may be initially indistinguishable from ulcerative proctitis. Physical findings which are suggestive of Crohn's disease include edematous anal tags, perianal suppurative disease, anal fissures (especially in atypical locations), and anal stenosis. Endoscopically the distribution of the proctitis may be patchy with ulcerations, either linear or aphthoid. Langevin and colleagues reported on 13 patients who had an initial diagnosis of idiopathic UC [ulcerative colitis] and subsequently were diagnosed with Crohn's disease. When compared with patients with ulcerative proctitis whose diagnosis did not change over time, there were no epidemiologic, clinical, or histopathologic criteria which predicted an ultimate diagnosis of Crohn's disease."
"A thorough history of sexual practices should be obtained because anoreceptive intercourse can lead to transmission of organisms causing proctitis."
"Ulcerative Proctitis." Clinics in Colon and Rectal Surgery. 2004 Feb; 17(1): 21-27. PMC2780078. doi:10.1055/s-2004-823067.

"Perirectal sepsis is a potentially severe complication which may follow minor anorectal intervention and be slow to be diagnosed and treated. We report the presentation and outcome of three patients with perirectal sepsis of differing aetiologies. Awareness of the possible diagnosis, urgent investigation with cross-sectional imaging and immediate treatment with broad-spectrum antibiotics is vital. However, radical surgical intervention may be necessary. This report highlights the importance of investigating patients with persistent pelvic pain after minor anorectal procedures or trauma and maintaining a high index of suspicion for this important complication."
... "Perirectal sepsis has been associated with a number of different treatments of haemorrhoids such as rubber band ligation, injection sclerotherapy, and following stapled haemorrhoidectomy. The cause of sepsis remains uncertain although rectal perforation causing faecal contamination of the sterile perirectal space has been demonstrated after stapled haemorrhoidectomy. Relatively innocuous surgical intervention, such as open haemorrhoidectomy or lateral anal sphincterotomy, may provide a portal of entry for bacteria that could explain local or indeed distant sepsis (e.g. infective endocarditis following rubber band ligation). Following haemorrhoidectomy, persistent postoperative pelvic pain for more than few weeks is rare and should be investigated thoroughly as it may be a manifestation of serious complication. In our third case, the patient re-presented, after open lateral sphincterotomy, complaining of pelvic pain radiating to the abdomen on the fourth postoperative day, which led to laparoscopy and appendicectomy. A subsequent CT examination revealed the perirectal source. Similar presenting symptoms have been reported by others. Pelvic pain following minor anorectal intervention associated with systemic signs of fever, rigor or leukocytosis, may suggest perirectal sepsis. Abdominal plain X-ray demonstrates soft tissue gas in 57% of cases. CT scan examination demonstrates the presence of sepsis (as retroperitoneal free gas or changes in mesorectal fat) in nearly all cases. Antimicrobial therapy should be initiated immediately and directed against both aerobes and anaerobes, as study of the aerobic and anaerobic microbiology of 23 retroperitoneal pelvic sepsis patients revealed that in 50% of cases both aerobes and anaerobes were recovered. This may explain why the patient in case 2 developed sepsis in spite of receiving postoperative metronidazole."
"Presentation and Management of Perirectal Sepsis." Annals of The Royal College of Surgeons of England. Jul 2008; 90(5): W4-W7. PMC2645747. doi:10.1308/147870808x303047.

"Eighty patients with anorectal sepsis were studied over three years. All abscesses were drained and pus was submitted for culture. If a fistula was found when the abscess was drained it was laid open otherwise a second examination under anaesthetic was performed within 7-10 days. In no case was sterile pus obtained. Gut aerobes, predominantly Escherichia coli, were isolated from 49 of 53 (92.5%) of patients with a fistula and 8 of 27 (29.6%) of those without. 'Gut-specific bacteroides' predominantly Bacteroides fragilis were isolated from 47 of 53 (88.7%) patients with a fistula and 5 of 27 (18.5%) of

those without. Anaerobes not specific to the gut, predominantly B. asaccharolyticus, B. ureolyticus, peptococci and peptostreptococci, in the absence of those specific to the gut, were isolated from 2 of 53 patients with a fistula (3.8%) and 17 of 27 (63%) of those without. Staphylococcus aureus was isolated from only 1 of 53 (1.9%) patients with a fistula but from 8 of 27 (29.6%) of those without. It is concluded that only patients with gut-specific organisms should be submitted to a second examination under anaesthetic and that culture of pus in anorectal sepsis is an essential part of its management."
"The relevance of microbiology in the management of anorectal sepsis." Annals of The Royal College of Surgeons of England. 1986 Sep; 68(5): 237-239. PMC2498325.

"Ischiorectal abscesses have been shown to form sinuses with various deep structures but continuity with the spinal canal is extremely rare."
... "A previously healthy sixty-five year old man presented emergently with rectal pain, weight loss and recurrent severe tension headaches. He had systemic sepsis and resultant coagulapathy (INR 3.4) which precluded investigation of neurological symptoms by lumbar puncture. MRI rectum demonstrated a well circumscribed fluid collection with direct connection to the spinal canal and containing meningeal tissue. It extended inferiorly to the right ischiorectal fossa and abutted the natal cleft. A radiological diagnosis of ischiorectal abscess which had become continuous with a previously existing anterior sacral myelomeningocoele (ASM) was made. He was treated with broad spectrum antibiotics and a neurosurgical opinion was sought. He remained clinically unwell (septic and coagulopathic) until the abscess fistulated through the perianal skin, draining pus mixed with clear fluid (likely CSF [undefined -- presumably cerebrospinal fluid]) at which point he improved systemically."
..."There are five types of anorectal abscesses described: perianal (60%), ischiorectal (30%), intersphincteric (5%), supralevator (4%) and submucosal (1%). Anorectal abscesses usually arise from infection of the cryptoglandular epithelium along the anal canal. In the case of an ischiorectal abscess, as occurred in our patient, it is believed that pathogenic organisms breach the barrier normally provided by the internal anal sphincter and traverse the crypts of Morgagni, gaining access to intersphincteric and ischiorectal spaces. A collection of pus forms and an abscess cavity is created."
"Beware the ischiorectal abscess." International Journal of Surgery Case Reports. 2013; 4(3): 299-301. PMC3604705. doi:10.1016/j.ijscr.2012.08.005.

"Defecation commonly begins with distention of the left colon by stool. Although the individual may not be aware of any discomfort, the colon responds to this distention by generating mass movement waves that carry the stool from the descending and sigmoid colon into the rectum. The rectal distention may or may not be sensed by the individual if the amount of stool entering the rectum is small. The reflex response to rectal distention is inhibition of the internal anal sphincter and contraction of the external anal sphincter."
"If it is a socially acceptable time for defecation, the individual assumes a squatting or seated position. This action straightens the anorectal angle and facilitates passage of stool. Intrarectal and intra-abdominal pressures then rise, resulting in reflex relaxation of the external and internal anal sphincters and puborectalis muscles. A conscious relaxation of the external anal sphincter also occurs. Some individuals may pass stool without straining. Others, however, must strain to initiate rectal emptying. Straining causes the external and internal anal sphincters and puborectalis muscles to relax further."
Handbook of Colorectal Surgery, Second Edition (2003) - Pages 25-26

"The authors measured the length of the surgical anal canal (anorectal ring to anal verge) in 108 men and 103 women; the age ranged from 18 to 90 years (average 59 years). The average length of the surgical anal canal was 4.2 cm (range 3.0-5.3 cm). In men the average length was 4.4 cm (range 3.2-5.3 cm) compared with the average length of 4.9 cm (range 3.0-5.0 cm) in women (P less than 0.001). The average length of the anatomic anal canal (dentate line to anal verge) was 2.1 cm (range 1.0-3.8 cm). In

men, the average length was 2.2 cm (range 1.4-3.8 cm), whereas in women the average length was 2.0 cm (range 1.0-3.2 cm) (P less than .01). The length of the anatomic anal canal has no relationship to the length of the surgical anal canal or vice versa (P less than 0.1). There was no statistically significant difference in the length of the surgical anal canal or the anatomic anal canal in persons below 60 years old versus those above in either sex (P greater than 0.01)."
"The length of the anal canal." Diseases of the Colon and Rectum. 1981 Nov-Dec; 24(8): 600-1. PMID 7318624. doi:10.1007/bf02605754.

"The rectal epithelium is an absorptive tissue with a delicate simple columnar epithelium. In sharp contrast, the human vagina is lined by a multilayered stratified squamous epithelium designed for the strain that can occur during sexual intercourse and childbirth."
"Relative Safety of Sexual Lubricants for Rectal Intercourse." Sexually Transmitted Diseases. 2004 Jun; 31(6): 346-9. doi:10.1097/00007435-200406000-00005. (PMID 15167643)

"The histology of tissue lining the [surgical] anal canal is varied. At the top of the anal canal is the columnar epithelium similar to that seen in the rectum. Distally, the anal canal is lined by anoderm. As mentioned above the anoderm is stratified squamous epithelium. The anoderm is thinner than skin and lacks hair follicles or sebaceous glands. The easily identified line that marks the proximal most extent of the anoderm is called the dentate line. Just above the dentate line is a transition zone that may contain columnar, transitional, and stratified squamous epithelium."
"Anal squamous cell carcinoma: An evolution in disease and management." World Journal of Gastroenterology. 2014 Sep 28; 20(36): 13052-13059. PMC4177484. doi:10.3748/wjg.v20.i36.13052.

"The lower aperture of the anal canal (or anus) is in the form of an anteroposterior slit, the right and left walls being in apposition."
Textbook of Anatomy: Volume 2: Thorax, Abdomen and Pelvis (2011) - Page 642

"Whereas the inner circular layer of the rectum gives rise to the internal anal sphincter, the outer longitudinal layer, at the level of the anorectal ring, mixes with fibers of the levator ani muscle to form the conjoined longitudinal muscle. This muscle descends between the internal and external anal sphincter, and ultimately some of its fibers, referred to as the corrugator cutis ani muscle, traverse the lowermost part of the external anal sphincter to insert into the perianal skin."
The ASCRS Manual of Colon and Rectal Surgery (2014) - Page 4

"The clinical and pathological findings in a group of 260 homosexual men comprising 10% of a private proctologic practice are reviewed. A clinical pattern of anorectal and colon diseases encountered with unusual frequency in these homosexual patients is termed the gay bowel syndrome. The clinical diagnoses in decreasing order of frequency include condyloma acuminata, [diseased] hemorrhoids, nonspecific proctitis, anal fistula, perirectal abscess, anal fissure, amebiasis, benign polyps, viral hepatitis, gonorrhea, syphilis, anorectal trauma and foreign bodies, shigellosis, rectal ulcers and lymphogranuloma venereum."
"The gay bowel syndrome: clinico-pathologic correlation in 260 cases." Annals of Clinical & Laboratory Science. 1976 Mar-Apr; 6(2): 184-92. PMID 946385.

"Patients may also insert dangerous objects into their rectum for erotic stimulation. In addition to the inherent risks of tearing, perforation, or losing the object, patients must also be aware of the risk of STIs that can spread when partners share toys. It is not uncommon for MSM to use (and occasionally abuse) enemas for hygiene or autoerotic activity. These practices and others may perforate or tear the delicate tissues in the anus and rectum and the patients should be counseled accordingly."

"Anorectal Sexually Transmitted Infections in Men Who Have Sex with Men—Special Considerations for Clinicians." Clinics in Colon and Rectal Surgery. 2004 November; 17(4): 235-239. PMC2780055. doi:10.1055/s-2004-836944.

"We describe a case of a 45-year-old white woman who sustained devastating homicidal colorectal trauma that served as a primary cause of death in the setting of rape. Our patient sustained a 15-cm laceration of the anterior rectal wall and ultimately died of peritonitis and sepsis. Death from rectal perforation and sepsis in the setting of sexual assault is rare and has only been documented in 3 other cases, 2 pediatric patients and 1 elderly debilitated patient. Other representative and unique methods of perforation are reviewed along with a brief discussion of the development of peritonitis after perforating colorectal trauma."
"Fatal anorectal trauma in the setting of sexual assault: case report and literature survey." The American Journal of Forensic Medicine and Pathology. 2010 Sep; 31(3): 273-7. PMID 20512029. doi:10.1097/paf.0b013e3181e13269.

"We describe the case of a 28-year-old male prisoner with a traumatic rectal hematoma caused by anal rape. Barium enema showed a large rectal mass confirmed to be a hematoma by proctoscopic examination. Surgery was performed due to a falling hemoglobin level, and an 800-mL hematoma was evacuated. The patient became febrile following surgery, and computed tomography revealed a pelvic mass consistent with recurrent hematoma or abscess. Repeat surgery showed recurrent hematoma. The patient recovered uneventfully."
"Traumatic rectal hematoma following anal rape." Annals of Emergency Medicine. 1986 Jul; 15(7): 850-2. PMID 3487997. doi:10.1016/s0196-0644(86)80390-0.

"Hemorrhoidal disease is commonly misdiagnosed by primary-care physicians as well as patients. The hemorrhoids are vascular cushions within the anal canal and are divided into internal and external components. External hemorrhoids are located within the distal third of the anal canal and, when thrombosed, are visible as areas of bluish swelling on the anoderm. The primary symptom of external hemorrhoids is pain, but they may present as rectal bleeding when the pressure of the clot on the overlying skin causes erosion of the skin and extravasation of the underlying clot."
"Internal hemorrhoids are a more common cause of isolated rectal bleeding. In the nonpathological state, they are located proximal to the dentate line and are flat when viewed on anoscopy in the prone patient. In the pathologic state, they are divided into grades based on size and symptoms; pain is generally not present except in an advanced state. Grade I hemorrhoids protrude into, but do not prolapse from, the anal canal and may cause painless bleeding. They may not appear significantly engorged on anoscopic exam. Grade II hemorrhoids may prolapse and bleed, but will spontaneously reduce back into the anal canal. At this stage, they are usually enlarged enough to be visibly engorged on anoscopy. Grade III hemorrhoids prolapse and require manual reduction by the patient. These will appear markedly enlarged when viewed with an anoscope, and, as described above, may prolapse from the scope when gentle traction is placed on them with an instrument. Grade IV hemorrhoids are incarcerated or are prolapsed and unable to be reduced. All grades of internal hemorrhoids may bleed, but pain is usually present only in incarcerated hemorrhoids, in which case the pain may be severe when they have become thrombosed and gangrenous."
"Grade IV hemorrhoids may be so painful as to prevent further exam. As part of the inspection, careful note should be made of the orientation of the folds of [prolapsed tissue] around the anus. The radial folds of tissue visible in incarcerated hemorrhoids should be distinguished from the circumferential folds of tissue of a full-thickness prolapse, since treatment will be quite different."
... "Fissures are usually accompanied by a great deal of pain; the bleeding may be a smaller component of the symptoms. ... In the chronic state the edges of the fissure may have a rolled appearance; it also

may be associated with a small sentinel tag (which the patient will often report as a hemorrhoid) and hypertrophied anal papilla (which may be noted by the patient if it prolapses). In the acute state, fissures may be so painful as to prevent further examination..."
"Office Evaluation of Rectal Bleeding." Clinics in Colon and Rectal Surgery. 2005 November; 18(4): 249-254. PMC2780087. doi:10.1055/s-2005-922847.

"According to Thomson's studies, [diseased] haemorrhoids are the consequence of a disintegration of muscular and elastic components, leading to a distal shift of the vascular padding. Anatomic studies by Lierse showed that the dilated haemorrhoidal vessels and the surrounding muscle fibres lie within a lattice of collagen and elastic fibres, which are arranged in longitudinal direction. Degradation processes of this extracellular matrix (ECM), especially of the protein elastin during ageing were thought to be a decisive pathway in the development of haemorrhoidal disease. Elastic fibres in haemorrhoids are always linked to collagen fibres. While elastic fibres are responsible for the elasticity of the tissue, the collagen fibres are responsible for its tensile strength. They provide elastic fibres from overexpansion and sustain the original tissue configuration."
"Haemorrhoids - a collagen disease?" Colorectal Disease. 2010 Dec; 12(12): 1249-53. doi:10.1111/j.1463-1318.2009.02010.x. (PMID 19614671)

"Straining causes engorgement of the vascular cushion lining the distal rectum and anal canal, making it more vulnerable to shearing [frictional sliding] stress. The passage of hard fecal masses through the anal canal exacerbates these shearing forces and displaces the vascular cushion caudally, where it may be trapped temporarily by contraction of the anal sphincter."
Textbook of Gastroenterology (2011) - Page 1002

"Hemorrhoids are cushion sinusoids thought to function as part of the continence mechanism and aid in complete closure of the anal canal at rest. The main cushions lie at the left lateral, right anterior and right postero-lateral portions of the anal canal. Secondary cushions may be present. Bleeding and thrombosis of the pre-sinusoidal arterioles may occur in association with prolapse. Proposed etiological factors include constipation, prolonged straining, pregnancy, obesity, ageing, hereditary, derangement of the internal anal sphincter, weak blood vessels and absent valves in the portal vein. The erect posture of humans is also a predisposing factor. Despite several studies, the pathogenesis of [diseased] hemorrhoids still remains unclear [mainly concerning external hemorrhoidal thrombosis].

Hemorrhoids can either be external or internal. The external variety is covered by skin below the dentate line, while the internal variety lies proximal to the dentate line. Combination of the two varieties constitutes interoexternal hemorrhoids."
"Surgical Management of Hemorrhoids." Journal of Surgical Technique & Case Report. 2011 Jul-Dec; 3(2): 68-75. PMC3296437. doi:10.4103/2006-8808.92797.

"During normal defecation, the anal sphincters and the puborectalis muscle relax, which allows the anorectal angle to widen and the perineum to descend. Simultaneously, the voluntary effort of bearing down increases the intra-abdominal pressure, together with the contraction of the rectum and puborectalis. These complex and mixed voluntary and involuntary movements facilitate the development of a stripping wave, which moves the stool from the rectum and relaxes the pelvic floor muscles and the anus, resulting in stool evacuation."
... "Prolonged straining can weaken pelvic floor muscles, damaging the pudendal nerve in the process. Aside from constipation, aging and obstetric injury also contribute to pudendal neuropathy, a condition that leads to weakness of the anal sphincters."

"Treating pelvic floor disorders of defecation: management or cure?" Current Gastroenterology Reports. 2009 Aug; 11(4): 278-87. doi:10.1007/s11894-009-0041-3. (PMID 19615303)

"[Diseased] Haemorrhoids represent pathological changes in the anal cushions, a normal component of the anal canal involved in aiding evacuation of stool and fine-tuning of anal continence. These pathological changes include rupture of the supporting connective tissue within the cushions, resulting in enlargement of the vascular plexus. The pathogenesis of haemorrhoids explains the symptoms associated with the condition: bleeding, swelling and prolapse, seepage due to the disruption of the fine tuning of continence and consequent irritation of the perianal skin. More severe symptoms may include thrombosis leading to pain."
"Haemorrhoids: an update on management." Therapeutic Advances in Chronic Disease. 2017 Oct; 8(10): 141-147. PMC5624348. doi:10.1177/2040622317713957.

"Acute thrombosis is a main complication of [diseased] external hemorrhoids. When there is [persistent] engorgement of distended hemorrhoidal vessels and acute swelling of those vessels, blood may pool and consequently clot. Occasionally, the thrombus ulcerates through the skin, and the clot is extruded. This is one of the anal diseases that induces symptoms of swelling with a lump, bleeding and acute pain, which may lead to emergency medical care. Symptoms can last up to 4 weeks, and in most cases, surgical excision or drug treatments are used. Based on a recent study that reported that surgical excision was more effective for treating early symptoms than drug therapy, early surgical excision is now considered to be helpful for treating severely thrombosed external hemorrhoids."
"Strangulated prolapsed hemorrhoids are long-history [diseased] internal hemorrhoids with venous congestion, thrombus, deformation of soft tissues and edema. A part or all of the hemorrhoids is not reducible, but has strangulated out of the anal canal, resulting in necrosis or ulceration."
"Optimal Treatment of Symptomatic Hemorrhoids." Journal of the Korean Society of Coloproctology. 2011 Dec; 27(6): 277-281. PMC3259422. doi:10.3393/jksc.2011.27.6.277.

"A large thrombosed external hemorrhoid leaves behind a skin tag."
Female Pelvic Medicine and Reconstructive Pelvic Surgery (2007) - Page 229

"The aim of this study was to assess the prevalence and associations between anal intercourse and fecal incontinence."
... "Overall, 4,170 adults aged 20-69 years (2,070 women and 2,100 men) completed sexual behavior questionnaires and responded to fecal incontinence questions. Anal intercourse was higher among women (37.3%) than men (4.5%), $P<0.001$. Fecal incontinence rates were higher among women (9.9 vs. 7.4%, $P=0.05$) and men (11.6 vs. 5.3%, $P=0.03$) reporting anal intercourse compared with those not reporting anal intercourse. After multivariable adjustment for other factors associated with fecal incontinence, anal intercourse remained a predictor of fecal incontinence among women (POR: 1.5; 95% confidence interval (CI): 1.0-2.0) and men (POR: 2.8; 95% CI: 1.6-5.0)."
"The findings support the assessment of anal intercourse as a factor contributing to fecal incontinence in adults, especially among [anoreceptive] men."
"Anal Intercourse and Fecal Incontinence: Evidence from the 2009-2010 National Health and Nutrition Examination Survey." The American Journal of Gastroenterology. 2016 Feb; 111(2): 269-74. PMID 26753893. doi:10.1038/ajg.2015.419.

"Fewer than 50 % of women with urinary incontinence (UI) and 30 % of women with accidental bowel leakage (ABL) seek care."
... "Thirty-nine women (aged 46-85) participated in six focus groups and ten cognitive interviews; 89 % were white, 8 % African American, and 3 % Latina. We identified 12 barriers to seeking care for ABL:

(1) Lack of knowledge about the condition; (2) Lack of knowledge about treatment; (3) Fear of testing/treatment; (4) Normative thinking; (5) Avoidance/denial; (6) Life impact; (7) Embarrassment/shame; (8) Self-blame; (9) Stigma; (10) Isolation; (11) Provider barriers; (12) Access limitations. These 12 barriers encompassed three overarching themes: the internalized self in relation to ABL; perceptions about ABL and its treatments; and interaction with the healthcare system."
... "We found that stigma (S) manifested as deeply-felt shame in violating a social taboo to not talk about the bowels and concealing their ABL. Women used vivid terms—bad, smelly, dirty, funky, nasty—to describe how ABL assaulted their sense of self and impacted normal life activities. Popular culture was noted to reinforce taboos around ABL, even as it relaxed old taboos about sex, UI, and erectile dysfunction. ... Concealment was a key dimension of stigma. Women wanted to hide ABL not just from their medical provider and staff and clinical records, but also from their family members."
"Barriers to seeking care for accidental bowel leakage: a qualitative study." International Urogynecology Journal. 2017 Apr; 28(4): 543-551. doi:10.1007/s00192-016-3195-1. (PMID 27844123)

"When conservative measures fail, a surgical approach becomes necessary for the definitive management of the chronic anal fissure. Dilation of the anal canal for the treatment of anal fissure was first described in the 1860s, but was popularized in the 1960s. In 1964, Watts and colleagues reported on 99 patients with anal fissures treated with anal stretch. They describe the procedure as a manual stretching of the anal canal with two, then four fingers applying considerable outward force on the lateral walls of the anal canal. Dilation is performed for no less than 4 minutes. They reported satisfactory early relief of symptoms in 95% of patients, with fissure recurrence noted in 16% of patients. Since that time, various studies have emerged comparing anal stretch procedure with other surgical procedures, [primarily] lateral internal sphincterotomy. Despite extensive study, there has been significant variability in the reported outcomes due to lack of standardization and reproducibility of the techniques employed. In addition, anal stretch has been scrutinized for causing extensive damage to internal and external sphincters leading to incontinence."
"Anal Fissure." Clinics in Colon and Rectal Surgery. 2011 March; 24(1): 22-30. PMC3140330. doi:10.1055/s-0031-1272820.

"The pathophysiology of rectal prolapse remains a matter of debate. Etiologic factors may be congenital or acquired, and include poor bowel habits, neurologic diseases, female gender, nulliparity, and previous anorectal surgical procedures. Anatomic features associated with rectal prolapse include a deep pouch of Douglas, rectosigmoid redundancy, levator ani diastasis, lack of fixation of the rectum to the sacrum, and weakness of the internal [anal] sphincter."
"In adults, rectal prolapse is much more common in women than in men. The peak incidence in women is in their seventh decade, whereas in men the incidence drops after the fifth decade. In children, prolapse is distributed equally between the sexes and most often presents by three years of age. Clinical factors associated with prolapse include straining at bowel movements, neurologic diseases (such as cauda equina lesions and multiple sclerosis), and mental illness. The role of parity is unclear."
"Patients with prolapse most frequently complain of protrusion of the rectum during defecation. This may reduce spontaneously or require manual reduction. As the condition progresses, the protrusion may occur with any event that results in increased intraabdominal pressure. Patients frequently complain of constipation and tenesmus. Incontinence is a major complaint of more than half of patients. Less frequent presenting symptoms include bleeding, pain, mucous discharge, and pruritus."
... "Full-thickness prolapse is distinguished by its concentric rings and grooves as opposed to the radially oriented grooves associated with mucosal prolapse (Fig. 2)."
"Rectal Prolapse: A 10-Year Experience." The Ochsner Journal. 2007 Spring; 7(1): 24-32. PMC3096348.

=== Prolapse & Incontinence ===
"[Internal] Haemorrhoids arise as follows: in normal individuals a plexus of veins lies under the mucosa in the lower rectum above the mucocutaneous junction. They form vascular anal cushions at three, seven, and eleven o'clock. These provide a spongy 'washer' on which the sphincter can act, assisting its closure and playing an important role in continence with respect to flatus and faeces. Over a period of time the shearing [frictional sliding] force of hard stools [or anal insertions] can cause their disruption, [persistent] engorgement and downward displacement."
Textbook of Surgery (1997) - Pages 194-195

"The functional anal canal is approximately 4 cm in length (from the anal verge to distal rectum). The dentate line, approximately 2 cm above the anal verge, is a major anatomic point when considering the physiology and physiopathology of HD [hemorrhoidal disease] since, distal to the dentate line, the anal canal is lined with squamous epithelium covering the external hemorrhoidal plexus that is innervated by the somatic nervous system and highly sensitive to pain. Internal hemorrhoids are located proximal to the dentate line, where the anal canal is lined with columnar epithelium as in the rectum. This tissue lacks sensitivity due to its innervation by the sympathetic and parasympathetic nervous systems, primarily distinguishing only fullness and pressure. There are typically 3 major anal cushions above the dentate line (right anterior, right posterior, and left lateral) often with some minor accessory cushions between them."
"The pathogenesis of HD is most likely multifactorial including deterioration of anchoring connective tissue of anal cushions, downward displacement or prolapse of the hemorrhoidal tissue, hyperperfusion state and neovascularization with abnormal distention of the arteriovenous anastomoses and veins of the internal hemorrhoidal venous plexuses, overexpression of inflammatory mediators, and increased resting anal pressure."
"Chronic constipation is usually considered to contribute to the occurrence of HD by causing an increased shearing force on the anal cushions and decreased venous return leading to degeneration of the supportive tissue in the anal canal and distal displacement of anal cushions. Although this concept has been recently challenged, it remains one of the most consistently accepted risk factor for HD. Other conditions associated with increased intra-abdominal pressure, such as pregnancy, prolonged sitting, or heavy lifting are believed to cause HD as a result of compromised venous drainage of hemorrhoid plexus. Advancing age, obesity, and sedentarism have also been reported to contribute to symptoms onset. Chronic diarrhea is also a risk factor for developing HD due to frequent stool passage causing local trauma and weakening of the anal canal lining."
"Portuguese Society of Gastroenterology Consensus on the Diagnosis and Management of Hemorrhoidal Disease." GE - Portuguese Journal of Gastroenterology. 2020 Feb; 27(2): 90-102. PMC7113592. doi:10.1159/000502260.

"Purpose: Internal rectal prolapse is common and correlates with age. It causes a plug-like physical obstruction and is a major cause of defecation disorder. The progressive distortion of the prolapsing rectum likely causes secondary defects in the rectal wall, which may exacerbate rectal dysfunction. We undertook a prospective observational study to detect and quantify the neurologic and histopathologic changes in the rectal wall."
"Methods: We examined dorsal and ventral rectal wall specimens from consecutive patients with internal rectal prolapse undergoing stapled transanal rectal resection (STARR). We subjected specimens to histopathologic and neuropathologic assessment, including immunohistochemistry. We also recorded

patients’ clinical and demographic characteristics and sought correlations between these and the pathologic findings."
"Results: We examined 100 specimens. The severity of rectal prolapse and the extent of descent of the perineum correlated significantly with age. Concomitant hemorrhoidal prolapse was noted in all male patients and in 79 % of female patients. Muscular and neuronal defects were detected in 94 and 90 % of the specimens, respectively. Only four specimens (4 %) were free of significant structural defects."
"Conclusion: Rectal prolapse traumatizes the rectum causing neuromuscular defects. The tissue trauma is due to shearing forces and ischemia caused by the intussusception. This initiates a self-reinforcing vicious circle of physical and functional obstruction, further impairing rectal evacuation and causing constipation and incontinence. The correlation between extent of prolapse and age suggests that internal rectal prolapse can be considered a degenerative disorder. Neural and motor defects in the wall of the rectum caused by rectal prolapse are likely irreversible."
... "It is likely that prolapse formation starts as mucosal prolapse and that in many cases, a reduction of connective tissue tautness may contribute to it. The shearing forces exerted by the passage of flatus or fecal matter push and pull the obstructing mucosal folds, thereby gradually involving and progressively traumatizing the deeper layers of the rectal wall and initiating a vicious circle of obstruction and prolapse formation."
"Mucosal prolapse is in turn linked to many proctologic disorders, in particular hemorrhoidal disease. This is the rationale for undertaking stapled hemorrhoidopexy, as well as for ligation and injection sclerotherapy. Internal mucosal and ensuing rectal prolapse are therefore very common."
"The formation of internal rectal prolapse invariably promotes physical and functional defecation obstruction. Obstruction may cause few symptoms, or even be asymptomatic, for many years. Obstruction usually evolves gradually, and the severity of its effects may ebb and flow, being influenced by factors such as diet, food allergies, laxative intake, and exercise. This explains why the obstructive effects of prolapse formation remain undetected in many patients and why the functional significance of these common degenerative changes is still a matter of much controversy."
"That even near-to-complete obstruction of passage of fecal matter may cause few or no symptoms for a long time is not exclusive to patients with internal rectal prolapse. Patients with long-standing stenosing diverticular disease, Crohn’s disease, or malignancies often report “normal” bowel function."
"Rectal prolapse traumatizes rectal neuromuscular microstructure explaining persistent rectal dysfunction." International Journal of Colorectal Disease. 2016; 31(12): 1855-1861. PMC5116046. doi:10.1007/s00384-016-2649-8.

"Rectal prolapse is a debilitating condition with a complex etiology. Symptoms are most commonly prolapse of the rectum and pain with bowel movements or straining, with worsening fecal incontinence over time due to progressive stretching of the anal sphincters. Physical findings are fairly consistent from patient to patient—most notably diastasis of the levator ani muscles, deep pouch of Douglas, redundant sigmoid colon, a mobile mesorectum, and occasionally a solitary rectal ulcer. Evaluation includes a physical exam or imaging demonstrating the prolapse, and evaluating for other causes of pelvic floor dysfunction. Multiple surgical repairs are available, but treatment must be individualized based on patient symptoms and the presence or absence of constipation or other pelvic floor disorders. Mesh repairs have shown promising results, but carry the added risks of mesh erosion, infection, and mesh migration. The optimal repair has not been clearly demonstrated at this time."
... "The cause of rectal prolapse is not completely understood and, like many poorly understood diseases, many procedures (more than 100) have been described for its treatment. The two accepted theories regarding the etiology of rectal prolapse involve either a sliding hernia that protrudes through a defect in the pelvic floor or a circumferential intussusception of the upper rectum and rectosigmoid colon. These theories are based on the anatomic defects associated with rectal prolapse: diastasis of the levator ani muscles, deep pouch of Douglas, redundant sigmoid colon, lack of normal fixation of the

rectum with a mobile mesorectum, and a patulous anus. Additionally, connective tissue disorders and high parity are reported to be predisposing factors. Although it is commonly thought that rectal prolapse is a consequence of multiparity, approximately one-third of female patients with prolapse are nulliparous."
... "Rectal prolapse occurs in both the pediatric and adult population. In adults, the peak incidence is after the fifth decade, and women are more commonly affected than men. Rectal prolapse is rare in patients younger than 50 years. While there is usually adequate levator ani muscle strength in this population, prolapse is most often seen in those patients who require chronic neuroleptics and antidepressants for psychiatric disease. The peak age of incidence is the seventh decade in women. Men commonly develop prolapse before the age of 40."
"Abdominal Approaches to Rectal Prolapse." Clinics in Colon and Rectal Surgery. 2017 Feb; 30(1): 57-62. PMC5179275. doi:10.1055/s-0036-1593426.

"Full-thickness rectal prolapse, or procidentia, is the passage of the full-thickness wall of the rectum beyond the anal sphincters. This condition results in pain and fecal incontinence which greatly impairs the quality of life of those afflicted. It is associated with several anatomic abnormalities, including decreased anal sphincter tone, levator muscle diastasis, and a deep anterior cul-de-sac. The diagnosis of rectal prolapse is made based on physical examination, although several other modalities are used to provide additional information about the patients' condition. While medical management of rectal prolapse can be effective in some cases, the mainstay of management of rectal prolapse is surgical correction."
"Rectal prolapse is the full-thickness prolapse of the rectum, in which the rectum passes externally beyond the anal sphincters. It is a somewhat rare condition, estimated to occur in less than 0.5% of the population. Rectal prolapse has a 9:1 female predominance, and while it is occasionally seen in younger individuals, the incidence increases with age. There is a higher incidence of psychiatric conditions in those with rectal prolapse, and developmental disorders and substance abuse appear to be risk factors. Despite the common perception that multiparity causes rectal prolapse, the incidence of procidentia is actually higher in nulliparous women. Greater than one-third of women with rectal prolapse have never carried a pregnancy to term. Many women with rectal prolapse also suffer from generalized pelvic floor weakness, and may also have a concomitant uterine/vaginal prolapse, enterocele, rectocele, or cystocele."
"Women with rectal prolapse commonly demonstrate other anatomic abnormalities. In order for the rectum to prolapse, the rectosacral attachments must be attenuated [weakened]. Sphincter tone is generally decreased. Attenuated sphincter muscles and decreased resting tone allow the rectum to prolapse through the sphincters. Once rectal prolapse has occurred, continued prolapsing of the rectum can exacerbate weakened sphincter tone, as the prolapsing rectum stretches the sphincters further. This can lead to a patulous anus in which the anus remains open at rest. Patients generally also have a redundant sigmoid colon, as there must be sufficient length of bowel for it to prolapse. Other associated findings are a diastasis of the levator ani, and a deep anterior cul-de-sac (pouch of Douglas). Whether these findings precede the rectal prolapse and predispose a patient to prolapse or are the results of the rectum prolapsing is not known."
... "Fecal incontinence is generally present with rectal prolapse. Wallenhorst et al reported that 88% of women with rectal prolapse also suffer from some degree of fecal incontinence. This can range from mild soiling only when the rectum is prolapsed to gross loss of bowel movements. Patients with rectal prolapse may rarely have intact sphincter muscles, but the more common scenario is weakened resting tone that allows the rectum to pass through the anal canal. Women who have maintained sphincter tone are at increased risk of developing an incarcerated rectal prolapse that becomes edematous and is not able to be reduced; this constitutes a surgical emergency. Incontinence is aggravated by recurrent prolapse which creates stretch injury to the sphincters. The earlier a rectal prolapse is corrected, the less

damage there is to the sphincter muscles and the better the prognosis. It is important to note that while rectal prolapse repairs do not directly correct sphincter dysfunction, repair of the prolapse itself improves the symptoms of incontinence."
... "On physical examination, the classic finding is that of the rectum protruding from the anus, with concentric folds visible. This may have a long appendage-like appearance, as seen in Figs. 1 and 2. This type of rectal prolapse is generally easily reducible, although it may readily prolapse again. It may also have a large, wide, grapefruit-like appearance as seen in Fig. 3. This type of prolapse is more prone to incarceration. Other conditions that may be confused with rectal prolapse include prolapsing hemorrhoids, or a mass prolapsing out of the rectum. Prolapsing hemorrhoids represent mucosal prolapse while the muscular wall of the rectum remains in place. They can be distinguished from rectal prolapse in that the tissue prolapses in columns, with grooves identified between the columns, as compared with the concentric folds seen in rectal prolapse. Incarcerated prolapsed hemorrhoids are seen in Fig. 4. Occasionally, an early [rectal] prolapse may not be complete circumferentially, but can still be distinguished from [prolapsed] hemorrhoids, as it lacks the grooves between the columns of prolapsing tissue. Fig. 5 demonstrates an early rectal prolapse that is prolapsed more in the anterior position. A large mass or polyp within the rectum can lead to rectal intussusception by acting as a lead point, and rarely a prolapsing mass is misidentified as rectal prolapse."
... "Conventional defecography is performed by the instillation of radiopaque contrast into the rectum. Barium paste with a consistency similar to stool is generally used. A more thorough study is obtained if contrast is also ingested orally to opacify the small bowel and placed transvaginally. The patient is then asked to defecate while fluoroscopic images are obtained. Defecography can dynamically demonstrate the rectum actively prolapsing. It may also demonstrate other frequently noted abnormalities, such as rectocele, enterocele, internal intussusception, and abnormal pelvic floor descent. Diagnosis of these other pelvic floor conditions is the primary utility of defecography, as they may be corrected at the time of rectal prolapse repair. The finding of intussusception may or may not be clinically significant. This can be a normal variant in asymptomatic patients, but can also cause obstructive defecation, which can lead to increased straining. Full-thickness rectal prolapse begins as an intussusception in the mid rectum, as evidenced on defecography. Whether a patient initially has intussusception as an inciting event that eventually progresses to full-thickness rectal prolapse is not known and is an area of controversy and study. Ninety-two percent of patients with rectal prolapse have abnormal perineal descent. While defecography may be useful to identify additional pathology, it is at times not particularly sensitive for making the diagnosis. Only 64% of patients with rectal prolapse on physical exam demonstrated the rectal prolapse on defecography."
"Evaluation, Diagnosis, and Medical Management of Rectal Prolapse." Clinics in Colon and Rectal Surgery. 2017 Feb; 30(1): 16-21. PMC5179269. doi:10.1055/s-0036-1593431.

"The cardinal features of anorectal sensorimotor dysfunctions in FI [fecal incontinence] are summarized in Table 2. A majority of women with FI have reduced anal resting and/or squeeze pressures, reflecting the weakness of the internal and/or external anal sphincters, respectively. In addition to anal sphincter injury, FI is also associated with atrophy, denervation, and impaired function of the puborectalis muscle. Some patients with FI have more generalized pelvic floor weakness, known as descending perineum syndrome, which is often associated with pelvic organ prolapse affecting the anterior and/or middle compartments."
"In the long term, excessive straining may cause increased perineal descent, or descending perineum syndrome, which can stretch and thus damage the pudendal nerve. This straining also increases the obtuseness of the anorectal angle, thereby impairing the flap valve normally responsible for maintaining fecal continence during increased intra-abdominal pressure."
"Management of Fecal Incontinence." Gastroenterology & Hepatology. 2008 Nov; 4(11): 807-817. PMC3104390.

"The pelvic diaphragm is the middle layer of pelvic floor support and is comprised of the levator ani and ischiococcygeus muscles. The levator ani is a group of striated muscles made up of the iliococcygeus, pubococcygeus, and puborectalis muscles. These muscles are well seen on pelvic MRI, and are constantly contracting to maintain the tone of the pelvic floor. The puborectalis muscle is a U-shaped muscle that arises from the superior pubic symphysis and forms the levator hiatus around the bladder, urethra, vagina, and rectum (Fig. 1). The puborectalis wraps around the posterior margin of the anorectal junction, forming the impression seen on the sagittal view (Fig. 1). Anteriorly, the pubococcygeus arises from the superior ramus of the os pubis, where it attaches to the fascia of the obturator internus. The iliococcygeus originates from the junction of the fascia of the obturator internus and the tendinous arch of the pelvic fascia. Posteriorly, the iliococcygeus and pubococcygeus insert into the lateral aspects of the coccyx (Fig. 1). Medially, the iliococcygeus and pubococcygeus on either side unite and intertwine with each other, forming a levator plate, a structure posterior to the rectum that provides considerable support to the pelvic viscera (Fig. 1). The ischiococcygeus muscle extends from the coccyx to the ischial spines bilaterally and is a relatively unimportant player of the pelvic diaphragm."
... "Pelvic floor dysfunction or weakness encompasses a spectrum of functional disorders that result from impairment of the ligaments, fasciae, and muscles supporting the pelvic organs. The underlying cause is multifactorial, with conditions such as multiparity, pudendal nerve injury, advanced age, obesity, menopause, connective tissue disorders, smoking, chronic obstructive pulmonary disease, and a chronic increase in intraabdominal pressure contributing to the development of the pelvic floor dysfunction. There are two components to pelvic floor dysfunction: pelvic floor relaxation and pelvic organ prolapse. Although these two components are related and often coexistent, they may not be present simultaneously and should be differentiated."
"Practical guide to dynamic pelvic floor MRI." Journal of Magnetic Resonance Imaging. 2018 May; 47(5): 1155-1170. doi:10.1002/jmri.25998. (PMID 29575371)

"It is generally assumed that fascial defects in the rectovaginal septum are the result of childbirth. However, rectoceles do occur in women who have never delivered vaginally."
... "Twelve percent of 171 young nulligravid caucasian women showed a defect of the rectovaginal septum. Associations were observed with higher body mass index and a history of constipation. It is hypothesised that in some women defects of the rectovaginal septum and perineal hypermobility may be congenital in nature."
"Prevalence of rectocele in young nulliparous women." The Australian and New Zealand Journal of Obstetrics and Gynaecology. 2005 Oct; 45(5): 391-4. PMID 16171474. doi:10.1111/j.1479-828X.2005.00454.x.

"This manuscript presents evidence of the existence of the RGS [rectogenital septum] in both women (rectovaginal septum, RVaS) and men (rectovesical septum, RVS). It originates from the genital structures and extends from the rectogenital pouch to the perineal body. It is composed of connective tissue associated with bundles of smooth muscle cells and has lateral expansions in close contact with neurovascular bundles originating from the inferior hypogastric plexus."
"Concepts of the rectovaginal septum: implications for function and surgery." International Urogynecology Journal. 2016 Jun; 27(6): 839-48. PMID 26690361. doi:10.1007/s00192-015-2878-3.

"Fecal incontinence is not a diagnosis but a frequent and debilitating common final pathway symptom resulting from numerous different causes. Incontinence not only impacts the patient’s self-esteem and quality of life but may result in significant secondary morbidity, disability, and cost. Treatment is difficult without any panacea and an individualized approach should be chosen that frequently

combines different modalities. Several new technologies have been developed and their specific roles will have to be defined. The scope of this review is outline the evaluation and treatment of patients with fecal incontinence."
... "Fecal incontinence is very common but because of the associated embarrassment and a common taboo nature, it is under-reported and its true prevalence difficult to reliably assess. Reported estimates of prevalence rates always have to be interpreted with caution and should be seen within their respective context."
... "A vast number of etiologies have been associated with the development of fecal incontinence (see Table 1), including acquired structural abnormalities or congenital malformations, degenerative and functional conditions, or neurological disorders. Diarrhea and altered bowel habits [e.g., from irritable bowel syndrome (IBS), inflammatory bowel disease (IBD), diet intolerance, constipation with paradoxical diarrhea and overflow incontinence] is one of the most frequent independent risk factors for incontinence. The most common structural causes, however, are the result of obstetrical injury (often decades before onset of symptoms), anorectal surgeries (hemorrhoidectomy, fistulotomy, sphincterotomy), prolapse, anoreceptive intercourse, or a status post colo-anal or ileo-anal reconstruction."
... "There need to be structures and functions in place to create a dynamic barrier with sufficient outlet resistance against a varying range of intrarectal pressures of the feces at rest, or when there is an increase of the intra-abdominal pressure, be it physiologically during a peristaltic wave, or during physical stress and activity: (1) Puborectalis sling and external anal sphincter (EAS): This is an array of striated muscles with slow-twitch, fatigue-resistant muscle fibers that [are] at the center and bottom of the pelvic floor. They are innervated by the inferior branch of the pudendal nerve (S3-S4), contribute to about 30%-40% of the anal resting tone (normal reference value: > 50 mmHg), and provide the voluntary sphincter contraction (squeeze pressure) with roughly a doubling of the resting pressure (normal reference value: > 100 mmHg). Puborectalis dysfunction results in complete incontinence, EAS dysfunction in impaired voluntary control (urge incontinence); (2) Internal anal sphincter (IAS): This smooth muscle represents the thickened end in continuation of the muscularis propria of the rectum. It has an autonomic innervation and contributes to an estimated 50%-55% of the resting tone of the anal canal. IAS dysfunction is associated with impaired fine tuning of fecal control (passive incontinence); (3) Hemorrhoidal cushions: Under normal conditions, these structures provide a fine-tuning seal of the anal canal and can contribute to up to 10%-15% of the overall control. While the basic design is beneficial, deviations from it may quickly flaw their impact, for example if the hemorrhoids either start to protrude or are surgically removed; and (4) Configuration of anal canal: In order to achieve a sufficient closure, the mechanism needs an unhindered ability to generate a strong enough radial force with adequate and concentric pressure values, which are translated to and distributed over a sufficient length of the anal canal (so called high-pressure zone). Altered texture or gross or focal structural deformities of the ano-perineal configuration (e.g., rigid scarring, cloaca, or a keyhole deformity) can be cause to significant symptoms. The latter may result from previous anorectal surgery and - despite a seemingly normal anal pressure profile - may be associated with fecal leakage as capillary forces allow particularly liquid stool components to find their way out (Figure 2). A prolapse of hemorrhoids or the rectum does not only stretch out the sphincter complex and pelvic floor muscles and effectively prevents it from closing the aperture (“shoe in the door”); it also dislocates and everts the crucial sensing zone of the anal canal such that feedback about arriving stool comes too late or not at all."
"Figure 2 -- Keyhole deformity: After a previous fistulotomy, the anus is not patulous but appears to have a deformity (arrow)."
"Fecal incontinence - Challenges and solutions." World Journal of Gastroenterology. 2017 Jan 7; 23(1): 11-24. PMC5221273. doi:10.3748/wjg.v23.i1.11.

"The alternative therapeutic procedure of sphincter dilatation is associated with uncontrolled tearing of the internal sphincter muscle and portions of the external anal sphincter may also be damaged. Recent endosonographic studies of the sphincter apparatus after sphincter dilatation confirm these findings."
"Internal Anal Sphincter Function Following Lateral Internal Sphincterotomy for Anal Fissure." Annals of Surgery. 2005 August; 242(2): 208-211. PMC1357726. doi:10.1097/01.sla.0000171036.39886.fa.

"Patterns of sphincter injury in 93 patients with fecal incontinence after manual dilation, internal sphincterotomy, fistulotomy, and hemorrhoidectomy were studied. The internal sphincter was almost universally injured, in a pattern specific to the underlying procedure. One-third of patients had a related surgical external sphincter injury. Two-thirds of women had an unrelated obstetric external sphincter injury. The distal resting pressure was typically reduced, with reversal of the normal resting pressure gradient of the anal canal in 89 percent of patients. Maximum squeeze pressure was normal in 52 percent."
"Incontinence after anal surgery is characterized by the virtually universal presence of an internal sphincter injury, which is distal in the high-pressure zone, resulting in a reversal of the normal resting pressure gradient in the anal canal. These data support concerns that non-sphincter-sparing anal surgery leads to fecal incontinence and is increasingly difficult to justify given the availability of modern sphincter-sparing approaches."
"Patterns of fecal incontinence after anal surgery." Diseases of the Colon and Rectum. 2004 Oct; 47(10): 1643-9. PMID 15540293. doi:10.1007/s10350-004-0651-7.

"Using anorectal physiology and anal endosonography we have studied 12 men presenting with faecal incontinence following anal dilatation. Resting anal pressures were low, pudendal nerve latencies were normal; 11 men had a disrupted internal anal sphincter and in ten this was extensively fragmented. Three also had defects of the external anal sphincter. These findings demonstrate for the first time the nature of the structural injury which may be caused by anal dilatation."
"Sphincter injury after anal dilatation demonstrated by anal endosonography." British Journal of Surgery. 1991 Dec; 78(12): 1429-30. PMID 1773315. doi:10.1002/bjs.1800781206.

"At the middle anal canal, the external and internal sphincter muscles form a complete ring and outer hyperechoic and inner hypoechoic circles are visualized. At the lower anal canal, only the subcutaneous EAS is visualized as a hyperechoic ring... Anal sphincter injuries are detected by a break in the muscular ring. Defects may be reported as external anal sphincter (EAS), internal anal sphincter (IAS), or combined injuries."
"Transrectal Ultrasound, Manometry, and Pudendal Nerve Terminal Latency Studies in the Evaluation of Sphincter Injuries." Clinics in Colon and Rectal Surgery. 2008 August; 21(3): 157–166. PMC2780206. doi:10.1055/s-2008-1080995.

"In contrast to lateral internal anal sphincterotomy in males, division of the internal anal sphincter in most females tends to be more extensive than intended. This is probably related to their shorter [anatomical] anal canal. In some females, lateral internal anal sphincterotomy may compromise sphincter function and precipitate anal incontinence, particularly in the presence of other sphincter defects."
"Prospective study of the extent of internal anal sphincter division during lateral sphincterotomy." Diseases of the Colon and Rectum. 1994 Oct; 37(10): 1031-3. PMID 7924711. doi:10.1007/bf02049319.

"The pudendal nerve plays a critical role in maintenance of integrity and function of the anal sphincter. Neurologic compromise of the anal sphincter complex can result in incontinence and is classified as

primary (idiopathic) or secondary. Idiopathic causes are usually a result of pudendal neuropathy resulting from repeated stretch forces exerted on the terminal portion of the pudendal nerve, due to rectal prolapse, descending perineum syndrome, multiple vaginal deliveries, or habitual straining at defecation."
"Evaluation of Anal Incontinence: Minimal Approach, Maximal Effectiveness." Clinics in Colon and Rectal Surgery. 2005 Feb; 18(1): 9-16. PMC2780134. doi:10.1055/s-2005-864076.

"Perineal nerve injury due to stretching is caused by excessive traction [pulling] on the distal motor branches of the pudendal nerve that innervate the perineum and anus. These injuries can occur in a number of morbid conditions (prolapsus, anorectal dyschezia, pelvic surgery) and induce denervation of the pelvic floor that very probably modifies the resistance of the sphincters. Stretch injuries should be considered when discussing physiotherapy or surgery for urinary incontinence. Diagnosis can be established by electrophysiologic studies of the perineum, particularly by measurements of distal pudendal nerve motor latencies. The authors report a series of sixty patients with stretch-induced neuropathy."
"[Perineal neuropathy due to stretching and urinary incontinence. Physiopathology, diagnosis and therapeutic implications]." Annales d'Urologie (Paris). 1990; 24(6): 463-6. PMID 2176777.

"The innervation of the puborectalis and external anal sphincter muscles was studied in 32 patients with idiopathic (neurogenic) faecal incontinence, 12 of whom also had complete rectal prolapse, using transcutaneous spinal stimulation, transrectal pudendal nerve stimulation, single fibre EMG, anorectal manometry, and measurement of perineal descent. Fourteen normal subjects served as controls. Significant increases in the spinal motor latencies from L1 to the puborectalis and external anal sphincter muscles were shown in all 32 incontinent patients (p less than 0.01). The single fibre (EMG) fibre density was increased in the puborectalis muscle in 60% and in the external anal sphincter in 75% of patients. An increased pudendal nerve terminal motor latency was found in 68% of patients; 69% had an abnormal degree of perineal descent and all had reduced anal canal contraction pressures. These data show that the different innervations of the puborectalis and external anal sphincter muscles are both damaged in patients with anorectal incontinence."
"Anorectal incontinence and rectal prolapse: differential assessment of the innervation to puborectalis and external anal sphincter muscles." Gut. 1985 May; 26(5): 470-476. PMC1432654. doi:10.1136/gut.26.5.470.

"Anal fistulae are common and debilitating; they are characterized by severe pain and discharge. They arise following infection near the anal canal, or as a primary event from an abscess in the abdomen, fistulating into the vagina or perianal skin. The term ‘cryptoglandular’ is given to abscesses arising from the anal glands."
"For many years, the treatment of choice was to lay open the fistula; however, this risks causing incontinence with potentially devastating consequences."
... "A fistula is an abnormal connection between two epithelialized surfaces, and is lined with granulation tissue. A perineal fistula is one between the intestine and the perineal skin (anal fistula) or between the intestine and the vagina (a colovaginal fistula). Anal fistulae affect 1 in 10,000 of the normal population every year. In approximately 80% of cases, anal fistulae are secondary to abscesses arising from infected anal glands (cryptogenic). Infection in the anal gland may result in an abscess between the internal and external sphincters, which in turn can spread to other parts of the perianal region (Figure 1). Infection can then track in many directions from this focus in the intersphincteric plane. When the track reaches the skin or another epithelialized surface, for example, the vagina, then a fistula is formed (Figure 2)."

... "Fistulae can also be due to Crohn’s disease, trauma, tuberculosis, hidradenitis suppurativa, immunosuppression (including HIV), lymphogranuloma venereum, sacrococcygeal teratoma, rectal duplication and perianal actinomycosis. In fact, in some cases, hidradenitis suppurativa and Crohn’s disease may coexist."
"Local infection related to an anal fissure, carcinoma or foreign body may also cause a fistula. There is a large spectrum of disease. At its mildest, there can be a small, painful anal swelling, which intermittently discharges. At its most severe, there may be a complex fistulating mass requiring excision of the rectum and a permanent colostomy. Timely assessment, management and, when necessary, surgical referral are vital in reducing the pain and distress associated with this unpleasant condition."
"Update on anal fistulae: Surgical perspectives for the gastroenterologist." Canadian Journal of Gastroenterology. 2011 Dec; 25(12): 675-680. PMC3266159. doi:10.1155/2011/931316.

"The rectum is a muscular tube, 12- to 15-cm long, that terminates at the anus. The internal anal sphincter (IAS), the external anal sphincter (EAS), and the anal vascular cushions encircle the anal orifice and together maintain continence at rest whereas the EAS and puborectalis provide the mechanical barrier during voluntary squeeze. The puborectalis is a 0.5- to 1.0-cm thick u-shaped muscle that forms a flap-like valve that creates a forward pull and reinforces the anorectal angle (Figure 1). Recent work using transperineal ultrasound has shown that all 3 muscles form the mechanical barrier. Furthermore, puborectalis dysfunction and injury are common even in asymptomatic women and contribute to incontinence."
... "Defecation involves several stereotypical events that are under voluntary and involuntary control. The basic regulatory mechanisms are present in the newborn but the art of controlled defecation develops through training and is controlled by higher cortical centers. Arrival of stool in the rectum causes rectal distention and induces a desire to defecate along with a decrease in anal resting pressure —the RAIR. These events allow the rectal contents to come into contact with the sensitive anoderm, and based on the nature of fecal material sampled, solid, liquid, or gas, an urge to defecate is induced that can be resisted only by vigorous contractions of the EAS and puborectalis muscle. If social conditions are favorable, the subject sits or squats; holds their breath; contracts the diaphragm, abdominal, and rectal muscles; and simultaneously relaxes the EAS and puborectalis muscle. These maneuvers open the anus and move stool (Figure 1). Thus, sensory perception and coordinated movement of stool are important physiologic variables that affect anorectal function. Likewise, weakness of anal sphincter or puborectalis, neuropathy, and altered rectal or anal sensation or diarrheal conditions may each overwhelm normal ability to maintain continence and result in leakage of stool (Figure 1)."
"Advances in diagnostic assessment of fecal incontinence and dyssynergic defecation." Clinical Gastroenterology and Hepatology. 2010 Nov; 8(11): 910-919.e2. doi:10.1016/j.cgh.2010.06.004. (PMID 20601142)

"The lower abdomino-pelvic cavity contains organs including the small and large intestines, the bladder and components of the lower urinary tract. Numerous studies have demonstrated that these structures are subject to age-related changes that may lead to an increase in the incidence of bladder/bowel disorders in the elderly. The causes of these changes are likely to be multifactorial including ageing of the effector cells (e.g. smooth muscle) and also the cells that regulate their function (e.g. neurons of the central and peripheral nervous systems). The aim of this review is to discuss the potential neurogenic (e.g. defective neurotransmission) mechanisms resulting in ageing of these different abdomino-pelvic organs with an emphasis on the spinal and peripheral neurons that provide the efferent (motor) innervation of these structures to regulate bladder and bowel function."

... "The intestinal mucosa consists of the epithelium, which is composed of diverse epithelial cells (including stem cells, enteroendocrine cells (EECs) that release gut peptide hormones or serotonin, absorptive enterocytes and mucus-secreting goblet cells) and underlying connective tissue that is richly supplied with nerve fibres, associated glial cells, blood vessels and immune system cells. The intestinal mucosa is thus a highly complex tissue with a range of important roles, including barrier function and defence, as well as absorption of nutrients and also neural and endocrine signalling and appetite regulation. It is also the interface with the microbiota, which are now appreciated to have a major influence on the whole organism."
... "Normal defaecation depends upon the voluntary relaxation of the EAS and pelvic floor muscles and the involuntary relaxation of the IAS. This involuntary action is the recto-anal inhibitory reflex (RAIR). The RAIR is stimulated when stools pass into the rectum from the sigmoid colon and cause rectal distension. This distension is sensed by mechanoreceptors in the rectal wall, which cause a neurally-mediated relaxation of the IAS muscle. The reflex is an intrinsic one, as it occurs even after spinal cord transection and is absent in patients with Hirschprung’s disease, in which the terminal bowel lacks enteric neurons (Cook et al. 2001; Bharucha 2006, 2008)."
"Neurogenic mechanisms in bladder and bowel ageing." Biogerontology. 2015; 16(2): 265-284. PMC4361768. doi:10.1007/s10522-015-9554-3.