



Are Fecal Capsules As Pro-Biotic Making The Case For Seminal Capsules As Anti-Eclamptic? Worth Exploring For The Future Of Safer Assisted Reproductive Technology

Peer review status:

No

Corresponding Author:

Dr. Deepak Gupta,
Anesthesiologist, Self - United States of America

Submitting Author:

Dr. Deepak Gupta,
Anesthesiologist, Self - United States of America

Article ID: WMC005723

Article Type: My opinion

Submitted on: 22-May-2021, 12:28:35 AM GMT **Published on:** 28-May-2021, 05:45:14 AM GMT

Article URL: http://www.webmedcentral.com/article_view/5723

Subject Categories: OBSTETRICS AND GYNAECOLOGY

Keywords: Fecal Capsules, Seminal Capsules, Assisted Reproductive Technology, Hypertensive Disorders Of Pregnancy

How to cite the article: Gupta D. Are Fecal Capsules As Pro-Biotic Making The Case For Seminal Capsules As Anti-Eclamptic? Worth Exploring For The Future Of Safer Assisted Reproductive Technology. WebmedCentral OBSTETRICS AND GYNAECOLOGY 2021;12(5):WMC005723

Copyright: This is an open-access article distributed under the terms of the [Creative Commons Attribution License \(CC-BY\)](#), which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.

Source(s) of Funding:

NOT APPLICABLE

Competing Interests:

NOT APPLICABLE

Are Fecal Capsules As Pro-Biotic Making The Case For Seminal Capsules As Anti-Eclamptic? Worth Exploring For The Future Of Safer Assisted Reproductive Technology

Author(s): Gupta D

My opinion

The questions we must ask ourselves.

- Is human body composed of not only human cells but also non-human cells like microbes numbering in trillions [1]?
- Do these microbes turn human gastrointestinal tract into the biggest immune system that human body has [1-2]?
- Have modern human beings learnt to lose their microbiome by their dietary habits and their exposure to chemicals [3]?
- Are modern human beings relearning to gain back the lost microbiota by ingesting industrialized probiotics?
- Will modern human beings lap up to medicalized coprophagia to contain over-extensive loss of their microbiota [4-8]?

Â

Only time will reveal the answers. However, the availability of fecal capsules at least for biomedical and clinical human research opens up another avenue that may not appear as abhorring as ingesting fecal capsules to replenish gastrointestinal microbiome and reenergize gastrointestinal immune system. That avenue is ingesting seminal capsules for biomedical and clinical human research to make or break the case of slow-steady development of immune tolerance among future mothers-to-be by increasing their bodies' exposure to sperm and semen so as to counter incidence of preeclampsia like hypertensive disorders of pregnancy [9-13].

Â

The question arises how such biomedical and clinical human research can be shaped with seminal capsules. The underlying reason for shaping seminal capsules-based research can be that even if receptive oral sex may evolve to become the norm rather than exception across the world, ingestion of semen during oral sex may NOT become the norm in the near future for partners planning to conceive while concurrently aiming to avoid preeclampsia like hypertensive

disorders of pregnancy. Although unprotected genital sex may allow female body to get sperm and semen exposure for developing immune tolerance to them, the risks of unwanted and unplanned conception may increase during this medically planned "systematic desensitization" to or "low/high-dose immunotherapy [14]" with sperm and semen prior to conception for safely envisioned normotensive pregnancy. The safest bet for this "systematic desensitization" or "low/high-dose immunotherapy" can be oral route of administration via seminal capsules which will have to be initiated in the preconception period with their potential continuation during post-conception period too without having to worry about the need to continue unprotected genital sex during preconception and post-conception periods just only for the sake of maintaining female body's exposure to sperm and semen to potentially accomplish the envisioned normotensive pregnancy [15]. Interestingly, the change in paternity interferes with potential assurance of normotensive pregnancy in multigravida females which means that the history of multiple sexual partners and exposure to their sperms and semen is potentially counterintuitive to normotensive pregnancy because female body must be exposed specifically to the sperm and semen of male partner (or maybe futuristically non-partner sperm donor) with whom the normotensive pregnancy is being planned after planned conception [16-20]. Moreover, unless vaccinated against almost all strains of human papillomavirus, the concerns for oncogenic potential of human papillomavirus laden semen may persist which when ingested as seminal capsules may primarily increase the incidence of gastrointestinal tract cancers in the long-term instead of genitourinary tract cancers which may have increased incidence after long-term exposure to human papillomavirus during unprotected genital sex [21-27].

Â

The major concerns while envisioning biomedical and clinical human research with seminal capsules

will be about collection, compounding and dispensing of male partners' semen for their female partners who plan to conceive envisioned normotensive pregnancies, unless the females are planning to use non-partner sperm donors wherein the assisted reproductive technology institutions have to be on board with the envisioned research and its purported outcomes envisioning futuristic control of preeclampsia like hypertensive disorders of pregnancy considering that even though assisted reproductive technology is associated with increased risk of preeclampsia like hypertensive disorders of pregnancy [28-29], ingestion of non-partner sperm donors' sperm and semen based seminal capsules may have premium monetary costs for preconception females just like premium priced fecal capsules [6] while collection of sperm and semen from non-partner sperm donors having logistical costs for the assisted reproduction technology institutions. Regarding collection [30], male partners may choose to collect their semen on their own or with the help of their female partners. Regarding compounding [31-32], male partners may have to take the initiative to prepare their semen-filled gel capsules on their own or their female partners can take the initiative to prepare them and store them to eventually consume them regularly as planned. Regarding dispensing, it may have to be determined and decided that how long these compounded seminal capsules will be safe to use depending on the temperatures where they are stored [33]. Although for the intended purpose of sperm and semen induced immunogenicity, the effect of temperature on the viability of sperms may be irrelevant but, for the sake of containment of time-limited microbial growth [34-39], expiration dates for these seminal capsules may have to be determined with infection control precautions.

Â

Essentially, I am hoping that global researchers successfully lap up to biomedical and clinical human research as envisioned above to prove or disprove whether seminal capsules can potentially turn out to provide immunogenic tolerance towards maternal health via maternal gastrointestinal tract without needing to induce any negative changes in safe sex practices as similar to fecal capsules potentially turning out to provide pro-biotic service towards human health via human gastrointestinal tract without needing to induce any negative changes in safe sanitation practices.

Reference(s)

1. Mammalian Gut Immunity.
<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4714863/>
2. The Gut: Where Bacteria and Immune System Meet.
<https://www.hopkinsmedicine.org/research/advancements-in-research/fundamentals/in-depth/the-gut-where-bacteria-and-immune-system-meet>
3. Western diet may increase risk of gut inflammation, infection.
<https://source.wustl.edu/2021/05/western-diet-may-increase-risk-of-gut-inflammation-infection/>
4. Effect of Oral Capsule vs Colonoscopy-Delivered Fecal Microbiota Transplantation on Recurrent *Clostridium difficile* Infection: A Randomized Clinical Trial.
<https://jamanetwork.com/journals/jama/fullarticle/2664458>
5. 'Poop pill' capsule research paves the way for simpler *C. difficile* treatment.
<https://www.sciencedaily.com/releases/2017/12/171201091026.htm>
6. FMT PREPARATION INFORMATION.
<https://www.openbiome.org/treatment-information>
7. Oral, Capsulized, Frozen Fecal Microbiota Transplantation for Relapsing *Clostridium difficile* Infection.
<https://jamanetwork.com/journals/jama/fullarticle/1916296>
8. Frozen Poop Pills Fight Life-Threatening Infections.
<https://www.npr.org/sections/health-shots/2014/10/11/355126926/frozen-poop-pills-fight-life-threatening-infections>
9. Sperm exposure and development of preeclampsia.
<https://pubmed.ncbi.nlm.nih.gov/12748491/>
10. 14 Things to Know About Swallowing Semen.
<https://www.healthline.com/health/healthy-sex/swallowing-semen>
11. Hypertensive Disorders of Pregnancy.
<https://www.aafp.org/afp/2016/0115/p121.html>
12. Preconception Period of Seminal Fluid Exposure and Prevalence of Preeclampsia in Primigravida Women.
<https://scialert.net/fulltext/?doi=jms.2007.840.844>
13. The effects and mechanisms of primiparity on the risk of pre-eclampsia: a systematic review.
<https://onlinelibrary.wiley.com/doi/full/10.1111/j.1365-3016.2007.00836.x>
14. A randomised placebo-controlled trial investigating efficacy and mechanisms of low-dose intradermal allergen immunotherapy in treatment of seasonal allergic rhinitis.
<https://www.ncbi.nlm.nih.gov/books/NBK401474/>
15. The Surprising Benefits of Sperm During Pregnancy.
<https://www.parents.com/pregnancy/my-body/pregnancy-health/the-surprising-benefits-of-sperm-during-pregnancy/>

- ng-pregnancy/
16. Laboratory testing of non-partner sperm donors.
<https://www.ecdc.europa.eu/sites/default/files/documents/Testing-non-partner-sperm-donations.pdf>
 17. Paternal Determinants in Preeclampsia.
<https://www.frontiersin.org/articles/10.3389/fphys.2018.01870/full>
 18. Multiple sexual partners and early menarche are risk factors for preeclampsia in an African population.
[https://www.ajog.org/article/S0002-9378\(04\)01185-8/fulltext](https://www.ajog.org/article/S0002-9378(04)01185-8/fulltext)
 19. Change in paternity: a risk factor for preeclampsia in multiparous women?
<https://pubmed.ncbi.nlm.nih.gov/10660264/>
 20. Change in paternity: a risk factor for preeclampsia in multiparas.
<https://pubmed.ncbi.nlm.nih.gov/8728435/>
 21. US cervical cancers fall but other sex-related cancers rise.
<https://www.yahoo.com/news/us-cervical-cancers-fall-other-210822578.html>
 22. Potential role of human papilloma virus in the pathogenesis of gastric cancer.
<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4047352/>
 23. Human papillomavirus as a potential risk factor for gastric cancer: a meta-analysis of 1,917 cases.
<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5119622/>
 24. Detection of human papillomavirus DNA in gastric carcinoma specimens in a high-risk region of Iran.
<https://www.spandidos-publications.com/10.3892/br.2016.728>
 25. Viruses that Can Lead to Cancer.
<https://www.cancer.org/cancer/cancer-causes/infectious-agents/infections-that-can-lead-to-cancer/viruses.html>
 26. The implications of male human papilloma virus infection in couples seeking assisted reproduction technologies.
<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5838778/>
 27. HPV infection in semen: results from a new molecular approach.
<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6518472/>
 28. Assisted reproductive technology and the risk of preeclampsia: an updated systematic review and meta-analysis.
<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6498659/>
 29. Risk of preeclampsia following assisted reproductive technology: systematic review and meta-analysis of 72 cohort studies.
<https://pubmed.ncbi.nlm.nih.gov/30563382/>
 30. Semen collection.
https://en.wikipedia.org/wiki/Semen_collection
 31. How to Make Your Own Liquid Gel Capsules.
<https://www.livestrong.com/article/536858-how-to-make-your-own-liquid-gel-capsules/>
 32. Gel Caps Are BACK! Gel Capsules are in stock and ready to be filled.
<https://www.azurestandard.com/healthy-living/gel-caps-are-back-gel-capsules-are-in-stock-and-read>
 33. Association between ambient temperature and semen quality: A longitudinal study of 10 802 men in China.
<https://www.sciencedirect.com/science/article/pii/S0160412019315193>
 34. The effect of presence of facultative bacteria species on semen and sperm quality of men seeking fertility care.
<https://www.sciencedirect.com/science/article/pii/S1110570416300649>
 35. Sperm function in vitro and fertility after antibiotic-free, hypothermic storage of liquid preserved boar semen.
<https://www.nature.com/articles/s41598-019-51319-1>
 36. The presence of bacteria species in semen and sperm quality.
<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2649329/>
 37. Significance of positive semen culture in relation to male infertility and the assisted reproductive technology process.
<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5673804/>
 38. The complex microbiome from native semen to embryo culture environment in human in vitro fertilization procedure.
<https://rbej.biomedcentral.com/articles/10.1186/s12958-019-0562-z>
 39. Culture of seminal fluid in a fertility clinic.
[https://www.fertstert.org/article/S0015-0282\(16\)45321-5/pdf](https://www.fertstert.org/article/S0015-0282(16)45321-5/pdf)