

## Peer Review File

**Article information:** <https://dx.doi.org/10.21037/atm-23-1815>

### Review Comments

Reply: Dear colleague

Thank you for the time you have spent reviewing our paper. It is much appreciated, as are your comments.

The authors strongly describe the use of SOs as determining the “causation” of symptoms

Reply: We respectfully ask the reviewer to examine the videos and personally do some SOs! For SUI, mechanically supporting the pubourethral ligament (PUL) immediately controls urine loss and predicts surgical cure with a midurethral sling. This is cause and effect.

It would be of interest to readers who diagnose and test for SUI and could be incorporated into clinical practice guidelines.

Reply: Yes, we have incorporated the SOs into our clinical practice and they are part of our examination.

### **Comment:** Summary Statement

This paper describes the use of Simulated Operations (SOs) as a way to identify symptom ‘causation’ prior to surgical treatment for SUI. The article describes several SOs with accompanying figures and justifies the SOs with anatomical rationales.

### Major strengths and impacts

The article aligns with the aims and scope of the journal to provide practical information to readers regarding patient management and health outcomes. The article has several detailed diagrams and is written in a manner that is easy to follow. It would be of interest to readers who diagnose and test for SUI and could be incorporated into clinical practice guidelines.

### Areas of improvement – major

**Comment 1.** Causation and contribution are two different notions – the authors strongly describe the use of SOs as determining the “causation” of symptoms. The pelvis is a region with several structures in close anatomical proximity. In addition are the considerations of anatomical heterogeneity and variations based on different medical histories. Given the lack of visualization upon palpation when using SOs, perhaps the strong references to causation are too definitive.

Reply: Thank you. We have changed “proof” to “provide the evidence for” the Integral Theory’s statement that ligament laxity (Paragraph1, final sentence). Re

definitive- the anatomical structure is clearly defined in our descriptions. We know where the PUL cardinal and uterosacral ligaments are located in the vagina The doctor has to learn these.

And altered “prove” to “demonstration” (bottom of page4)

Consider disclaiming the potential for identification of symptom causation, with the acknowledgement that there may be other non-visible factors contributing to the symptom presentation.

Reply: We cannot do this. If we do what you suggest, SOs have no meaning. We respectfully ask the reviewer to perform his/her own SOs testing. He/she will be amazed!

The authors could also consider describing SOs as identifying the major or most likely contributor to patient symptoms, again whilst recognizing the possibility of other factors.

**Comment 2.** Authors describe the use of SOs but should cite these statements, given they are they crux of the manuscript, with peer reviewed literature.

Reply: But we do! The SOs are contained in the references and these are cited.

**Comment 3.** The Integral Theory’s statement should be cited and described in the introduction.

Reply: OK we will do that. The most powerful description is in the 1990 Foreword, by Professor Ingelman-Sundberg, co-founder of IUGA

*To me it has always been obvious that in general the reason behind female urinary incontinence has to be looked for outside the bladder i.e. in the structures supporting the urethra and bladder neck - specifically ligaments, pelvic floor muscles and vagina. If symptoms of urinary incontinence arise from a dysfunctional anatomy in the aforementioned structures then function should come with restoration of anatomy.*

Axel Ingelman-Sundberg, Karolinska Institutet 1990

**The essence of the 1990 Integral Theory** is that deficient collagen in the ligaments weakens the pelvic muscles which contract against them, to close the urethra (causing stress incontinence) , open it (causing emptying difficulties) , and stretch the vagina like a trampoline to prevent premature activation of the micturition reflex (causing urge incontinence).

**Comment 4.** Describing the vaginal canal as a “birth canal” in a subsection titled “anatomical rationale” is not accurate. Such colloquialisms should be removed.

Reply: We respectfully submit that “birth canal” is not a colloquialism. It is a very accurate description of how the head descends from the uterus, turns 90 degrees at the ischial spines, and continues forward to exit at the vulva.

**Comment 5.** It would be beneficial to provide context in the introduction for current methods of surgical determination for SUI treatments like the MUS – and why SOs

should be used instead of or in addition to, these existing and more common methods.  
 Reply: MUS repair PULs. That is how the MUS works. As far as we know, there aren't any other direct methods which point to PUL weakness as the direct cause.

**Comment 6.** Line 162, there are no references to support any of these statistics regarding prevalence or rate of incidence.

Reply: We have no data. That is our experience. We did say "estimated".

**Comment 7.** Lines 180 and 181 – patient demographics for these studies? Compared to others?  
 Reply: The LA test was performed by Professor Bornstein, on 10 Israeli women: the paper states "these women were referred to our vulvar clinic for extreme dyspareunia, lasting one to eight years, preventing them from experiencing intercourse. Their age ranged between 18 and 51, parity – 0 to 4".

**Comment 8.** Overall, additional context for why SOs are needed in clinical practice, should be added to this paper.

Reply: The purpose of this paper was to describe SOs in a meaningful way for the general reader. The anatomical basis for each one is stated.

Comment 8.1 What are the consequences for not using them?

Comment 8.2 How can they improve patient outcomes?

Comment 8.3 If they are so easy to do, why are SOs so uncommonly used?

It is up to the general readers to decide whether 1-3 above enrich their knowledge of anatomical causation and from that, open up new directions for treatment, even if it is to insert a large menstrual tampon to help alleviate chronic pelvic pain, nocturia, urgency .

Comment 8.4 How do the authors know they are not commonly used?

Reply: This is an interesting question which we can answer indirectly.

The MUS is based on the Integral Theory. Few who have performed the 10 million MUS operations to date know this, and even fewer have ever read the science behind the MUS. Here it is again.

<https://obgyn.onlinelibrary.wiley.com/toc/16000412/1990/69/S153>

More science is in the 3<sup>rd</sup> ed of the textbook, free on line at

<https://www.ics.org/education/icspublications/library>

If they had read it, they would be doing at least the classic MUS pre-op test, VIDEO1, figure1. Colleagues who see it for the 1st time are amazed!

### Minor Comments

- Line 110, bolding within a paragraph

Reply: It is a heading- bolded for emphasis

- 222 – how many years after hysterectomy?

Reply: Don't know.

- 224 – what is considered extreme care? Do most of these tests not depend on the quality of care given by the medical team? What about the anatomical differences between patients which could contribute to differences in pain?

Reply: Yes, all that. It is, however, our experience, that any compression of the vagina in the clinic can cause severe pain, because the sensory pain innervation of the vagina is by visceral nerves

The article may need to be reformatted to align with the journal.

Reply: OK.

The authors need to further rationalize the use of SOs within current clinical practice.

Reply: It is current practice for those who follow the Integral Theory System.

The addition of peer reviewed citations for support would strengthen the article.

Reply: These are inherent in all the citations (references).

Lastly, the authors should acknowledge the possibility for other contributors to symptomology, despite the relative effectiveness of SOs for likely identifying the anatomical issues at hand.

Reply: Of course, we do acknowledge that urge and pain both have many causes. However, these other causes won't be relieved by SOs, supporting a ligament mechanically, and so a negative test would be a big contraindication for surgery.