Development of a biotensegrity focused therapy for the treatment of pelvic organ prolapse: A retrospective study

Crowle, Anna, Harley, Clare, 2020.


**Presenter:** Jane O’Brien Franczak, MPT, WCS, CMTPT

**Guest presenter:** Anna Crowle, Author

Anna Crowle is a UK based women’s health physiotherapist, advanced myofascial release practitioner and pelvic floor researcher. Her work is centered around applying myofascial theory and science to women’s pelvic health. She has put forward a theory that pelvic organ prolapse is caused by tension rather than weakness, which is based on the biotensegrity model of human structure. Her research, development and teaching work in this field is ongoing, alongside her busy clinical practice.

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**AIM:**

Retrospective study to examine Biotensegrity focused therapy method on women with Pelvic organ Prolapse (POP) and how they may benefit.

Biotensegrity treatment involved direct/sustained Myofascial Release (Lesondak, Fascia What it is and Why it matters, Handspring Publishing, Scotland, 2017) as taught in JING college of Advanced Myofascial release: Method practitioner pushing to meet motion barrier with gentle touch then move slowly into it as fascia releases
(L. Chaitow and R. Lovegrove-Jones, Chronic Pelvic Pain and Dysfunction, Elsevier, Churchill Livingstone (2012)

Current treatments for Pelvic Organ Prolapse (POP): Pelvic Floor Muscle exercise, pessary, surgery.

All are based on premise that a POP descends due to weak muscles. So, strengthening is needed to support the organs.

Biotensegrity-focused (BFT) model is based on the premise that tension disrupts the equilibrium and pulls tissue from its alignment. In other words, POP is caused by pelvic tissue tension pulling on organs in a downward fashion. If you release the tension, the organ can return to its intended resting position.

Tensegrity = structural principle from Fuller 1961, including compression elements (bars/struts) and suspension (cables and tendons) in networks of tension elements. When applied to body is called biotensegrity where the structures which are tensioned are the muscles, tendon and fascia and the compressed structures are bones stacked on top of each other. Fascia suspends the organs.

Fascia stiffens from trauma, surgery, stress. When disrupted in pelvis (de las Pena), it affects balance equilibrium in pelvis, load transfer and leads to problems, including POP. Myofascial release reduces tension and restrictions and may be solution to pelvic pain, Interstitial Cystitis & prostatitis.


METHODS:

Table 2,3, and 4 lists each participant, posture, independent assessment of prolapse, therapist’s determination of prolapse, symptoms, treatment summary and final assessments for each.

Cohort 1 (n=7): Rx: “traditional PT” consisting of pelvic balancing, PFMx, BFT, scar releases,

Cohort 2 (n=7) : Rx Increased assessment and treatment of Pelvic floor tension, less traditional PT
Cohort 3 (n=9): Outcome measure “Pelvic Floor Distress Inventory” pre and post, BFT only.

**Eval:** History of symptoms/injury, movement assessment, internal PFM exam, POP assessed via hook lying method and graded as mild, mod, severe (P 117.)

**Tissue assessment:** performed digitally to assess for tissue elasticity, recoil, stiffness, resistance & scars. PFM strength via Modified Oxford (Laycock); ability to close/lift, left side compared to right, smooth, quick contract/relax

**Treatment** direct/sustained MFR per “JING College of Advanced Myofascial Release (meet motion barrier, apply resistance equal to that given by the tissue by providing gentle touch, and move into direction of release (Chaitow) for 1 hr sessions, until all tension released, and improvement in POP observed. Number of treatments was determined by symptoms and function per therapist as well as per patient decision regarding achievement of goals. Treatments were performed 2-3 wks apart. Some patients were self-discharged.

**RESULTS**

See Table 5 for PFDI scores for cohort 3.

Most subjects were of child bearing age, at least 1 birth, high number episotomy, Symptoms of rectocele was most common followed by cystocele, 2 organs prolapsed, 1 organ, symptoms reported as bowel dysfunction and bulge sensation.

**Outcome**

<table>
<thead>
<tr>
<th>Cohort 1: n=7</th>
<th>Cohort 2 n=7</th>
<th>Cohort 3 n=9</th>
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<tbody>
<tr>
<td>External treatment (soft tissue to bladder, adductors, glutes, piriformis, abdominals) Internal for scars, anterior and posterior walls, Pubococcygeus, Iliococcygeus, transverse Perineals</td>
<td>Internal treatment only EXCEPT NO 2.6: L Sartorius due to knee pain.</td>
<td>Internal Pelvic floor releases and scar releases EXCEPT No. 3.6: External treatment of abdominal surgical scar</td>
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4 - (57%) no POP (2 no symptoms, 2 mild symptoms)
3 (47%) minor POP but symptoms improved.

4 - (57%) no detectable POP: 3- no POP sensation, 1 reduced POP sensation
3 (43%) Mild prolapse: 1 no sensation of POP, 2 = reduced sensation.
4-(44%) No POP; 2 no sense of POP, 2 reduced sense of POP.
5 (56%) mild POP detected; Mild sense of POP and symptom improvement.

DISCUSSION (STRENGTH AND WEAKNESSES)

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<thead>
<tr>
<th>Weaknesses</th>
<th>Strengths</th>
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<tr>
<td>Not blinded</td>
<td>5-6 visits max</td>
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<tr>
<td>Not consistent treatments</td>
<td>PFDI demonstrated measurable significant improvement</td>
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<td>Younger population/atypical from USA insurance and referral model</td>
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<td>Highly motivated due to cash/skin in the game.</td>
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<td>Questionable reproducibility</td>
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CONCLUSIONS/SUMMARY

The small sample demonstrated good symptom reduction or resolution of POP with BFT.

* The findings suggests association btw PFM tension and POP
  * Reduced tension in Pubococcygeus, Ishiococcygeus, ant and post walls, may improve POP symptom and position
DISCUSSION QUESTIONS

1. Please tell us about your training in women’s health, including the number of years you have been a women’s health therapist and number of years as a BFT trained therapists.

2. Beth Shelly: The occurrence of adverse events ie the urethra, can occur as we know in research. How do you protect against that? Anna’s Answer: Treat the ant and post walls but staying laterally to urethra, address the lateral borders, and at the posterior aspect, not over the urethra.

3. Beth: What are the characteristics of a patient that is most likely to respond to this treatment? Anna’s Answer: She only uses treatment for patients who have NOT had surgery of hysterectomy or ant/post. Anna may see moms who are still on maternity leave. (9 months in UK), others who have had sx for 3-4 yrs when kids go to school and older ladies with hip pain, menopause. Typically, they are not patients with neurological conditions.

4. Cindy Neville: Why did you leave out PFMx in cohort 3? Anna: The rationale has evolved since she started. She found more positive responses from the release work of tension and scars. They responded quicker when they were not doing the exercises. She suspects the exercises were tightening the tissues which she tried to release. Now, she tells patients to stop doing the exs. during the time when she does the release work. She then sends then to have Pilates for the indirect strengthening. She thinks the tissue is stuck and tight and this is why we do not feel contraction evenly in the PFMx.

5. Ramona Horton: The MFR, is it light, grams of pressure? More physiological? Many Americans think of it as heavy pressure. Anna: It is very light pressure akin to Visceral release like Ramona’s. The release is not mechanical but it is neurophysiological. JING college teaches listening to tissue, grams of pressure, wait and nudge it, wait, then move through the tissues.
6. Describe the neurophysiological reaction to the light touch. So help us understand why the light touch changes the neurophysiology? Ramona: The myofibroblast, according to Milton Stanley, U of Arizona... myofibroblast contracts and pulls wounds together. It is controlled by brainstem from hypothalamus. So, through light touch, fibroblast changes in response to the touch. It improves hydration. The more you stretch it, the more it responds and disrupts it. The fiber elongation is soft and stimulates mechanoreceptors, golgi tendon organs, and brain makes the change. We see an anti inflammatory response.

7. Can you suggest a method for American PTs to apply this method if they are not skilled in MFR? In other words, is it possible for a therapist a who is not trained in MFR to apply this principle of BFT in their practice? Anna: The understanding of what we think POP is may be wrong. That is based on continuous compression mechanics (structures s . Pilates: examine where the restrictions are and use what ever is in their scope of practice to help prolapse. Use your training to release the tension. Cindy: The reason we do the biofeedback and strengthening is to provide a non-invasive option. We haven’t had any other options.

8. What happens to the women who did not get the results? Anna: They stay longer. It is self pay and self refer until happy, May stop with busy life, or reached goals and QOL is better.

9. Why position are patients in for treatment? Anna: In hook lying because focus is around treating the tension, largely at back wall. For perineum, she sits next to feet.

10. Ramona: Have you used US imaging? Anna: Yes, but has not taken a course. Considered it with university in conjunction with Clare Harley.

11. Can you address the issue of being blinded for a study? Anna: Being blinded is a challenge for this type of research. But its all she has. The hands on treatment is a challenge to judge the reason why.

12. Beth: Research into MFR is needed. It is important to assess the whole body. Look pre and post.