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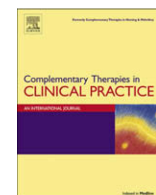

Structural reflex zone therapy in pregnancy and childbirth: A new approach☆

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A B S T R A C T

This paper is adapted from Denise Tiran's forthcoming new book on pregnancy reflexology, and introduces an innovative new approach which has been termed "structural reflex zone therapy". From a reflexology perspective structural reflex zone therapy (RZT) draws on the Hanne Marquardt system, but is based also on the principles of osteopathy, in which the musculoskeletal system is seen as the main supporting framework of the body and the feet are used purely as a medium through which misalignments can be treated. Structural reflex zone therapy is based on the author's clinical work and research over a 25-year period, and although specifically applied here to maternity care, could easily be adapted for other clinical specialities. In this paper, the way in which structural RZT can be helpful for two particular pregnancy conditions – stress and backache – is considered.

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1. Introduction

Reflexology is a system of healthcare in which the feet (and hands) are thought to represent a map of the body, so that every part of the body is reflected on one or both feet. Reflex zone therapy (RZT) is a specific type of clinical reflexology, in which the body is divided into ten equal vertical zones and three transverse zones, demarcated by imaginary lines which correspond to transverse planes in the body.

In common with generic reflexology, RZT uses an approach in which physio-pathological changes within the body are reflected in one or more areas of the feet. These may be observed visually, for example, different colours, shapes, tones or textures on parts of the feet. Alternatively the practitioner may feel significant differences beneath the working fingers during manual palpation, or the client may report sensations such as tenderness or energy surges in the feet, or experience systemic reactions to the treatment, both during and after the session. However, RZT is *not* simply a foot *massage*; it is a *clinical modality* which aims to facilitate recognition of disordered foot zones, to relieve symptoms of physio-pathological conditions, to prevent further complications and to support the body's natural healing mechanisms. This can be achieved partly through the relaxation which is a component of all types of reflexology, and partly by working specifically on relevant points, using various manual compression techniques, some stimulating and some sedating according to the needs of the client, with the aim of re-balancing homeostasis and triggering the body's innate self-healing capacity.

2. Structural reflex zone therapy

Structural RZT, an adaptation from reflex zone therapy devised by Tiran,[11] builds on the zone therapy approach, in that it uses the same map of the zones (with some minor variations), but incorporates also an understanding of the structure and function of the body, in the same way as an osteopath views it, in addition to some new techniques (see Box 1).

The theoretical basis of osteopathy is that the musculoskeletal system is the main supportive framework of the body, essentially the body's "scaffolding", with the soft tissues attached either internally or externally to the framework. The fundamental premise is that changes in anatomical structure will lead to physiological dysfunction and altered homeostasis, including chemical, neurological, electrical and biomechanical problems. Any pathological condition triggers changes in local and distal tissues, including protective muscular spasm, rebound pain and tenderness, oedema, congestion and other responses. Treating movement and musculoskeletal disharmony enables enhanced inter-communication between all parts of the body, assisting in restoring circulation and drainage of fluids, normal nerve transmission and functioning, re-balancing of the immune system and an overall return to homeostasis. In keeping with other non-conventional forms of healthcare practice, osteopaths consider that treatment encompasses the whole person – body, mind and spirit – rather than merely the presenting disease or disorder.

Structural RZT, like osteopathy, is based on the principle notion that structure and function are inter-related and that the body's anatomy governs physiological processes, therefore, realigning the anatomical structures of the body assists in restoring physiological homeostasis. The reflex zones on the feet, particularly those for the musculoskeletal system, are thus used as a medium through which

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Box 1. Therapeutic techniques used in structural reflex zone therapy

Technique	Method	Aim	Features	Cautions
Generalised foot massage	Effleurage (stroking) of feet, with or without oils or creams (no oils if prior to RZT techniques)	Relaxation, warming of feet, nurturing, starts communication between client and therapist	Should be pleasurable, not painful or ticklish	Normal precautions to massage apply
Holding	Gentle firm pressure on diverse area of foot eg around heel, across all five toes	Nurturing and calming, allows pause in treatment sequence especially if feet are tender	Warm, comforting and pleasurable	Do not prolong hold if working on a precise reflex point
''Sweeping''	Firm bimanual dragging of thumbs across specific area e.g. diaphragm, around hip zone, along reflex zone for Eustachian tube	Calming, pain relieving, restores homeostasis, aids drainage of fluid	Less tender to touch if zone disordered, can be very calming	Ensure movement is performed in correct direction
Draining	Sweeping movement with forefinger and thumb	Thought to ''drain'' or encourage improved flow of lymphatics, aids circulation	May cause a ''pinching'' sensation; repeat 2–3 times to reduce tenderness (normal)	Do not overwork the area – can cause nausea and other strong reactions
''Caterpillar crawling''	Continuous flowing action of thumb/finger over entire surface of foot; two or three fingers can be used together if appropriate	Facilitates exploration of foot for areas requiring further treatment; can be relaxing in itself	Firm but not painful unless passing over an affected zone	Therapist must become alert to *every* nuance in the feet which may indicate other treatment needed
Sedation	Sustained pressure applied to specific point; wait until pain in the point subsides then repeat 4–5 times. Sometimes used as a ''first aid'' technique	Slows specific physiological activity and suppresses symptoms	Tenderness at reflex point gradually subsides – 2nd application may be more tender (normal)	Work only to the level of the client's tolerance
Stimulation	Intermittent pulsation with the thumb or finger for 20–30 presses, 0.5 seconds apart.	Accelerates physiological activity – encourages more efficient physical processes	Client may report sharp tenderness at reflex point – may become increasingly tender:	Work only to the level of client's tolerance
Manipulation (Structural RZT)	Firm working of bony parts of feet	Aids realignment of musculoskeletal system	May be painful; ''cracks'' and ''popping'' sensations felt or heard	Be aware of rapid strong reactions. Do not force bony resistance
No action	No sedation or stimulation applied to the relevant reflex point	Avoids sedation or stimulation of particular reflex points	Do not omit this area of the foot completely – pass hands across reflex point gently	If in doubt about any other technique – do nothing

to correct or reduce anatomical imbalances which may have contributed to physiological disorders or disease, and much more attention is given to manipulating the 26 bones in the feet (which correspond to the reflex zones for the skeletal system in the body) than in most other forms of generic reflexology.

Theoretically, the causes and predisposing factors of physio-pathological conditions can often be linked to musculoskeletal misalignment; diagnosis involves a systematic analysis of the client's history and current condition in relation to the musculo-skeletal system. Whilst in generic reflexology treatment, the main emphasis is often on achieving the relaxation effect to restore and maintain homeostasis, in RZT in general and in structural RZT in particular, specific techniques are used according to the needs of the individual client. This may include stimulation of precise points – a precise technique which differs in effect from the "stimulation" performed for relaxation reflexology – together with sedating and other techniques as appropriate. In addition, structural RZT incorporates specialised manipulative techniques designed to realign the zones corresponding to the musculoskeletal system, in much the same way as an osteopath or chiropractor would use manipulative techniques on the body.

3. Structural reflex zone therapy in pregnancy

The structural RZT approach is particularly pertinent to contemporary maternity care. The pressures of modern living mean that the majority of women will have been in paid employment for some years before deciding to start a family, with childbearing sometimes being left until the late thirties or even the forties. There is then an expectation that conception will occur spontaneously in a short period of time, yet fertility may have been compromised by lifestyle factors such as poor diet, excessive or inadequate exercise or prolonged use of hormonal contraceptive methods. Once conception has occurred, many women seem to expect a problem-

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free (i.e. *symptom*-free) pregnancy and to be able to continue to work until term with no difficulty. Periods of prolonged standing or sitting, at work, in the home or in the car, are particularly significant for maternal and fetal health, as this will compromise pelvic circulation and places undue strain on certain muscles and ligaments, whilst under-using others which would facilitate improved progress and outcome. For example, the increase in symphysis pubis discomfort and the incidence of fetal malposition may be attributed in part to the fact that women no longer spend time engaged in scrubbing the kitchen floor and similar activities. Furthermore, emotional factors can contribute to increased stress, anxiety and depression and a consequent mal-adaptation in the physical structures of the body.

The role of structural RZT in maternity care is to build on the practitioner's understanding of the complex changes in the musculoskeletal system during the antenatal, intrapartum and postnatal periods. Treatment aims to assist mothers with symptoms and complications, which may have both an endocrinological and a musculoskeletal origin, to become more comfortable and to cope with the discomforts which cannot be completely alleviated. Therapy is applied via the feet (and occasionally via the hands) according to the reflex zone map/chart, with some minor variations. Structural RZT is considerably more dynamic than standard RZT, and may include more manipulation of the feet– and certainly more than in most forms of generic reflexology used in Britain. The treatment session is shorter than a relaxation reflexology treatment, partly because symptoms can be treated effectively in a shorter time but also partly due to the possibility of "overdosing" the mother, by using prolonged or excessively forceful manipulations of the feet, especially as reactions can occur rapidly and be profound.

Structural RZT can also be used to aid diagnosis of both physiological and impending or existing pathological conditions. This author has used it for many years to determine stages of the menstrual cycle (in non-pregnant women!)[12] and the same technique has more recently been used to predict the onset of labour, with reasonable success, although this latter has not yet been scientifically evaluated. Specific techniques can also be applied in order to treat expectant mothers with a variety of problems, including stress and anxiety, and backache and sciatica, as discussed below.

4. Structural RZT for stress and anxiety in pregnancy

4.1. Structural physiology and aetiology

Women frequently experience feelings of anxiety during pregnancy: some anxiety is normal but excessive negative emotions and long-term stress will interfere with materno-fetal health. Antenatal stress raises maternal cortisol levels which may lead to low fetal weight, intrapartum complications, impaired immune functioning in the neonate and poor cognitive development.[2,9] *Stress* increases the severity of relatively "minor" physiological symptoms such as nausea and vomiting or headaches and may lead to obstetric complications such as hypertension and pre-eclampsia.[10] Chronic *anxiety* of more than six months' duration can have serious effects, including preterm labour and fetal loss.[1] *Panic attacks* are common in pregnancy, triggering physical reactions including a dry mouth, dizziness, palpitations or difficulty in breathing, and can be a component of antenatal depression. *Tiredness* is a normal aspect of early pregnancy as the mother's body adapts to and becomes accustomed to the raised hormone levels, and *insomnia* is common, particularly in the third trimester when sleep is interrupted by fetal movements, backache and other discomforts. However, unresolved tiredness can also affect the mother's ability to cope with normal physiological symptoms.

Whilst tiredness can be worsened by pain and discomfort, the trio of emotional symptoms (stress, anxiety and tiredness) will also impact on the musculoskeletal system, affecting posture, exacerbating physiological backache and causing neck ache and headaches. Habitually poor posture from prolonged stress increases the kyphotic curvature of the thoracic spine, which constricts the anterior ribcage and compresses the upper stomach, thereby contributing to heartburn and indigestion. Restlessness – "tossing and turning" – at night can eventually lead to abnormal twisting of the spine as the mother attempts to get comfortable, and in severe cases may put excess strain on the sacroiliac joints and then indirectly on the whole bony pelvis, potentially increasing the risk of intrapartum problems such as occipitoposterior position of the fetus and prolonged labour. Compensatory posture during the day may also adversely affect alignment of the lower musculoskeletal system. This can lead to ligament strain, causing groin pain and symphysis pubis discomfort, and to pelvic constriction, especially from prolonged sitting, which affects circulation in the legs, causing oedema and varicosities.

4.2. Relevant reflexology treatment

Psychologically, RZT treatment provides the mother with some valuable "me time" and the opportunity to voice her concerns. It is surprising how much the mother will "open up" during antenatal reflexology, a factor which is not seen in the same way amongst women who attend for massage or other complementary therapies or, indeed, for their normal antenatal appointments. This may be partly due to the mother being in an upright position, facilitating eye-to-eye contact, but may also result from the interaction required during the visual examination of the feet.

Physiologically, the relaxation which can be achieved with RZT reduces the levels of circulating stress homones such as epinephrine, norepinephrine and cortisol, lowering blood pressure and encouraging the release of endorphins and adequate levels of pregnancy hormones to assist in maintaining the health of the mother and fetus. Several research studies suggest that regular reflexology and other touch therapies in the last few weeks of pregnancy can also facilitate the progress and outcome of labour.[3–5,7,8] This assists in regulating homeostasis by lowering stress hormones and increasing the output of oxytocin for labour.

Treatment may comprise a general relaxation session (no longer than 30 minutes' duration) but may also focus on the specific zones related to the mother's exact symptoms. *Very gentle* sedation of the relaxation point ("solar plexus") can precede and follow any other techniques, and be incorporated intermittently throughout the session, but the practitioner should be alert to the mother's response, as her fragile state can precipitate an emotional release during the session, such as bursting into tears or giggling uncontrollably. The relaxation point may be tender if the mother is very anxious and in extreme cases can be acutely painful, sometimes also appearing as a deep groove or dark greyish line down the centre of the foot, from the "solar plexus" point to the midpoint of the arch of the foot.

Sweeping of the diaphragm zones can help to regulate uncoordinated breathing, as will generalised massage of the lung zones, and gentle dispersed pressure over the heart zone will suppress palpitations. Manipulative movements to stretch and ease the spine zone can be combined with sedation of zones for the thoracic spine, cardiac sphincter and oesophagus, according to the precise symptoms of the individual mother. The spine zones should also be worked from the cervical vertebrae to the coccyx, usually two or three times, with sedation of any specific areas denoting problems

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such as upper or lower backache, and the Advanced Technique (described in the book) can also be employed.

It may be appropriate to teach the mother or her partner to sedate the relaxation point on the hands for use in stressful situations, for example, having blood taken in the antenatal clinic. In an acute situation, where the mother experiences panic attacks, *very brief* sedation of the adrenal gland reflex zones will reduce the epinephrine (adrenaline) levels. This technique should not, however, be used for the treatment of longer-term conditions nor for general anxiety and stress. The practitioner should be able to locate the kidney zones accurately, then tip the thumbs over the top and into the precise areas for the adrenal glands; this should be held lightly for no more than three to five seconds as prolonged pressure may cause further palpitations and trigger nausea.

5. Backache, sciatica and symphysis pubis discomfort

5.1. Structural physiology and aetiology

Musculoskeletal discomforts cause considerable distress to women throughout pregnancy, adversely affecting their daily lives and impacting on the family. The conventional explanation for backache and associated symptoms is the effects of the hormones, relaxin and progesterone on the joints, ligaments and muscles in and around the spine and pelvis, causing increased lumbar lordosis, and an altered centre of gravity.

In structural terms, there is considerable force directed through the uterosacral ligaments, whilst the weight of the enlarging uterus is taken by the pelvic floor, affecting sacroiliac, coccygeal, pubic and lumbosacral joint movement; increasing weight stresses the uterosacral ligaments, causing back pain, particularly in late pregnancy. If there is excessive extension at the lumbosacral junction, the weight is transferred to articulating joints nearby, spasm, inflammation and tension accumulate and pain and impaired movement occurs. Pre-existing misalignment of the musculoskeletal system will aggravate the discomfort, as will incoordinate ergonomics such as an accentuated posture when sitting at a computer. Poor abdominal muscle tone, which supports the thoracic and lumbar spine, and relaxation of the pelvic floor, also contribute to the problem.

Pelvic girdle syndrome is defined as pain in all three major pelvic joint areas and has a far worse prognosis than pain resulting from one area only.[6] The biomechanical changes in the lower back and limbs resulting from the increasing weight may compound relaxin-induced joint instability. Tension and misalignment in the lower limb(s) affect the hip girdle, and cause undue stress on the sacroiliac joints and/or symphysis pubis. A change in the angle of inclination of the pelvic brim leads to lumbosacral extension and stress in other vertebrae, with subsequent pain; excessive elasticity in the sacroiliac ligaments and/or poor pelvic floor tone will place additional strain on the joints, ligaments and muscles. Symphysis pubis discomfort is an increasingly common problem in pregnancy, possibly related to more sedentary lifestyles. Poor tone elsewhere, such as the rectus abdominus and psoas muscles aggravate pain, whilst compression or irritation of the sciatic nerve may cause sciatica. Neural tension and movement may be affected by abnormal movement of the head, neck, thoracic cage and lumbar spine, also contributing to sciatica, and displacement of the uterus as it enlarges.

5.2. Relevant reflexology treatment

The mother may need to be assisted onto the couch; she should not overly abduct her legs as she climbs on to the couch, which may need to be lowered until she is in position. Visual examination may reveal focus points along the reflex zone for the spine, swelling around one or both of the hip reflex zones, a brownish discolouration under the reflex zone for the symphysis pubis and/or blueness or puffiness on the indirect zones for the knees.

After initial relaxation movements, specific RZT work can be performed, focusing on the spine, ribs, pelvis and abdominal muscle reflex zones, but also incorporating any reflex zones which appear to be disordered. The spine should always be worked from the zone for the first cervical vertebra downwards to determine the areas which require treatment. It is worth noting that the area of the spine at which the mother reports pain may not necessarily correspond to the location of significant findings on the spine reflex zones, eg the mother may be experiencing lumbosacral pain, yet the causative reflex zone is found to be in the thoracic region. In these cases, both areas should be worked, with a sedating technique at first. Diaphragm “sweeping” is also useful, as is manipulation and massage of the zones for the scapulae, which often display signs of severe muscular tension as a reaction to the altered positioning.

Later, the manipulative movements can be incorporated into the treatment. As the entire musculoskeletal system is interconnected, treatment must be given to all zones corresponding to the bones, joints, ligaments and muscles, as well as those for lymphatic drainage. The Advanced Technique may help to relieve neck tension, the twisting and “push-pull” movement over the ribcage zones and ankle circling to aid pelvic movement. It may also help to apply gentle sustained pressure to the occipital reflex zones, especially if the mother complains of headaches. These may be felt as ridges on the plantar surface of the big toes, sometimes more prominent on one foot than the other. The zones may initially be immensely painful to touch, but pain usually reduces with gentle massage of the occipital zones and this appears to improve pain lower down the spine. Work on the dorsum, over the area corresponding to the abdominal musculature may need to be stimulating as opposed to sedating, in order to encourage improvement in muscle tone.

If the mother complains of sciatica the outer ankle bone, the sacroiliac joint zones and the sciatic nerve zones can be sedated. Gentle manipulation, including ankle rotations, can be used to release tension and restricted musculature, and it will normally be appropriate to sedate the other pelvic joint zones, notably the sacroiliac joints. As with lumbosacral back pain, stimulation of the abdominal musculature may tone up the supporting muscles and provide overall relief.

In the event of symphysis pubis pain the lower 180° of the inner ankle bone may be shaded a brownish, greyish colour and will be tender to touch. Treatment is best done by sweeping with a finger or thumb around this 180° until the most tender spot is located; sedation can then be applied to the epicentre of this painful spot. In practice, it is often advisable to treat the entire musculoskeletal system, as outlined above, since each part is so closely linked and additional symptoms often develop as the original symptom worsens or is prolonged. Many women will report that they have associated symptoms such as headaches, constipation, stress incontinence or divarification of the rectus sheath and these should also be treated.

6. Conclusion

Structural reflex zone therapy is a very specific adaptation of RZT. It requires the practitioner to have a thorough working knowledge of the musculoskeletal system, and to be able to apply this to the particular client group. In pregnancy, it is essential to have a comprehensive understanding of physiological changes and potential pathology, and this must be applied to both the

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musculoskeletal anatomy and physiology and to the application of individualised treatment via the relevant reflex zones (points). Since some reflex zones are located in different positions (notably the pituitary gland zone which is fundamental to maternity therapy), it is also of paramount importance that practitioners work only to the limits of their knowledge and current experience and do not attempt to overstep the boundaries of their practice without further theoretical and practical continuing professional development.

Structural RZT is an effective system for easing many of the physiological symptoms of pregnancy and for preventing or reducing the severity of pathological complications. It requires generic reflexologists to develop a new way of thinking and to be able to apply theory to practice, but it offers an exciting set of tools for those wishing to work with pregnant, labouring or newly-birthed mothers.

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Further resources

13. Expectancy offers accredited courses on structural reflex zone therapy for pregnancy and childbirth. See www.expectancy.co.uk.

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