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Functional and facilitated positional release approaches, including cranial methods

CHAPTER CONTENTS

ORIGINS OF FUNCTIONAL TECHNIQUE

There is a long tradition in manipulative medicine in general, and osteopathy in particular, of positional release methods. Variations on the theme of movement towards 'ease' and away from 'bind' or pain, in non-osteopathic contexts, include McKenzie's exercise protocols, Mulligan's *mobilisation with movement*, kinesio-taping methods that 'unload' tissues, Chiropractic's *sacro-occipital technique* (SOT) and more.

Hoover (1969a) quotes the words used by two osteopaths who had been students of the founder of osteopathy in the late 19th century, Andrew Taylor Still. They individually responded to a question as to what it was that they were doing while treating a patient, with the words, 'I am doing what the body tells me to do' moving tissues into situations that are 'comfortable', 'easy'. It can be seen that osteopathic positional release methods go back to its very origins. As Dr Hruby makes clear in Chapter 8 on Balanced ligamentous tension techniques, the developers of that functional positional release approach were 'merely applying Still's original principles'.

All the words in the world cannot substitute for actually *feeling* what happens when these methods are applied, and for this reason, exercises later in this chapter have been included in order to help bring to life the meaning and feeling of the explanations for what is, in essence, the most simple and yet one of the most potent of manipulative methods; one that creates a situation in which dynamic homeostatic balance of the affected tissues is created; one in which self-regulating repair mechanisms have an enhanced opportunity to operate.

The term 'functional technique' grew out of a series of study sessions held in the New England Academy of Applied Osteopathy in the 1950s, under the general heading of '*A functional approach to specific osteopathic manipulative problems*' (Bowles 1955, 1956, 1957).

As indicated, the methods being explored in those sessions derived from traditional methods that dated back to the origins of osteopathy in the 19th century, but which had never been formalized or scientifically evaluated.

It was only in the 1950s and 1960s that research, most notably by Korr (1947), coincided with a resurgence of interest in these approaches, largely as a result of the clinical and teaching work of Hoover, with the result that, '*functional technique has become quite comfortable in today's scientific climate, as well as streamlined and highly effective in practice*' (Bowles 1981).

Essential difference between counterstrain and functional methods

When considering the methodology of functionally orientated techniques, one distinctive difference stands out when compared with most other positional release methods – and with strain/counterstrain (SCS) in particular.

In functional work, palpation for a 'position of ease' involves a subjective appreciation of tissues, as these are brought through a process of positioning, towards ease, to a state of 'dynamic neutral' (see Chapter 1). In complete contrast to counterstrain methods, there is no reliance on feedback from the patient as to reduction in pain during the process of positioning and fine-tuning. Instead all positioning decisions are based on practitioner perception of changes in tissue tension/tone.

Theoretically (and usually in practice), the palpated position of maximum ease (reduced tone) in the distressed tissues should closely approximate the position that would have been found if pain was being used as a guide, as in Jones's or Goodheart's approaches, as described in Chapters 4.

Similarly, if the principle of 'exaggeration of distortion' or 'replication of position of strain' were employed, the same end-position ('dynamic neutral') should be achieved, irrespective of whether functional or counterstrain methods were being used (see Chapters 1 and 4).

Example (Bowles 1956):

> ***A patient has an acute low back and walks with a list. A structural diagnosis is made and the fingertips palpate the most distressed tissues, within the area of most distress. The operator begins tentative positioning of the patient, preferably sitting. The fingertips pick up a slight change toward a dynamic neutral response, a little is gained, not much, but a little. A little, but enough so the original segment is no longer the most distressed area within the area of general distress. The fingers then move to what is now the most acute segment. A feeling of dynamic neutral is obtained here as far as is possible. Being temporarily satisfied with slight improvements here and there, this procedure continues until no more improvement is detectable. That is the time to stop. Using tissue response to guide the treatment the operator has step-by-step eased the lesioning (dysfunctional area) and corrected the structural imbalance to the extent that the patient is on the way to recovery.***

Note: Chapter 8, Balanced ligamentous tension, techniques describes a specialized variant of functional technique.

FUNCTIONAL OBJECTIVES

Hoover (1957) summarized the key elements of functional technique in diagnosis and treatment:

- Diagnosis of function involves passive evaluation as the part being palpated responds to physiological demands for activity made by the operator or the patient.
- Functional diagnosis determines the presence or absence of normal activity of a part which is required to respond as a part of the body's activities (say respiration, or the introduction of passive or active flexion or extension).
- If the participating part has free and 'easy' motion, it is normal. However, if it has restricted or 'binding' motion, it is dysfunctional.
- The degree of ease and/or bind present in a dysfunctional site when motion is demanded is a fair guide to the severity of the dysfunction.
- The most severe areas of observed or perceived dysfunction are the ones to treat initially.
- The directions of motion which induce ease in the dysfunctional sites indicate precisely the most desirable pathways of movement.
- Use of these guidelines automatically precludes undesirable manipulative methods, since an increase in resistance, tension or 'bind' would result from any movement towards directions of increased tissue stress.
- Treatment using these methods is seldom, if ever, painful and is well received by patients.
- The application requires focussed concentration on the part of the operator and may be mentally fatiguing.
- Functional methods are suitable for application to the very ill, the extremely acute and the most chronic situations.

FUNCTIONAL EXERCISES

The exercises described in this chapter are variously derived from the work of the pioneers of these methods: Johnston (1964, 1988a,b); Johnston, Stiles and colleagues (Johnston et al. 1969); Greenman (1989); Hoover (1969b) and Bowles (1955, 1964, 1981).

Bowles (1981) is precise in his instructions to those attempting to learn to use their palpating contacts in ways that allow the application of functional methods:

1. The palpating contact ('listening hand') must not move.
2. It must not initiate any movement.
3. Its presence in contact with the area under assessment/treatment is simply to derive information from the tissue beneath the skin.
4. It needs to be tuned into whatever action is taking place beneath the contact and must temporarily ignore all other sensations, such as '*superficial tissue texture, skin temperature, skin tension, thickening or doughiness of deep tissues, muscle and fascial tensions, relative positions of bones and range of motion*'.
5. All these signs should be assessed and evaluated and recorded separately from the functional evaluation, which should be focussed single-mindedly on tissue response to motion: '*It is the deep segmental tissues, the ones that support and position the bones of a segment, and their reaction to normal motion demands, that are at the heart of functional technique specificity*' (Bowles 1981).

Terminology

Bowles (1964) explains the shorthand use of these common descriptive words:

> ***Normal somatic function is a well-organized complexity and is accompanied by an easy action under the functionally-orientated fingers. The message from within the palpated skin is dubbed a sense of 'ease' for convenience of description. Somatic dysfunction could then be viewed as an organized dysfunction and recognized under the quietly palpating fingers as an action under stress, an action with complaints, an action dubbed as having a sense of 'bind'.***

In addition to the 'listening hand' and the sensations it is seeking, of *ease* and *bind*, Bowles suggests we develop a 'linguistic armament', which will allow us to pursue the subject of functional technique without 'linguistic embarrassment' and without the need to impose quotation marks around the terms each time they are used.

He therefore asks us to become familiar with the additional terms, 'motive hand', which indicates the contact hand that directs motion (or fingers, or thumb or even verbal commands for motion – active or assisted), and also 'normal motion demand', which indicates what it is that the motive hand is asking of the body part. The motion could be any normal movement such as flexion, extension, side-bending, rotation or combination of movements – the response to which will be somewhere in the spectrum of ease and bind, which will be picked up by the 'listening hand' for evaluation.

At its simplest, functional technique sets up a 'demand–response' situation, which allows for the identification of dysfunction – as bind is noted – and which also allows for therapeutic intervention as the tissues are guided towards ease.

Bowles's summary of functional methods

In summary, whatever region, joint or muscle is being evaluated by the listening hand, the following results might occur:

1. The motive hand makes a series of motion demands (within normal range), which includes all possible variations. If the response noted in the tissues by the listening hand is *ease* in all directions, then the tissues are functioning normally.
2. However, if/when any of the directions of movement produce *bind* when the demand is within normal physiological ranges, the tissues are responding dysfunctionally.
3. For therapy to be introduced in response to an assessment of bind (dysfunction), relating to any motion demand, the listening hand's feedback is required so that, as the motion(s) which produced bind are reintroduced, movement is modified so that the maximum possible degree of ease is achieved: 'Therapy is monitored by the listening hand and fine-tuned information as to what to do next is then fed back to the motive hand. Motion demands are selected that give an increasing response of ease and compliance under the quietly palpating fingers' (Bowles 1964).
4. The results can be startling, as Bowles (1964) explains: '*Once the ease response is elicited it tends to be self-maintaining in response to all normal motion demands. In short, somatic dysfunctions are no longer dysfunctions. There has been a spontaneous release of the holding pattern*'.

1. Bowles's functional self-assessment exercise

(Bowles 1964)

- Stand up and place your fingers on your own neck muscles paraspinally, so that the fingers lie – very lightly, without pressing, but constantly 'in touch' with the tissues – approximately over the transverse processes.
- Start to walk for a few steps and try to ignore the skin and the bones under your fingers by concentrating all your attention on the deep supporting and active tissues as you walk.
- After a few steps, stand still and then take a few steps walking backwards, all the while evaluating the subtle yet definite changes under your fingertips.
- Repeat the process several times, once while breathing normally and once while holding the breath in, and again holding it out.
- Standing still, take one leg at a time backwards, extending the hip and then returning it to neutral before doing the same with the other leg.
- What do you feel in all these different situations?

This exercise should help to emphasize the 'listening' role of the palpating fingers and their selectivity as to what they wish to listen to.

The listening hand contact should be 'quiet, nonintrusive, non-perturbing' in order to register the compliance of the tissues, in order to evaluate whether there is a greater or lesser degree of 'ease' or 'bind' on alternating steps, and under different circumstances, as you walk.

2. Johnston and colleagues 'palpatory literacy' exercises

(Johnston et al. 1969)

Exercise 2(a) The time suggested for this exercise is 3 minutes.

- Have someone sit as you stand behind them resting your palms and fingers over their upper trapezius muscle, between the base of the neck and shoulder.
- The object is to evaluate what happens under your hands as your partner inhales deeply.
- This is not a comparison of inhalation with exhalation, but is meant to help you assess the response of the areas being palpated – to inhalation. Do they stay easy, or do they bind?
- You should specifically *not* try to define the underlying structures or their status in terms of tone or altered tissue status; simply assess the impact, if any, of inhalation on the tissues.
- Do the tissues resist, restrict, 'bind' or do they stay relaxed?
- Compare what is happening under one hand with what is happening under the other during inhalation.

Exercise 2(b) The time suggested for this exercise is 5–7 minutes.

- Go back to the starting position where you are palpating someone who is seated, with you standing behind.
- The objective this time is to map the various areas of 'restriction' or 'bind' in the thorax, anterior and posterior, as your partner inhales.
- In this exercise, try not only to identify areas of bind, but to assign what you find into 'large' (several segments) and 'small' (single segment) categories.
- To commence, place a hand, mainly fingers, on (say) the upper left thoracic area, between scapula and the spine, and have your partner inhale deeply several times, first when seated comfortably, hands on lap, and then with the arms folded on the chest (exposing more the costovertebral articulation).

- After several breaths with your hand in one position, re-situate the hand a little lower, or more medially or laterally, until the entire back has been 'mapped' in this way.
- Remember that you are not comparing how the tissues feel on inhalation compared with exhalation, but how different regions compare (in terms of ease and bind) *with each other*, in response to inhalation.
- Map the entire back – for locations of areas of bind. Also, note the 'size' of these area(s).
- Go back to any 'large' areas of bind and see whether you can identify any 'small' areas within them, using the same contact with inhalation as the active component.
- Individual spinal segments can also be mapped by sequentially assessing them one at a time as they respond to inhalations.
- Ask yourself how you would normally use the information you have uncovered via this functional assessment:
  - Would you try in some way to mobilize what appears to be restricted, and if so, how?
  - Would your therapeutic focus be on the large areas of restriction or the small ones?
  - Would you work on areas distant from, or adjacent to, the restricted areas?
  - Would you try to achieve a release of the perceived restriction by trying to move it mechanically towards and through its resistance barrier, or would you rather be inclined to try to achieve release by some indirect approach, moving away from the restriction barrier?
  - Or, would you try a variety of approaches, mixing and matching until the region under attention was free or improved?

There are no correct or incorrect answers to these questions; however, the various exercises in this section (and elsewhere in the book) should open up possibilities for other ways being considered, ways that do not impose a solution, but that allow one to emerge.

Exercise 2(c) The time suggested for this exercise is 5–7 minutes.

- With someone seated, arms folded on the chest, and with you standing behind, place your listening hand/fingertips onto the upper left thorax, in the scapula area.
- Your motive hand is placed at the cervico-dorsal junction, so that it can indicate your 'request' to move the head and upper torso anteriorly (in the coronal plane), not into flexion but in a manner that carries the head and upper torso forward.
- The repetitive movement forwards, into the position described, and back to neutral, is initiated by your motive hand, while the listening hand evaluates the changes created by this in different areas of the posterior thorax.
- In effect, you are comparing one palpated area with another, in response to this normal (anterior translation) motion demand.
- As Johnston and colleagues (1969) state: '*It is not anterior direction of motion compared with posterior direction, but rather a testing of motion into the anterior compartment only, comparing one area with the ones below, and the ones above, and so on*'.
- Your listening hand is asking the tissues whether they will respond easily or with resistance to the motion demanded of the trunk.
- In this way, try to identify those areas, large and small, that *bind* as the movement forward is carried out.
- Compare these areas with those identified when the breathing assessment was used in Exercise 2(b).

Implications

Ways of using the information gathered during Exercise 2(c):

> ***In this particular testing what you have been doing is changing the positional relationship of the shoulders and the hips.***
>
> ***Clues about this shoulder-to-hips relationship, elicited at the restricted area in this way, can become criteria for you in picking the technique you may want to use to effectively change the specific dysfunction being tested …. We feel that a better chance of 'correction' may be established if you use a technique which will take the dysfunctional area and deal not only with the flexion–extension component, the side-bending and the rotation, but also see that the shoulders are properly positioned in relation to the hips.***
>
> Johnston et al. 1969

Note: The patterns elicited in Exercise 2(c) involved movement initiated by you, whereas the information derived from 2(a) and 2(b) involved intrinsic motion, initiated by respiration. Johnston et al. have, in these simple exercises, taken us through the initial stages of palpatory literacy in relation to how tissues respond to motion that is self-initiated or externally induced.

Hoover's experimental exercises

Hoover (1969b) poses a number of questions in the following exercises (he calls them 'experiments'), the answers to which should always be 'yes'.

If your answers are indeed positive at the completion of the exercise, then you are probably sensitive enough in palpatory skills to be able to use functional technique effectively in clinical settings.

3. Hoover's functional clavicle exercise

(Hoover 1969a)

Exercise 3(a) Suggested time for this exercise is 5 minutes.

The question posed in this part of the exercise is: 'Does the (healthy) clavicle move in a definite and predictable manner?'

- Stand facing someone and place the pads of the fingers of your right hand (listening hand) onto the skin, above the right acromioclavicular joint.
- With your left hand, hold the right arm just below the elbow.
- Ensure the individual – and the shoulder/arm is relaxed and that you have the full weight of the arm and that there is no attempt to assist or hinder in any way, as the exercise is carried out. This can be tested by raising and lowering the arm several times (Fig. 5.1).
- Slowly and deliberately take the arm back from the midline, just far enough to sense a change in the tissues under your palpating hand, and then return it to neutral.
- Avoid quick movements, so that the sensations being palpated are accurately noted.
- Repeat this movement several times, so that the influence of this single movement can be assessed.
- Recall the question posed by Hoover for consideration, as you make this passive movement of the arm: 'Does the (healthy) clavicle move in a definite and predictable manner?'
- Now take the arm forward of the midline, until you sense a tissue change under your listening hand's fingertips.
- Repeat this single movement several times, forward and back to neutral, repeat and repeat, assessing as you do so.
- Introduce abduction of the arm from its neutral position, and then return it to neutral several times, assessing as you do so.
- Then introduce adduction – bringing the arm across the front of the trunk slightly – before returning it to neutral. Repeat this several times, assessing as you do so.
- In a similar manner, starting from and returning to neutral, assess the effect on *ease* and *bind* of a slowly introduced degree of internal and then external rotation, conducted individually.
- What was the response of individual physiological movements to the question: 'Does the clavicle move in a definite and predictable manner?'

The answer to the question posed should be that the clavicle does indeed move in a definite and predictable manner when demands for motion are made upon it – and that you can perceive the tissue changes that result.

Figure 5.1 Assessing for positions that induce ease or bind in the acromioclavicular joint. The fully supported arm is passively moved in various directions. *(Hoover 1969b.)*

Exercise 3(b) Suggested time for this exercise is 5 minutes.

The question posed in this exercise is: 'Are there differences in ease of motion, and palpated feelings, when the clavicle is caused to move in different physiological motions?'

- Adopt the same starting position as in Exercise 3(a) and then move the person's arm backwards into extension, very slowly as you palpate tissue change at the lateral end of the clavicle.
- Compare the feelings of ease and bind as you then take the arm into flexion, bringing it forward of the body.
- Then compare the feelings of ease and bind as you abduct and adduct the arm sequentially, passing through neutral as you do so.
- Now compare the ease and bind sensations as you internally and externally rotate the arm.
- In this exercise, instead of motion demands assessed individually, you have the chance to evaluate what happens, in the tissues being palpated, as opposite motions are introduced, sequentially, without a pause.
- The question posed asks that you decide whether there were directions of motion that produced altered feelings of ease in the tissues.
- The answer should be that, usually, there are indeed identifiable differences or aberrations of motion and

tissue texture, when the clavicle is caused to move in the different physiological motions.

Exercise 3(c) Suggested time for this exercise is 5 minutes. The question posed in this exercise is: 'Can the differences of ease of motion and tissue texture be altered by moving the clavicle in certain ways?'

- Repeat the introductory steps and commence by *flexing* the arm, and bringing it forwards of the midline until you note the clavicle beginning to move and the texture under palpation changing to bind.
- Then move the flexed arm backwards into *extension* until the clavicle starts to move and the sensation of bind is again noted.
- Between these two extremes lies a position of maximum ease, a position of physiological balance, in this plane of motion (forward and backward of the midline).
- This is the point of balance (*ease*) that you need to establish when using functional technique.
- Starting from this first *balanced point of ease*, use the same guidelines for assessing the point at which maximal 'ease' is noted in the acromioclavicular tissues, as you seek a point of balance between *abduction and adduction* of the arm.
- When you find the combined position of maximal ease, having previously explored flexion/extension and now abduction/adduction, you will effectively have 'stacked' one position of ease onto another.
- Starting from that combined position of ease, you now need to find the point of ease between the extremes where clavicular movement involves internal and *external rotation*.
- Once this third combined position of ease has been established, you will have achieved a reciprocal balance between the arm and the clavicle involving the most common movement patterns of the shoulder.
- For completeness, time allowing, you could also add the testing of tissue responses to: compression–distraction; inhalation–exhalation – each time commencing from the stacked/combined positions of ease previously identified.
- If you were treating dysfunction in these tissues/structures, you would maintain that combined ('stacked') position of ease for around 90 seconds.

In this process you should have effectively answered the question posed in Exercise 3(c), since it should now become clear that aberrations of motion and tissue texture/tension can be changed by motion of the clavicle.

The experiment continues

Starting from the position of reciprocal balance, reassess, as you did in the first part of the whole exercise, all the individual directions of motion of the arm (flexion, abduction, etc.).

Unlike the first part of the Exercise 3(a), you will not be starting from the position in which the arm hangs at the side, but rather from a point of dynamic balance, in which the tissues are at their most relaxed.

What you are seeking now are single motions of the arm/clavicle that exhibit the greatest degrees of freedom, the least sense of bind, starting from this balanced position.

When such a motion is identified (Hoover 1969a):

> ***This one motion is continued slowly and gently as long as the sensory hand reports improving conditions, if a state is reached in which movement in that one direction increases bind and does not make movement more easy and tissue texture more normal, the sequence of physiological motions are again checked.***

What Hoover (1969a) is taking us towards in this exercise is the point at which we no longer impose action on the body, but follow it – where we allow the tissues to guide us towards their most desired directions of motion and positional ease.

In effect, what he has done, if we can follow his instructions up to this point, is to bring us to the start of using functional technique clinically.

The process described above, of finding physiological, dynamic balance and then seeking the pathways of greatest ease for the tissues, is functional technique in action.

The further evolution of the process described (using the clavicle exercise), in which the tissues guide the operator, requires a great deal of practice.

Hoover (1969a) explains:

> ***The operator relaxes and becomes entirely passive as his sensory or listening hand detects any change in the clavicle and its surrounding tissues. A change in the clavicle and its surrounding tissues, if felt by the sensory/listening hand, sends information to the reflex centers which relay an order to the motor hand to move the arm in a manner so as to maintain the reciprocal balance, or neutral. If this is the proper move there will be a feeling of increasing ease of motion and improved tissue texture. This process continues through one or more motions until the state of maximum ease, or quiet, is attained.***

4. Hoover's thoracic exercise

(Hoover 1969b)

Exercise 4(a) Suggested time for this part of the exercise is 4 minutes.

- Stand behind your seated partner, whose arms are folded across the chest.

- You should have previously assessed by palpation, observation and examination the thoracic or lumbar spine of your partner, and should now lightly place your listening hand on an area that appeared to be restricted, or in which the tissues are particularly hypertonic.
- Wait and do nothing as your hand 'tunes' in to the tissues.
- Make no assessments as to structural status.
- Wait for at least 15 seconds. Hoover says: 'The longer you wait the less structure you feel. The longer you keep the receiving fingers still, the more ready you are to pick up the first signals of segment response when you proceed to induce a movement demand'.
- With your other hand, and by voice, guide your partner/model into slight flexion and then extension.
- The motive hand should apply a very light touch, just a suggestion as to the direction towards which you want movement to take place.
- The listening hand does nothing but waits to feel the functional response of the tissues – ease and bind – as the spinal segments and tissues move into flexion and then extension.
- A wave-like movement should be noted as the segment/area being palpated is involved in the gross motion demanded of the spine.
- Changes in the tissue tension under palpation should be noted as the various phases of the movement are carried out.
- Practise the assessment at various segmental levels, and areas of the back, and try to feel the different status of the palpated tissues during the phases of the process, as bind starts, becomes more intense, eases somewhat and then becomes very easy, before a hint of bind reappears and then becomes intense again.
- Decide where the *maximum bind* is felt and where *maximum ease* occurs. These are the key pieces of information required for functional technique as you assiduously avoid bind and focus on ease.
- Try also to distinguish between the bind that is a normal physiological response to an area coming towards the end of its normal range of movement, and the bind that is a response to dysfunctional restriction.

Exercise 4(b) Suggested time for this part of the exercise is 3 minutes.

- Return to the starting position as in 4(a) and, while palpating an area of restriction or hypertonicity, induce pure side-bending to one side, and then the other while assessing for ease and bind in exactly the same way as in 4(a) (where flexion and extension were the directions used).

Exercise 4(c) Suggested time for this part of the exercise is 3 minutes.

- Return to the starting position as in 4(a) and 4(b) and, while palpating an area of restriction, or hypertonicity, induce rotation to one side and then the other while assessing for ease and bind in exactly the same way as in 4(a) and 4(b).

Different responses

Hoover describes variations in what you might feel, as a response from the tissues being palpated, during these various positional demands.

1. **Dynamic neutral:** This response to motion is an indication of normal physiological activity. There is minimal signalling during a wide range of motions in all directions. Hoover states it in the following way:

> ***This is the pure and unadulterated un-lesioned (i.e. not dysfunctional) segment, exhibiting a wide range of easy motion demand–response transactions.***

2. **Borderline response:** This is an area or segment which gives some signals of a degree of bind fairly early in a few of the normal motion demands. The degree of bind will be minimal and much of the time ease, or dynamic neutral, will be noted. Hoover states that 'most segments act a bit like this'; they are neither fully 'well' nor 'sick'.
3. **The lesion response:** This is where bind is noted almost at the outset of almost all motion demands, with little indication of dynamic neutral.

Note: Terminology has changed and what was called a 'lesion' in Hoover's day is now known as *somatic dysfunction*.

Hoover suggests that you should:

> ***Try all directions of motion carefully. Try as hard as you can to find a motion demand that doesn't increase bind, but on the contrary, actually decreases bind and introduces a little ease … This is an important characteristic of the lesion (dysfunction).***

Indeed, he states that the more severe the restriction the easier it will be to find one or more slight motion demands that produce a sense of ease or dynamic neutral, because the contrast between ease and bind will be so obvious.

Hoover's summary

Practice is suggested with dysfunctional joints and segments in order to become proficient.

Three major ingredients are required for doing this successfully (Hoover 1969b):

1. A focussed attention to the process of motion demand and motion response, while whatever is

being noted is categorized, as 'normal', 'slightly dysfunctional', 'frankly or severely dysfunctional' and so on.

2. A constant evaluation of the changes in the palpated response to motion in terms of *ease* and *bind*, with awareness that these represent increased and decreased levels of signalling and tissue response.
3. An awareness that in order to thoroughly evaluate tissue responses, all possible variations in motion demand are required, which calls for a structured sequence of movement demands.

Hoover suggests that these be verbalized (silently):

> *Mentally, set up a goal of finding ease, induce tentative motion demands until the response of ease and increasing ease is felt, verbalize the motion-demand which gives the response of ease in terms of flexion, extension, side-bending and rotation. Practice this experiment until real skills are developed. You are learning to find the particular ease-response to which the dysfunction is limited.*

In addition, depending upon the region being evaluated, directions such as abduction, adduction, translation forwards, translation backwards, translation laterally and medially, translation superiorly and inferiorly, compression and distraction, etc. may need to be factored into this approach.

Greenman's functional exercise, below, introduces some of these elements.

Bowles describes the goal

Bowles (1964) summarizes succinctly what is being sought during such processes of assessment:

> *The activity used to test the segment (or joint) is largely endogenous, the observing instrument is highly non-perturbational, and the information gathered is about how well or how poorly our segment of structure is solving its problems. Should we find a sense of easy and non-distorted following of the structures, we diagnose the segment as normal. If we find a sense of binding, tenseness, tissue distortion, a feeling of lagging and complaining in any direction of the action, then we know the segment is having difficulty properly solving its problems.*

The diagnosis would be of dysfunction.

5. Greenman's (1989) spinal 'stacking' exercise

The recommended time for this exercise is 10 minutes.

In previous exercises, individual directions and some simple combinations of movement have been used to assess the response of the palpated tissues in terms of ease and bind.

In this exercise, pairs of motion demands are made (e.g. flexion and extension). However, each of these assessments, after the first one, should commence from the point of ease discovered in relation to the previous motion demand assessed.

In this way, the ultimate position of maximal ease, of dynamic neutral, is equal to the sum of all the previously achieved positions of ease so that one position of ease is literally 'stacked' onto another.

- Stand behind the individual/patient, whose arms are crossed on their chest, with hands on shoulders.
- Place your listening hand on an upper thoracic segment and take your other arm across and in front of the person's folded arms, to engage their opposite shoulder or lateral chest wall.
- Motion demands are made by verbal instruction as well as by slight encouragement from the motive hand.
- A series of assessments is made for ease (Fig. 5.2) in each of the following pairs of direction:
  - Flexion and extension
  - Side-bending left and right
  - Rotation left and right
  - Translation anteriorly and posteriorly
  - Lateral translation left and right
  - Translation cephalad and caudad (traction and compression)
  - Full inhalation and full exhalation.
- The first element of the investigation should *always* be flexion and extension.
- The final element of the investigation evaluates the influence on *ease* of the different phases of breathing, full inhalation and full exhalation.
- However, apart from these two requirements, the sequence in which the other movements are performed is irrelevant, as long as they are all introduced so that each subsequent motion demand commences from the position of combined-ease, previously discovered.
- The final respiratory demand indicates in which phase of breathing the most ease in the tissues is noted, and once this has been established that phase is 'stacked' onto the combined positions of ease previously identified.
- This is held for approximately 90 seconds, after which the position of neutral is slowly readopted before the entire stacking sequence is performed again to evaluate changes.

6. Exercise in cervical translation palpation

Note: This is a modification of Greenman's (1989) exercise, in which he suggested the use of a muscle energy

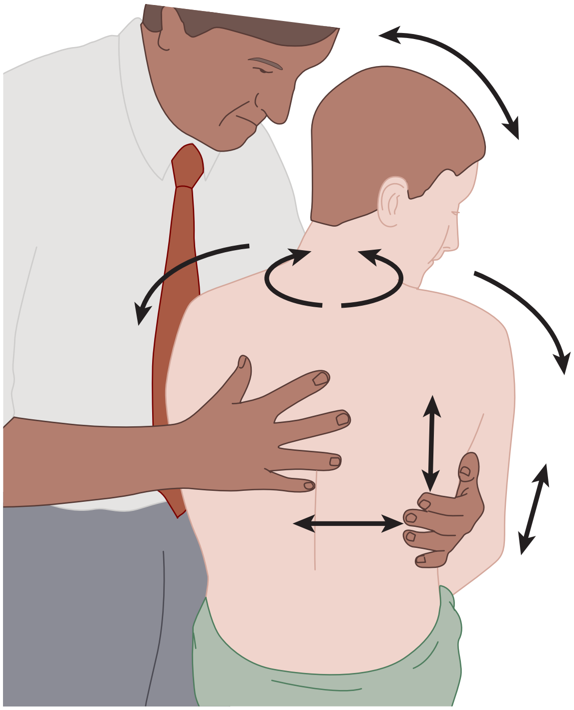

Figure 5.2 Functional palpation (or treatment) of a spinal region/segment, during which all possible directions of motion are assessed for their influence on the sense of 'ease and bind' in the palpated tissues. After the first position of ease is identified (sequence is irrelevant), each subsequent assessment commences from the position of ease (or combined positions of ease) identified by the previous assessment(s) in a process known as 'stacking'.

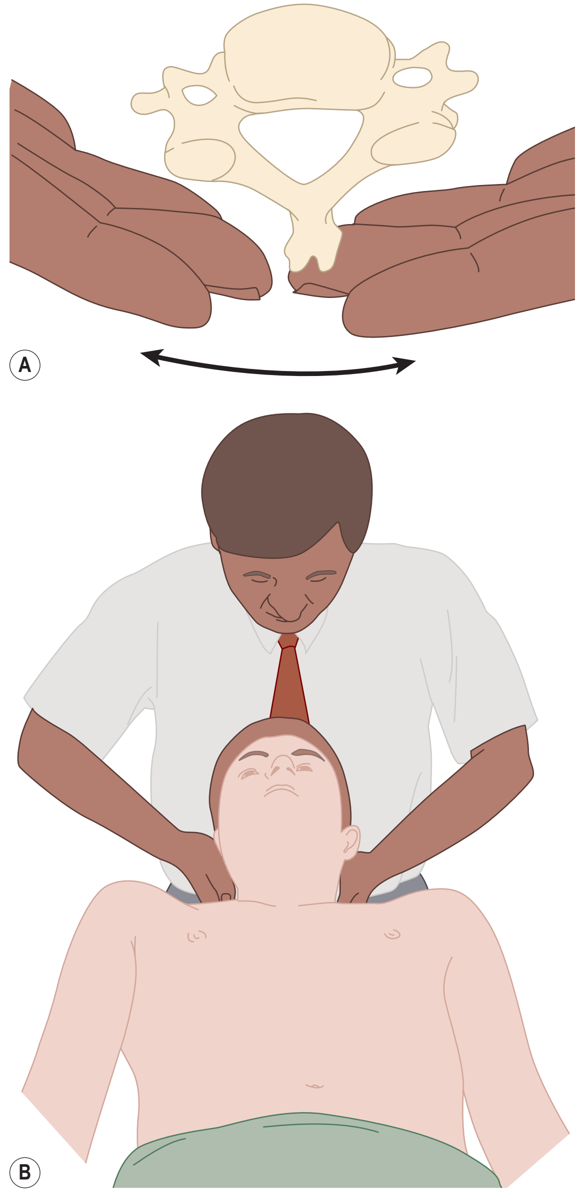

Figure 5.3 (A,B) Functional assessment and/or treatment of the cervical area involving translation/rotation restrictions.

technique to treat whatever restrictions are identified, when testing translation restrictions. In this variation, positional release (functional) techniques are suggested instead; however, the basic design of the exercise is as described by Greenman.

To easily palpate for side-flexion and rotation, a side-to-side *translation* ('shunt') movement is used, with the neck in one of three positions: neutral, moderate flexion and extension.

As segments below C2 are translated to one side, it automatically creates side-flexion and, because of the anatomical and physiological rules governing it, *rotation to the same side occurs* (Mimura et al. 1989).

This spinal coupling feature appears to be a predictable universal event in most of the cervical spine (i.e. side-flexion and rotation to the same side between C2 and C6); however, coupling in the remainder of the spine, while universal, is less predictable (Gibbons & Tehan 1998).

In order to evaluate cervical function using this effect, Greenman suggests that the practitioner should place the fingers as follows, on each side of the spine (Fig. 5.3):

- The supine patient's occiput rests on the practitioner's thenar eminences.
- The index finger pads rest on the articular pillars of C6, just above the transverse processes of C7, which can be palpated just anterior to the upper trapezius.

- The middle finger pads will be on C6, and the ring fingers on C5, with the little finger pads on C3.

Then:

- With these contacts, it is possible to examine for sensitivity, fibrosis and hypertonicity, as well as to apply lateral translation to cervical segments with the head in neutral, flexion or extension.
- In order to do this effectively, it is helpful to stabilize the superior segment to the one being examined.
- The heel of the hand helps to control movement of the head.
- With the head/neck in relative neutral (no flexion and no extension), translation to the right and then left is introduced (any segment) to assess freedom of movement (and by implication, side-flexion and rotation) in each direction.
- Say C5 is being stabilized with the finger pads, as translation to the left is introduced, the ability of C5 to freely side-flex and rotate on C6 is being evaluated when the neck is in neutral.
- If the joint – and/or associated soft tissues – are normal, this translation will cause a gapping of the left facet and a 'closing' of the right facet as left translation is performed, and vice versa.
- There will be a soft end-feel to the movement, without harsh or sudden braking.
- If, however, translation of the segment towards the right from the left produces a sense of resistance/bind, then the segment is restricted in its ability to side-flex left and (by implication) to rotate left.
- If translation right is restricted, then (comparatively) translation left will be more 'free'.
- If such a restriction is noted, the translation should be repeated, but this time with the head in extension instead of neutral.
- This is achieved by lifting the contact fingers on C5 (in this example) slightly towards the ceiling before reassessing the side-to-side translation.
- The head and neck should also be taken into slight flexion, and left-to-right translation should again be assessed.
- The objective is to ascertain which position (neutral, flexion, extension) creates the greatest degrees of *ease* and *bind* as any particular translation occurs.
- By implication, if translation left (whether in neutral, extension of flexion) is the most free, then translation in the opposite direction would be more restricted.
- Because of spinal coupling rules, this indicates that rotation is also likely to be more restricted in the direction opposite that in which translation was most free (i.e. greater freedom of translation left suggests greater restriction of rotation right).
- The question the assessment is asking is whether (at the segment being assessed) there is more freedom of translation movement in one direction or the other, in neutral, extension or flexion.
- If this freedom of movement is greater with the head extended, or neutral, or flexed, then that is the position to be used in treating any dysfunction or imbalance (as indicated by greater restriction in translation in the opposite direction) at that segment.
- Hold the translation position in the most obvious position of ease for 90 seconds and then re-evaluate the symmetry of translation movement.
- Movement should be more balanced.
- All segments up to C2 should be assessed and/or treated following the same guidelines.

Functional treatment of the knee – a case study

Johnston (1964) describes the way in which an acute knee restriction might be handled using a functional approach.

He stresses that the description given is unique to the particular pattern of dysfunction under consideration, and that quite different patterns of dysfunction and therapeutic input would be noted in each and every acute knee problem treated. We need to consider, in each case, 'this particular patient with this particular problem'.

A young male patient is described who had a painful left knee, of 3 months' duration, which could not fully straighten following a period of extensive kneeling.

On examination, the left leg remained slightly flexed at the knee, with tissues in the region somewhat warmer and more congested than in the normal right knee. Extension of the knee was painful and provided a rigid resistance as well as pain.

- Standing on the left of the patient the practitioner placed his right hand so that the palm was in contact with the patella, the thumb encircled the knee to contact the lateral aspect of the joint interspace while the second finger was in contact with the medial joint interspace.
- This *listening hand* maintained a contact light enough to appreciate subtle changes in tissue status (the sense of tension and rigidity in the tissues – described as bind) while also being able to assist in subsequent motion introduced by the other hand.
- The left hand firmly held the patient's left ankle (Fig. 5.4A).
- Initially, the extreme sense of bind was assessed by taking the joint into an extension direction – straightening the leg a little.
- As the knee was then returned to its position of slight flexion a sense of ease was noted in the palpated tissues.
- Various directions of motion were then explored and evaluated for the responses of ease and bind.

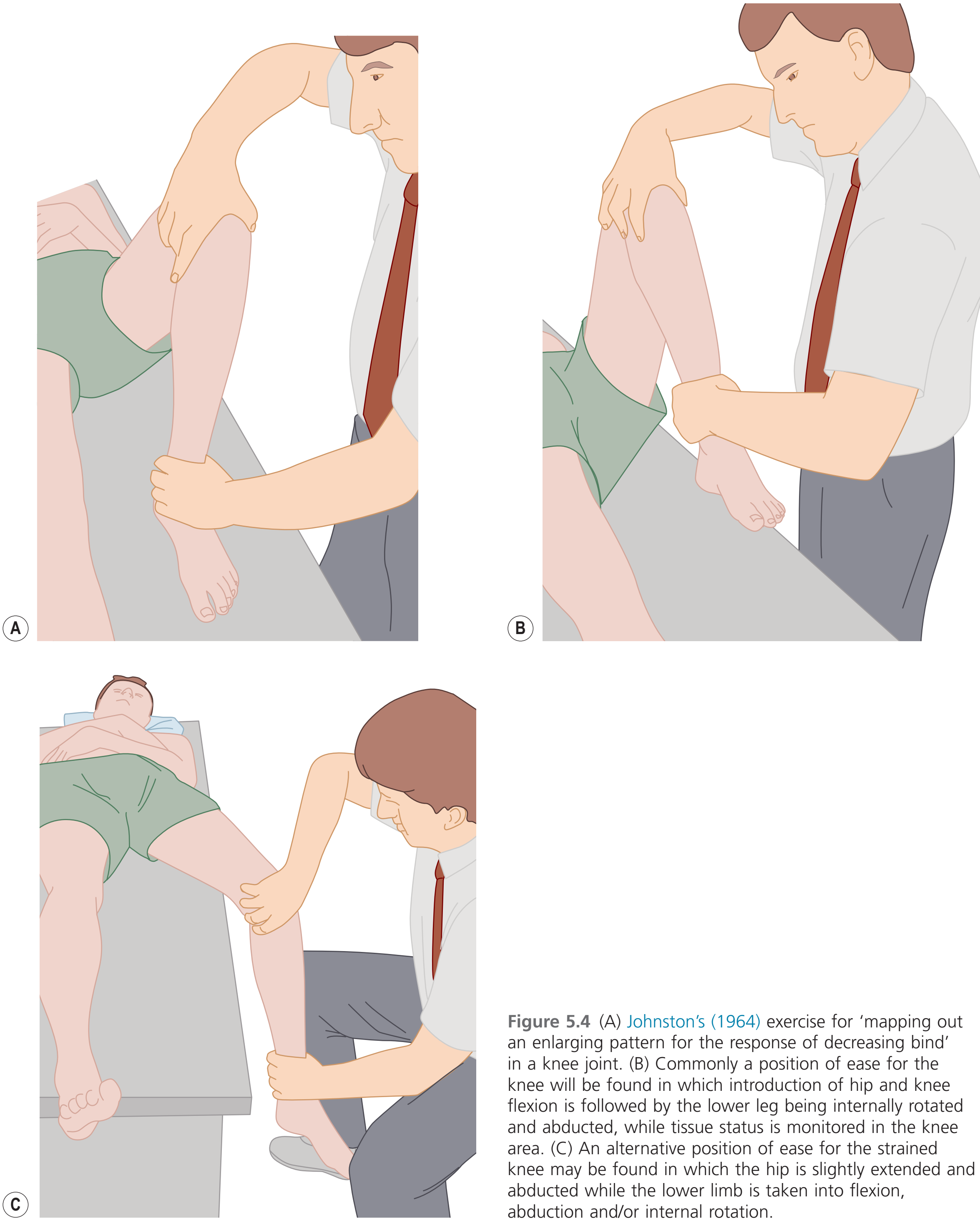

Figure 5.4 (A) Johnston's (1964) exercise for 'mapping out an enlarging pattern for the response of decreasing bind' in a knee joint. (B) Commonly a position of ease for the knee will be found in which introduction of hip and knee flexion is followed by the lower leg being internally rotated and abducted, while tissue status is monitored in the knee area. (C) An alternative position of ease for the strained knee may be found in which the hip is slightly extended and abducted while the lower limb is taken into flexion, abduction and/or internal rotation.

- The purpose of this was to map 'an enlarging pattern for the response of decreasing bind'.
- The knee was then moved into greater degrees of flexion, both elevated from the table and with the upper leg hanging below the edge of the table (Fig. 5.4B,C).
- Various motions were assessed, including abduction and adduction of the lower limb, internal and external rotation of the lower leg.
- The greatest degree of palpated ease was noted by the listening hand when the hip was flexed, the knee was markedly flexed and the lower leg was internally rotated and abducted.

Painless approach

Johnston highlights the value of such an approach in a painful condition:

> ***Even when this testing involved the potentially painful ranges of motion, the increasing binding response at the fingertips is so immediate and is so dramatic a signal, to the operator, that these ranges need barely be engaged.***

- Treatment was carried out, following this evaluation sequence, with the supine patient's leg supported as described in the assessment process.
- The limb was raised to clear the table and taken into semi-flexion, as a torsion arc of internal rotation and abduction was introduced by the operator's left hand (holding the ankle), while the right hand monitored the response of the tissues around the knee, as well as supporting the knee in its flexed position.
- Alternative ranges and motions were occasionally tested during the procedure in order to 'remind' the operator's right hand to the sense of immediately increasing bind.
- With the knee markedly flexed, the thigh slightly abducted, and the lower leg held in its 'ease' position of internal rotation and abduction, a 'sudden change' in tissue tension was noted, which allowed a sense of freedom as the leg was returned to its resting position.
- It remained slightly flexed but with objectively less rigidity, an assessed improvement of around 15% in terms of its degree of acuteness.

Repetition of the whole process

Precisely the same sequence of assessment and treatment was then repeated once more. This repetition is not a precise repositioning of the knee in the previous position of ease, but rather a further evaluation during which a new ideal position of 'balanced neutral' is determined by the process of palpation and motion.

Johnston informs us that the subsequent evaluation of the position of maximal ease for the dysfunctional knee differed slightly from the previous one, as did the therapeutic holding position.

After these two functional treatments, the degree of dysfunction in terms of restriction and pain was reduced by approximately 40%.

At subsequent visits the process was carried further towards normalization so that: 'After five office visits during four weeks of continued improvement in use, the leg was able to be rested comfortably straight and the binding was no longer discernible at the knee' (Johnston 1964).

It is the experience of those using functional technique that a less chronic, less 'organized' degree of dysfunction would respond more rapidly than one, such as the case described, in which soft tissue changes in response to the strained tissues had become established for several months.

This functional diagnostic and treatment process takes longer to describe than to accomplish, for once the listening hand learns to evaluate ease and bind, and the operator learns to assess the variable positions open to motion, in any given setting, the whole process can take a matter of a very few minutes.

Functional treatment of the atlanto-occipital joint

This final purely functional 'exercise' is offered as a means of introducing functional technique methodology into clinical practice. It is almost universally applicable, has no contraindications, and builds on the basic exercises in functional methodology described in this chapter.

The only situations in which it would be difficult or impossible to apply this method would be if the patient were unable to relax and allow the procedure to be completed, over a period of several minutes.

- The patient is supine.
- The practitioner sits at the head of the table, slightly to one side facing the corner of the table.
- One hand (caudal hand) cradles the occiput with opposed index finger and thumb palpating the soft tissues adjacent to the atlas.
- The other hand is placed on the patient's forehead or the crown of the head.
- The caudal hand searches for feelings of 'ease' or 'comfort' or 'release' in the tissues surrounding the atlas, as the hand on the head directs it into a compound series of motions, one at a time.
- As each motion is 'tested' a position is identified where the tissues being palpated feel at their most relaxed or easy.
- This position of the head is used as the starting point for the next element in the sequence of assessments.

- In no particular order (apart from the first movements into flexion and extension), the following directions of motion are tested, seeking always the position of the head and neck which elicits the greatest degree of ease in the tissues around the atlas, to 'stack' onto the previously identified positions of ease (Fig. 5.5).

Note: Each motion assessment starts from the combined 'stacked' position of ease established by the previous assessments:

  - Flexion/extension (suggested as the first directions of the sequence: Fig. 5.5A,B)
  - Side-bending left and right (Fig. 5.5C)
  - Rotation left and right (Fig. 5.5D)
  - Antero-posterior translation (shunt, shift) (Fig. 5.5E)
  - Side-to-side translation (Fig. 5.5F)
  - Compression/traction (Fig. 5.5G)
  - Inhalation/exhalation.

- Once '3-dimensional equilibrium' has been ascertained (known as dynamic neutral), in which a compound series of ease positions have been 'stacked', the patient is asked to inhale and exhale fully – to identify which stage of the breathing cycle enhances the sense of palpated 'ease' – and the patient is asked to hold the breath in that phase of the cycle for 10 seconds or so.
- The final combined position of ease is held for 90 seconds before *slowly* returning to neutral.

Note: After commencing with flexion and extension, and finishing with inhalation and exhalation – the sequence in which directions of movements are assessed is not relevant – provided as many variables as possible are employed in seeking the combined position of ease.

The effect of this held position of ease is to allow neural resetting to occur, reducing muscular tension, and also to encourage improved circulation and drainage through previously tense and possibly ischaemic or congested tissues.

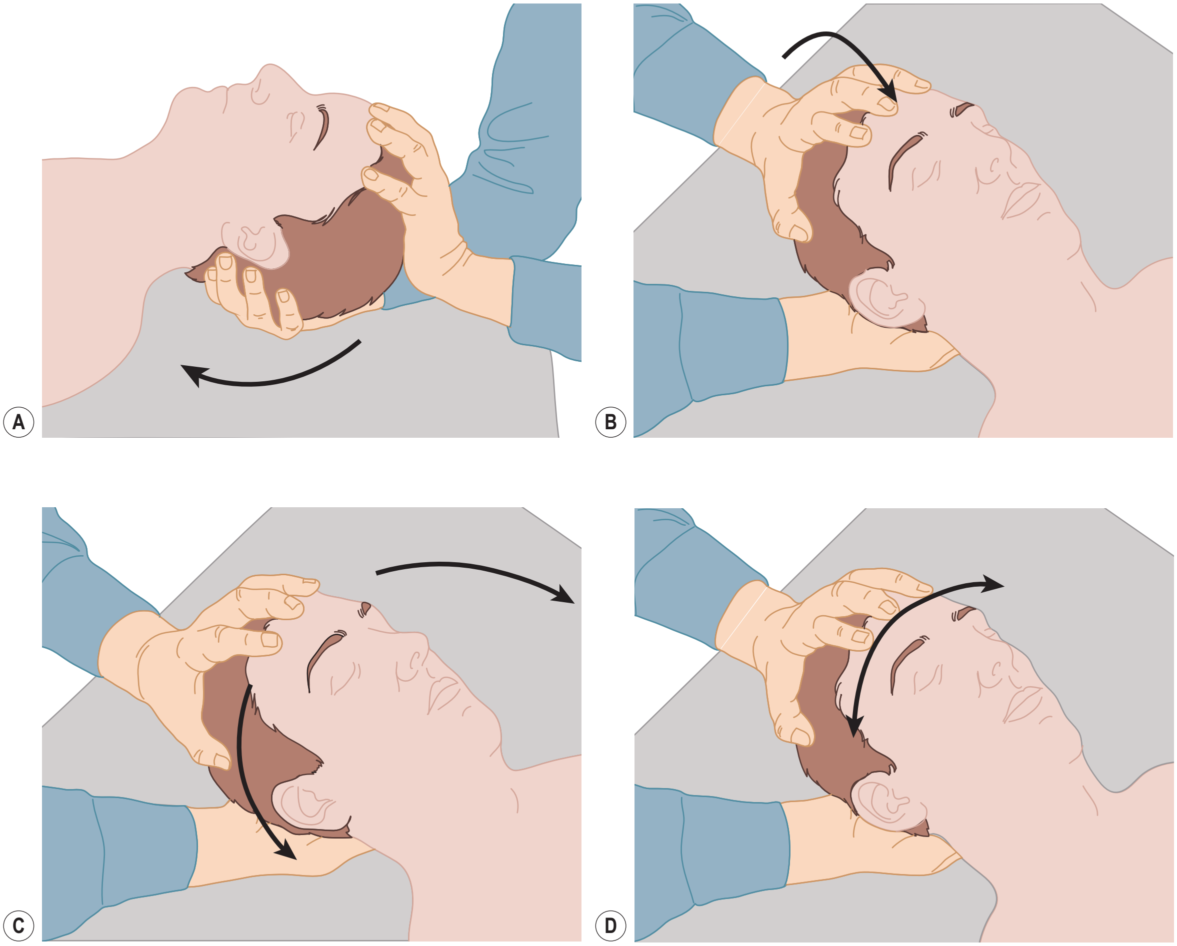

Figure 5.5 (A–G) Functional atlanto-occipital joint release.

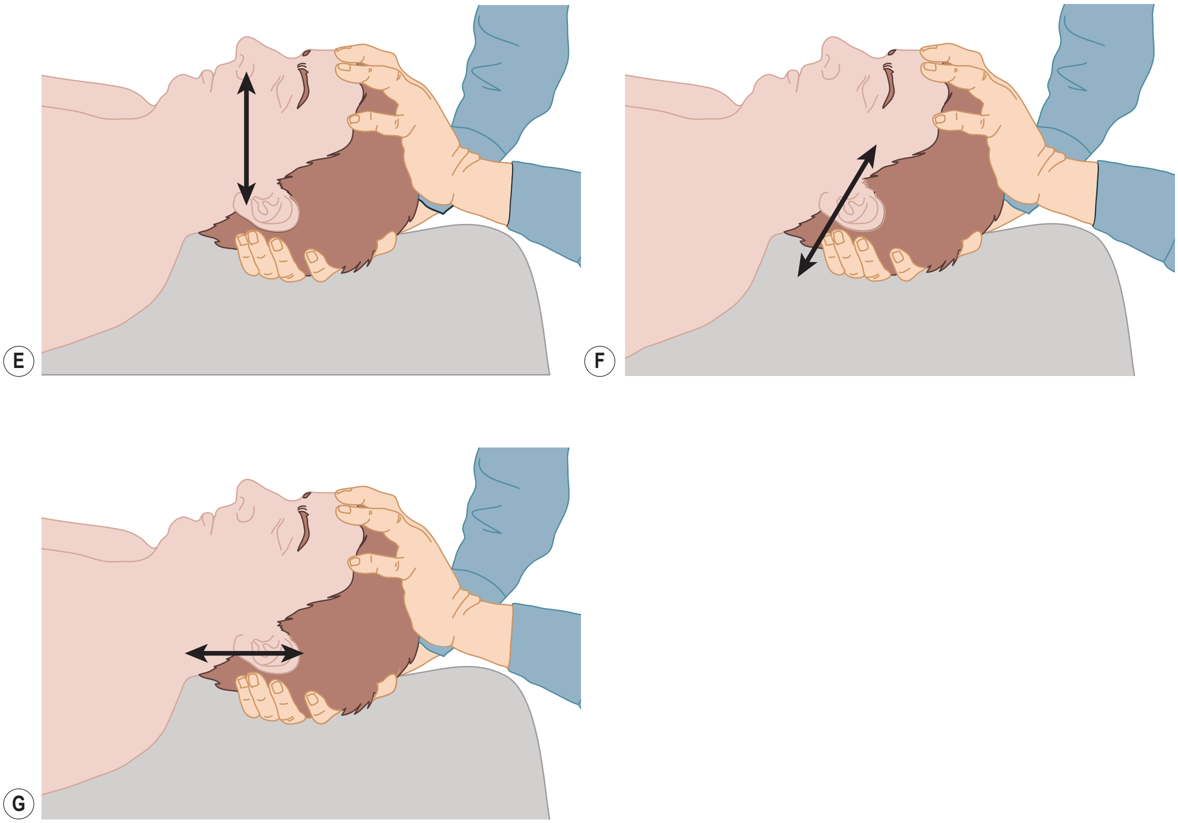

Figure 5.5, continued

Timing issues

The next section of this chapter looks at *Facilitated Positional Release* (FPR) that builds on the functional approach described above.

Clinical experience suggests that functional technique methods require holding for a minimum of 90 seconds in an 'ease' position, for beneficial changes to manifest. In contrast, facilitated positional release, as described below, reduces this to under 5 seconds by means of the addition to the procedures of facilitating features.

FACILITATED POSITIONAL RELEASE (FPR)

The nature of FPR

(DiGiovanna et al. 2004; Schiowitz 1990, 1991)

Schiowitz has described the method known as *facilitated positional release* (FPR), which incorporates elements of both SCS and functional technique, and appears to produce an accelerated resolution of hypertonicity and dysfunction.

He explains that FPR is in-line with other indirect methods which adopt positional placement towards a direction of freedom of motion, and away from restriction barriers.

1. What is 'special' about this approach is that FPR adds to this absolute requirement (movement away from the barrier of restriction), the need for a prior modification of the sagittal posture – so that, for example in a spinal area, a balance would first be achieved between flexion and extension. In spinal terms, the placing of regions into a neutral state, somewhere between extension and flexion, has the effect of releasing facet engagement.
2. FPR then adds to this the 'facilitating' elements, which might involve either compression or torsion, or a combination of both, inducing an initial soft-tissue release, relating to hypertonicity or restriction of motion.
3. Where muscles are being treated using FPR, a shortening process is called for. Specifically, Schiowitz recommends that 'larger superficial (easily palpable) muscles on the posterior aspect of the body should be placed into extension with ipsilateral

lateral flexion, while anteriorly situated muscles require flexion'. This is held for under 5 seconds before returning to a neutral position. If a muscle has a rotational function it needs to be placed in a shortened position, before a facilitating additional load is applied.

4. Extremity muscles require that associated articulations are 'in neutral' – freely movable with relaxed ligaments. Compression should be applied towards the articulation (long-axis compression) to shorten the affected muscles, after which abduction and/or external rotation *or* adduction and/or internal rotation are added, as the tissues being treated are palpated for maximal 'ease'. Once achieved, this is held for approximately 5 seconds.

The neurophysiology that Schiowitz describes (in DiGiovanna et al. 2004) in order to explain what happens during the application of FPR is based on the work of Korr (1975, 1976) and Bailey (1976) and correlates with facilitation and sensitization mechanisms suggested in earlier chapters of this book, in relation to the onset of somatic dysfunction. FPR appears to modify increased gamma motor neuron activity that may be affecting muscle spindle behaviour. 'This (reduction in gamma motor neuron activity) allows the extrafusal muscle fibers to lengthen to their normal relaxed state' (Carew 1985).

The placement of involved tissues or joints into a position of ease involves the practitioner *fine-tuning* the neurological feedback process, ensuring that the relaxation response is specific to the muscle fibres involved in the problem.

The 19th century origins of these methods: the Still technique

Van Buskirk (1996) has described methods taught by Andrew Taylor Still, the founder of osteopathic medicine, in the late 19th century, that mirror very closely – but not exactly – those described by Bowles, Johnston, Schiowitz and other pioneers of functional approaches. These methods were recorded by Hazzard (1905), and have been resurrected by Van Buskirk (2000).

Having identified the nature of a somatic dysfunction (see Chapter 1), the Still technique follows these steps:

1. The patient is passive throughout all procedures.
2. The diagnosis of the joint and the position at which surrounding tissue is least taut, are determined.
3. The joint and tissue are moved into the direction of ease in all planes.
4. The position is slightly exaggerated so as to increase the relaxation of the affected myofascial elements.
5. A force that is vectored parallel to the part of the body that is being used as a lever (i.e. head and neck, arm, leg, trunk) is applied in order to further relax the involved tissues. Traction or compression are the most common forces applied for a few seconds.
6. While maintaining the vector force, the region and dysfunction are brought back towards the barrier directions and then back through the restrictions.
7. The force and motion will commonly mobilize the joint and release the tissue to the point that there may be a sudden release as reflected by a 'pop', 'click' or other such noise.
8. The forces are released and the region is brought back to neutral for reassessment of the dysfunction.

Example of Still technique for elevated first rib on the right

1. The practitioner stands on the supine patient's right side and locates the superior surface of the right first rib articulation, with his left thumb, to monitor tissue tension.
2. The patient's flexed elbow is held and is compressed and adducted to create a decoupling of the rib from its articulation. (*Note*: this reproduces the position of strain, see Chapter 1.)
3. Optionally, an isometric contraction may be added to the sequence by having the patient lightly push his elbow against the resistance of the patient's hand for a few seconds.
4. On release, compression is increased as the elbow is adducted further, then taken sweepingly superiorly in an arc towards abduction, and a return to the starting position (see video).
5. This exaggeration of the dysfunction should release the rib.

DO MUSCLES CAUSE JOINT PROBLEMS OR VICE VERSA?

Janda (1988) stated that it is not known whether dysfunction of muscles causes joint dysfunction or vice versa. However, he pointed to the undoubted fact that they massively influence each other, and that it is possible that a major element in the benefits noted following joint manipulation derives from the effects that such methods (high-velocity thrust, mobilization, etc.) have on associated soft tissues.

Steiner (1994) has specifically discussed the role of muscles in disc and facet syndromes and describes a possible sequence of events as follows:

- A strain involving body torsion, rapid stretch, loss of balance, etc. produces a myotatic stretch reflex response in, for example, a part of the erector spinae muscle group.

- The muscles contract to protect excessive joint movement, and spasm may result if there is an exaggerated response, and the tissues fail to assume normal tone following the strain.
- This limits free movement of the attached vertebrae, approximates them and causes compression and, possibly, bulging of the intervertebral discs and/or a forcing together of the articular facets.
- Bulging discs might encroach on a nerve root, producing disc-syndrome symptoms.
- Articular facets, when forced together, produce pressure on the intra-articular fluid, pushing it against the confining facet capsule, which becomes stretched and irritated.
- The sinuvertebral capsular nerves may therefore become irritated, provoking muscular guarding, initiating a self-perpetuating process of pain–spasm–pain.

Steiner continues:

> ***From a physiological standpoint, correction or cure of the disc or facet syndromes should be the reversal of the process that produced them, eliminating muscle spasm and restoring normal motion.***

He argues that before discectomy or facet rhizotomy is attempted, with the all-too-frequent 'failed disc-syndrome surgery' outcome, attention to the soft tissues and articular separation to reduce the spasm should be tried, to allow the bulging disc to recede and/or the facets to resume normal relationships (see Chapter 10 on the McKenzie approach, for another possible alternative to surgery.)

Clearly, osseous manipulation often has a place in achieving this objective. However, the evidence of clinical experience indicates that a soft-tissue approach may also be employed in order to allow restoration of functional integrity.

If, for example, joint restriction were the result of muscle hypertonicity, then complete or total release of this heightened tone would ensure a greater freedom of movement for the joint.

If, however, other intra-articular factors were causing the joint restriction then, although improvement of soft-tissue status, produced by a reduction in hypertonicity, would ease the situation somewhat, the basic restriction would remain unresolved.

FOCUS ON SOFT-TISSUE OR JOINT RESTRICTION USING FPR

Schiowitz (1991) suggests that FPR can either be directed towards local, palpable soft-tissue changes, or be used as a means of modifying the deeper muscles that might be involved in joint restriction:

> ***It is sometimes difficult to make a clear diagnostic distinction as to which is the primary somatic dysfunction, changes in tissue texture or motion restriction. If in doubt, it is recommended that the palpable tissue changes be treated first. If motion restriction persists, then a technique designed to normalize deep muscles involved in the specific joint motion restriction should be applied.***

In order to appreciate the way in which FPR is used, examples of its application are described below.

FPR treatment of soft-tissue changes in the spinal region

Schiowitz (1991) follows Jones's guidelines, which state that soft-tissue changes on the posterior aspect of the body should be treated in the first instance by taking them into extension, while those on the anterior aspect of the body require a degree of flexion to assist in their normalization, when using FPR.

However, he also reminds us that some muscles have contralateral side-bending functions, or a rotary component, or both. These muscles must be placed in their individual shortened positions. Schiowitz suggests that careful localization of the component motions of compression, forward- or backward-bending, and side-bending/rotation to the area of altered tissue texture, allows a more rapid and accurate outcome.

1. FPR for soft-tissue changes affecting spinal joints

1. After placing the patient into a relaxed neutral position, the first requirement is that the sagittal posture should be modified to create a flattening of the antero-posterior spinal curve in whichever spinal region needs treating; 'thus a mild reduction of the normal cervical and lumbar lordosis or the thoracic kyphosis is established', inducing a softening and shortening of the affected muscle(s).
2. Following this, additional elements of fine-tuning might involve compression and/or torsion (Fig. 5.6) in order to place dysfunctional tissue (or the articulation) in such a manner that 'it moves freely or is pain-free, or both'.
3. The position of ease achieved by this fine-tuning is then held for 3–4 seconds, before being released so that the area can be re-evaluated.

Note: The component elements that comprise the various facilitating forces, i.e. crowding or torsion, can be performed in any order.

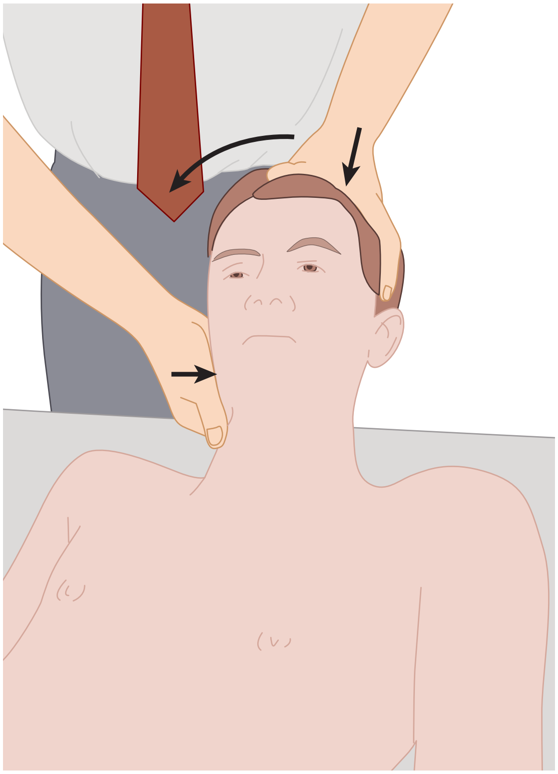

Figure 5.6 FPR treatment of anterior cervical dysfunction involves introduction of a reduced cervical curve followed by compression, side-bending and some slight torsion to achieve a sense of ease in palpated tissues.

2. Cervical restriction – FPR treatment method

When dealing with restrictions and dysfunctional states of the intervertebral (soft-tissue) structures, Schiowitz suggests that the associated vertebrae be placed into 'planes of freedom' of motion.

For this to be successful, the directions of 'ease' and 'bind' of a given segment need first to be evaluated.

If, for example, there is a restriction of a cervical vertebra in which it is found that, in relation to the vertebrae below, it cannot easily extend, side-bend right and rotate right, it would be logical, in order to establish a position of ease, to take it into flexion, side-bending left and rotation left, in relation to the vertebrae below, as a first stage of application of FPR.

If, in such an example, there were obvious discomfort/pain, or tissue changes palpable posterior to the articular facet of the third cervical vertebra, the following procedure (which needs to involve extension because the tissues are on the posterior aspect of the body) might be suggested.

1. The patient would be supine on the table, the practitioner either standing, or seated at the head of the table with a cushion on his lap.
2. The patient would have previously moved to a position in which the head was clear of the end of the table.
3. Contact would be made with the area of tissue texture alteration (right articular facet, third cervical vertebra in this case) by the practitioner's left index fingerpad, while at the same time, the head (occipital region) is being well supported by the right hand of the practitioner (Fig. 5.7A).
4. It is via the activity of this right hand that further positioning would mainly be achieved.
5. As noted previously, the first priority in FPR is to reduce the sagittal curve and this would be achieved by means of a slight flexion movement, introduced by the left hand.
6. The second component, compression, would then be introduced by application of light pressure through the long axis of the spine towards the feet (Fig. 5.7A).
7. The changes in tissue tone thus induced should be easily palpable by the contact finger ('listening finger') as a reduction in the sense of 'bind'.
8. No more than 0.5 kg (1 lb) of force should be involved in this compressive effort.
9. The next component of FPR, in this instance, would be the introduction of rotation/torsion, and this could be achieved by slight extension and side-bending to the right over the practitioner's contact that rests on the dysfunctional tissue, the right index finger.
10. Cervical spinal mechanics dictate that side-bending is impossible without some degree of rotation taking place towards the same side.
11. Therefore, rotation to the right would automatically occur as the neck was being side-flexed over the finger, so further easing and softening the tissues being treated (Fig. 5.7B).
12. This final position would be held for 3–4 seconds, before slowly returning the neck and head to neutral for reassessment of the degree of tissue change/release achieved by the procedure.

Note: If the crowding/long-axis compression caused discomfort, then traction or a slight torsional force should be used instead.

Note: It is important to recall that in regard to the atlanto-occipital joint, flexion should require a slight degree of movement only, and that atlanto-occipital mechanics involves contralateral directions of motion, i.e. side-flexion and rotation of the atlas are in opposite directions, unlike the rest of the cervical spine where side-flexion and rotation are towards the same side.

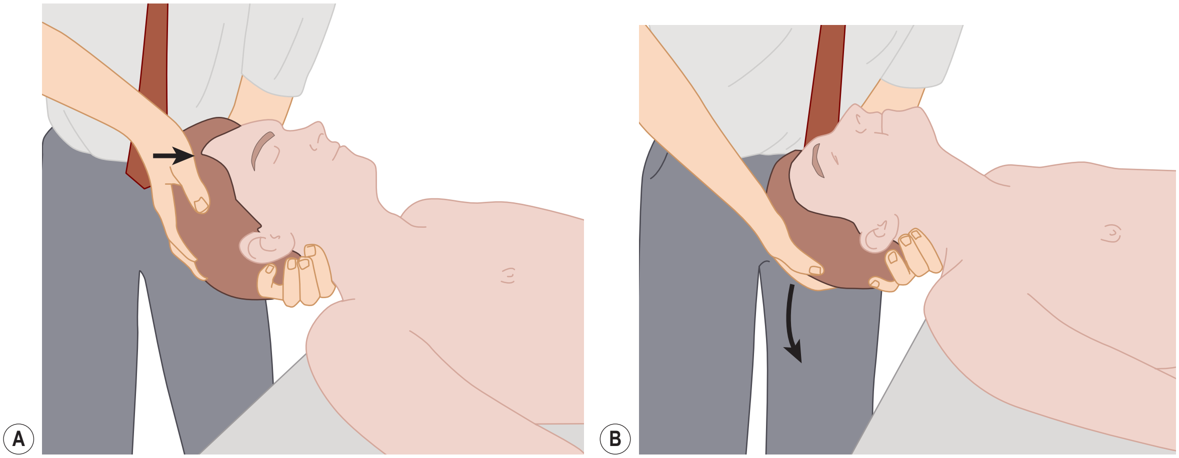

Figure 5.7 (A) FPR treatment of posterior cervical dysfunction involves introduction of a reduced cervical curve followed by compression, as palpating hand monitors tissues for a sense of ease. (B) Additional fine-tuning involves introduction of extension side-bending and some slight rotation until a sense of ease in palpated tissues is noted and held for 4–5 seconds.

Spinal joint – FPR treatment

The only difference between treating a soft-tissue change that may be affecting a spinal joint, and treating the spinal joint itself using FPR, is the degree of precision required in the positioning process.

Where the individual mechanics of restriction have been identified, the joint needs to be placed in 'all three planes of freedom of motion', into the directions of 'ease', using 'careful localization of the component motions'; in other words, in flexion, side-bending and rotation, having taken care to start from a position in which the normal sagittal curves have been somewhat reduced or neutralized.

3. FPR treatment of thoracic region dysfunction

1. The patient should be seated for treatment of thoracic soft-tissue dysfunction.
2. The example described here relates to tissue tension in the area of the sixth thoracic vertebral transverse process, on the right.
3. The practitioner stands behind and to the right, having placed a contact, palpating or 'listening' (left index) finger on the area to be treated (Fig. 5.8).
4. The practitioner places the right hand across the front of the patient's shoulders so that the practitioner's right hand rests on the patient's left shoulder and the practitioner's right axilla stabilizes the patient's right shoulder.
5. In order to reduce the antero-posterior curves, the patient is then asked to sit up straight.

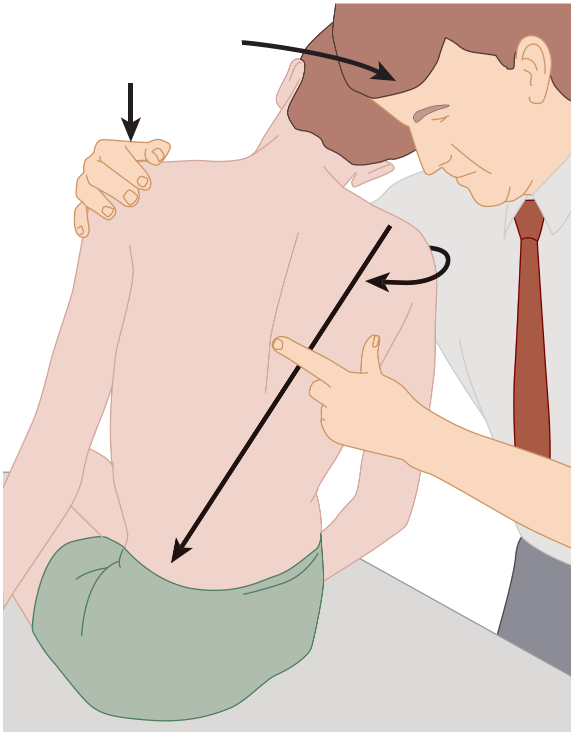

Figure 5.8 FPR treatment of thoracic region dysfunction (in this example 'tissue tension' to the right of the sixth thoracic vertebrae). One hand monitors tissue status as the patient is asked to 'sit straight' and to then slightly extend the spine. The practitioner then introduces compression from the right shoulder towards the left hip, which automatically produces right side-flexion at T6, and probably rotation to the left. Whatever the precise positional changes are, if ease is noted in the palpated tissues, the position is held for 4–5 seconds.

6. In a controlled manner, the patient is then told to 'lift the sternum towards the ceiling', so introducing a slight extension motion that is monitored by the contact (left index) finger in order to assess changes in tension/bind.
7. This extension movement is slightly assisted, but not forced, by the practitioner's right hand/arm.
8. When some ease is noted, the practitioner uses compressive effort through the right shoulder (via his own right axilla). The suggestion given by Schiowitz is that, 'this compressive motion should be applied as close to the patient's neck as possible, and directed downwards towards the patient's left hip'.
9. Once again, there is a monitoring, at the site of soft-tissue tension, of the effects of this compressive effort.
10. In spinal structures other than the cervical spine, side-flexion is commonly (but not always) accompanied by contralateral rotation.
11. In this case, compressive force applied through the right shoulder, towards the left hip, would introduce both right side-flexion and left rotation at the area being palpated.
12. If this produces a significant palpable softening, or 'ease', of the previously tense tissues, the position would be held for 3–4 seconds before returning to a neutral position for reassessment.

4. Thoracic flexion restriction and FPR

Schiowitz gives the example of a sixth thoracic vertebra which is free in its motions on the seventh vertebra when it moves easily into extension, side-bending right and rotation to the right.

The directions of restriction, therefore, which would engage the barrier would be into flexion, side-bending left and rotation left, and it is these directions of movement that would be utilized were a direct method (such as high-velocity thrust) being used to overcome that barrier, possibly involving the right articular facet joint.

However, since FPR is an indirect method, it is towards the directions of ease that we need to travel in order to achieve release.

1. The starting positions (patient seated, practitioner's palpating digit at the right sixth articular facet, shoulder contacts) should be precisely as described in the previous example (above) for tissue release.
2. This time, however, the compressive force would be applied straight downwards (inferiorly) from the shoulder towards the monitoring finger.
3. No increase in movement into extension is suggested, as this would reduce the chances of facet release.
4. When some ease was noted at this contact point from the compressive effort, a torsional side-bending and rotation movement to the right would be introduced until the freedom of motion was noted in the facet contact.
5. This would be held for 3–4 seconds, then released.
6. After repositioning into neutral, the range of motion which was previously restricted should be reassessed.

5. Prone FPR treatment for thoracic flexion dysfunction

1. For the same restriction (difficulty in moving into flexion and side-bending rotation to the left) the patient could be lying prone with the practitioner standing beside the table on the side opposite the dysfunctional vertebral restriction (Fig. 5.9).
2. The prone position would tend to introduce a mild degree of extension which can be enhanced by placement of a thin cushion under the patient's head/neck area.
3. In this example, standing on the left of the patient, the practitioner's left (monitoring) index finger would be placed on the right articular joint between the sixth and seventh thoracic vertebrae.
4. The practitioner's right hand would cup the area over the acromion process, easing this towards the patient's feet, parallel to the table, until a desirable 'softening' of the tissues was noted by the palpating digit. To compare this functional method with the counterstrain equivalent, see Figure 4.42A.

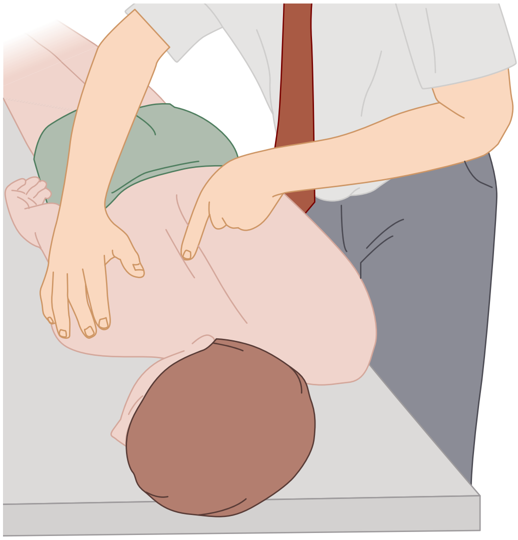

Figure 5.9 FPR treatment of thoracic flexion dysfunction.

5. This effort should be maintained as the practitioner leans backwards, in order to initiate a slight backward movement (towards the ceiling) of the patient's right shoulder, so adding a further degree of extension, together with side-flexion and rotation of the thoracic spine, up to the palpating finger, all the while maintaining the compression effort (light but firm).
6. A sense of increased ease should be noted in the palpated region, at which time the various positions and directions of pull and pressure may be fine-tuned in order to enhance ease to an optimal degree.
7. After holding the final position for 3–4 seconds, a return to neutral is allowed before reassessment of the dysfunctional area.

6. Thoracic extension restriction treatment

In the previous example, there was difficulty moving into flexion, and therefore part of the treatment protocol involved increasing extension.

If we change this to an example of someone with difficulty moving into extension (but with freedom moving into flexion), the same sequence would be used:

1. Reduction of antero-posterior curves
2. Slight increase of flexion, into 'ease'
3. Followed by the other components of side-flexion and rotation to induce and increase ease in the palpated tissue
4. All other elements remain the same.

7. FPR for third rib motion restriction

In this example, the third rib on the right is restricted and is prominent anteriorly – an inhalation restriction, producing an 'elevated' rib anteriorly.

1. The patient is seated and the practitioner stands in front with forearms placed as close to the neck as is comfortably possible.
2. The practitioner palpates the angle of the third rib with the left middle finger ('listening hand').
3. With the right forearm (resting on the patient's left shoulder area) lightly ease that shoulder posteriorly, causing the right side (and the affected rib) to rotate anteriorly, exaggerating its anteriority on that side. The palpating digit should feel a slight slackening of tension.
4. The practitioners left forearm (resting on the patient's right shoulder area) applies slight downward pressure (to the floor), so introducing right side-bending *to the level of the affected* (and palpated) *rib*. The palpating digit should feel a further slackening of tension.

Figure 5.10 FPR treatment of anterior third rib restriction (inhalation restriction). The posterior articulation of that rib is palpated while the patient is taken into side flexion right and rotation left (exaggerating the distortion) together with a compressive crowding of the palpated tissues, before release and return to neutral.

5. A very slight increase in downward pressure (towards the floor) should be introduced by both forearms, reducing tension in the palpated area further.
6. The patient's upper body will effectively now be slightly side-flexed to the right and rotated to the left (Fig. 5.10).
7. Maintaining the compression vector, the patient should then be taken into left side-flexion and rotation to the right in order to return to the neutral position, at which time compression should be released.
8. Reassessment of the rib restriction should demonstrate both positional and functional improvement.

8. FPR treatment for lumbar restrictions and tissue change

This example is of an area of exaggerated tissue tension located on the right transverse process of the fourth lumbar vertebra.

Figure 5.11 FPR treatment for lumbar restriction and tissue changes. Note that a pillow is used to reduce the antero-posterior curve of the lumbar spine while the practitioner introduces fine-tuning by positioning the legs to produce extension, side-flexion and rotation, until the palpating hand indicates that ease has been achieved. This is held for 3–4 seconds.

1. The patient lies prone with a pillow under the abdominal area, the purpose of which is to reduce the anterior lumbar curve.
2. The practitioner stands to the right of the table, having marked the area of tissue tension with the right index finger.
3. The practitioner places one or both knees on the table, at the level of the right hip joint, in order to offer a fulcrum over which the patient can be side-bent to the right (Fig. 5.11).
4. The practitioner's left hand draws the patient's legs towards the right side of the table, which effectively side-flexes the patient to the right.
5. This motion is continued slowly until tissue change (softening) is monitored by the index finger.
6. At this time, the practitioner changes the position of the left hand so that it grasps the anterior of the thigh, in order to be able to raise it into extension, at the same time introducing external rotation, until greater 'ease' is noted at the palpated monitoring point.
7. This is held for 3–4 seconds before a return to neutral is allowed, followed by reassessment.

Variations

Depending upon the nature of specific spinal restrictions, the same general rules would be applied. The basic requirements involve:

1. A reduction in the antero-posterior curve
2. A degree of crowding (or sometimes distraction)
3. Plus the spinal (or other) joint being taken to a combined position of freedoms of motion, away from the direction(s) of bind and into ease.

The examples given for thoracic and cervical normalization using FPR should make the general principles clear.

MUSCULAR CORRECTIONS USING FPR: PIRIFORMIS AS AN EXAMPLE

Schiowitz has described FPR application in treatment of piriformis and gluteal dysfunctions.

1. The distinctive FPR feature is introduced first –the patient is prone with a cushion under the abdomen to neutralize the lumbar curve.
2. The practitioner is positioned (possibly seated) on the side of dysfunction (right side in this example) facing cephalad.
3. The practitioner's left hand monitors a key area of tissue dysfunction, or a tender point, as in SCS.
4. The patient's flexed right knee and thigh are taken over the edge of the table and allowed to hang down, supported at the knee by the practitioner's right hand.
5. Flexion is introduced at the hip and knee by the practitioner, until an ease is sensed in the palpated tissues, or pain reduces.
6. The patient's thigh is then either abducted or adducted towards the table until further ease is noted in the palpated tissues.
7. The patient's knee is used as a lever to introduce either internal or external rotation at the hip, whichever produces the greatest reduction in tension under the palpating hand/finger (Fig. 5.12A).
8. Once a maximal degree of ease has been achieved, or pain is reduced by 70%, light compression is introduced through the long axis of the thigh towards the monitoring hand, where a marked reduction in tissue tension may be noted. ***Note***: Compression is not shown in the accompanying video demonstration.
9. This is held for 3–4 seconds if facilitation is used, or for up to 90 seconds, if not, before a return to neutral and reassessment (Fig. 5.12B).

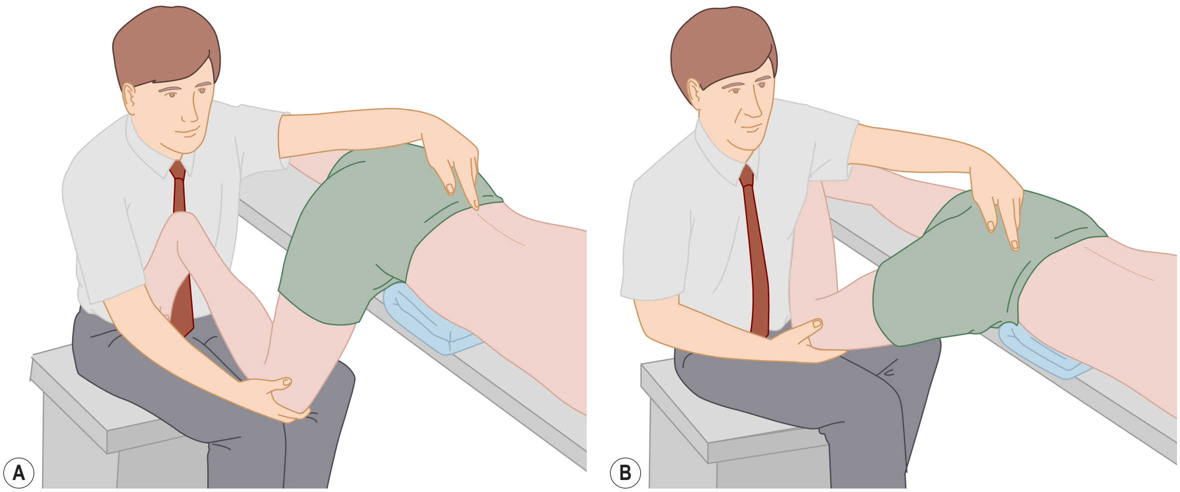

Figure 5.12 (A,B) FPR for piriformis and gluteal dysfunction involves the patient lying prone with a cushion under the abdomen. For right-sided dysfunction the right leg is flexed at both hip and knee, and abducted over the edge of the table while internal or external rotation of the thigh (whichever produces greater 'ease' in the palpated tissues) is used to fine-tune a position of ease. Light compression through the long axis of the femur may be applied to facilitate ease.

CLINICAL EVIDENCE OF FUNCTIONAL TECHNIQUE AND FPR EFFICACY

- Both counterstrain and FPR have been reported (Boyajian-O'Neill et al. 2008) to be effective in treatment of piriformis syndrome (DiGiovanna et al. 2004; Grant 1987).
- McSweeney et al. (2012) have demonstrated the immediate increase in pain thresholds in the lumbar spine, following functional technique applied to the sigmoid colon. 'This novel study provides new experimental evidence that visceral manual therapy can produce immediate hypoalgesia in somatic structures segmentally related to the organ being mobilised'.
- Kain et al. (2011) report that in a randomized clinical study, FPR (which they describe as 'triplanar indirect myofascial release') produced 'significant increases in range of motion … for flexion, extension and abduction' of the shoulder joint.

SIMILARITIES AND DIFFERENCES BETWEEN FPR AND SCS

The similarities and differences that exist when FPR (this chapter) and SCS (Chapters 2 and 3) are compared, should by now be clear (see the summary in Table 5.1).

Table 5.1 Similarities and differences between SCS and FPR

	SCS	FPR
Indirect approach	Yes	Yes
Monitoring contact	Pain point	Tissue tension
Find position of ease	Yes	Yes
Holding time	30–90 seconds	3–4 seconds
Uses facilitating crowding	Optional	Yes

One major advantage of FPR seems to lie in its reduced (hence 'facilitated') time for holding the position of ease.

Another is of course the fact that no pain is induced in tender points, merely a palpation of ease (as in functional technique).

Note: There are no good reasons to avoid using facilitating compression in the application of SCS, and indeed the author strongly recommends that this be done, as long as (when using SCS) pain in the tender point reduces and no additional pain is caused.

CONTRAINDICATIONS

There are no contraindications to FPR, except that its value lies most profoundly in acute and sub-acute problems, with its ability to modify chronic tissue changes being limited to the same degree as other positional release methods.

POSITIONAL RELEASE AND CRANIAL MOBILITY

There is little, if any, debate regarding the pliability and plasticity of infant skulls. However, in order for cranial manipulation of adults, as currently taught and practised, to be taken seriously, it is necessary to establish whether or not there is evidence of verifiable motion between the cranial bones during and throughout adult life.

Sutherland (1939) suggested that there is demonstrable – if minute – motion at many of the cranial articulations. He also described the influence of the intracranial ligaments and fascia on cranial motion, which he suggested acted (at least in part for they certainly have other functions) to balance motion within the skull.

The reciprocal tension membranes (mainly the tentorium cerebelli and the falx cerebri), which are themselves extensions of the meninges, along with other contiguous and continuous dural structures, were described by Sutherland as taking part in a movement sequence which, because of their direct link (via the dura and the cord) between the occiput and the sacrum, produced a craniosacral movement sequence in which force was transmitted via the dura to the sacrum, producing an involuntary motion.

Five key elements of the cranial hypothesis that Sutherland (1939) proposed were:

1. An inherent motility of the brain and spinal cord
2. Fluctuating movement of the CSF
3. Motility of intracranial and spinal membranes
4. Mobility of the bones of the skull
5. Involuntary sacral motion between the ilia.

Do these propositions stand up to examination?

Evidence suggests that motility of the brain has been demonstrated (Frymann 1971). Cranial motion may contribute towards the composite of forces/pulses which it has been suggested go towards producing, what is known as, the cranial rhythmic impulse – CRI (Greenman 1989; McPartland & Mein 1997; Magoun 1976).

The CSF fluctuates, but its role remains unclear in terms of cranial motion. Whether it helps drive the observed motion of the brain or whether its motion is a by-product of cranial (and brain) motion remains uncertain.

The intracranial membranous structures (falx cerebri, etc.) attach to the internal skull and give shape to the venous sinuses. Any dysfunction involving the cranial bones would influence the status of these soft-tissue structures and vice versa. To what degree they influence sacral motion is questionable.

The bones of the skull appear to have minute motion potential at their sutures (Zanakis 1996). Whether this is simply plasticity that allows accommodation to intra- and extracranial forces or whether constant rhythmical motion, the CRI, drives a distinct cranial motion, is debatable.

The clinical implications of restrictions of the reported cranial articulations remain disputed as to precise implications.

There seems to be involuntary motion of the sacrum between the ilia, but the means whereby this occurs remains unclear (or at least unproven), as does the significance of this motion in terms of cranial mechanics.

In adults, most cranial treatments that attempt to normalize perceived restrictions or to influence function, involve indirect, positional release-type techniques.

Treatment of cranial structures

Upledger & Vredevoogd (1983) suggest that in order for cranial structures to be satisfactorily and safely treated, 'indirect' approaches are best.

By following any restricted structure to its easy unforced limit, in the direction towards which it moves most easily ('the direction towards which it exhibits the greatest range of inherent motion'), a sense may be noted in which the tissues seem to 'push back' from that extreme position, at which time the practitioner is advised to become 'immovable', not forcing the tissues against the resistance barrier, or trying to urge it towards greater 'ease', but simply refusing to allow movement.

It is not within the scope of this text to fully explore cranial concepts, some of which have been validated by animal and human research. However, a brief summary is needed in order for positional release applications to the cranial structures to be understood in the context of their clinical use (Chaitow 2005; Marmarou et al. 1975; Moskalenko 1961; Upledger & Vredevoogd 1983).

Greenman (1989) summarizes cranial flexibility as follows:

> ***Craniosacral motion involves a combination of articular mobility and change in the tensions within the (intracranial) membranes. It is through the membranes' attachment that the synchronous movement of the cranium and the sacrum occurs.***

During cranial motion, he explains:

> ***The sutures appear to be organized to permit and guide certain types of movement between the cranial***

bones. These are intimately attached to the dura, and the sutures contain vascular and nervous system elements. The fibers within the sutures appear to be present in directions, which permit and yield to certain motions.

In one model of cranial theory, the movement of the cranial elements is said to be driven, at least in part, by a coiling and uncoiling process in which the cerebral hemispheres appear to swing upwards during what is known as cranial flexion, and then to descend again during the extension mode of the cranial cycle.

As the flexion phase occurs, the paired and unpaired bones of the head are thought to respond in symmetrical fashion, which is both palpable and capable of being assessed for restriction.

A variety of other theories exist to explain cranial motion (Chaitow 2005; Heisey & Adams 1993), ranging from biomechanical explanations, in which respiration and muscular activity are the prime movers, to circulatory models, in which venomotion and CSF fluctuations are responsible, and even compound 'entrainment' theories, in which the body's multiple oscillations and pulsations combine to form harmonic influences (McPartland & Mein 1997). The truth is that while an undoubted, if minute degree of motility (self-actuated movement) and mobility (movement induced by external features) can be demonstrated at the cranial sutures (Lewandoski et al. 1996), most explanations for the mechanisms involved are as yet hypothetical.

Motions noted at the sphenobasilar junction

It has been suggested by Upledger & Vredevoogd (1983), and others that the following movements take place simultaneously (it is important to realize that cranial motion is a plastic one rather than one involving gross movement):

- A reduction in the vertical diameter of the skull.
- A reduction in the antero-posterior diameter.
- An increase in the cranial transverse diameter.

These 'movements' are extremely small, in the region of 0.25 mm (250 microns) at the sagittal suture (Zanakis 1996).

Put simply, this means the skull gets 'flatter', narrower from front to back, and wider from side to side. It is proposed that this happens as the occiput eases forwards at its base, causing the sphenoid to rise at its synchondrosis (Fig. 5.13).

Because of its unique structure, this then causes the great wings of the sphenoid to rotate anteriorly, followed by the frontal and facial bones. The temporals and other cranial bones are then said to accommodate this motion by externally rotating.

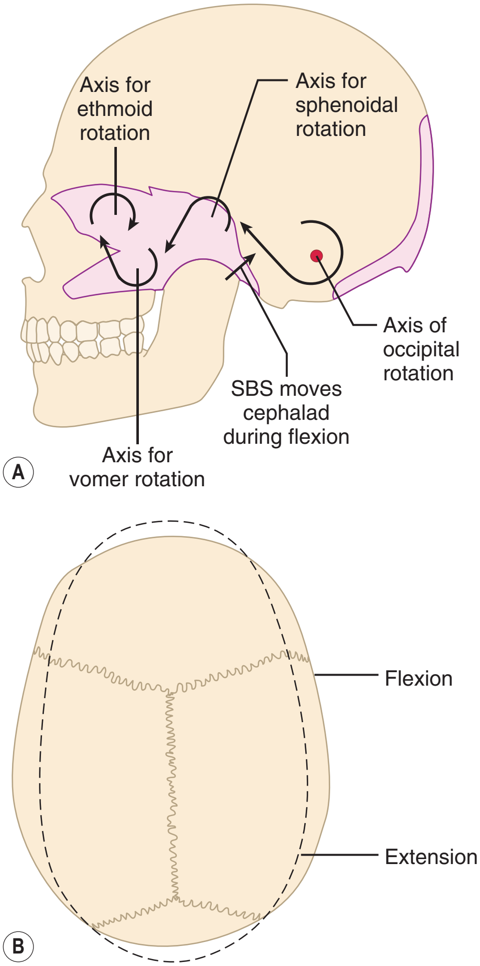

Figure 5.13 (A) Schematic representation of theorized cranial motion. During flexion, the occiput is thought to move antero-superior, which causes the sphenoid to rise at its synchondrosis. Simultaneous movement occurs in the frontal, facial and nasal bones as indicated. The extension phase of this motion involves a return to a neutral position. (B) The flexion phase of cranial motion ('inhalation phase') causes the skull as a whole to widen and flatten minutely.

Two cranial exercises

Two exercises are described below that should allow the reader to get a sense of the subtlety of cranial methodology, *and of the influence of positioning* in order to effect a change.

Caution

D'Ambrogio & Roth (1997) caution that:

With any cranial treatment it is recommended that certain precautions be taken. Symptoms and signs of

space-occupying lesions and acute head trauma are clear contraindications. A history of seizures or previous cerebrovascular accident should be approached with caution.

1. Exercise in sphenobasilar assessment and treatment

A useful exercise can be performed in which the model/patient is supine and the practitioner sits to the right or left near the head of the table.

1. The caudad hand rests on the table holding the occipital area so that the occipital squama closest to the practitioner rests on the hyperthenar eminence while the tips of the fingers support the opposite occipital angle (Fig. 5.14).
2. The cephalad hand rests over the frontal bone so that the thumb lies on one great wing of the sphenoid, with the tips of the fingers on the other great wing, with as little contact as possible on the frontal bone.
3. If the hand is small, the contacts can be made on the lateral angles of the frontal bone.
4. It is necessary to sit quietly in this position for some minutes in an attempt to palpate cranial motion.
5. As sphenobasilar flexion commences (as a sense of 'fullness' is noted in the palpating hand), apparent occipital movement may be noted in a caudad and anterior direction; simultaneously the great wings of the sphenoid may seem to rotate anteriorly and caudally around their transverse axis.

Figure 5.14 Sphenobasilar assessment: hand positions for palpation of the occiput and great wings of the sphenoid.

6. Encouragement of these motions can be introduced in order to assess any existing restriction.
7. This is achieved by using very light (grams rather than ounces) pressure in the appropriate directions to impede the movement described.
8. During sphenobasilar extension (as the sense of fullness in the palpating hand recedes), a return to neutral may be noted, as cranial motion appears to return to the starting position.
9. Whichever of these motions (flexion, extension) is assessed as being *least* restricted should then be encouraged.
10. As this is done, a very slight 'yielding' motion may be noted at the end of the range.
11. The tissues should be held in this direction of greatest ease until a sense occurs of the tissues 'pushing back' towards the neutral position.
12. A great deal of sensitivity is needed in order to achieve this successfully.

Note: It is worth emphasizing the author's belief that while the cranial movements described may be palpated and perceived by the sensitive individual, precisely what is moving, and what moves it, as well as clinical relevance, remains uncertain. The description of cranial motion given above expresses Upledger's (1984) suggestion as to what may be happening (a widely held view in craniosacral circles) but remains unsubstantiated (Chaitow 2005).

2. Temporal freedom of movement palpation exercise

(Fig. 5.15)

Sit at the head of the supine model/patient.

1. Interlock your fingers (or have the hands cupped, with one in the other) so that the head is cradled, your thumbs are on, and are parallel with, the anterior surfaces of the mastoid processes, while the thenar eminences support the mastoid portion of the bone (Fig. 5.15A).
2. Your index fingers should cross each other and be in direct contact.
3. Assess the freedom of flexion of one side and then the other.
4. This is achieved by focussing on the thumb contact on one side at a time.
5. As the temporal bones move into the flexion phase the mastoid appears to ease very slightly posteriorly and medially (Fig. 5.15B).
6. This is more a sense of 'give' or plasticity, than actual movement.
7. Assess one side and then the other several times, using a very small amount of contact pressure – no more than would be comfortable were this applied to your open eye.

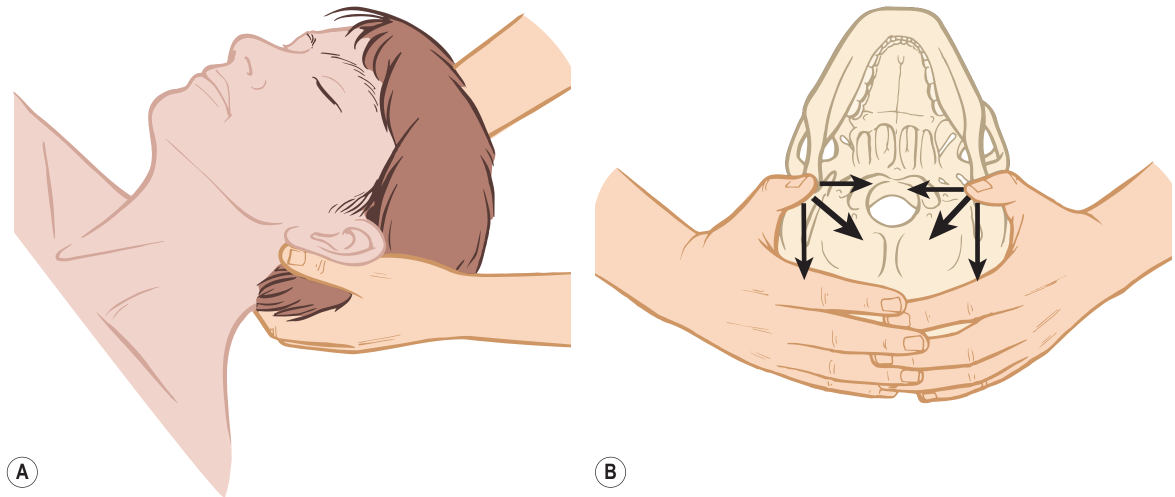

Figure 5.15 (A) Hand and thumb positions for temporal freedom exercise. (B) Directions of motion of the mastoid to encourage temporal flexion.

8. By pivoting the middle joints of your index fingers against each other in rhythm with cranial flexion and extension (a very slight sense of fullness in the palms of the hands equates with the flexion phase), this can be achieved without use of actual hand or thumb strength.
9. The amount of pressure introduced at the mastoid should be in grams only, and should only be attempting to evaluate whether there is symmetry of easy motion on each side.
10. Test slight variations in the directions of applied pressure (grams only!) as shown with Figure 5.15B.
11. If one side appears to 'move' more freely into flexion, to be more resilient, more plastic, have more give, this is the side of relative freedom of movement.
12. To evaluate whether this can be modified towards better balance (equal degree of freedom of movement bilaterally), ease the 'free' side towards its direction of free movement (posteromedially) and hold it there, while at the same time placing the thumb on the other side posterior to the mastoid in order to ease it anterolaterally.
13. Hold this for four or five cycles of inhalation/exhalation, or until a sense of pressure against your palpating thumbs is noted.
14. At that time, release the pressure (grams only!) and reassess to see whether the exercise has created a more balanced sense of motion or plasticity.

CLINICAL EVIDENCE OF CRANIAL TREATMENT EFFICACY

- Berkowitz (2014) reports as follows: 'This case involves a patient seen in the Osteopathic Manipulative Medicine Clinic with sudden, painless onset of loss of visual field five weeks following craniotomy for meningioma removal. … The patient's loss of visual field resolved completely immediately following the application of osteopathy in the cranial field. While the synchronicity may suggest that the two events are causally linked, further clinical evidence is required before such an effect can be attributed to osteopathic intervention'.
- Other reports have indicated the potential benefits of cranial treatment (functional) of visual dysfunction (Sandhouse et al. 2010; Wolf 1997).
- Hayden & Mulligan (2009) report on the outcomes of an open, controlled trial in which 28 infants with colic were either treated with cranial methods – once weekly for 4 weeks, or received no treatment. Outcomes showed: 'overall decline in crying was 63% (treated) and 23% (not treated), respectively; improvement in sleeping was 11% and 2%, respectively. Treated infants also required less parental attention than the untreated group'.

THIS CHAPTER

This chapter has explored aspects of functional (including cranially applied) and facilitated positional release techniques – offering some of the theoretical underpinnings of these methods together with practical exercises, along with examples of research evidence as to their possible clinical usefulness.

NEXT CHAPTER

Additional evidence is offered in the next chapter that outlines the use of these – and counterstrain – methods, in particular clinical settings, including use for hospitalized/bed-bound patients, as well as in chronic pain situations.

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Chapter 6

Positional release methods in special situations

CHAPTER CONTENTS

This chapter builds on methods described in earlier chapters, by describing approaches suitable for:

Specific conditions, situations:

- Myofascial pain (see Box 6.1)
- Fibromyalgia (see Box 6.1).

Particular settings:

- Bed-bound
- Postoperative situations.

Abbreviations:

- TrPs – myofascial trigger points (a feature of acute or chronic myofascial pain)
- TePs – tender points; specified areas used in diagnosis of fibromyalgia (see later in this chapter)
- CMP – chronic myofascial pain (previously known as 'myofascial pain syndrome', but no longer regarded as a syndrome)
- FM – fibromyalgia (previously known as 'fibromyalgia syndrome', but no longer regarded as a syndrome).

MYOFASCIAL PAIN, TRIGGER POINTS AND CENTRAL SENSITIZATION (CS)

Pain is the most frequent presenting symptom in medical practice in the industrialized world, and musculoskeletal pain forms a major element of that category of symptoms.

According to leading researchers into the topic, Wall & Melzack (1990), myofascial trigger points are a key element in all chronic pain, and are often the main factor maintaining it.

There appears to be a direct link between localized, e.g. myofascial pain and the evolution of chronic syndromes, such as fibromyalgia (FM) (Baldry 2010).

- Fernández-de-las-Peñas et al. (2005) have also reported on the distinct connection between myofascial trigger point activity and a wide range of pain problems and sympathetic nervous system aberrations.
- There is increasing evidence that trigger points contribute to the development of central sensitization, and as such may cause or contribute to various chronic pain syndromes (Cuadrado et al. 2008; Giamberardino et al. 2007).

Ge et al. (2009) note that: 'The local and referred pain patterns induced from active TrPs bilaterally, in the upper trapezius muscle are similar to ongoing pain patterns in the neck and shoulder region in FM. Active TrPs may serve as one of the sources of noxious input leading to the sensitization of spinal and supraspinal pain pathways in FM'.

Ge (2010) further reports that: 'Research highlights the importance of active TrPs in FM patients. Most of the tender point (TeP) sites in FM are TrPs. Active TrPs may serve as a peripheral generator of fibromyalgia pain and inactivation of active TrPs may thus be an alternative for the treatment of FM'.

- Niddam et al. (2008) found that individuals with chronic myofascial pain (CMP) had abnormal central processing with enhanced brain activity in the somatosensory and limbic regions, suppressed activity in the hippocampus, and hyperalgesia in response to electrical stimulation and compression of trigger points. Trigger point therapy appears to improve such abnormal pain processing (Dommerholt et al. 2006).

It is clearly of major importance that practitioners and therapists have available safe and effective methods for handling myofascial and other chronic pain conditions, such as the fibromyalgia (FM) (Wolfe et al. 1990).

Mense (1993, 2008) has reported:

> ***Clinical examination reveals sites of excessive sensitivity to palpation of tender points (TeP), at which mild externally applied pressure causes pain. Many of these TePs are located at the myotendinous junction, rather than near the belly of the muscle, where trigger points are more likely to be found.***

Trigger (and other non-referring pain) points commonly lie in muscles that have been stressed in a variety of ways, often as a result of:

- Postural imbalances (Harden 2007; Lewit 1999)
- Congenital factors – short leg problems or small hemipelvis (Simons et al. 1999)
- Occupational or leisure overuse patterns (Bron & Dommerholt 2012)
- Emotional states reflecting into the soft tissues (McNulty et al. 1994)
- Referred/reflex involvement of the viscera producing facilitated (neurologically hyper-reactive) segments paraspinally (Beal 1985; Hong 1994; Simons 1999)
- Hypermobility (Muller 2003)
- Trauma (see Chapter 2 for discussion on the evolution of dysfunction via adaptation) (Fig. 6.1).

Reducing central sensitization by deactivating myofascial trigger points

A study by Affaitati et al. (2011) involved 56 female patients with FM and CMP, and 56 female patients with FM joint pain. These were all randomly divided into active treatment (lidocaine injection ×2/hydrofor-electrophoresis ×2) or placebo groups.

In the active groups, the number and intensity of myofascial/joint episodes and pain medication consumption decreased, and pressure thresholds at trigger point/joint increased ($p < 0.001$). FM pain intensity decreased and all thresholds increased progressively ($p < 0.0001$). At a 3-week follow-up, FM pain reduction was maintained.

Conclusion

Localized muscle/joint pains impact significantly on FM, probably through increased central sensitization due to the peripheral input, and their systematic identification and treatment are recommended in fibromyalgia.

To summarize

Both local muscle, as well as joint pains, *directly* influence increased central sensitization (CS) and successful treatment of these, leads to reduced CS.

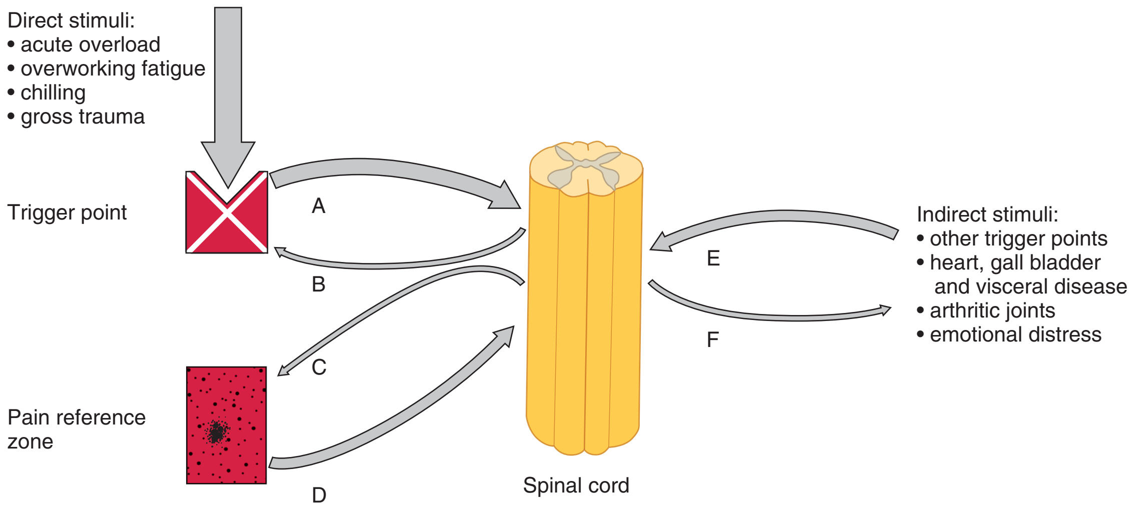

Figure 6.1 Direct stress influence can affect the hyper-reactive neural structure of a myofascial trigger point, leading to increased activity (A, B) as well as referring sensations (pain, paraesthesiae, increased sympathetic activity) to a target area (C, D) which feeds back into the cord to increase the background stress load. Other stimuli reach the cord from distant trigger points and additional dysfunctional areas (E, F).

Trigger point characteristics

- The leading researchers into trigger points (TrPs), Simons et al. (1999), define trigger points as: hyperirritable foci, lying within taut bands of muscle, which are painful on compression and which refer pain or other symptoms at a distant site ('target area').
- Embryonic TrPs tend to develop as 'satellites' of existing triggers in the target area, and in time, these produce their own satellites.
- According to Wall & Melzack (1990), nearly 80% of TrPs are in exactly the same positions as known acupuncture points, as used in traditional Chinese medicine.
- Painful points ('tender points') that do not refer symptoms to a distant site are often latent trigger points, that need only to experience additional degrees of stress in order to create greater facilitation, and so be transformed into active TrPs.
- The taut band in which TrPs lie will twitch if a finger is run across it, and is tight but not usually fibrosed, since it will commonly soften and relax if the appropriate treatment is applied – something fibrotic tissue cannot do (Hong 1994).
- Muscles that contain TrPs will often hurt when they are contracted (i.e. when they are working) and they will almost always be painful if stretched.
- TrPs are areas of lowered oxygen supply due to inadequate local circulation. Such muscles will therefore fatigue rapidly (Shah & Phillips 2003).
- The fact that muscles in which TrPs cannot reach a normal resting length – being held almost constantly in a shortened position – makes them an ideal target for the methods of positional release, since such muscles will happily be shortened further but will resist being lengthened.
- Simons et al. (1999) have established that until a muscle housing a TrP can reach its normal resting length, without pain or effort, attempts to deactivate a TrP will only achieve temporary relief, as it will reactivate after treatment.
- Stretching of the muscles housing a TrP, using either active or passive methods, is a useful way of treating the shortness as well as the TrP, since this can reduce the contraction (taut band) as well as increasing circulation to the area – something which positional release methods, such as SCS, can also achieve (Vernon & Schneider 2009).
- There are many variably successful ways of treating TrPs, including acupuncture, procaine injections, direct manual pressure (with the thumb, etc.), stretching the muscle, ice therapy, etc. Whatever is done, unless the muscle can be induced to reach its normal resting length, any such treatment will be of limited value.
- Some of these methods (pressure, acupuncture) cause the release in the body and the brain of natural pain-killing substances – endorphins and endocannabinoids – which explains one of the ways in which pain might be reduced (McPartland 2008).

- Pain is also relieved when one sensation (digital pressure, needle, etc.) is substituted for another (the original pain). In this way, pain messages are partially or totally blocked, or partially prevented from reaching or being registered by the brain.
- Methods that improve the circulatory imbalance will affect TrPs, which contain areas of ischaemic tissue, and in this way appear to deactivate them (Gerwin 2005; Hong 1994).
- The target area to which a TrP refers pain will be the same in everyone if the TrP is in the same position – but this pattern of pain distribution does not seem to relate to known nerve pathways.
- TrPs involve a self-perpetuating cycle (pain leading to increased tone leading to more pain) and may not deactivate unless adequately treated.
- The way in which a TrP influences pain in a distant site may involve neurological mechanisms, however just how TrPs influence their symptoms remains unclear.
- Remarkable research by Langevin & Yandow (2002) has shed much new light on the possibility that fascial structures are the means whereby sensation is transmitted.
- TrPs lie in parts of muscles most prone to mechanical stress, often close to origins and insertions, and also, very commonly, they are situated on fascial cleavage planes (Langevin & Yandow 2002).

What causes the trigger point to develop?

Simons et al. (1999) are the physicians who, above all others, have helped our understanding of trigger points. They have described the evolution of TrPs as follows:

> ***In the core of the trigger lies a muscle spindle which is in trouble for some reason. Visualise a spindle like a strand of yarn in a knitted sweater … a metabolic crisis takes place which increases the temperature locally in the trigger point, shortens a minute part of the muscle (sarcomere) – like a snag in a sweater – and reduces the supply of oxygen and nutrients into the trigger point. During this disturbed episode an influx of calcium occurs and the muscle spindle does not have enough energy to pump the calcium outside the cell where it belongs. Thus a vicious cycle is maintained and the muscle spindle can't seem to loosen up and the affected muscle can't relax.***

Simons tested his concept and found that at the core of a trigger point, there is an oxygen deficit compared with the muscle tissue which surrounds it.

Travell & Simons (1992) confirmed that the following factors can all help to maintain and enhance trigger point activity:

- Nutritional deficiency, especially vitamin C, B-complex and iron
- Hormonal imbalances (low thyroid, menopausal or premenstrual situations, for example)
- Infections (bacteria, viruses or yeast)
- Allergies (wheat and dairy in particular)
- Low oxygenation of tissues (aggravated by tension, stress, inactivity, poor respiration).

Bron & Dommerholt (2012) simplify the aetiological features when they assert:

> ***There is general agreement that any kind of muscle overuse or direct trauma to the muscle can lead to the development of TrPs. Muscle overload is thought to be the result of sustained or repetitive low-level muscle contractions, eccentric muscle contractions, and maximal or submaximal concentric muscle contractions.***

Muscle pain and breathing dysfunction

Trigger point activity is particularly prevalent in the muscles of the neck/shoulder region, which also act as accessory breathing muscles, particularly the scalenes (Gerwin 1991; Sachse 1995).

In situations of increased anxiety and chronic fatigue, the incidence of borderline or frank over-breathing is frequent, and may be associated with a wide range of secondary symptoms including headaches, neck, shoulder and arm pain, dizziness, palpitations, fainting, spinal and abdominal discomfort, digestive symptoms relating to diaphragmatic weakness and stress, as well as the anxiety-related phenomena of panic attacks and phobic behaviour (Bass & Gardner 1985; Njoo et al. 1995; Perri & Halford 2004).

Clinically, where upper chest breathing is a feature, the upper fixators of the shoulders and the intercostal, pectoral and paraspinal muscles of the thoracic region are likely to palpate as tense, often fibrotic, with active trigger points being common (Chaitow et al. 2014; Roll & Theorell 1987).

Successful breathing retraining and normalization of energy levels seems in such cases to be accelerated and enhanced following initial normalization of the functional integrity of the muscles involved in respiration, directly or indirectly (latissimus dorsi, psoas, quadratus lumborum) (Lum 1984).

Pelvic pain and myofascial trigger points

Slocumb (1984), Weiss (2001) and Fitzgerald et al. (2009) have all shown that in a large proportion of chronic pelvic pain problems in women, often destined for surgical intervention, the prime cause of the symptoms involves TrPs activity in muscles of the lower abdomen, perineum, inner thigh and even on the walls of the vagina.

They have also demonstrated that appropriate deactivation of these TrPs can remove or relieve symptoms of both interstitial cystitis and chronic pelvic pain.

Strain/counterstrain and trigger points

Simons et al. (1999) discuss strain/counterstrain in relation to the treatment of trigger points, and suggest that most of the TePs listed in Jones's original book (Jones 1981), and many of those described in subsequent PRT texts (D'Ambrogio & Roth 1997), are close to attachment trigger point sites.

This is, however, not universally true:

> ***Of the 65 tender points (in Jones' original book), nine were identified at the attachment region of a named muscle. Forty-four points were located either at the region of a muscular attachment where one might find an attachment trigger point, or, occasionally, at the belly of a muscle where a central trigger point might be located.***

If at least some, and possibly the majority, of Jones's TePs, appear to be the same phenomena as Simons & Travell's TrPs, logic suggests that a therapeutic approach that effectively deactivates one (the tender point) should beneficially affect the other (trigger point).

See Chapter 2, Box 2.4, for discussion on TrPs and TePs – similarities and differences.

Treatment of TrPs using positional release methods

Numerous studies confirm the value of positional release methods – most notably either counterstrain on its own (Dardzinski et al. 2000; Ibáñez-García et al. 2009; Meseguer et al. 2006) or a combination of methods, including counterstrain – described as *integrated neuromuscular inhibition technique* (INIT), which is explained below (Chaitow 1994; Nagrale et al. 2010).

Before describing positional release as part of the INIT trigger point treatment protocol, the methods for identifying TrPs are required.

PALPATION

Palpation tests for tender and trigger points

In 1992, a study was conducted by two leading figures in the study of myofascial pain, in order to evaluate the accuracy of TrP palpation, by experts responsible for diagnosis of fibromyalgia (FM) or chronic myofascial pain (CMP) (Wolfe et al. 1992).

- Volunteers from three groups were tested – some with FM, some with CMP and some with no pain or any other symptoms.
- The FM patients were easily identified – 38% of the FM patients were found to have active trigger points.
- Of the CMP patients, only 23.4% were identified as having trigger points, and of the normal volunteers, less than 2% had any.
- Most of the CMP patients had tender points in sites usually tested in FM, and would have qualified for this diagnosis as well.

Recommended trigger point palpation method

There are a variety of palpation methods by means of which trigger (or tender) points can rapidly be identified, among which the simplest and possibly the most effective is use of what is termed 'drag' palpation, as fully discussed in Chapter 2 (Chaitow 1991).

- A light passage of a single digit, finger or thumb, across the skin ('feather-light touch') elicits a sense of hesitation, or 'drag', when the skin has an increased water content compared with surrounding skin.
- This increased hydrosis (sweat) seems to correlate with increased sympathetic activity, which accompanies local tissue dysfunction in general and trigger point activity in particular (Lewit 1999).

Lewit (1999) additionally suggests that the skin overlying a trigger point will exhibit reduced elasticity when lightly stretched apart, as compared with surrounding skin.

Lewit terms such areas as 'hyperalgesic skin zones' and identifies a further characteristic: a reduced degree of movement of the skin over the underlying fascia, palpable when attempting to slide or 'roll' the skin.

These three features of skin change offer simple and effective clues as to underlying dysfunction:

- Reduced sliding movement of skin on fascia
- Reduced local elasticity
- Increased hydrosis.

Systematic approaches to the charting of TrP locations (and their deactivation) are also offered by systems such as neuromuscular technique (NMT), in which a methodical sequence of palpatory searches are carried out, based on the trigger point 'maps', as described by Simons et al. (1999).

When attempting to palpate for TrPs at depth, not simply using skin signs, a particularly useful phrase to keep in mind is that used by Stanley Lief DC, co-developer of NMT (Chaitow 1996):

> ***To discover local changes (such as TrPs) it is necessary to constantly vary palpation pressure, to 'meet and match' tissue tensions.***

D'Ambrogio & Roth (1997), put it differently:

> ***Tissue must be entered gently, and only necessary pressure must be used to palpate through the layers of tissue.***

Note: Counterstrain – as detailed in Chapter 4 – may be used on its own as an effective TrP treatment, however treatment has been found to produce more effective and lasting effects when combined with other modalities.

Integrated neuromuscular inhibition technique (INIT)

(Chaitow 1994)

Counterstrain may be used in combination with other modalities such as is used in integrated neuromuscular inhibition technique (INIT). The method of INIT is explained below:

- Pyszora et al. (2010) reported that a combination of INIT and kinesio-taping proved effective in palliative care of severely ill individuals: *minimizing the complications and effects of disease and optimizing patients' condition*.
- Abha et al. (2010) demonstrated that INIT was: *highly effective in the treatment of trigger point pain in the upper trapezius muscle*.
- A similar outcome was reported by Nagrale et al. (2010) in relation to neck pain resulting from myofascial trigger points.
- A study was conducted (Nayak 2013) at Rajiv Gandhi University of Health Sciences, Bangalore, to establish the efficacy of INIT combined with therapeutic ultrasound (US), compared with INIT with placebo ultrasound in the treatment of acute neck pain, associated with myofascial trigger points in the upper trapezius muscles. The study concluded that INIT used with US, and INIT used with placebo US, are both effective in decreasing pain, decreasing neck disability and improving range of motion. However, those receiving INIT + therapeutic US showed significantly more improvement than those receiving INIT plus placebo.

INIT method

1. It is reasonable to assume, and palpation confirms, that when a TrP is being palpated by direct finger or thumb pressure, and when the very tissues in which the trigger point lies are positioned in such a way as to take away the pain (entirely or at least to a great extent), the most (dis)stressed fibres in which the trigger point is housed are in a position of relative ease (Fig. 6.2, INIT methodology is outlined in the caption for this figure).
2. At this time, the TrP would be under direct inhibitory pressure (mild or perhaps intermittent) and would have been positioned so that the tissues housing it are relaxed (relatively or completely).
3. Following a period of 20–30 seconds of this position of ease and inhibitory pressure, the patient is asked to introduce an isometric contraction into the tissues and to hold this for 7–10 seconds – involving the precise fibres which had been repositioned to obtain the strain/counterstrain release.
4. The effect of this isometric contraction would be to produce (following the contraction) a degree of reduction in tone in these tissues (as a result of post-isometric relaxation).
5. The hypertonic or contracted tissues could then be gently stretched for up to 30 seconds, as in any muscle energy procedure, with the strong likelihood that the specifically targeted fibres would be stretched.
6. Following this, a whole muscle isometric contraction, followed by a whole muscle stretch (also for up to 30 seconds) is then carried out.

Clinical relevance

As detailed above, there exists a great deal of agreement that much of the pain, and the peripheral stimulus that leads to, or helps maintain, central sensitization, involves local myofascial (TrP) pain.

With this in mind, it can be seen that non-invasive, and effective, methods – such as counterstrain and other positional release methods – offer a useful combination of modalities for clinical use in management of chronic pain syndromes, such as FM.

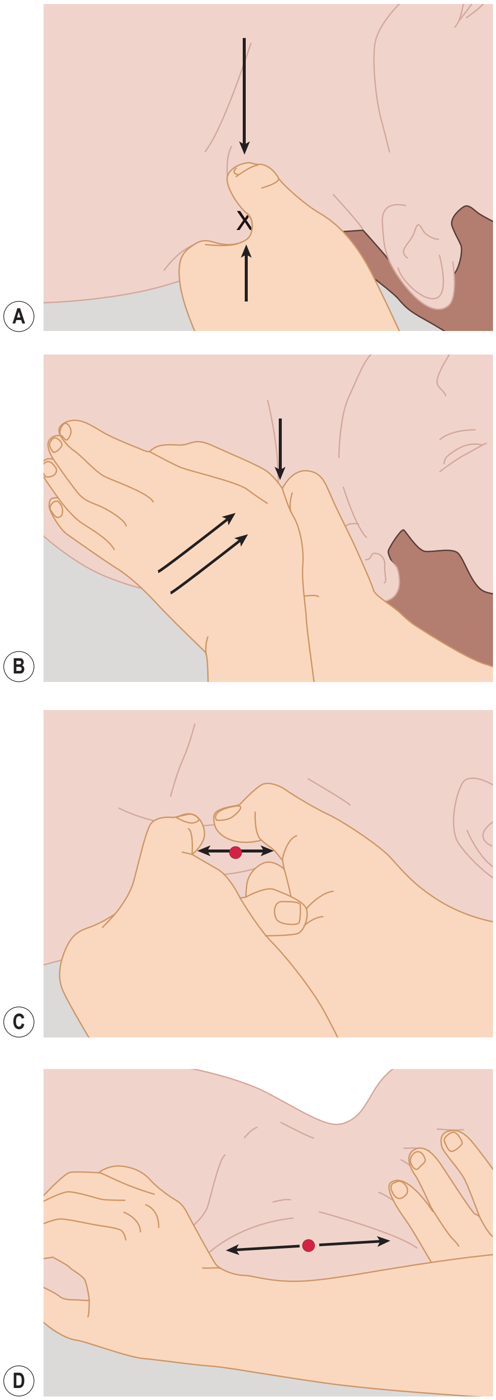

Figure 6.2 (A) First stage of INIT in which a tender/pain/trigger point in upper trapezius is located and ischaemically compressed, either intermittently or persistently. (B) The pain is removed from the tender/pain/trigger point by finding a position of ease, which is held for at least 20 seconds, following which an isometric contraction is achieved involving the local tissues housing the point. (C) Following the holding of the isometric contraction for 5–7 seconds, the local muscle tissues in which the point lies are stretched. (D) The whole muscle is stretched after a further whole muscle isometric contraction. This completes the INIT sequence.

FIBROMYALGIA SYNDROME (FM)

FM is defined by *Mosby's Medical Dictionary* as:

> ***A form of nonarticular rheumatism characterized by musculo-skeletal pain, spasms, stiffness, fatigue, and severe sleep disturbance. Common sites of pain or stiffness include the lower back, neck, shoulder region, arms, hands, knees, hips, thighs, legs, and feet. These sites are known as trigger points. Physical therapy, non-steroidal anti-inflammatory drugs, and muscle relaxants provide temporary relief. Also called fibrositis, soft tissue rheumatism. (See Boxes 6.1, 6.2.)***

Counterstrain and fibromyalgia

Osteopathic physicians using strain/counterstrain (SCS) and muscle energy techniques (MET), as well as other osteopathic methods, have conducted numerous studies involving patients with a firm diagnosis of FM.

Among the studies in which (SCS) was a major form of treatment of FM are the following:

1. Doctors at the Chicago College of Osteopathic Medicine measured the effects of osteopathic manipulative therapy (OMT – which included both SCS and MET) on the intensity of pain in tender points involving 18 patients who met all the criteria for FM. Each had six visits/treatments and it was found, over a 1-year period, that 12 of the patients responded well, in that their tender points became less sensitive (14% reduction against a 34% increase in the six patients who did not respond well). Most of the patients – the responders and the non-responders who had received SCS and MET – showed (using thermographic imaging) that their tender points were more symmetrically spread after the course than before. Activities of daily living were significantly improved and general pain symptoms decreased (Stoltz 1993).

Box 6.1 American College of Rheumatology criteria for the diagnosis of fibromyalgia (Wolfe et al. 1990)

1. History of widespread pain

Pain is considered widespread when all of the following are present:

- Pain in the left side of the body
- Pain in the right side of the body
- Pain above the waist
- Pain below the waist.

In addition, the patient should complain of pain in the spine or the neck or front of the chest, or thoracic spine or low back.

2. Pain in 11 of 18 palpated sites

There should be pain on pressure (around 4 kg of pressure maximum) on not less than 11 of the following sites:

- Either side of the base of the skull where the suboccipital muscles insert
- Either side of the side of the neck between the fifth and seventh cervical vertebrae (technically described as between the 'anterior aspects of intertransverse spaces')
- Either side of the body on the midpoint of the muscle, which runs from the neck to the shoulder (upper trapezius)
- Either side of the body on the origin of the supraspinatus muscle which runs along the upper border of the shoulder blade
- Either side, on the upper surface of the rib, where the second rib meets the breast bone, in the pectoral muscle
- On the outer aspect of either elbow just below the prominence (epicondyle)
- In the large buttock muscles, either side, on the upper outer aspect in the fold in front of the muscle (gluteus medius)
- Just behind the large prominence of either hip joint in the muscular insertion of piriformis muscle
- On either knee in the fatty pad just above the inner aspect of the joint.

Box 6.2 Similarities and differences between fibromyalgia (FM) and chronic myofascial pain (CMP)

FM and CMP are *similar*, in that both:

- Are affected by cold weather
- May involve increased sympathetic nerve activity and may involve conditions such as Raynaud's phenomenon
- Have tension headaches and paraesthesia as a major associated symptom
- Are unaffected by anti-inflammatory, pain-killing medication whether of the cortisone type or standard formulations.

FM and CMP are *different*, in that:

- CMP affects males and females equally; fibromyalgia affects mainly females.
- CMP is usually local to an area such as the neck and shoulders, or low back and legs, although it can affect a number of parts of the body at the same time while fibromyalgia is a generalized problem, often involving all four 'corners' of the body at the same time.
- Muscles which contain areas that feel 'like a tight rubber band' are found in the muscles of around 30% of people with CMP and more than 60% of people with FM.
- People with FM have poorer muscular endurance than do people with CMP.
- CMP can sometimes be severe enough to cause disturbed sleep; in fibromyalgia the sleep disturbance has a more causative role, and is a pronounced feature of the condition.
- Patients with CMP usually do not suffer from morning stiffness, whereas those with fibromyalgia do.
- Fatigue is not usually associated with CMP, while it is common in fibromyalgia.
- CMP can sometimes lead to depression (reactive) and anxiety, whereas in a small percentage of fibromyalgia cases (some leading researchers believe), these conditions can be causative.
- Conditions, such as irritable bowel syndrome, dysmenorrhoea and a subjective feeling of 'swollen joints' are noted in fibromyalgia, but seldom in CMP.
- Low-dosage tricyclic antidepressant drugs are helpful in dealing with the sleep problems associated with FM, and many of the symptoms of fibromyalgia – but not those of CMP.
- Exercise programmes (cardiovascular fitness) can help some fibromyalgia patients, according to experts; but this is not a useful approach in CMP.

2. Osteopathic physicians at Kirksville College of Osteopathic Medicine treated 19 patients classified as having fibromyalgia, using SCS and MET approaches, for 4 weeks, one treatment each week. Some 84.2% of the patients showed improved sleep patterns and 94.7% reported a significant reduction in pain after this short course of treatment (Lo et al. 1992).
3. Doctors at Texas College of Osteopathic Medicine selected three groups of FM patients, one of which

received OMT including SCS, another had OMT plus self-teaching (study of the condition and self-help measures) and a third group received only moist-heat treatment. The group with the lowest level of reported pain after 6 months of care was that receiving OMT, although benefits were also noted in the self-teaching group (Gamber et al. 1993).

4. Another group of doctors from Texas, in a study involving 37 patients with FM (Rubin et al. 1990), tested the differences resulting from using: drugs only (ibuprofen, alprazolam); osteopathic treatment (including SCS) plus medication; osteopathic treatment plus a dummy medication (placebo); a placebo only. The results showed that:
   - Drug therapy alone resulted in significantly less tenderness being reported than did drugs and osteopathy, or the use of placebo and osteopathic treatment or placebo alone.
   - Patients receiving placebo plus osteopathic manipulation reported significantly less fatigue than the other groups.
   - The group receiving medication and (mainly) osteopathic soft tissue attention, showed the greatest improvement in their quality of life.
5. Gamber et al. (2002) assessed the relative benefits of osteopathic methods, including SCS – with and without patient education regarding the condition, moist heat and standard medical care. Significant findings between the four treatment groups on measures of pain threshold, perceived pain, attitude toward treatment, activities of daily living, and perceived functional ability were found. All of these findings favoured use of osteopathic (SCS) methods. This study found osteopathic care, combined with standard medical care, was more efficacious in treating FM than standard care alone.

The main conditions that predispose to, or which accompany, fibromyalgia are summarized in Box 6.3.

Box 6.3 **Main associated conditions which predispose towards and accompany fibromyalgia**

These include the following (Block 1993; Duna & Wilke 1993; Fishbain 1989; Goldenberg 1993; Jacobsen 1992; Kalik 1989; Rothschild 1991):

- Of people with FM, 100% have muscular pain, aching and/or stiffness (especially in the morning)
- Almost all suffer fatigue and badly disturbed sleep with consequent reduction in production of growth hormone
- Symptoms are almost always worse in cold or humid weather
- The majority of people with FM have a history of injury – sometimes serious but often only minor – within the year before the symptoms started
- 70–100% (different studies show variable numbers) are found to have depression (though this is more likely to be a result of the muscular pain rather than part of the cause)
- 34–73% have irritable bowel syndrome
- 44–56% have severe headaches
- 30–50% have Raynaud's phenomenon
- 24% suffer from anxiety
- 18% have dry eyes and/or mouth (sicca syndrome)
- 12% have osteoarthritis
- 7% have rheumatoid arthritis
- An as yet unidentified number of people with FM have had silicone breast implants and a newly identified silicone breast implant syndrome (SBIS) is now being defined
- Between 3% and 6% are found to have substance (drugs/alcohol) abuse problems.

Attention to underlying causes

Common-sense, as well as clinical experience, dictates that the management of FM and CMP should involve re-education (postural, breathing, relaxation, etc.), as well as the elimination of factors that may have contributed to the evolution, maintenance and/or aggravation of these conditions. This might well involve ergonomic evaluation of home and workplace, as well as the introduction and dedicated application of postural, exercise and/or breathing pattern re-education methods.

Unless soft tissue and other changes are accurately identified and addressed, no therapeutic method will do more than produce short-term relief.

In order for restrictions, imbalances and malcoordination in the musculoskeletal system to be satisfactorily addressed, and where possible reversed, the individual needs to be appropriately treated as well as taught improved patterns of use.

In order for appropriate treatment to be offered, assessment methods are needed that lead to identification and modification of:

- Patterns of misuse, overuse, etc.
- Postural imbalances
- Chronically shortened postural muscles
- Chronically weakened muscles
- Patterns of functional malcoordination and imbalance
- Local changes within muscles (such as trigger points) and other soft tissues (e.g. fascia)
- Joint restrictions
- Functional imbalances in gait, respiration, etc.

HOSPITALIZED PATIENTS

Problems of manual treatment delivery in hospital

Acutely ill patients have very special problems and needs when being considered for manual treatment. These relate to their inability to be moved more than a little, their difficulty in cooperating in a manual treatment, possibly because of 'multiple intravenous and subclavian taps, monitors or various types of catheters', as well as their current particular state of vulnerability, either due to illness or to their being pre- or post-surgical (Schwartz 1986).

Edward Stiles (1976), then director of osteopathic medicine at Waterville Osteopathic Hospital in Maine, evaluated the usefulness of osteopathic attention to patients in hospital settings (Stiles 1976). He found that general osteopathic attention is of value in treating pre- and post-operative patients, especially with regard to excursion of the rib cage in order to establish maximum ventilating ability:

> ***This is particularly important for patients undergoing upper gastrointestinal or thoracic surgery, since a decrease in excursion of the rib cage can increase the patient's susceptibility to splinting of the thoracic cage and impede ventilating ability.***

Stiles found that few methods achieved this end more effectively than the application of variants of positional release methods, which are particularly relevant in the context of pain, restriction – and limitation of the ability to change the patient's position, as described regarding bed-bound patients, later in this chapter.

Box 6.4 lists examples of major benefits resulting from use of positional release methods in hospitalized patients.

Postoperative situations

Postoperative uses of positional release

Dickey (1989) focussed attention on the particular needs of the many thousands of people undergoing surgery each year, via median sternotomy, in which the rib cage is opened anteriorly to allow access to the heart and other thoracic structures. More than 250 000 patients undergo coronary bypass graft surgery annually (in the USA alone). This surgery is accomplished via a median sternotomy incision, an approach that has been gaining widespread acceptance.

- In this form of surgery, an incision is made from the suprasternal notch to below the xiphoid process.

Box 6.4 **Three examples of the efficacy of indirect methods (including SCS) in hospital settings**

1. Reduced duration of postoperative hospital stay

Osteopathic manipulative treatment (including SCS and functional techniques) are seen to be easily implemented and cost-effective in terms of shortening hospital stays, resulting from effective relief of acute pain. Patients who receive morphine preoperatively and osteopathic attention postoperatively tend to have less postoperative pain and require less intravenously administered morphine. In addition, those receiving osteopathic attention demonstrate early ambulation and body movement, as well as decreased postoperative morbidity and mortality and increased patient satisfaction (Noll et al. 2000).

2. Shorter hospital stay for patients with pancreatitis

In an outcomes research study, Radjieski et al. (1998) randomly assigned six patients with pancreatitis to receive standard care plus daily osteopathic manipulative treatment (comprising myofascial release, soft tissue and strain/counterstrain techniques) for the duration of their hospitalization or to receive only standard care (eight patients). Osteopathic treatment involved 10–20 minutes daily of a standardized protocol, with attending physicians blinded as to group assignment. Results indicated that patients who received osteopathic attention averaged significantly fewer days in the hospital before discharge (mean reduction, 3.5 days) than control subjects, although there were no significant differences in time to food intake or in use of pain medications.

3. Shorter hospitalization and duration of intravenous antibiotics for elderly pneumonia patients

Elderly patients hospitalized with acute pneumonia were recruited and randomly placed into two groups: 28 in the treatment group and 30 in the control group. The treatment group received a standardized osteopathic attention protocol (including SCS and functional methods), while the control group received a light touch protocol. There was no statistical difference between groups for age, sex or simplified acute physiology scores. The treatment group had a significantly shorter duration of intravenous antibiotic treatment and a shorter hospital stay (Noll et al. 2000).

- The soft tissues below the skin are treated with diathermy to stem bleeding and the sternum is divided by an electric bone saw, the exposed edges being covered with bone wax.
- The sternum is then retracted with the upper level being placed at the level of the second rib.
- Following whatever surgical intervention is involved, the sternal margins are brought together and held by stainless steel sutures.
- There are often drainage tubes exiting from below the xiphoid following surgery.

The degree of stress and injury endured by all the tissues of the region is clearly major, especially considering that the open-chest situation may have been maintained for many hours. The sequels to this trauma are many and varied, as Dickey (1989) explains, and include:

> ***Dehiscence, substernal and pericardial infection, nonunion of the sternum, pericardial constriction, phrenic nerve injuries, rib fractures and brachial plexus injuries.***

Fully 23.5% of patients undergoing these procedures develop brachial plexus injuries.

Dickey reports on this surgical procedure being carried out experimentally on 10 cadavers, of which seven sustained first rib fractures with the fractured ends often impaling the lower trunks of the brachial plexus. While such negative effects are usually noted immediately post-operatively, many problems do not emerge until later and these might include structural and functional changes in chest mechanics that do not become evident for weeks or months, particularly restrictions affecting thoracic vertebrae and the rib cage, as well as fascial and diaphragmatic changes.

Dickey (1989) has outlined a number of appropriate manual methods for helping in recovery, including positional release methods. He stresses the importance of structural evaluation and treatment, both before and after surgery, with the manual therapeutic methods being of various types. However, it is specifically those positional release approaches that he advocates that are discussed in the context of this book.

Because of the wide retraction involved, the upper ribs (because of their firmer attachments) sustain the greatest degree of strain. Interosseous contraction, fascial strain and diaphragmatic dysfunction may all be palpable and to an extent, remediable.

It is as well to be reminded that patients undergoing this form of surgery are likely to be past middle age, commonly with a range of existing musculoskeletal restrictions and dysfunctions and therefore with a limited prospect of normal function being completely restored (Nicholas & Oleski 2002; O-Yurvati 2005).

Functional treatment of surgically traumatized tissues

This is a part of functional technique methodology in which, rather than using a 'tender point' monitor, the tissues being treated are evaluated for their directions of freedom of movement (ease), and are held in those directions until a spontaneous change takes place (Fig. 6.3).

- The patient should be supine.
- The practitioner places one hand between the scapulae with the other hand resting on the surface of the midline of the sternum (Fig. 6.3).
- Each hand, independently, tests tissue preference in both a clockwise and then an anticlockwise direction, allowing assessment of the 'tissue preference pattern' relating to the skin and superficial fascia.
- In other words, the hands on the tissues are asking, 'in which direction do these tissues move most easily?', as the anterior and posterior assessments are made.
- Once assessed and identified, the tissues (anterior and posterior simultaneously), are taken in their respective directions of motion, towards the

Figure 6.3 Release of traumatized fascial structures. In this figure, the practitioner's left hand lies between the patient's scapulae, while the right hand lies on the sternum. The hands independently assess the 'tissue preference patterns' (Dickey 1989). These 'positions of ease' are held for up to 90 seconds, in order to allow distorted fascial patterns to modify or normalize.

directions of preferred movement that they currently exhibit.

- Whichever direction of rotation is most 'easy' should be held – simultaneously front and back (90 seconds minimum), each in their preferred direction – until tension eases.
- This will commonly release recently acquired stress patterns in the fascia, possibly revealing older patterns which can then be addressed.
- This approach should be applied at least weekly until distorted fascial patterns are resolved or cease to alter, possibly indicating an intractably fixed state.

Normal, unstressed tissues should exhibit an equal excursion in both directions of rotation, although this is seldom found in adults, even if surgical trauma has not been a factor (Lewit 1999; Zink & Lawson 1979). Compare this method with the seated version described in Chapter 1, Functional technique variation: integrated neuromuscular release.

Research validation

In order to determine the effects on cardiac haemodynamics of this method, O-Yurvati et al. (2005) documented the effects of functional positional release (FuPR), applied to traumatized thoracic tissues – as part of a broader osteopathic intervention – following coronary artery bypass graft (CABG).

- Ten subjects undergoing CABG were compared, pre-treatment, versus post-treatment, involving measurements of thoracic impedance, mixed venous oxygen saturation and cardiac index.
- Immediately following CABG surgery, FuPR was provided to *anaesthetized and pharmacologically paralysed patients* to alleviate anatomical dysfunction of the rib cage, caused by median sternotomy, and to improve respiratory function.

This approach involved the practitioner placing one hand under the supine patient, to rest/palpate tissues between the scapulae. Simultaneously, the other hand was placed anteriorly, directly over the surgically traumatized tissues. Just sufficient pressure was exerted to allow the superficial skin and fascia to be moved in the directions being tested (Fig. 6.3).

- Each hand, independently, evaluated tissue preference directions – superior/inferior?
- Lateral to the left/lateral to the right?
- Clockwise/anticlockwise?
- Each evaluation commenced from the 'ease' position of the previous evaluation(s).

Once the final ease position was identified, by each hand independently, the tissues were maintained in those positions for 90 seconds before a slow return to the starting position.

Results: Improved peripheral circulation and increased mixed venous oxygen saturation was evident after the treatment – accompanied by a significant improvement in cardiac index.

See also Chapter 1 notes on Integrated neuromuscular release and Figure 1.3.

Functional release of the diaphragm attachment area

- The patient is supine and the practitioner stands at waist level facing cephalad, and places his hands over the middle and lower thoracic structures, fingers along the rib shafts (Fig. 6.4).
- Treating the structure being palpated as a cylinder, the hands test the preference that this cylinder has to rotate around its central axis, one way and then the other: does the lower thorax rotate with more ease to the right or to the left?
- Once the direction of greatest rotational ease has been established, and with the lower thorax rotated into this 'preferred' direction, side-bending one way and then the other is evaluated: when rotation has been made toward ease, does the lower thorax side-flex with more ease to the right or to the left?
- Once these two pieces of information have been established, the combined positions of ease, are 'stacked' onto each other, i.e. the lower thorax is

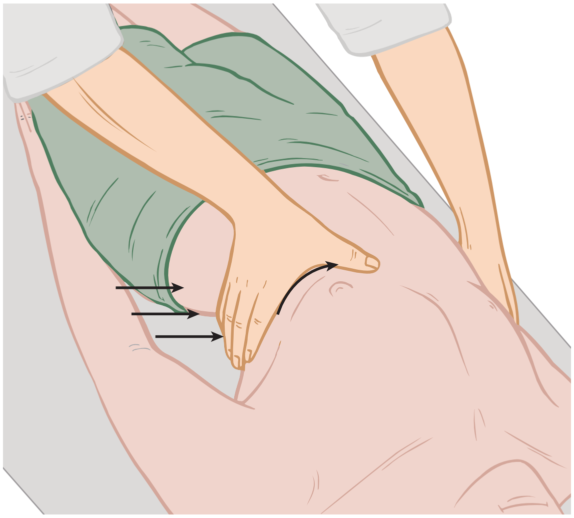

Figure 6.4 In this functional approach, the lower thoracic cage is taken into its preferred directions of rotation and side flexion, where it is held for up to 90 seconds, in order to relax the diaphragmatic attachment areas. See also Figure 1.2 and the functional exercise described in that chapter.

rotated towards its easiest direction, and then side-flexion is introduced, also towards the easiest direction.
- These positions are held for up to 90 seconds followed by a slow release.
- At this time, the diaphragm should be found to function more normally, accompanied by a relaxation of associated soft tissues, and a more symmetrical rotation and side-flexion potential of the previously restricted tissues.

Indirect rib treatment

See also SCS rib treatment description in Chapter 5.

Dickey suggests that following the nonspecific fascial release method described above (Fig. 6.3), standard rib function tests should be performed in order to identify ribs that are not symmetrical in their range of movement during the respiratory cycle, so that treatment can be introduced in order to assist in normalizing what has become restricted.

In the early postoperative phase, a classical osteopathic positional release approach is suggested (Kimberly 1980).

Method

- The patient sits on one side of a treatment table and the practitioner sits facing the opposite way, on the other side.
- In this way, by half-turning towards the patient, there is easy access to the lateral chest wall.
- Having previously identified ribs that are restricted in their range of motion, using standard assessment procedures (as described in Chapter 3), the practitioner places his hands so that the index and middle fingers of one hand contact the restricted rib to be treated, facing forwards along the anterior aspect of the rib, while the other index and middle finger contact the same rib, facing backwards along the posterior aspect (Fig. 6.5).
- The thumbs rest touching each other, tip-to-tip, at the mid-axillary line.
- The patient is asked to sit erect and to lean gently towards the practitioner, so that the ribs and the fingers make good contact.
- In this way, no force is exerted by the practitioner towards the ribs, and the patient controls the degree

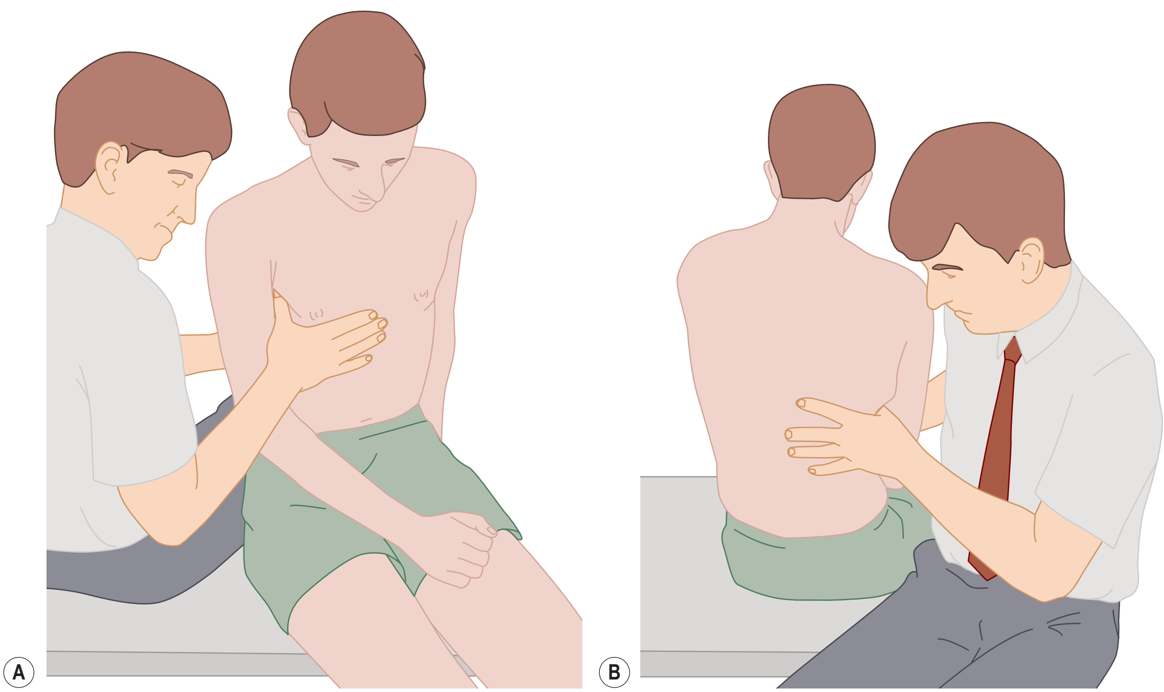

Figure 6.5 (A,B) The practitioner achieves firm but gentle contact of a previously identified dysfunctional rib (elevated, depressed, restricted). The patient controls the degree of hand pressure by leaning towards the practitioner and then slightly turning towards the side opposite that being treated, which releases the demifacets. The patient then inhales and exhales as the practitioner assesses the phase at which the rib is most at ease. The patient holds this phase for as long as is comfortable, one or more times, until improved function is noted (Dickey 1989). The patient may need to repeat the breathing phase several times in order to achieve freedom of motion for a restricted rib at any treatment session.

of pressure being applied, which should be just enough to maintain firm contact.

- At this point, the patient is asked to *slightly* and *slowly* rotate the trunk away from the side being treated, which effectively eases the rib away from its demifacets.
- When the practitioner senses that this has been achieved, the patient is instructed to partially inhale and to then exhale in order for an evaluation to be made as to which phase of the cycle induces the greatest sense of *palpable ease*; freedom from tension.
- This evaluation is communicated to the patient, who is asked to hold the breath in the phase that induces maximum ease, for as long as is comfortable.
- The practitioner should be maintaining contact on the rib in order to achieve the maximal degree of ease.
- Any sense that tension, 'bind', is returning calls for a slight modification (fine-tuning) in the direction in which the rib is being held.

The patient may need to repeat the breathing phase several times in order to achieve freedom of motion for a restricted rib at any treatment session, which should be repeated not less than weekly until the ribs have all been released to the degree that is possible.

SCS techniques for rib dysfunction correction, as outlined in Chapter 4, can also be employed in order to support this method.

Improving lymphatic drainage

In patients who have undergone surgery, there may well be lymphatic stasis, as evidenced by swelling/oedema in the region of the posterior axillary fold.

Dickey (1989) suggests that the practitioner should: 'Assess the tissue preference patterns of the upper arm and the forearm, independently'. Once established, both sites should be taken towards the direction of the tissue preference, 'with slight compression through the elbow and the shoulder until he or she perceives the tension relaxing'.

This approach is repeated at each visit until tissue drainage is normal.

It is not difficult to see the similarities between the postoperative methods suggested by Dickey and the concepts of SCS and functional technique, as described elsewhere in the book. See in particular the various aspects of the Spencer sequence as described in Chapter 4, and also Hoover's clavicle and thoracic exercises in Chapter 5.

The commonality is the sensing of *directions of ease* in tissues, along with a supportive, non-invasive holding of the tissues in that state, until resolution occurs, whether the structures being treated are osseous (ribs, shoulder joint, clavicle) or soft (fascia, muscle).

Unlike SCS, these methods do not involve the use of pain-monitoring points, with the position of maximal ease being achieved entirely by means of palpation assessment.

SCS methods in bed-bound hospital patients

Schwartz (1986) notes that SCS, which is one of the primary manipulative methods routinely used in osteopathic hospitals, is of particular value in mobilization of the mechanical aspects of respiration, including, 'clavicle, ribs, sternum and anterior and posterior vertebral segments, as well as the diaphragm'.

Patients due for surgery are routinely treated in order to normalize respiratory function, as well as being treated for postoperative ileus.

The potential value and importance of methods that are non-invasive and easily adapted to bed-bound patients or those in considerable pain or distress, speaks for itself.

The methods described involve patients in medical and surgical, obstetric and paediatric wards, including pre- and post-surgical patients, some of whom have undergone cystotomy, gastrotomy and other major surgery.

Schwartz (1986) confirms Jones's assertion that all counterstrain positions are capable of being modified and successfully applied to bed-bound patients, saying that, 'without exception, this observation has been found to be valid'. (See Chapters 3 and 4 for more detail of SCS usage.)

Note: The descriptions in this chapter by Schwartz (1986) were based on the original Jones's formulaic model of SCS.

It may not be possible when treating bed-bound, hospitalized individuals to fully employ the Goodheart approach, as described in Chapter 4, in which the individual describes painful or restricted movements, which are then used to guide the therapist to the location of ideal 'tender point' sites.

Schwartz's description of tender points

Schwartz (1986) described the tender points used as monitors in SCS application as being:

> ***Pea-sized bundles or swellings of fascia, muscle tendrils, connective tissue and nerve fibers as well as some vascular elements.***

Interestingly, unlike many other authors, he notes that:

> ***Generally, but not always, pressure on the tender point will cause pain at a site distant to the point itself.***

This description of course defines such a point as a trigger point, as well as a tender point.

He also acknowledges that:

> ***Tender points resemble both Chapman's neurolymphatic reflexes, and Travell's***

> ***myofascial trigger points (Owens 1982; Travell & Simons 1983).***

Schwartz highlights the difference between SCS and other methods that use such points in treatment by saying:

> ***Other methods invade the point itself, for example by needle in acupuncture, injection of lidocaine into the point, or the use of pressure or ultrasound to destroy the tender point.***

Note: See earlier in this chapter for a description of an integrated trigger-point deactivation sequence (Integrated neuromuscular inhibition technique, INIT).

Palpating change

Schwartz suggests that when using SCS, if a position of ease is achieved and tenderness vanishes from the palpated point, one of a number of sensations may become apparent to the practitioner/therapist, a 'sudden release', or a 'wobble', or a 'give' or a 'melting away' – all of which may indicate a change in the tissues in response to the positional changes, which has been brought about by the practitioner/therapist.

Two phases of the positioning process are emphasized, the first being 'gross' movement, which takes the area or the patient to the approximate position of ease, and 'fine-tuning', which further reduces pain from the palpated tender point.

Guidelines for use of counterstrain in bed-bound patients

In the summaries of suggestions for bed-bound patients that follow, only the particular modifications necessary in such a setting are emphasized. For more detailed descriptions, see Chapter 4.

Remember that:

- Unusually sensitive local areas ('tender points') represent aspects of a local dysfunction
- Tender points will usually be found in hypertonic, shortened soft tissues
- Active contraction of those tissues, or movements that stretch them, are likely to feel restricted or uncomfortable, or frankly painful, to the individual
- Positioning the tissues in ways that increase their 'shortness', while palpating a reduction in tone, combined with reduced 'tenderness scores', guides you to the position of ease that may allow spontaneous release to occur.

Note: Many of the illustrations of these 'bed-bound' methods are to be found in earlier chapters (see Chapters 3 and 4 particularly).

1. Anterior cervical dysfunction in bed-bound individuals

- Anterior cervical tender points located around the tips of the transverse processes are easily accessible in a bed-bound patient, as are the positions of ease (see Fig. 4.12A), which almost all require a degree of flexion, together with side-bending towards, and rotation away from, the side of the tender point.

2. Posterior cervical dysfunction in bed-bound individuals

- The posterior cervical points lie on or around the tips of the spinous processes and require extension of the head on the neck, and/or the neck as a whole (see Fig. 4.16A), which is more easily achieved in bed-bound patients if they are side-lying, with – it is suggested – the painful side uppermost, since (according to Schwartz's guidelines) the main side-bending and rotation into 'ease' needs to be towards the pain side, which would be difficult were the patient lying on the painful side.
- The C3 posterior point may require extension *or* flexion to create ease, and both directions should be gently attempted until the greatest reduction in sensitivity is achieved.

3. Posterior thoracic spinal dysfunction in bed-bound individuals

- Posterior thoracic and lumbar spinal tender points lie close to the spinous processes in the upper thoracic area, becoming increasingly lateral, lying on or around the transverse processes in the lower thoracic and lumbar vertebrae.
- The upper four thoracic segments are best treated with the patient side-lying with the arms resting, if possible, at the level of the shoulders (see Fig. 4.42) and with the upper arm supported by a pillow in order to avoid the introduction of rotation.
- The patient's upper spine should be extended to the level of the tender point in order to reduce or remove the palpated tenderness.
- For the middle thoracic vertebrae, posterior points are also treated with the patient side-lying, but this time the arms are held above the head as the patient moves into extension.
- The lower four thoracic vertebrae are treated for posterior tender points (extension strains) with the patient supine and the practitioner/therapist standing on the dysfunctional side, with one hand under the patient to palpate the point.

- The patient's hand on the side opposite the pain is held, and the arm drawn across the chest towards the practitioner, so that the shoulder on that side lifts 30–45° from the bed, at which time fine-tuning should remove residual pain.
- If the patient's condition means that turning onto the side is not possible, then the method suggested for the lower thoracic vertebrae can be substituted for the side-lying posture described above.

4. Posterior lumbar dysfunction in bed-bound individuals

- Posterior lumbar tender points, which are described and illustrated in this chapter, and which are usually treated with the patient prone, can also be efficiently dealt with in the side-lying position.
- L1, L2, L3 and L4 involve the side-lying patient, dysfunction side uppermost.
- L1 and L2 (see Fig. 4.44B) require the upper leg being taken into straight extension and then either abduction or adduction, and/or rotation (of the leg) one way or the other, whichever combination provides the greater ease.
- In treatment of L3 and L4, as well as upper-pole L5 (lying between the fifth lumbar spinous process and the first sacral spinous process, see Fig. 4.4B) and the lower-pole L5 point (located midway on the body of the sacrum, see Fig. 4.4B), abduction and extension of the leg is introduced, and fine-tuning is achieved by variations in the degree of extension, as well as by the introduction of rotation internally or externally of the foot.
- For treatment of what is known as the middle-pole L5 tender point (in the superior sulcus of the sacrum), the side-lying patient's upper leg (dysfunction side) is flexed at hip and knee and this rests on the practitioner/therapist's thigh.
- This is fine-tuned by movement of the leg into greater or lesser degrees of hip flexion (see Fig. 4.44C) and by the degree of abduction or abduction needed to produce ease.
- The patient's ipsilateral arm may then be used in fine-tuning by having it hang forward and down over the edge of the bed.

5. Anterior thoracic dysfunction in bed-bound individuals

Anterior thoracic tender points lie on the anterior or surface of the thorax, the first six on the midline and the lower ones slightly lateral to it, bilaterally at approximately 1–2 cm (half to 1 inch) intervals, so that from T8 onwards the tender points lie in the abdominal musculature.

- These points relate directly to respiratory dysfunction and respond dramatically quickly to SCS methodology.
- The improvement in breathing function is commonly immediately apparent to the patient.
- In bed-bound patients, the patient is supine and there is usually a need for pillows or bolsters to assist in supporting them as flexion is introduced (see Fig 4.40A).
- For the first six anterior thoracic tender points (lying on the sternum) the patient's arms are allowed to rest slightly away from the body, and the knees and hips are flexed, feet resting on the bed. The only movement usually needed to ease tenderness is flexion of the head and neck towards the chest (the lower the point the greater the degree of flexion).
- Fine-tuning involves movement of the head slightly towards or away from the palpated pain site.
- For tender point treatment from T7 onwards, the patient's buttocks are rested on a pillow, so that the segment involved is unsupported, allowing it to fall into flexion.
- Alternatively, the practitioner/therapist can support the flexed knees and bring them towards the head, so flexing the lumbar and thoracic spine (see Fig. 4.41B).
- Fine-tuning may involve crossing the patient's ankles or side-bending to or away from the side of palpated tenderness, whichever combination reduces sensitivity more.

6. Anterior lumbar dysfunction in bed-bound individuals

Anterior lumbar (see Fig. 4.4A) tender points require a similar positioning to that called for by the thoracic points.

Rib dysfunction and interspace dysfunction. The appropriate treatment for rib dysfunction and interspace dysfunction are described in this chapter and can be applied to bed-bound patients without any modification.

Schwartz (1986) reports that:

> ***Interspace dysfunctions are implicated in costochondritis, the persistent chest pain of the patient who has suffered acute myocardial infarction, 'atypical' angina and anterior chest wall syndrome. They are strongly implicated along with depressed and elevated ribs in restricted motion of ribs … and thus contribute to the etiology and morbidity of many respiratory illnesses.***

THIS CHAPTER

This chapter has provided detail in the use of positional release methods in particular clinical settings, including for hospitalized/bed-bound patients, as well as in chronic pain situations, such as fibromyalgia.

NEXT CHAPTER

The next chapter summarizes particular aspects of the use of positional release methods relative to fascial dysfunction.

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