When presented with a lock, a key is mightier than a hammer.

Our posture should flow with ease through dynamically changing positions as we move, and so is constantly adapting. In healthy movement we select from a range of stabilizing possibilities, calibrating our neuromuscular pattern according to the task we are performing. However, if our postural control is compromised in response to our emotional, behavioral, functional, or neurosensory landscape, our choices can narrow to adopt a habitual specific stabilizing strategy. This becomes a lock – the stereotypical immobilizing response in a part of the body that is used for stabilization regardless of the task demand.

Locks can be classified as being either foundation or functional. A foundation lock is one that is present in the person’s posture whether they are in motion or at rest. It is a consistent postural feature and does not vary greatly in response to movement demands.

A functional lock appears in response to the impulse to move. In Chapter 3 we discussed the process by which our bodies prepare for movement: the feedforward response. This response ensures that our support musculature establishes the initial groundwork for our bodies to be able to accept load and generate force prior to the movement actually beginning. We have many possibilities for this, and muscles like transversus abdominis, multifidus, and the vastus medialis of the quadriceps have all been identified as behaving in this preparatory way. However, in the presence of pain, a history of injury, or any one of the other postural influences that we discussed in Chapter 5, alternative feedforward responses can appear and become the primary preparatory strategy for the body. In Chapter 3 we also talked about looking for where a movement starts – the point of preparation. Persistent, habitual points of preparation that are used regardless of the movement challenge are in fact functional locks.

Distinguishing between foundation and functional locks helps us to identify how to address them. In the case of a foundation lock, there may be structural joint stiffening and soft tissue restriction that can benefit from direct treatment, mobilizing, or stretching. These techniques create movement potential, which must then be integrated using active movement to make the brain aware of how to access and use the new motion in the area.

Functional locks appear in response to movement, but subside at rest. Although a person will complain of tightness and stiffness in the lock area, this is the result of active muscle contraction rather than passive structural limitation. As such, stretching, massage, and mobilization can offer symptomatic relief and address the adaptive tissue shortening that may develop over time, but none of these treatments will make lasting change, because this is a motor program issue – it is in the wiring.
Working with functional locks therefore involves:

- making sure that the load or skill requirement of the exercise is within the person’s capabilities, so that they aren’t forced into the lock as a coping strategy
- using a cue that communicates the movement impulse clearly
- establishing an awareness of relaxation in the locking area prior to beginning the movement.

Sticky links

There are several common central body locks. Posteriorly, we have the upper (cervical) lock, the posterior rib lock, and the lower (lumbosacral) lock. Anteriorly, we have upper (throat) lock, the anterior rib lock (which we will look at in Chapter 9), and the anterior hip lock.

Although for ease of consideration we have identified the locks as separate entities, their biomechanical, structural, and neural relationships create significant interplay between them. Understanding these relationships can help us to avoid simply using forced muscle action to counter the locks, offering us, instead, the opportunity to uncover other neuromuscular possibilities, by gently unpicking them.

Upper lock

The first of the locks is already familiar to us: it is the posterior upper lock, sometimes referred to as the atlanto-occipital lock (see Fig. 6.1). This downward compression of the head on the upper neck, together with the accompanying backward rotation of the skull, influences global body reflexes, and as such it is the master key for the entire spine.

In Chapter 3, we discussed the cues of being lifted from the scruff of the neck, looking into a pool of water, and projecting out from the very top, or crown of the head rather than looking forward. This was followed in Chapter 5 by the introduction of cues such as the balloon, the elongated ears, and the suspended puppet, which specifically address the upper lock. All of these cues modify the motor program. They don’t just address the point of preparation but also introduce a sense of active intention to carry through the movement.

The posterior upper lock has an equally strong influence when working in supine. If the head is allowed to rest in backward rotation, the spine will be facilitated into extension via reflex activation. If you are hoping to relax the spine toward the floor, work with breathing or establish a neutral lumbar position from which to move the limbs, the upper lock will block it.
Taking the upper neck out of the extended position reduces extensor tone, which enables easier access to the back of the rib cage in breathing and diminishes the urge to force the spine toward the floor using the abdominal muscles. It should also make lumbopelvic mobility easier, as it will reduce the muscular resistance and joint compression caused by excessive spinal extensor tone.

Rather than forcing the head and neck into a counter lock, fold a towel to a thickness that will allow the person’s head and neck to settle into a relaxed neutral position when placed under their occiput (see Fig. 6.2). There might be a need for many folds to begin with, but over time as this area of the body learns to open and lengthen, the thickness of the support can be reduced.

The anterior upper lock, or throat lock, is caused by a fixed contraction of the deep muscles on the front of the neck. Like an over-trained show pony, the chin is tucked down or pulled in at the front, immobilizing the head on the neck. This posture is just as responsible for neck pain as the posterior upper lock and can result from posture cues that encourage a person to pull their head back onto the plumb line. It is also prevalent in members of the health and fitness professions who have conscientiously attended to preventing the posterior upper lock, only to find themselves in a counter-lock (see Fig. 6.3).

Both the anterior and posterior upper locks alter the normal lordotic curve in the cervical spine and affect postural control by interfering with finely tuned head on neck movements. A neutral head carriage allows the head to float in balance over the spine and be able to move freely and smoothly in all directions.
**Head slides**

Lie comfortably on your back with knees bent. Allow your head to settle comfortably with your nose pointing toward the ceiling, placing a folded towel under the point where your head rests on the floor if necessary. Place a hand on the central bony projection that you can feel where your neck meets your body (see Fig. 6.5). This is your C7 spinous process. Become aware not only of the point of contact where your head rests on the floor but of its distance from the spinous process under your hand. Slowly slide the point of head contact along the floor toward your hand just a little, subtly deepening the curve of your neck to introduce a sense of motion awareness (see Fig. 6.6). This often persuades the neck muscles to release more easily as you then slide your head in the opposite direction, away from your hand. As you do this, feel how the back of your neck starts to open and that your chin tucks in a little. The muscles at the back of the neck start to stretch slightly, storing elastic energy (see Fig. 6.7). When you reach a comfortable end point, reverse the movement, allowing a sense of mild recoil until you move just a little past your original start point to emphasize the sensation.

(see Fig. 6.4). To balance the muscle activity between the muscles at the front and back of the upper neck, “head slides” provide a low stress opportunity for the brain to discover its mobility possibilities.
of contrast. Slowly repeat this procedure, gliding smoothly and with minimal effort in each direction, feeling the mobility starting to become more available. Finally, allow your head to rest on the floor, and let that movement information assimilate in the nervous system.

A low-effort motion like this reminds the muscles on both the front and back of the upper neck that they can lengthen and shorten, rather than being caught in a single point of range. It mobilizes the joints and wakes up a connection to the deep upper cervical flexor muscles, key stabilizers of the neck (see Fig. 6.8).