Journal of Bodywork & Movement Therapies (2012) 16, 129–131

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EDITORIAL

The ARTT of palpation?

'Palpation cannot be learned by reading or listening; it can only be learned by palpation' (Viola Frymann, 1963)

Studies regularly emerge that question the reliability of manual palpation and assessment methods (Robinson et al., 2009; Rajendran and Gallagher, 2011) – with, unsurprisingly, periodic acknowledgment that well-trained practitioners perform more accurately and reliably than novices (Snider et al., 2011; Bradley et al., 2010), and also that – sometimes – palpation methods are actually reliable (Myburgh et al., 2010; Arab et al., 2009).

This confusing – and disappointing - picture is not unique to the manual therapies.

Examples abound throughout the healthcare spectrum, even in critical, life-threatening situations, of inadequate palpation and assessment skills, and two examples illustrate this.

- Tibballs and Russell (2009), in a study involving over 200 physicians and nurses ("rescuers"), noted that: *"This study suggests that pulse palpation is an unreliable method by healthcare personnel to determine the presence or absence of a circulation when cardiac arrest is suspected in children. An erroneous assessment is made of the pulse one occasion in five, and a false decision will lead to withholding external cardiac compression when it is needed on approximately one occasion in seven and giving it when not needed on approximately one occasion in three."*
- Similarly, Ploeg et al. (2010) report that: *"In muscle invasive bladder cancer (MIBC), careful clinical staging is essential for patient counselling and decision-making. Bimanual palpation is an integral part and guideline advice of clinical staging. Frequently, the [post-surgical]-stage after cystectomy - does not correlate with preoperative-stage, based on bimanual palpation. Discrepancy was, observed in 42% of the patients."*

In osteopathic medicine the acronym ARTT relates to four, mainly palpable, characteristics of somatic dysfunction, in which A stands for Asymmetry, R stands for Range of motion changes, T stands for tissue texture changes, and the final T stands for tenderness.

- **Asymmetry**. Di Giovanna (1991) suggests that asymmetry has a positional focus, stating that – when dysfunction is present – the *'position of the vertebra or other bone is asymmetrical'*. Greenman (1996) however broadens the concept of asymmetry by including functional features, in addition to structural asymmetry. However a recent study by Bengaard et al. (2012) has shown that judgment of asymmetry – for example involving the anterior superior iliac spine (ASIS) - was very unreliable, whether a human or a model pelvis was being evaluated. Over 150 osteopathic practitioners were involved in a study in which a fixed model pelvis was palpated – having been stabilized to be completely symmetrical. Despite the fact that there was no asymmetry at all, close to 90% of the practitioners identified asymmetry.
- **Range of motion**. Alteration in range of motion can apply to a single joint, several joints or any region of the musculoskeletal system. The abnormality may be either restricted or altered range might relate to increased mobility including the quality of movement, as well as to 'end feel'. There are a number of studies suggesting that this can be a reliable approach. For example Troke et al. (2007) found good reliability and reproducibility of findings in range of motion assessment of the lumbar spine – but only when a spinal motion instrument was employed. Cooperstein et al. (2010) noted that *"the preponderance of, information from dozens of reliability studies show manual palpation, to be unreliable, in that palpators do not generally show concordance much above chance levels"*, but that *"the confidence level of examiners has an effect on the interexaminer reliability of thoracic spine manual palpation, such that agreement is "good" when examiners are "very confident" in their calls, and not above chance levels when at least one of them is not."* Coopestein et al call for student education in palpation skills to more accurately reflect real-life clinical settings than current methods.
- **Tissue texture changes**. The identification of tissue texture change is important in the diagnosis of somatic dysfunction. Palpable changes may be identified in

1360-8592/$ - see front matter
doi:10.1016/j.jbmt.2012.01.018

superficial, intermediate and deep tissues, and it is important for clinicians to be able to distinguish normal from abnormal. There is some evidence supporting the relationship between tissue texture change and sensitivity/tenderness — as in the next item in the acronym, the final 'T'. (Paulet and Fryer, 2009)

- **Tissue tenderness.** Increased levels of tissue tenderness may be evident in relation to palpable dysfunction. Pain provocation and reproduction of familiar symptoms are often used to localize somatic dysfunction, and have been demonstrated to achieve acceptable levels of reliability between different examiners. (Seffinger et al., 2004)

With those examples in mind, and reassurances that manual palpation *can* be made more reliable by the level of training (and development of 'confidence'), it may be useful for educators — and practitioners as individuals - to refocus on making palpation the highly skilled process that many believe it capable of being.

The evidence offered above relates to the *science* of palpation, but palpation is also an *art*. Kappler (1997) expresses it in this way:

> *"The art of palpation requires discipline, time, patience and practice. To be most effective and productive, palpatory findings must be correlated with a knowledge of functional anatomy, physiology and pathophysiology. It is much easier to identify frank pathological states, a tumor for example, than to describe signs, symptoms, and palpatory findings that lead to or identify pathological mechanisms. Palpation*

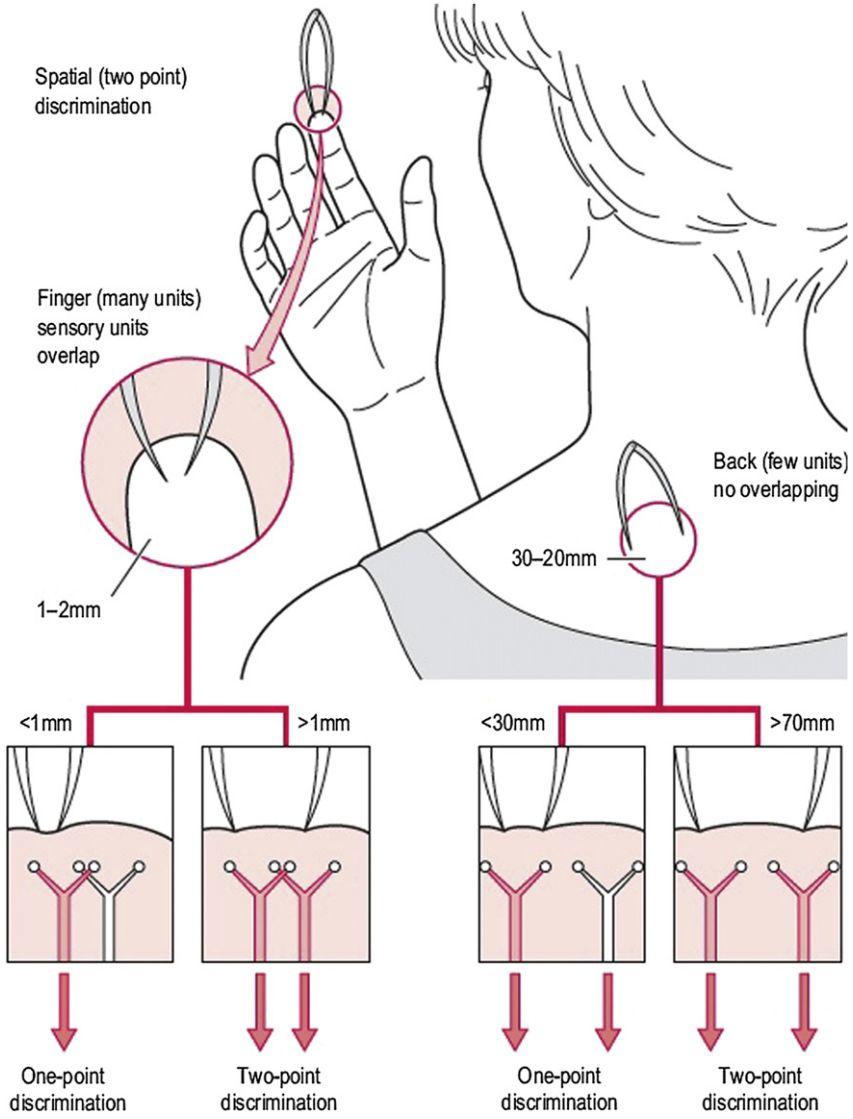

Figure 1 Tactile discrimination. Spatial discrimination: in the two-point test, the spatial discriminative ability of the skin is determined by measuring the minimum separable distance between two tactile point stimuli. The back of the hands, the back and legs rate low (50—100 mm). The fingertips, lips and tongue rate high in this ability (1—3 mm). Intensity discrimination: sensitive areas are also better able to discriminate differences in the intensity of tactile stimuli. Therefore, an indentation of 6 mm on the fingertip is sufficient to extract a sensation. This threshold is four times higher in the palm. (From: Chaitow L. Palpation & Assessment Skills 3rd edition, Churchill Livingstone, 2010; with permission).

with fingers and hands provides sensory information that the brain interprets as: temperature, texture, surface humidity, elasticity, turgor, tissue tension, thickness, shape, irritability, motion. To accomplish this task, it is necessary to teach the fingers to feel, think, see, and know. One feels through the palpating fingers on the patient; one sees the structures under the palpating fingers through a visual image based on knowledge of anatomy; one thinks what is normal and abnormal, and one knows with confidence acquired with practice that what is felt is real and accurate"

Kappler further identified a key element that can lead to confusion: *A more significant component [of palpation skills] is to be able to focus on the mass of information being perceived, paying close attention to those qualities associated with tissue texture abnormality, and bypassing many of the other palpatory clues not relevant at the time. This is a process of developing mental filters … The brain cannot process everything at once. By concentrating only on the portion you want, it becomes easy and fast to detect areas of significant tissue texture abnormality.*' See Fig. 1

Kappler et al. (1971) tested this concept and found that when student examiners were compared with experienced practitioner examiners, although the students recorded *more* palpation findings, the practitioners recorded *more significant* findings.

The experienced practitioners were filtering out the unimportant and focusing on what was meaningful, rather than being '*overwhelmed with the mass of palpatory data*'.

Maitland (2001) offers an example of what is necessary to combine art and science:

"To achieve this skill it is necessary to be able to feel, by palpation, the difference in the spinal segments — normal to abnormal; old or new; hypomobile or hypermobile — and then be able to relate the response, site, depth and relevance to a patient's symptoms (structure, source and causes)."

Learning the art of palpation, to achieve palpatory literacy should not eliminate the science, but should incorporate science it into the experience. It is suggested that this process of turning a scientific exploration into an art (or ARTT) requires practice, dedication and a degree of focus that should epitomize manual practice (and education). (Chaitow, 2010)

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