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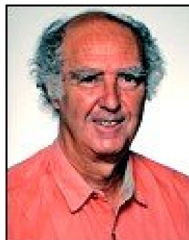

Integrated Bodywork

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Red, White and Black Reaction

In the current edition of my book, *Palpation & Assessment Skills,* there are 12 "special topic" sections, where subjects that don’t quite fit into the regular chapters, have been placed. The special topic I want to bring to your attention is the so-called "red and white" reaction - the name of which has been expanded to "red, white and black" reaction. Mysterious? Not really - but it’s a catchy name for a simple but useful assessment method that dates back well over 100 years. The name refers to superficial responses that take the form of red, white and sometimes blue-black lines following skin-friction, applied by a finger or probe, usually running down each side of the spine.

In the early days of osteopathy in the 19th century, the assessment method was already in use. Carl McConnell, one of the original osteopathic pioneers wrote this in 1899: "I begin at the first dorsal and examine the spinal column down to the sacrum by placing my middle fingers over the spinous processes and standing directly in back of the patient, draw the flat surfaces of these two fingers over the spinous processes from the upper dorsal to the sacrum in such a manner that the spines of the vertebrae pass tightly between the two fingers; thus leaving a red streak where the cutaneous vessels press upon the spines of the vertebrae. In this manner slight deviations of the vertebrae laterally can be told with the greatest accuracy by observing the red line. When a vertebra or section of vertebrae are too posterior, a heavy red streak is noticed and when a vertebra or section of vertebrae are too anterior, the streak is not so noticeable."[6]

Much more recently, another osteopathic physician, Marshall Hoag, discussed the same phenomenon: "With firm but moderate pressure the pads of the fingers are repeatedly rubbed over the surface of the skin, preferably with extensive longitudinal strokes along the paraspinal area. The blunt end of an instrument or of a pen may be used to apply friction, since the purpose is simply to detect color change, but care must be

taken to avoid abrading the skin. The appearance of less intense and rapidly fading color in certain areas as compared with the general reaction is ascribed to increased vasoconstriction in that area, indicating a disturbance in autonomic reflex activity."[3]

On the same theme, Upledger and Vredevoogd wrote: "Skin texture changes produced by a facilitated segment [localised areas of hyper-irritability in the soft tissues involving neural sensitisation to long-term stress] are palpable as you lightly drag your fingers over the nearby paravertebral area of the back. I usually do skin drag evaluation moving from the top of the neck to the sacral area in one motion. Where your fingertips drag on the skin you will probably find a facilitated segment. After several repetitions, with increased force, the affected area will appear redder than nearby areas. This is the 'red reflex.' Muscles and connective tissues at this level will:

- Have a "shotty" feel (like buckshot under the skin)
- Be more tender to palpation
- Be tight and tend to restrict vertebral motion
- Exhibit tenderness of the spinous processes when tapped by fingers or a rubber hammer."[9]

De Jarnette, the chiropractor who developed the sacrooccipital technique (SOT), wrote extensively on the subject of the red reaction, suggesting some complex interpretations.[2] He used such assessments as part of a process of evaluating the particular category of patient he was treating. In one variation he describes the process as follows: "Making a firm pressure, draw fingers down the spine, with a fairly slow motion. You should be able to count to 15 while drawing the fingers from the seventh cervical to the coccyx, by counting steadily. With a good light on the back, the results should show a line which becomes red, some portions brighter and some very faintly colored. Now watch the lines fade. The area which shows the whitest is marked as the major [lesion] for this is the most anaemic spinal muscle area. It will be paler than any portion of skin on the patient's body."

Eminent physiologist Irvin Korr described how this red reflex corresponded well with areas of lowered electrical resistance, which themselves correspond accurately to regions of lowered pain threshold and areas of cutaneous and deep tenderness (termed "segmentally related sympatheticotonia").[5] He cautioned: "You must not look for perfect correspondence between the skin resistance (or the red reflex) and the distribution of deeper pathologic disturbance, because an area of skin which is segmentally related to a particular muscle does not necessarily overlie that muscle. With the latissimus dorsi, for example, the myofascial disturbance

might be over the hip but the reflex manifestations would be in much higher dermatomes because this muscle has its innervation from the cervical part of the cord."

By use of a mechanical instrument that quantified the pressure applied at a constant speed, followed by measurement of the duration of the redness resulting from the action of the frictional stimulator on the skin, Korr could detect areas of intense vasoconstriction which corresponded well with dysfunction elicited by manual examination.

But was the opportunity to feel the tissues being ignored during all these strokes? Marsh Morrison discussed this: "Run your fingers longitudinally down alongside the dorsal and lumbar vertebrae (anywhere from the spinous processes extending laterally up to two inches [5 cm]) and stop at any spot of tissue which seems 'harder' or different from normal tissue. These thickened areas, stringy ligaments, bunched muscle bands, all represent indurated tissue; they are usually protective and indicate irritation and dysfunction. Once these indurated areas are palpated press down and almost always they will be sensitive, indicating a need for treatment."[7]

Osteopathic researchers Cox, et al., wrote: "'Red reflex' cutaneous stimulation was applied digitally in both paraspinal areas [T4 and T9-11] simultaneously briskly stroking the skin in a caudad direction. Patients were divided arbitrarily into three groups.

- Grade 1 - erythema of the spinal tissues lasting less than 15 seconds after cutaneous stimulation.
- Grade 2 - erythema persisting for 15 to 30 seconds after stimulation.
- Grade 3 - erythema persisting longer than 30 seconds after stimulation (i.e., most dysfunctional response)."[1]

Hruby, et al. describe the thinking regarding this phenomenon. "Perform the red reflex test by firmly, but with light pressure, stroking two fingers on the skin over the paraspinal tissues in a cephalad to a caudad direction. The stroked areas briefly become erythematous and almost immediately return to their usual color. If the skin remains erythematous longer than a few seconds, it may indicate an acute somatic dysfunction in the area. As the dysfunction acquires chronic tissue changes, the tissues blanch rapidly after stroking and are dry and cool to palpation."[4]

Newman-Turner described the research of osteopath/naturopath, Keith Lamont, who first described the "black line" phenomenon: "It is a common observation of osteopaths...that pressure on either side of the

spine with a hemispherical probe of approximately 0.5 cm diameter, will, in some patients, elicit a dark blue or black line. Local engorgement of the capillary bed with de-oxygenated venous blood causes the appearance of the line which slowly fades as the circulation returns." [8]

I hope these glimpses onto different interpretations of the red reflex will stimulate you to explore the concepts described, remembering that what you feel and see is not the basis for a diagnosis; only an indication of dysfunction that may be local or reflex, chronic or acute, or significant or not.

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