# White-finger syndrome / radial shock wave therapy

## Therapists at risk?

Radial shock wave therapy has, for more than 15 years, been an indispensable technique in orthopaedic practice. Positive treatment outcomes in cases of enthesopathy have been corroborated in numerous scientific studies.

When applying radial shock waves, however, the therapist is exposed to vibrations of the handpiece. It is the user's guiding hand that is most susceptible, and this may result in health problems.

The symptoms caused can be expressed by the term 'vibration-induced vasospastic syndrome (VVS)', which also explains the causal relationships involved. Synonyms previously used tended to be descriptive in nature, such as 'white-finger syndrome' or 'traumatic Raynaud's phenomenon'.

Characteristic of this condition are periodic attacks involving local circulatory disturbance and impaired sensation in the hands. Manifestations generally occur after a period of between several months and several years, depending partly on the duration and intensity of daily exposure.

The symptoms of chronic intermittent disturbance of blood flow are locally restricted to that part of the hand which absorbs most of the vibrations. Paraesthesia in the form of pins and needles is frequently described. These abnormal sensations spread and retreat within minutes from the fingertips in a proximal direction. The intermittent circulatory disturbance is initially reversible, and an absence of exposure results in its disappearance. Even where the condition is far advanced, the patient's refraining from the causal activity may lead to improvement in terms of intensity, frequency and the extent of the symptoms.

### Conclusion

In order to rule out potential risk to the user, technical tests and certification standards exist with which manufacturers in industry and the medical-engineering sector must comply. Since June 2012, this requirement has been

extended to manufacturers of radial shock wave devices (EN 60601-1, 3rd edition). It is, therefore, important that users of such equipment obtain information from the manufacturer concerning adherence to these standards and request relevant test outcomes. With regard to documentation that a vibration test has been passed, it must – as the manufacturers apply different testing strategies – be noted whether the system and handpiece were tested together or whether the handpiece was tested separately. If limit values are not complied with, handpieces can be used continually only for a specified duration. As a result, the use of certain systems available in the market may be restricted to up to two hours per eight-hour working day. It is, therefore, important to make industry aware of the need to develop medical-engineering products, such as handpieces for shock wave systems, which meet legal standards. In our case, the manufacturer has provided us with the test results for the shock wave devices we use in our clinic. These certify that the required limit values are fully complied with and that there are no time restrictions on use.

**Dr Marcus Schmitt-Sody, M.D.**

Dr Marcus Schmitt-Sody, M.D.
Medical Director and Head Physician
Medical Park Chiemsee
Birkenallee 41
83233 Bernau-Felden
Germany
E-mail:m.schmitt-sody@medicalpark.de

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