

VIBRAMETER®

TYPE IV



For an early diagnosis of nerve damage in neurology, occupational medicine and diabetic care.

The ability to quantify the sense of vibration is valuable in medical examination. Elevated thresholds for detection of stimuli may be the first sign of neuropathological disorder. In certain common diseases such as diabetes, this neuropathy arises directly from, or due to the pharmacological treatment of the disease. In other cases the cause may be exposure to any neurotoxic compounds such as solvents or heavy metals to which industrial workers commonly are exposed.

The Vibrameter determines the stimulus needed to cause the sensation of vibration. This is easily performed on most patients, and a routine check with the Vibrameter may reveal the first signs of a neurological disease. Early discovery of the disease and initiation of treatment at the earliest possible stage may allow a dramatically increased degree of success in subsequent treatment.

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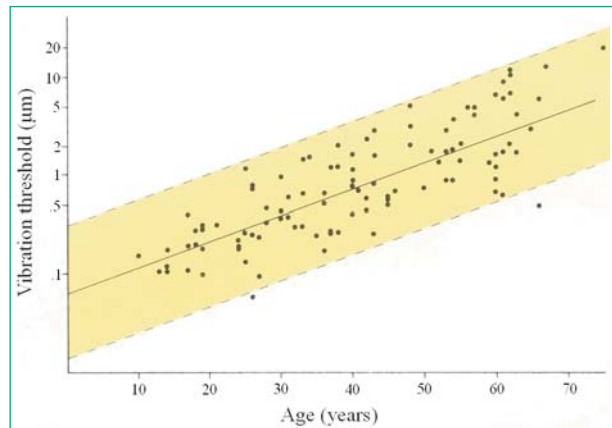
Standardized method.



The vibratory perception threshold can be determined on any point of the human body, but to simplify the interpretation of the result, standardized test points have been defined. In the illustration to the left, the vibrator is held at one of the test points on the dorsum of the metacarpal bone of the index finger. Other test points are located on the first metatarsal bone and on the tibia. The test points have been selected to allow an easy access, which simplifies the procedure. They have also been selected to provide an optimally long pathway for the neural transmission of vibratory information to the central nervous system. As a result the sensitivity for detecting nerve damages increased. Other test points can of course be selected, for example when comparing points on the left and the right side of a patient having unilateral damage.

Normative data

The normal vibratory perception threshold have been defined by investigation of healthy volunteers. Data from one such study compiled at the Neurological clinic of the Karolinska Institute in Stockholm, Sweden is illustrated in the diagram to the right. This example indicates the thresholds measured at the dorsum of the metacarpal bone of the index finger as measured in 110 subjects. In this diagram the solid line indicates the line of regression for the mean of the vibratory perception threshold versus the age of the subject. The dotted lines indicate ± 2 standard deviation from the mean. Any vibratory perception threshold that may fall outside the range of mean ± 2 standard deviation can, with a 95% degree of certainty, be diagnosed as pathological.



TECHNICAL DATA

Physical

| | |
|-----------------------|--------|
| Width: | 300 mm |
| Depth: | 270 mm |
| Height excl.vibrator: | 95 mm |
| “ incl. “: | 145 mm |
| Weight: | 5.5 kg |

Functional

| | |
|--------------------|-------------------------------|
| Stimuli frequency: | 100/120 Hz (2 * mains freq.) |
| Measurements: | Range 1: 0 - 39.99 µm |
| | Range 2: 0 - 399.9 µm |
| | $\pm 5\%$ of reading + 5 dig. |

Cal. uncertainty:

Electrical

| | |
|--------------------|--------------------------|
| Mains voltage: | 110 - 130 V AC, 50/60 Hz |
| | 220 - 240 V AC, 50/60 Hz |
| Power consumption: | 30 VA |

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