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Complex made Simple...clinically relevant education by Judy C. Colditz, OT/L, CHT, FAOTA

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THE HOFFMAN-TINEL SIGN

Imagine 20 people in a line. A short message whispered to the first individual which is passed down the line by each individual never ends up being the same message when the 20th person repeats it!! In fact, often the last message has no relation to the original message. Does the same effect happen as generations of clinicians pass down evaluation methods?

Tinel, in his original description of the sign of nerve regeneration in October 1915, specifically used the word "pressure" when describing testing: "Pressure applied to an injured nerve trunk frequently produces a sensation of tingling transmitted to the periphery of the nerve and localized to a precise cutaneous area" (1) [translation from the original French]. Pressure on a nerve that produces pain suggests irritation of the nerve while tingling reveals early axonal regeneration.

Although we know this test commonly as the Tinel's test, in German speaking areas the test is known as the Hoffman-Tinel sign because Paul Hoffman in Germany, earlier in March 1915, had described that stimulation of a nerve distal to a neurorrhaphy by "light percussion with a finger in extension" would produce "pins and needles." He stated the percussion could be delivered by a finger, hammer, or pressure of the thumb. [translated from German]. (2)

We know the amount of pressure on a nerve—even a normal nerve—determines if tingling is elicited. Anyone who has inadvertently bashed the ulnar nerve at the elbow knows tingling can be elicited from a normal nerve! In 2010 Lifchez, et al evaluated three different Tinel-type maneuvers used by nine surgeons, all of which consisted of percussing maneuvers (same as described by Hoffman). (3) They found considerable intra- and inter-examiner differences in the range of forces generated by the different Tinel's techniques.

I was taught to begin testing by using one finger to percuss along the course of the nerve, starting distally and percussing over the path of the nerve in the proximal direction toward the lesion until the most distal point is found at which tingling is reported by the patient. By marking this point and measuring it from an immovable anatomical landmark at each examination, the progress of re-innervation can be documented.



Gentle percussion of the ulnar nerve at the elbow

When re-reading Tinel's original communication I noted he only suggests "percussion" over a nerve that is thought to be caught in bony callus, but uses percussion and pressure interchangeably in the text (or is it the translator?) Additionally, Hoffman makes a point that "it is not necessary to use more than the lightest pressure…the effect is actually best

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THE HOFFMAN-TINEL SIGN, continued

when stimulation is applied by light percussion with the finger applied in extension (the opposite of the technique otherwise used for percussion)." Since Hoffman seems to differentiate between "pressure" and "percussion," I now question whether I should change my method of examination, although Hoffman describes the test using one finger for "percussion." Should I continue to percuss gently along the path of the nerve or should I press gently along the path of the nerve? Does it even matter?

The method of the Hoffman-Tinel testing has been whispered down the line of clinicians for almost 100 years so perhaps we need to return to the original descriptions and start again to define standards for the testing procedure. At the very least it would be helpful to know if a varied amount of pressure (whether pressure or percussion) makes any difference. So I must agree with Lifchez and colleagues: There is no standardization for eliciting the Tinel-Hoffman sign!!! If anyone has particular insight on this topic we would be eager to hear from you.

1. Tinel, J [translated by Emanuel B.Kaplan]. "The "Tingling" Sign in Pheripheral Nerve Lesions." Injuries to the major branches of peripheral nerves of the forearm. Ed. Morton Spinner. 2nd ed. Philadelphia: W.B. Saunders, 1978. 8-13.

2. Buck-Gramcko D, Lubahn J. The Hoffman-Tinel sign. J Hand Surg [Br] 18B (1993): 800-805.

3. Lifchez SD, et al. "Intra- and inter-examiner variability in performing Tinel's test." J Hand Surg [Am] 35.2 (2010): 212-16.

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