

Description of Spead (described by Rune Sterling, student of music)

Two electrodes are placed on the throat at the level of the vocal cords. To enable us to measure the opening and closing phases of the vocal cords an alternate current of 300.000 Hz send through the vocal cords, this is then transferred into a graphic wave on screen. Here the differences are seen in time.

We make two samples

1. The speech: The patient reads out loud a phonetic balanced story. In this case it is "The Northern wind and the sun", meanwhile we record both the sound and the motion of the vocal cords.
2. The note: The patient sings on the note /a/ for approximately 4 seconds

These recordings enable us to measure different parameters on the voice

Jitter – Frequency variation, how steady a person can maintain a certain frequency throughout the analysis. There are certain upper limits to how much variation "a healthy" person may produce.  
9 % in speech 1% in the note

Shimmer – Variation in decibels/intensity, how much you can control your voice, large variation in intensity is widely seen in male teenagers when their voice "breaks". In this case there are also established an upper limit.

15% in speech 9% in the note

Qx-average – closing quotient, the ratio between opening and closing of the vocal cords. In "a healthy" person it should be 50 % anything beneath is gas-filled (not enough sound versus air) anything above is forcing the voice.

From the results we are able to see if there are mucus on the vocal cords and around them

Additional analysis:

Formants

80% deviation on all parameters

Harmonics to noise reduction (HNR)

Signal to noise reduction (SNR)

Ect.