**Title: Structure and hearing preservation in cochlear implant surgery – a meta-analysis.**

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**Introduction:** cochlear implantation devices consist of "lateral wall arrays" (LW) or "precurved, perimodiolar arrays" (PM) which should be implanted directly into the scala tympani. Translocation of the array into the scala vestibuli is regarded as insertion trauma: a detrimental effect to both the residual hearing and speech understanding of CI recipients.

**Goal:** The primary goal is to find out how often scalar translocation in general occurs, whether there are differences between the two types of electrode arrays, and what the impact is of scalar translocation on speech perception outcomes and residual hearing.

**Results:** There were no randomized controlled studies. Scalar translocation occurred in roughly a quarter of the implantations, more often with PM arrays than LW arrays. This was also true for the newer PM arrays. More translocations were encountered with cochleostomy approach than direct round window. In addition, all studies that assessed speech perception scores of CI recipients with a scalar translocation showed that their scores are negatively influenced by translocation.

**Conclusion:** Insertion trauma resulting in scalar translocation of the cochlear implant electrode array seems to occur more often with PM arrays (than LW), and might be affected by the surgical approach. In addition, scalar translocation seems to negatively influence the speech perception scores of CI recipients.