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# The NECK trial: effectiveness of anterior cervical discectomy with or without interbody fusion and arthroplasty in the treatment of cervical disc herniation; a double-blinded randomised controlled trial

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**Background:** Motion preserving disc arthroplasty (ACDP) in patients with cervical radiculopathy is introduced to diminish neck pain and disability and to prevent symptomatic adjacent disc degeneration in the post-surgical follow-up. Classical anterior discectomy sec could still be a proper alternative.

**Aim:** It is hypothesized that in patients with a cervical radiculopathy due to a herniated disc, being subjected to an anterior discectomy, clinical outcome measured by the Neck Disability Index (NDI), is more favorable in patients receiving disc prosthesis compared to interbody fusion and discectomy sec.

**Methods:** 109 patients with one level herniated disc were randomized into anterior discectomy with disc prosthesis (ACDP; activ®C), anterior discectomy with intervertebral cage (ACDF), or anterior discectomy without intervertebral cage (ACD). Clinical outcome was measured by NDI, Visual Analogue Scale (VAS) neck pain, VAS arm pain, SF36, EQ-5D and patient's self-reported perceived recovery at baseline and at several time points after surgery with two years follow-up.

**Results:** The NDI declined with 40% after surgery and was comparable in all treatment arms. VAS arm- and neck pain declined to half its baseline value and decreased under the critical 40 mm value. Quality of life measured by the EQ-5D increased in all randomization arms. No statistical differences were demonstrated between the treatment groups.

**Conclusion:** The hypothesis of superior clinical outcome after implantation of disc prosthesis could not be confirmed, at two years follow up time. Anterior discectomy without implanting an intervertebral device is still a solid and possibly cheaper alternative to ACDF or ACDP.

## Biography

Carmen Vleggeert-Lankamp is a Neurosurgeon and Spinal Surgeon at Leiden University Medical Centre, Leiden, Netherlands. She is the Head of the Spine Research Group. She has been a senior member of staff since 2007. She has joined the CSRS-Europe board since 2013 and is the Secretary of the Board since 2015. She received her MSc grade in Pharmacy in 1995 and afterwards graduated from Medical School at University of Utrecht in 1998. She did her Residency in Neurosurgery at Leiden University Medical Centre from 1998-2006. In 2006, she obtained her PhD degree on "Evaluation of peripheral nerve regeneration". In 2006, she started to specialize in spine surgery and changed her research focus to spine. Currently, she coordinates a research group with numerous PhD students that work on research themes varying from cervical to lumbar and from degenerative to congenital spine diseases. She has a long list of scientific publications and invited guest lectures. She is actively involved in spinal teaching; has supervised several PhD trajectories and is involved in spine training programs of the EANS, CSRS and Euro-spine. She is a Reviewer for *European Radiology, European Spine Journal and Journal of Neurosurgical Sciences*.