



**MEDIOLATERAL FIELD STEERING IN SCS
USING TRIPLE LEADS WITH
LONGITUDINAL GUARDED CATHODES**

Model predictions

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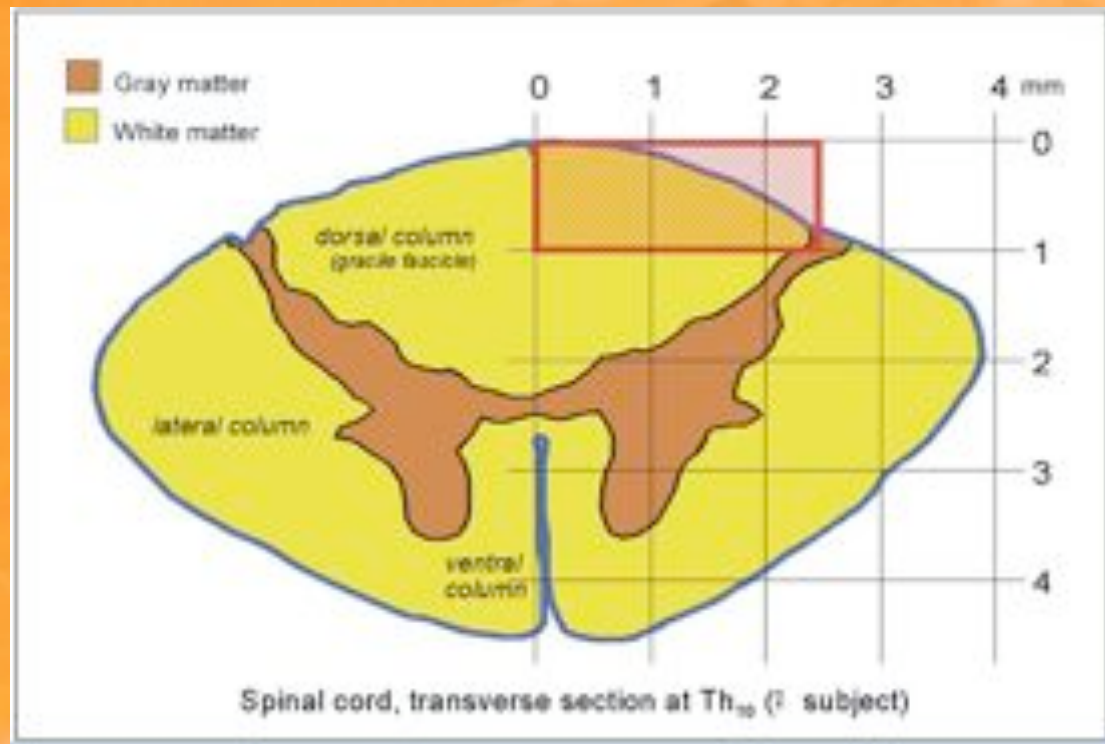


INTRODUCTION

1. **What is SCS?**
2. **Aim of SCS**
3. **Fibers activated - DC and DR fibers**
4. **Broader coverage with DC fibers**
5. **Electrode configuration and geometry**
 - Single lead with longitudinal guarded cathodes**
 - Dual stimulation**
 - Triple leads**
 1. **Transverse tripoles (TTS) – Paddle lead**
 2. **Longitudinal tripoles (guarded cathodes)**

PURPOSE

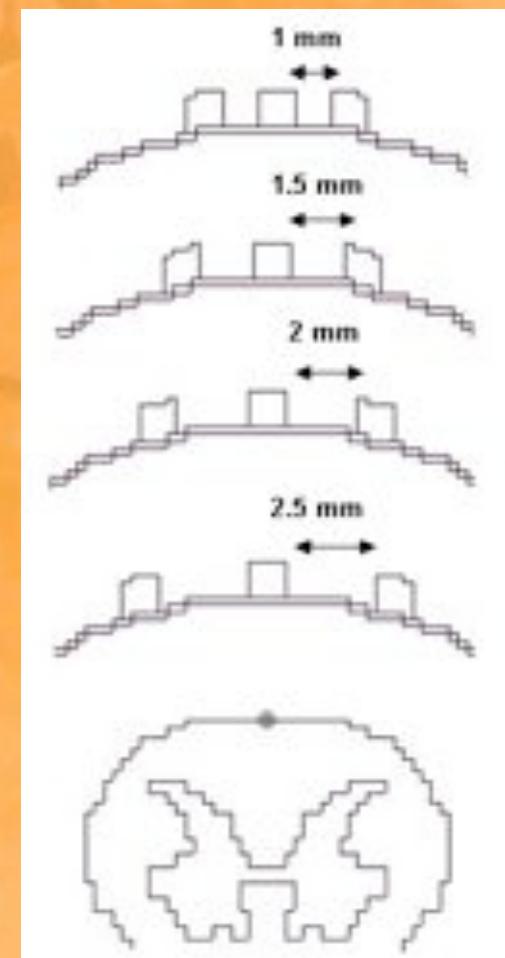
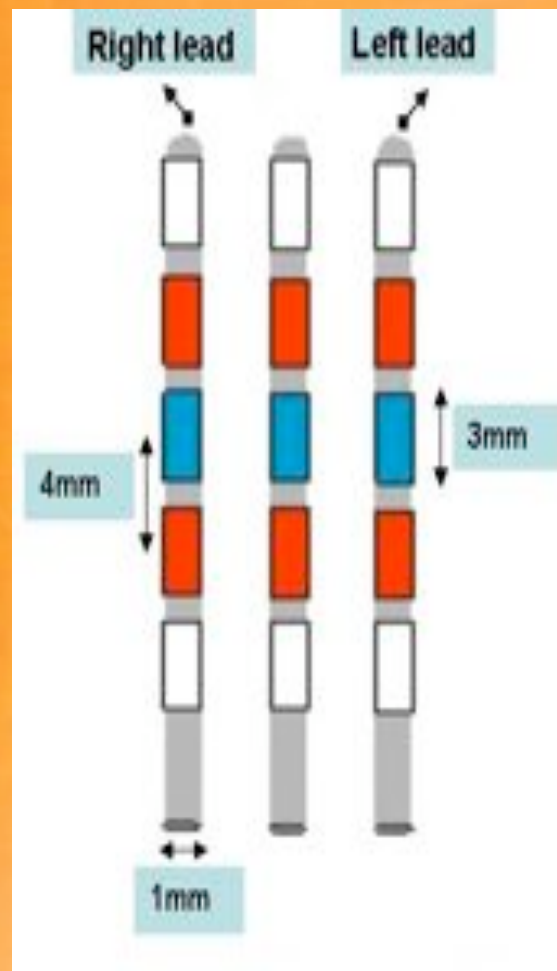
- ❑ To maximize the coverage of low-thoracic DCs - Triple leads with longitudinal guarded cathodes



- ❑ Influence of transversal lead separation

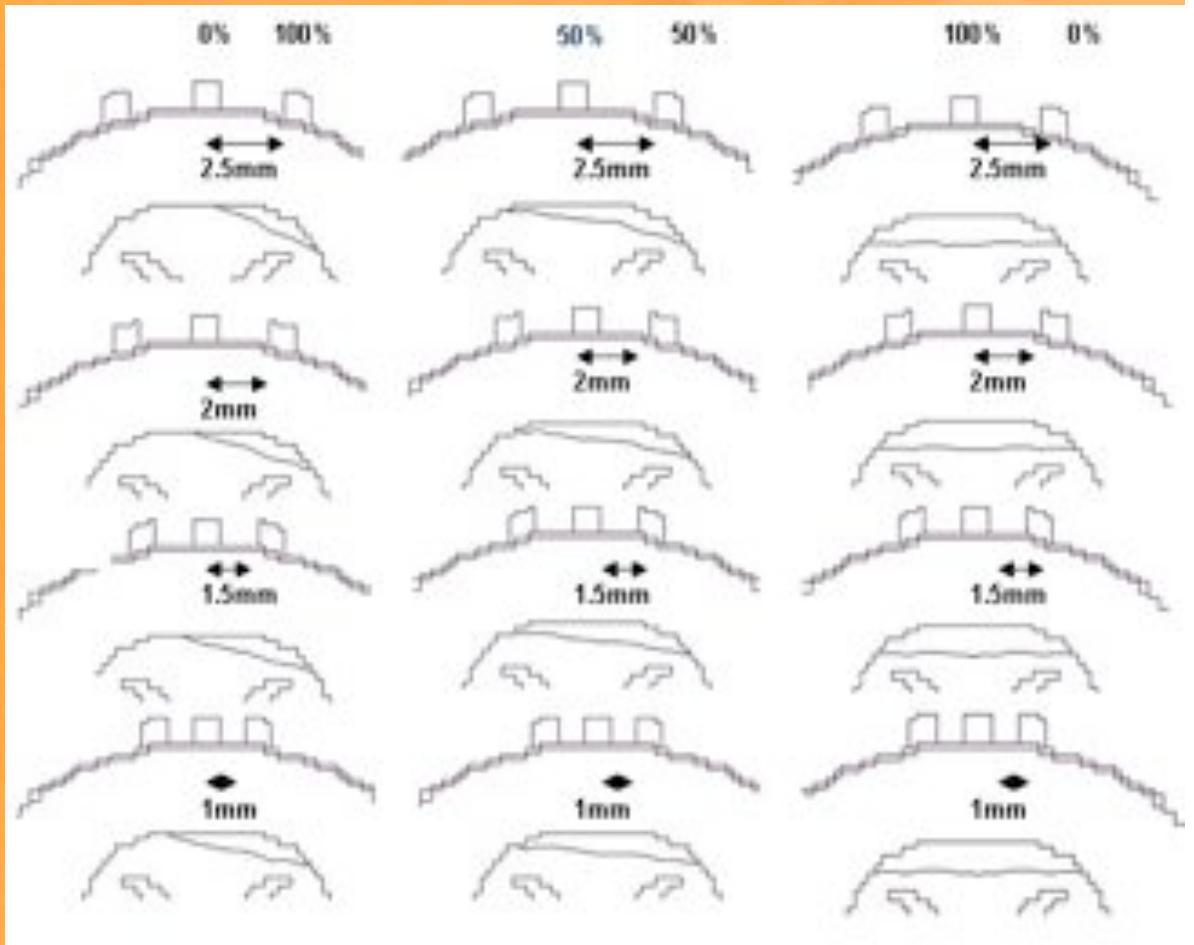
METHODS

- ❑ Triple aligned leads – Center lead on the SC midline
- ❑ Transversal lead separations – 1, 1.5, 2, 2.5 mm
- ❑ Mediolateral current steering



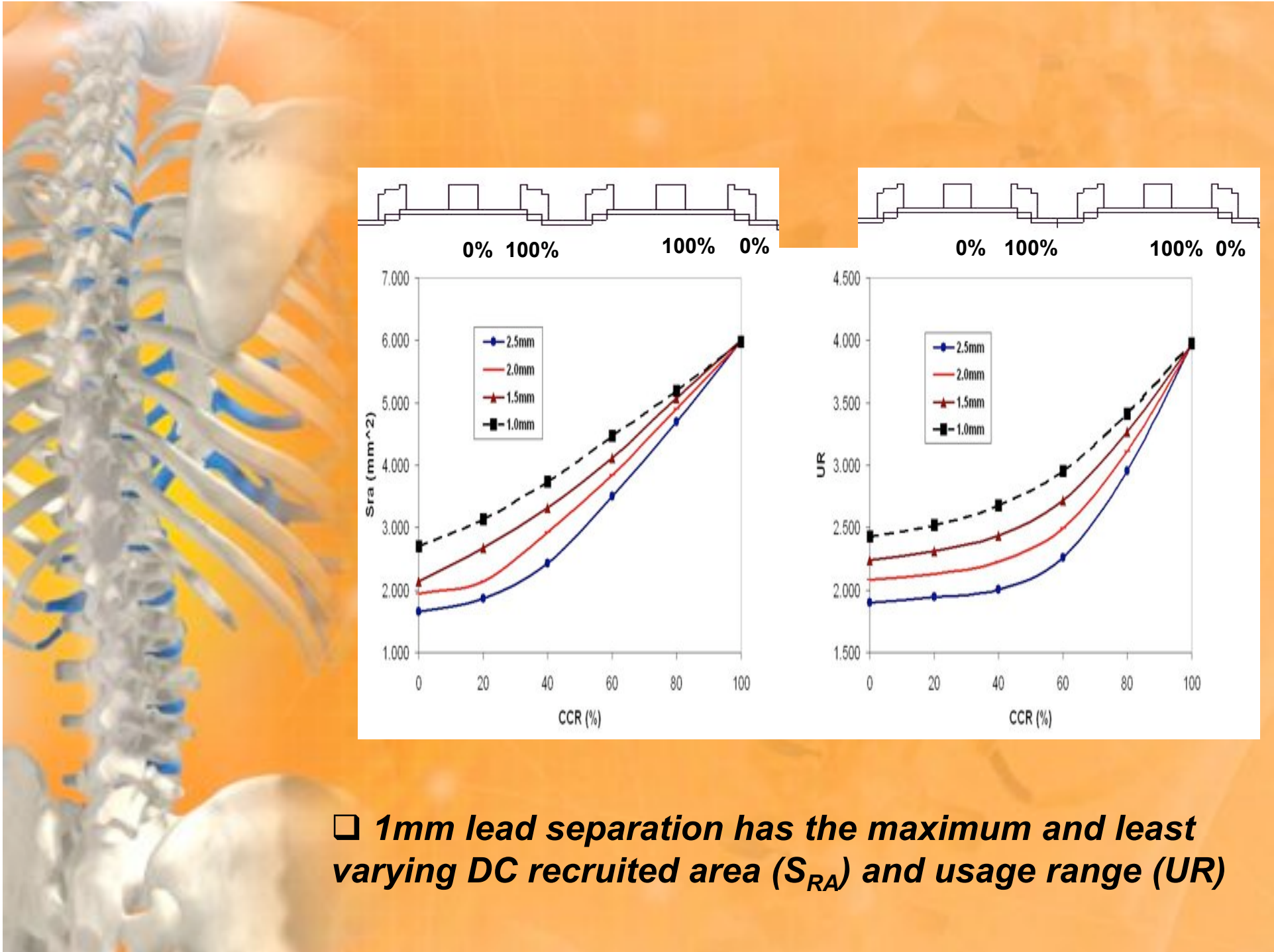
RESULTS

Varying cathodal current ratios (CCRs)



Decreasing
transversal
lead
separation

□ *Smaller transversal lead separation recruits a larger depth and width of DC area.*



□ **1mm lead separation has the maximum and least varying DC recruited area (S_{RA}) and usage range (UR)**



CONCLUSIONS

Triple lead longitudinal guarded cathodes

- ❑ Multiple dermatomes are to be targeted
- ❑ Greater flexibility

Transversal lead separation

- ❑ Major determinant in the area and distribution of paresthesia
- ❑ Smaller lead separation - larger DC area (both depth and width)

An anatomical illustration of the human ribcage and spine, rendered in a light gray color. The spine is on the left, with the ribs curving to the right. The background is a solid orange color. The text "Thank you" is centered in the middle of the image.

Thank you