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Presentation Number:	479.7
Abstract Title:	**Effects of spinal and peripheral nerve lesions on the intersegmental synchronization of the spontaneous activity of dorsal horn neurons in the lumbar spinal cord.**
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Simultaneous recordings were made of cord dorsum potentials in the lumbosacral spinal cord of the anesthetized, paralyzed and artificially ventilated cat. Spontaneous negative potentials (nCDPs) appeared synchronously in the L3 to S1 segments, both ipsi and contralaterally. They lasted 30-50 ms and were largest in segments L5 and L6. The acute section of the intact sural and superficial peroneous, or of the intact sciatic nerves, increased the variability of the spontaneous nCDPs and reduced their intersegmental correlation. The synchronization between the spontaneous nCDPs recorded in segments L5-L6 was reduced following an interposed lesion comprising the ipsilateral dorsolateral spinal quadrant. It was abolished following the additional section of the contralateral dorsolateral quadrant. Our results indicate that although sensory information does not generate the intersegmental patterns of neuronal activity, it contributes to their synchronization. They show in addition that the dorsal horn neuronal arrays that generate the spontaneous nCDPs are bilaterally distributed along the lumbosacral segments. The relative contribution of the ipsilateral and the contralateral pathways involved in the intersegmental synchronization depends on the level of neuronal activity. When activity is low, ipsilateral pathways dominate. Contralateral pathways are recruited when neuronal activity is high.

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