The relation between passive intervertebral accessory movements of the cervical spine and movement at the target intervertebral motion segment

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A therapist’s thumb can move more than 25 mm during cervical passive accessory intervertebral movements (PAIVMs), but no more than a few millimetres of this movement occurs at the motion segment targeted by the technique. Forces of up to 147 N have reportedly been applied during cervical PAIVMs and the endfeel or stiffness of the latter portion of PAIVMs are often considered to be indicative of the segmental mobility. Our research using a combination of computer based simulations and in vivo measurements suggests that significant movement at the target motion segment would not occur at forces of over 20 N. Larger forces may still be useful for treatment but when used for assessment, the direct information about the mobility of the target motion segment is likely to be found in the characteristics of the movement at forces less than 20 N. The results suggest that neither endfeel as is often described by clinicians or end of range stiffness as reported in previous studies of spinal PAIVMs are likely to be the characteristics of interest when assessing the mobility of a target intervertebral motion segment.