**Introduction:** The Magnetic Expansion Control Rod Device (Magec) allows controlled distraction of the immature spine for the treatment of early onset scoliosis. The disparity between the reported distraction on the external adjustment device (EAD) and true distraction achieved has not been commented on to date. This study aims to determine the disparity between ‘true’ (T) and ‘apparent’ (A) distraction. Our secondary aim was to assess truncal growth and development of patients with magec rods during their sequential lengthenings.

**Methods:** Sixteen patients with a maximum follow up of 2 years were included in the study. Eight patients were converted from other forms of spinal instrumentation. Patients in the study underwent 3 monthly distractions. Patients underwent alternate whole spine radiographs and fluoroscopic images of the rods at each distraction. The amount of true distraction was determined by measuring the expansion gap on dedicated fluoroscopic images of the actuator using the width of the rod as a conversion factor to allow for magnification. The total true distraction to date was compared to the apparent measurement reported on the EAD. Weight, sitting and standing heights were recorded at each distraction.

**Results:** The average number of three monthly distractions was 5.9. The true to apparent distraction ratio was calculated as 0.50. Weight, sitting and standing heights increased in all patients by an average of 2.7kg, 5.5 cm and 6.8 cm per year. Fourteen of the sixteen children sustained or increased their rate of growth to maintain their initial centile at the beginning of the study. Six of these patients increase in their rate of growth such that they moved up the centile chart. Ten of the children increased in weight sufficient to maintain their initial centile with six moving up the centile chart. The cobb angle following surgical correction was maintained in 15 of 16 patients at the latest follow up.

**Discussion:** The TA ratio of 0.50 suggests that for every unit of distraction registered on the EAD approximately 50% of true distraction occurs in vivo. Despite the difference in true versus apparent distraction, an increase in sitting and standing heights was observed in all patients sufficient to maintain growth and development.