

**PP-123****Is there a role for computer assisted skeletal reconstruction in musculoskeletal oncology?**P. Young, **A. Mahendra***Glasgow Royal Infirmary, Glasgow, United Kingdom*

**Introduction:** In recent years there has been a significant trend towards limb salvage surgery in musculoskeletal oncology. The primary goal is always to achieve satisfactory oncological margins, however, following this achieving optimum functional outcome is also important. This can be particularly difficult following the resection of pelvic tumours and in complex diaphyseal or geometric osteotomies. The use of computer assistance in resection of musculoskeletal tumours is gaining popularity, and has been shown to improve accuracy of resection and reduce local recurrence rates. We describe a unique use of the navigation system to optimise osseous reconstruction following resection, where it can help to optimise implant orientation and in achieving accurate limb length and alignment.

**Methods:** We resected musculoskeletal tumours in eight patients using commercially available computer navigation software (Orthomap 3D) and subsequently used the navigation system to aide in osseous reconstruction. The four pelvic tumours were reconstructed with 'ice cream cone' prosthesis. Four diaphyseal tumours underwent endoprosthetic or biological reconstruction.

**Results:** Histological examination of the resected specimens revealed tumour free margins in all cases. Post-operative radiographs and CT show reconstruction as planned in all cases. Pelvic accuracy was assessed with both hip centre and limb length, all cases within five mm of pre-operative alignment, and clinical measurement of true and apparent leg lengths also within five mm. In the diaphyseal cases limb length was comparable to the contralateral side to within five mm and clinically limb lengths were equal. Radiological assessment of alignment was accurate to within ten degrees in all planes and clinically there was no apparent rotational malalignment in any case.

**Conclusion:** The use of computer navigation in musculoskeletal oncology allows integration of local anatomy and osseous alignment to aide in accurate osseous reconstruction. Our experience so far has been encouraging. We would recommend its consideration for musculoskeletal oncology surgeons currently using computer assistance in tumour resection.