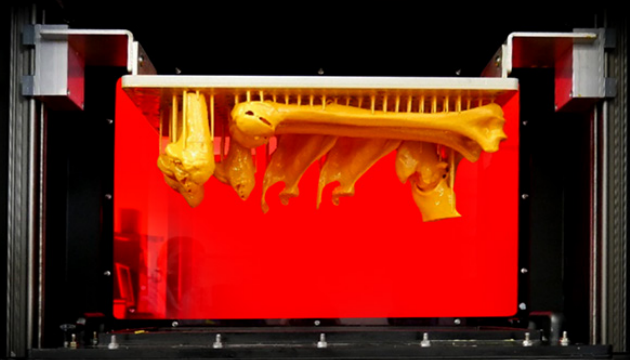




Liquid Crystal
PRO



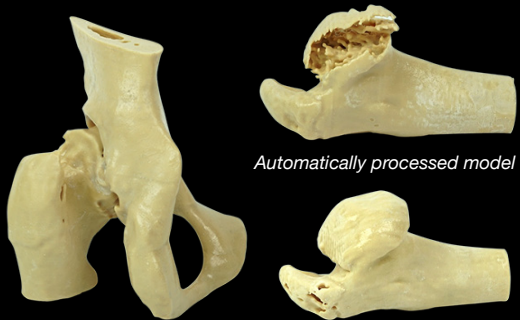
Case Study **MEDICAL**

Using the LCPro in Surgical Planning

The Robert Jones and Agnes Hunt Orthopaedic Hospital in Oswestry, is a specialist orthopaedic hospital with a long tradition of innovation in treatment of their patients. Now looking to introduce 3D printing into their surgical planning, they have reached out to us to help make this a reality. Traditionally 3D printing for surgery is a very time-consuming and expensive process, but here at Photocentric we are working to significantly lower these barriers, as it has the potential to dramatically improve patient care and recovery rates.

A complex hip operation

Mr Nigel Kiely is an orthopaedic surgeon at the Robert Jones and Agnes Hunt Orthopaedic Hospital, specialising in children's orthopaedics. Using models produced on an LC Pro printer, he recently helped with planning a complex femoral osteotomy in a juvenile patient who had a hip deformity. To aid with the planning of this procedure, we 3D printed out the top portion of the femur.



In situ femur in the pelvis

Automatically processed model

Manually processed model

The importance of a good segmentation.

In juvenile patients the bone is not fully fused, so the un-ossified tissue will not always be clear in a CT scan. As such, automatic segmentation may not capture all the features of the area of interest. In this case, both an automatically processed and manually processed model were produced to see the difference this made to the appearance of the model. A full in-situ print of the right femur was also created to help explain the procedure to the patient and their family, so easy comparison could be made with a healthy joint. Mr Kiely was able to plan the necessary cuts in advance, along with pre-shaping the implant needed for successful correction. It enabled a thorough appreciation of the deformity and the surgical team were also to perform the osteotomy on the model and pre-plan the surgery. This type of practice before the operation is valuable in such complex cases.



Planning the cuts and repositioning of parts of the femur.

Model	Material Cost/£	Print preparation and finishing
Hip model	15	12.5
Automatically processed	3	12.5
Manually processed	4.20	12.5
TOTALS	22.20	37.50

Time saved

In theatre-approx 1 hour @ approximately £1200 per hour.

Conclusion

These 3D prints saved the NHS over £1000.

To see the full project visit www.photocentricgroup.com/casestudies/