Computer Assisted Total Knee Joint Replacement

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Computer navigation is a technique which enables a surgeon to use a computer and specialized instruments to improve the alignment and balancing of your total knee replacement. Studies have shown greater accuracy in implanting the knee replacement. An evaluation of our New Zealand Joint Registry shows computer navigated knee replacements function better. It is envisaged that implanting the knee more accurately will enable the knee to last longer. However it will take time to determine this.

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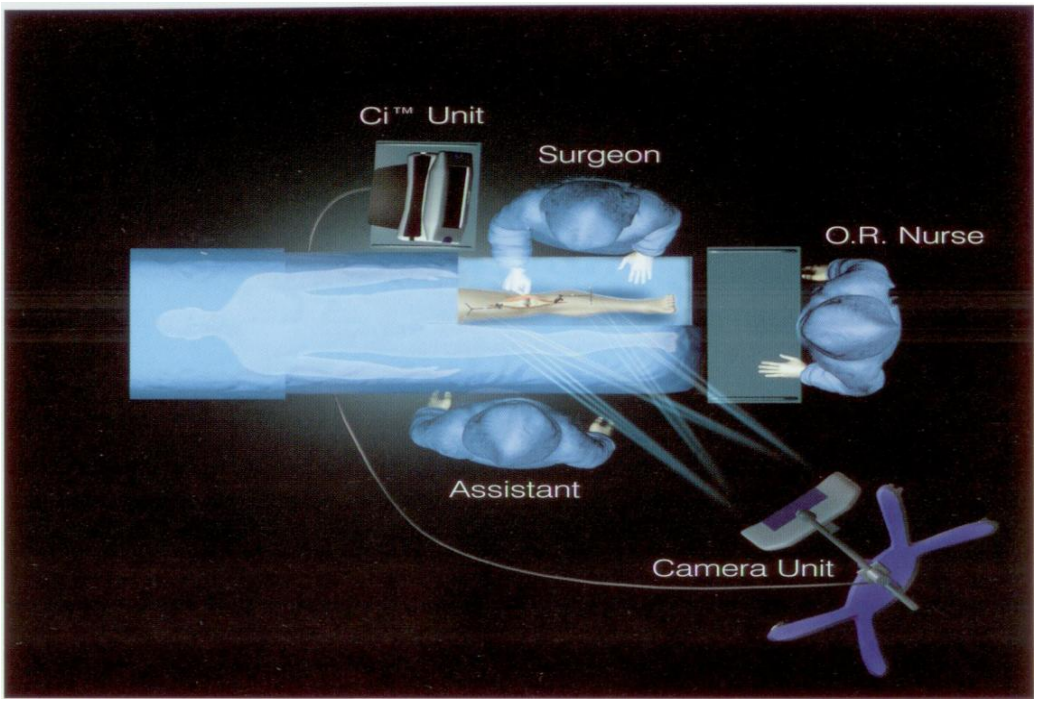
The system is a touchscreen-based planning computer with navigation software specially designed for use in knee replacement surgery The system uses reflective marker spheres and infrared cameras



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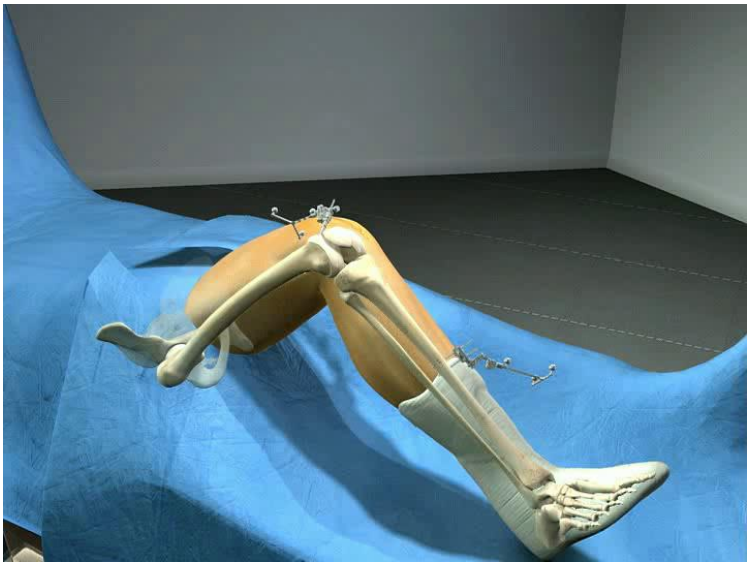
- A reference array with marker spheres is attached to the bones to be operated on.



- A special pointer, also equipped with reflective marker spheres, is then used to register multiple points along your bone.
- The marker spheres reflect infrared light which is detected by the infrared cameras.
- This information is then supplied to the software which simulates a 3D model of your bone using an extensive CT database of healthy and arthritic knees.
- Adapters with reflective marker spheres are used with specially designed surgical instruments that enable the software to calculate the position of these instruments relative to your bone. This gives your surgeon real time information of your knee enabling very accurate placement of your knee replacement.
- You will be given a computer printout of your knee replacement like the one below