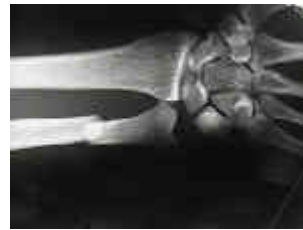
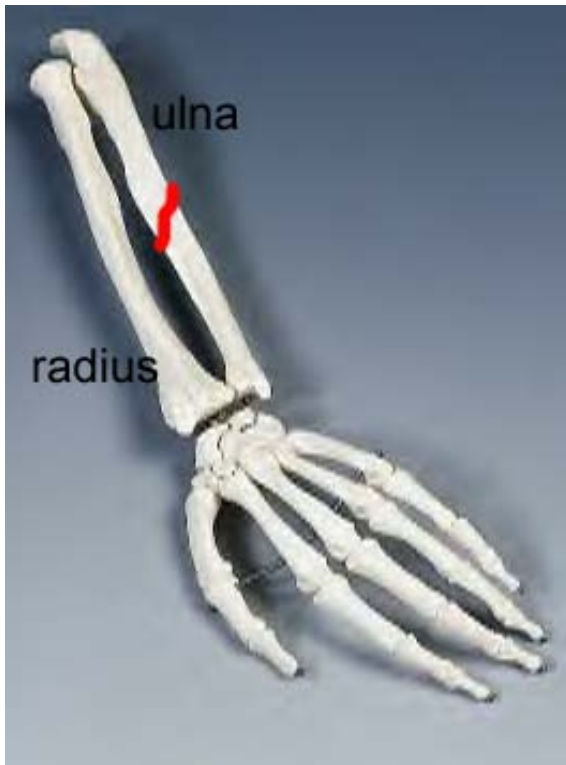




Wakefield Sports Clinic Orthopaedic Surgeon Dr Michael Sandow answers questions about injuries and procedures akin to the fractured forearm suffered by Ben Hart recently.

WSC: *Tell us about the type of injury Ben Hart sustained and why you chose this route:*

MS: As you know Ben Hart sustained an oblique (diagonal) fracture of his left forearm bone (ulna) during the match against Richmond and this has given him a lot of pain and he was unable to play with such an injury.



Two examples of ulna fractures (not Ben's)

There are various types of breaks or fractures of the forearm and some respond and heal without much treatment or a little bit of support but the ulna bone is one that is particularly prone to slow healing and for improved predictability, is best stabilised with a plate. This does carry with it risks of infection and muscle damage but can usually be carried out with a very low risk of complications or problems. While these bones will often heal without the need for a plate fixation, the chances of getting predictable healing are much higher in the situation with a plate.

(In Ben's case, a plate insertion will speed the healing process and reduce risk of the fracture not healing properly – according to WSC and Crows Doctor; Dr Brian Sando.)

How big is the plate?

MS: The plate is 8cm long and has a number of holes within it which allow it to be stabilised to the bone. The plate is designed to span the fracture and hold it in place while it heals.



Typical Ulna plates

What is it made out of and why?

MS: The plate is made out of special surgical stainless steel and are really quite stiff and non bendable. A particular grade of stainless steel is used which has very low corrosion or wear and tends to cause virtually no reaction with the body. The bone can in fact grow right up to and over the plate and its main function is simply to hold the bone in the right place, while it heals.

It is unlikely to go off in the airport as the amount of metal in the plate is actually quite small compared to the sort of things that are commonly worn such as watches. Some plates are made out of titanium and other materials but I find that stainless steel plates are reliable and cause minimal reaction, so are best.

How is it fastened to the bone?

MS: This plate is fixed to the bone using screws that are similarly made out of stainless steel. They have a special system that actually locks them into the plate to provide a much more rigid construct or connection.



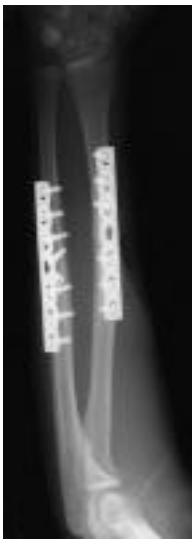
Surgical plate and enlarged screw

Will it come out eventually or stay in forever?

MS: Plates can often stay in forever, unless they are causing problems but in general terms, we take them out as they can irritate a little under the skin. If it is not causing any problems then we can certainly leave it in place or generally consider taking it out about a year after the injury.

What are possible cautions or complications with such a procedure?

MS: The plated break is not as strong as the original arm and so it needs further protection to avoid direct injury or excessive loads. Although it is held quite strongly it could easily be disrupted by the wrong sort of forces and that is why Ben can't go straight back to play football as almost certainly the plate would pull away from the bone, if he loaded it in the wrong direction. While the risk of re breaking it can be minimised by the use of a supportive brace and while it is perhaps possible to come back a little earlier if the state of the season was quite critical, unless the bone has actually healed there is a significant increased risk of re breaking around the plate, so it is certainly not advised. There is a risk of infection in the early post operative phase so we need to carefully inspect the wound as well as the risk of increased swelling because of the fracture and operation. Ben will go in to a plaster cast to protect the fracture and this will be applied once the swelling has settled fully.



Typical plate & screw insertion

How is it inserted into the arm?

MS: The plate is inserted by making a cut in the arm to lift the muscle tissues away from the where the break has occurred, the bone ends are realigned when the plate is applied to hold them in the correct position.

How much stronger does it make the arm?

MS: A broken arm, even if it is plated is still not as strong as the original arm and this is why Ben can't go back to play, straight away (it is quite a bit weaker than the normal arm and does need some protection in a cast to continue with some of his training) but he will need the cast on for about six weeks and then a couple of weeks of training and ball handling before he can consider getting back to play.

Is this procedure common?

MS: These sorts of fractures are actually quite common as the football season is upon us, we have now seen quite a few of them. Although it obviously means some time off play, recovery of these injuries is quite predictable. They often heal without a plate but in this situation the bone ends had moved apart and as such we felt that it would not heal without better alignment so he has undergone the repair with the plate fixation.

In what circumstances would this procedure be used?

MS: If the bone had not shifted greatly and was well aligned then we may simply protect the arm in a cast to allow it to heal. The fracture however was moved apart slightly so it was felt that this would increase the chance of healing with fixation with the plate. On occasions if we don't plate the fracture immediately after the injury a small number of these do go on to what is called, a non union or the fracture fails to heal. Usually by about two to three months we can tell that the fracture is not

healing in which case we might need to then plate it and apply bone graft. Our concern that this sort of fracture may go on to a non union was the reason why we proceeded to fix it straight away but there is generally no need to put in bone graft if we fix it straight away as the fracture can usually heal quite well itself as long as it is well aligned. We used x-rays at the time of operation to ensure that the fracture is sitting in the right position but it still remains vulnerable to re injury and he needs to be very careful in the early healing phase.

What is the course to recovery for someone having this procedure?

MS: The patient needs to obviously recover from the operation and the cut made in the arm. The wound will generally heal within a few weeks and the swelling will resolve over a period of a week or so which will allow the application of either a cast or splint for protecting the fracture. In Ben's case, because of the position of the fracture, the fact that we want good protection to allow him to continue with some of his training, we will apply a plaster cast and leave it on for about six weeks and hopefully we will get him back on track at about two months from the time of the injury. We will be organising a splint to protect the arm when he gets back to play but would be confident that we will be able to get him before the end of the season, hopefully to make his testimonial match.

There are a number of complications and problems when you look at infection and again the very low possibility of non-healing but so far things have gone very well and we can expect a good outcome so that he can finish off the rest of the year.

Dr Michael Sandow is a world-leader in 3D digital imaging and its orthopaedic applications, and a Vice President with the Adelaide Football Club.

A transcript of the ABC's *7:30 Report* program feature on Dr Sandow's innovations is available at: <http://www.abc.net.au/7.30/content/2003/s896905.htm>

His *True Life Anatomy* website: <http://www.truelifeanatomy.com/software.htm>

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