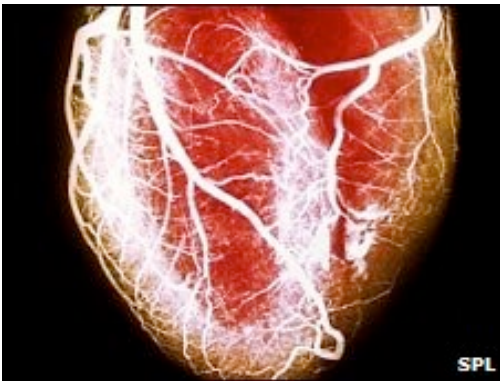


'Magnetic' stem cells for hearts

Heart attacks and other vascular injuries could eventually be treated using regular injections of magnetised stem cells, experts say.



The stem cells can repair the heart's damaged arteries

In animal trials, the cutting-edge treatment delivered the healing cells to the precise site of damage where their help was needed.

Although human tests are needed, a similar magnetic approach has been used to guide cancer therapies.

The expert US journal *Cardiovascular Interventions* reports the findings.

Targeted treatment

The idea behind the targeted therapy is to get as many of the reparative stem cells as possible to the area of damage.

To achieve this the UK scientists coated the stem cells with minute magnetic particles.

When these stem cells were injected into the blood stream it was then possible to control their movement using a magnet.

In trials, the magnetic targeting led to a five-fold increase in cell localisation at a site of vascular injury in rats.

These same magnetic nanoparticles are already approved in the US where they are routinely used as an agent to make MRI scans clearer to read. Senior author of the study Dr Mark Lythgoe, of

“ We await further research to find out if, as well as increasing the chances of these cells getting to where they are needed, this strategy can actually speed up the repair process

The British Heart Foundation's
Professor Peter Weissberg

University College London, said this meant human trials could begin within the next few years.

He said: "It's feasible that heart attacks and other vascular injuries could eventually be treated using regular injections of magnetised stem cells.

"The technology could be adapted to localise cells in other organs and provide a useful tool for the systemic injection of all manner of cell therapies.

"And it's not just limited to cells - by focusing tagged antibodies or viruses using this method, cancerous tumours could be much more specifically targeted."

The British Heart Foundation's Professor Peter Weissberg said: "This encouraging research shows that nanomagnets could be used to help therapeutic stem cells reach specific areas of the body, particularly inside blood vessels where the blood is flowing fast and at high pressure.

"It is hoped that this strategy could be used to help these cells home-in to the sites of diseased tissue and improve the chances of repairing it.

"We await further research to find out if, as well as increasing the chances of these cells getting to where they are needed, this strategy can actually speed up the repair process."