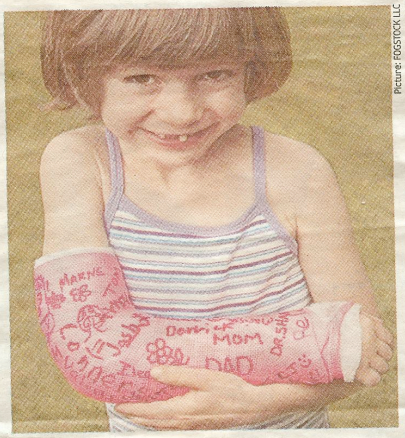
Source: The Daily Mail
Edition: Print
Country: UK
Date: Tuesday 16th December 2008
Circulation: 2,184 165

Daily Mail

Good Health

The toothpaste that fixes broken bones

By ESME McAVOY



Picture: ISOSTOCK LLC

A NEW 'injectable bone' material could soon be used to help heal bones that are damaged or broken.

The paste, which has the texture of toothpaste, can be injected into the damaged area. It can fill any cavity shape and hardens within 15 minutes at body temperature, taking on similar characteristics to normal bone.

Normally, a broken bone is able to heal itself. However, with severe breaks or following the removal of cancerous tumours, patients may need a bone graft to help stimulate new growth.

In conventional bone graft surgery, which is carried out on around 10,000 Britons every year, healthy bone is taken from elsewhere in the body, ground up into a powder which is packed into the damaged area.

This type of surgery is effective, but requires the surgeon to damage another part of the body. While most patients heal with no problems, the procedure is time-consuming and has a painful recovery period.

Because of this, scientists have long looked for a suitable alternative to using real bone, but it's difficult to find a material as strong that can also be easily shaped.

It must also be porous enough when hardened so that new blood vessels and bone can grow through it. Some artificial replacements are made from ceramics that can be shaped to fit the bone cavity, copying the mesh-like structure of the real thing.

Others come in putty or powder form and need to be packed into the bone cavity by hand; but none has proved as successful as human bone itself.

However, this new material could be directly injected into the bone and would immediately fill out the cavity. This would do away with the need for a larger surgical incision, as is required when packing in other substitute materials.

And unlike many other bone cements, the injectable bone doesn't give off heat as it hardens, which can kill off the surrounding tissue.

As doctors need to drill a hole into the bone in order to inject it, the procedure will most likely be done under general anaesthetic, with X-rays and scans to guide the needle to the correct area.

'Once inside the body, the paste will harden to the strength of normal bone, but there will be plenty of space for new bone to grow,' says Professor Kevin Shakesheff, who led the research at the University of Nottingham's School of Pharmacy.

Because the paste is porous, it has small holes to support new cell bone growth.

After three to four months, the injected bone will gradually degrade into the bloodstream, before being passed out in the urine, leaving the newly grown bone in its place.

SOME artificial bone material already available is also able to degrade, but the disadvantage is the temperature rise that occurs as they harden.

'The material could also be combined with stem cells or drug therapy to speed up bone cell growth,' adds Professor Shakesheff.

Stem cells are immature cells that can develop into any kind of specialised cell. In theory, a small number of them could be harvested from another part of the body, reproduced in the lab and injected into the bone at the same time as the artificial bone paste.

They would then grow into bone cells to speed up the healing process.

Last week, the 'injectable bone' won a Medical Futures Innovation Award.

The technology needs to undergo clinical trials, but it's hoped the product will be available in America within 18 months and the UK soon after.

DID YOU KNOW?

NURSES are cleaner than doctors. When it comes to following hand-washing guidelines, researchers at the University of Cork found that doctors and medical students were the worst, followed by porters. Nurses and healthcare assistants were the most diligent.

FROM PAGE 39

in the order you might want to eat what is on them.

And the amount of time allotted for eating was minimal, so the hungry patient feels pressured to gobble, and anyone who has difficulty eating simply gives up. Those who made a fuss generally got fed, but often had to wait so long that the food was cold.

Expectations about patients' ability to eat when in bed were unrealistic. While nurses and meal staff equipped themselves with disposable plastic aprons off a big roll, patients had to make do with a tiny paper napkin.

A disposable plastic bib or a cloak like the ones you have at the hairdresser's would be a vast improvement.

It would also be a good idea for someone to review all the menus for 'eatability'. Roast chicken came in joints and was clearly popular, but my husband could not have begun to tackle his if I hadn't been there to cut it up; he could not even lift it!

Anything that cannot be picked up easily by hand, fork or spoon is a nightmare. Even boneless meat, if it is in one

Vitamin B can beat the 'old age blues'

POPPING a vitamin pill could significantly reduce the risk of depression in the elderly, according to research.

Scientists at the University of Western Australia found adults who took a regular dose of vitamin B12 were less likely to suffer mental-health problems in old age.

The supplements lower the amount of homocysteine in the blood, high levels of which have been linked to heart disease and mood swings, among other disorders. This can be quickly reduced by taking B12 supplements, or eating food rich in the vitamin, such as red meat, oily fish, eggs, yoghurt and cheese.

Researchers questioned 3,752 men aged 70 and above on past or present symptoms of depression, and found those with the highest readings of homocysteine were 70 per cent more

Ten-minute test for cancer

A SIMPLE urine test could soon be used to detect bladder cancer.

Developed by scientists from Cambridge, it is painless, non-invasive and cheaper than the current intrusive cystoscopy, where a camera in a flexible tube is inserted into the urethra. Results would be available within ten minutes.

Around 10,300 Britons are diagnosed with bladder cancer every year and it has the highest recurrence rate of all the cancers (about 65 per cent). At the moment, patients have to return for regular cystoscopies for the first few years after initial treatment.

The UroSens test monitors levels of a protein called Mcm5. This is essential for healthy cells, but if found in the urine it can indicate a breach in the bladder wall, possibly caused by a tumour.

Clinical trials are due to begin early

The content of these cuttings is subject to copyright and may not be reproduced or resold without prior permission of the publisher or relevant licensing agency, details of which are available from Medical Futures