

Bone collector working to end aches and pains

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By simulating the effects of natural wear and tear on people's bodies, engineers at NUS are helping doctors find remedies.



Exciting Times

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Dr Lim, an assistant professor at the National University of Singapore's Faculty of Engineering

MEET Dr Lim Chwee Teck, the bone collector.

He collects human bone samples and 'plays' with them by knocking them against hard objects and using lasers to zap and tear bone cells.

But Dr Lim, an assistant professor at the National University of Singapore's Faculty of Engineering, has an important mission when toying with the bones - he hopes to understand the effects of forces on bones and their cells.

By conducting such in-depth studies, he wants to help doctors and orthopaedic surgeons find better ways of treating bone fractures and other injuries.

Already, he and other experts in his faculty are in the process of conducting various new research projects, to grow human bones, cartilage and ligaments, and create implants to treat spinal ailments.

He said: 'In our daily routines, our bodies are subjected to various types of force which can literally wear us out.

'While the impact will not be felt now, it will hit us when we grow older.'

But rather than wait, simulation tests are being done.

For example, a machine will twirl the ball of a human hip bone around its socket more than 100,000 times, to simulate the wear and tear of about 10 years of walking.

This will allow the experts to come up with better ways of countering joint aches which are common among the elderly.

The study on impact has other day-to-day applications too.

Recently, Dr Lim was called as an expert witness in the case of American cocoa trader Denis Harte whose testicles shrank after surgery to improve his chances of becoming a father.

One of the issues in the case was whether a fall had contributed to the man's injury.

Dr Lim said: 'Depending on how one falls in an accident, the force can have an impact and cause injuries to such vulnerable spots of the body.'

In another case, he was asked to examine the injury of an elderly woman after an automatic sliding door closed on her.

He found the door had not caused her injury but that she had fallen when the closing door surprised her.

He said such cases showed that the scope of engineering had been redefined completely.

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