

APERF Profile

Study Finds Painkillers Affect Bone Development

John Head is a multiple APERF recipient for his groundbreaking studies into the effects of non-steroidal anti-inflammatory drugs (NSAIDs) on bone development in the lower limbs.

“Podiatrists frequently treat stress fractures in the feet and lower limbs,” Mr Head said. “We aim to reduce the swelling and aid healing by prescribing NSAIDs such as paracetamol and ibuprofen.”

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However, Mr Head uncovered some research that suggested that anti-inflammatories might hinder bone development, which, if true, could have had serious implications for the treatment of stress fractures by podiatrists. Therefore, he set out to test what effect NSAIDs had on bone development in healthy males.

“Within our bodies, our bones are constantly changing – thickening up in some places and thinning out [bone resorption] in others. I wanted to measure what effects the frequently prescribed medications had on bone healing and development.”

“The best way to measure the effect of



John Head

these drugs on bones was to assess the rate of bone turnover. The level of bone collagen in the urine is a good indicator of the rate of bone turnover. Higher rates of bone collagen in the urine suggest that bone resorption [bone thinning] is occurring.”

“I tested three groups of people – one group was given paracetamol, the second was given ibuprofen and the third group was given a placebo,” he said.

The results showed that taking paracetamol significantly reduced bone thinning which indicates that paracetamol might have a protective effect on bones – major breakthrough in bone research.

Mr Head built on his earlier work by carrying on further research, again with APERF assistance.

In general, activities such as walking will thicken and strengthen bones while inactivity thins out bones. As podiatrists also treat people whose lower limbs have been immobilised by wearing plaster casts, Mr Head set out to test if paracetamol would reduce bone resorption in this case.

“As immobilisation leads to a thinning of the bones, it would be enormously beneficial to identify drugs that could prevent or limit this process,” Mr Head said. “My initial results suggest that paracetamol did not act as a protective factor against bone resorption in this instance. However, a larger study would need to be carried out to get more conclusive results.”

The results of these studies have been presented at the Australian and New Zealand Bone Mineral Society conference and published in journals such as *Bone* and will contribute significantly to the practice of podiatry.

The Australian Podiatry Education and Research Foundation (APERF) was established in 1990 to fund research into the causes, prevention and treatment of foot problems. With the help of generous donations from the podiatry community, APERF has awarded over \$80,000 to 22 research projects in the past 12 years.

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