

# Butterfly effect aims at blues

Magnetic therapy may combat depression, writes **Alex Wilde**.

When her classmates were enjoying school, playing sport and socialising, 15-year-old Rebecca\* struggled to get out of bed. Until year 10, the North Shore student was music and sports captain, a peer support leader and had a main role in a drama production. But when depression struck in 2004, it all ground to a halt.

Karen, \* also from the North Shore, was in year 9 when depression blighted her life three years ago. She lost her love of reading and playing the piano, withdrew from friends and felt so bad she was prone to self-harm.

Rebecca and Karen, now 17, are not alone. *beyondblue*, the national depression initiative, says about 20 per cent of young people will have experienced depression by the time they reach adulthood. More than normal sadness, clinical depression interferes with day-to-day functioning and is severe enough to warrant treatment.

Both adolescents had regular counselling, but things didn't improve. Karen was prescribed antidepressants, but medication was never an option for Rebecca.

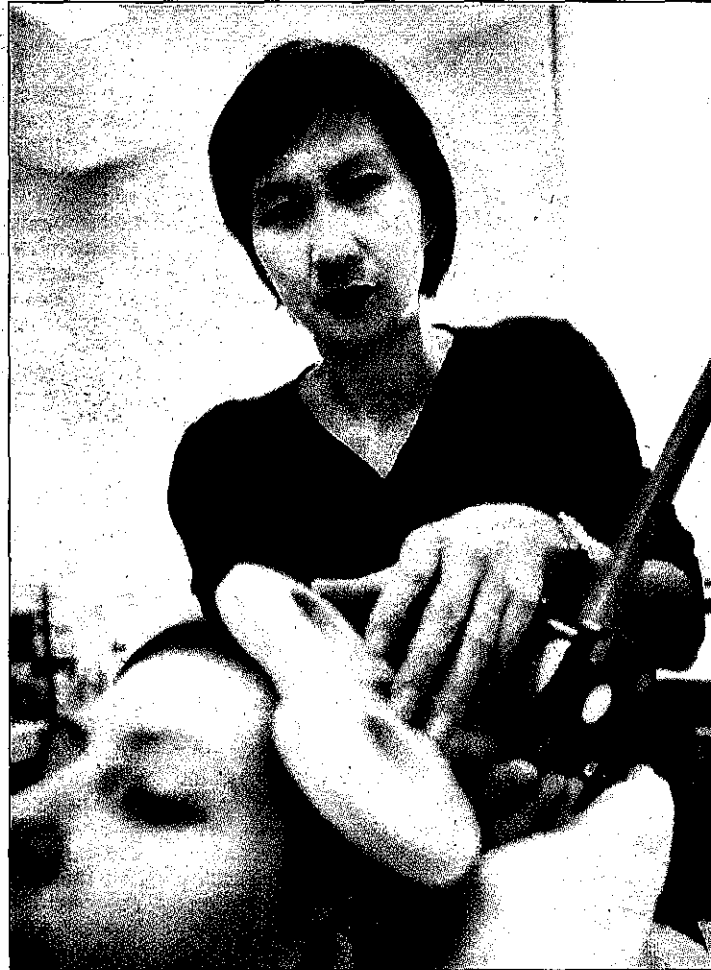
"I was anxious about possible side effects," Rebecca says. "Then Mum saw a story on the news about a treatment being trialled for teenagers suffering from depression that was drug-free."

Known as repetitive transcranial magnetic stimulation (rTMS), the therapy uses magnetic pulses to alter brain activity. Experimental rTMS trials at the Black Dog Institute, based at the Prince of Wales Hospital in Randwick, have already shown promise in depressed adults.

In 2005, the Black Dog Institute launched Australia's first placebo-controlled study to evaluate the effectiveness of rTMS in the 15 to 18 age group.

Trial leader Colleen Loo, research psychiatrist at the Black Dog Institute and associate professor in the School of Psychiatry at the University of NSW, says the institute's results and a few international case reports indicate that rTMS has good potential for adolescents.

"We know from studies that use rTMS to investigate brain



New hope ... Colleen Loo demonstrates rTMS. Photo: James Alcock

functioning that it activates neurons and changes blood-flow patterns and we can measure the effects of that brain stimulation," Loo says. "This is the first trial to test rTMS against placebo that allows us to say whether it really works or whether being in a trial is making the difference."

rTMS is delivered via a simple, butterfly-shaped coil held to the left side of the head to stimulate part of the brain called the prefrontal cortex, which is thought to be underactive in people with depression. Participants receive a series of 10 magnetic pulses a

second in five-second bursts for about 20 minutes. They describe it as a painless tapping sensation.

Rebecca and Karen, the first teenagers in Australia to have the treatment, attended the Black Dog Institute for about an hour every weekday for six weeks. They completed surveys that rated their level of depression during the study and simple memory tests monitored any adverse effects.

Neither knew whether she was assigned to the placebo or the active treatment, but both had active rTMS during the trial

period. Rebecca noticed she started feeling better part way through the trial.

"Before taking part in the trial I didn't want to be living," Rebecca says. "I didn't want to see friends. I had no feelings except being constantly upset and sad. There wasn't a future."

"It wasn't like I woke one morning and thought, 'Oh my God, I'm better', it was a gradual thing. Now I am finishing my HSC and I'm really excited about travelling next year. Then I want to do nursing or medicine."

Karen says she no longer has deep, crippling depressions, but feels her recovery still has some way to go.

"Before rTMS it had got to the stage where I'd cut [myself] to try and feel something because I felt very empty."

"Now my mood is probably a little bit worse than it was immediately after the rTMS, but not as bad as I was before the trial."

"I have taken up music again and have a huge pile of books by my bed to read. I want to do a bachelor of arts and science, or I would like to study overseas."

Loo says it is early days for rTMS trials in adolescents and the therapy needs to be tested further before any conclusions about its effectiveness and safety can be drawn. "At this stage I can't say definitively that it does work or doesn't work."

"My clinical impression is that the two adolescents we have seen were quicker to respond to rTMS than adults that we've treated."

"If further trials with sufficiently large numbers of participants show rTMS to be effective and safe, I see no reason why it shouldn't become a routine clinical treatment for adolescents."

With controversy surrounding the use of antidepressants in this age group, Loo suggests rTMS may prove useful as an alternative to medication - but she emphasises that magnetic stimulation is not an alternative therapy.

"The advantages of rTMS are that it seems to be quite acceptable to adolescents and their families and there appear to be very few if any associated side effects," she says.

On Monday, Loo will present her findings from the case studies to the 6th International Congress of Neuropsychiatry at the Sydney Convention Centre.

\* Names have been changed

## RESEARCH VOLUNTEERS WANTED

The Black Dog Institute and the University of NSW are recruiting participants between the ages of 15 and 18 for rTMS research trials. If you have been diagnosed with depression and would like to take part, contact Melissa on 9382 3720 or email

tms@unsw.edu.au. Adolescents who are still at school and living at home require their parents' consent to participate. For further information about major depression in children and adolescents, see [www.beyondblue.org.au](http://www.beyondblue.org.au).