

Movements help measure child sleep problems

3 December 2014, by David Ellis

New research from the University of Adelaide has helped to shed light on the complexities of child sleep, and could lead to improved diagnosis of children with sleep-related breathing problems.

For his PhD in the University's School of Medical Sciences, Scott Coussens has been investigating how to accurately measure the level of sleep disturbance being experienced by [children](#), to show whether or not they require treatment.

"Quality sleep is extremely important for children, especially at critical times of development. It can impact on the health of the brain and plays a key role in language development, for example. Poor quality sleep can result in reduced IQ, school performance and impact overall quality of life," says Mr Coussens.

"Researchers have been trying to find a good index of child sleep disturbance since the 1990s, but it's hard to measure because children's sleep is very different to that of an adult.

"With an adult, many of the signs of sleep disturbance are obvious, which makes it easier to study, but children often have this mode of 'sleep preservation' - they appear to be in a [deep sleep](#) but you don't see what's happening with the underlying processes," he says.

Mr Coussens says for some years, clinicians had thought that behaviour problems seen in children with sleep-related breathing problems - like [sleep apnoea](#) (stopping breathing briefly while sleeping) - were related to a desaturation of [blood oxygen](#) levels. "However, there are many children who present with these symptoms even though their [blood oxygen saturation](#) levels are normal. This led us to look further into what else might be happening during child sleep that could be resulting in these problems," he says.

In a study of 92 primary school aged children, Mr

Coussens measured more than 30 different sleep parameters, such as muscle movements, breathing, eye activity and changes in the brain's processing. Some of his results have now been published in the journal *Sleep*.

Mr Coussens found that the way movements were distributed in sleeping children, with and without [sleep problems](#), was a telltale sign of a potentially much bigger problem.

"From this research, we developed a new measure that could help to accurately group children into those with or without sleep-related breathing problems. This new measure can also give an indication of the severity of sleep problems, which is important for treatment," he says.

More information: "Movement Distribution: A New Measure of Sleep Fragmentation in Children with Upper Airway Obstruction." dx.doi.org/10.5665/sleep.4264

Provided by University of Adelaide

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