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# MailOnline

## Now that's just bad luck: Not only do whales have to surface to breathe, they can get 'the bends' just like human divers

- Bubbles in beached whales hint animals could suffer
- 'Decompression sickness' caused by surfacing rapidly
- 'Human noise' might cause them to dive unsafely

By [Rob Waugh](#)

Last updated at 4:50 PM on 21st December 2011

For the first time, whales and seals have been found to suffer from 'the bends' - the crippling 'decompression' sickness divers suffer when they surface too quickly.

The sickness is caused by nitrogen bubbles forming in the bloodstream when divers move from a high-pressure undersea environment - causing disorientation, pain, skin rashes, and even, in extreme cases, death.

A new study by scientists at the University of St Andrews found evidence for bubbles forming in the bodies of whales and seals - hinting that they suffer, too.



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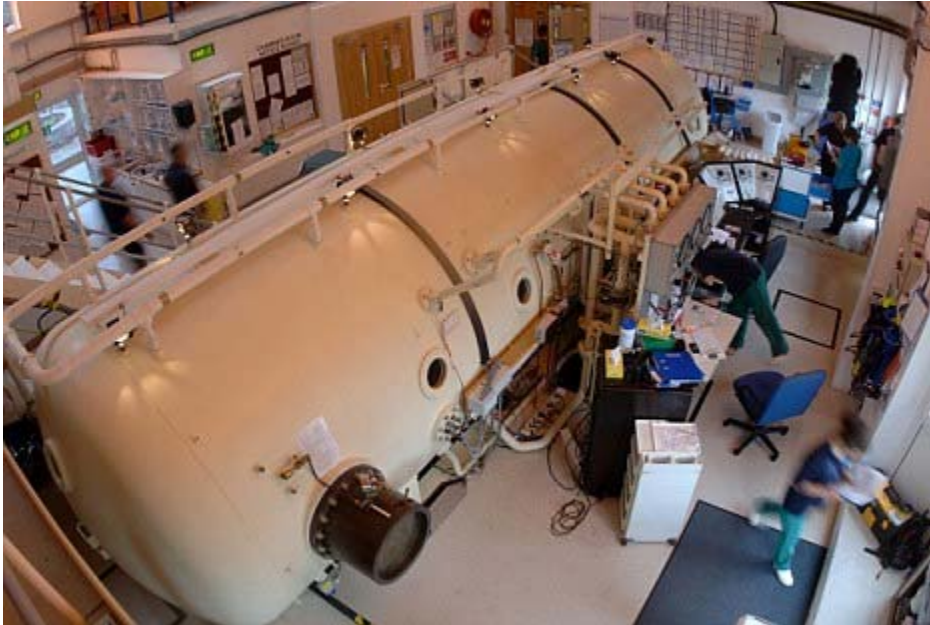
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The research also suggests that excessive human noise - such as exposure to military sonar - might disorient whales and seals, leading to them losing their natural defences against the disease.

Lead researcher Dr Sascha Hooker of the University of St Andrews said: 'Decompression sickness, commonly known as 'the bends' is a serious problem for human divers, but the jury has been out as to whether marine mammals could get the bends or if it would be as serious for them. '

'Unfortunately the technology doesn't yet exist to measure what is going on physiologically inside a free-living whale during its descent to depths of over 1000 metres. 'However, our review of recent work on marine mammal diving physiology leads us to the conclusion that they could suffer from the bends in the same way that humans do.'

The clue to 'the bends' taking hold is the appearance of bubbles in the bodies of marine mammals.



Recompression chamber in Plymouth, UK: Human divers use high-pressure chambers to readjust after deep dives - but animals can suffer, too

## **The textbooks tell us that seals and whales can tolerate deep dives and rapid ascent - but human noise may cause a marine mammal to change its diving behaviour in ways that result in serious illness or injury,' says Dr Hooker**

Bubbles are caused by pressure-induced increases in nitrogen levels in the blood and body tissues, followed by depressurisation that causes nitrogen to come out as bubbles - like the 'fizz' that occurs in a can of carbonated drink when it's opened.

Their research examined various evidence, including bubbles in the major organs of beached whales that had beached following exposure to sonar; bubbles in the kidney and liver region of mass stranded dolphins, and bubbles in the tissues of dolphins and seals caught by accident at sea.

'Our findings change the way we think about how marine mammals manage the problems of pressure when deep sea diving' said Dr Hooker.

'The textbooks tell us that seals and whales can tolerate deep dives and rapid ascent without developing the nitrogen load that might lead to the bends. One concern is that these naturally evolving mechanisms may be stretched by human pressures.

'An apparent threat to these animals, such as sudden high levels of noise, could cause them to react; altering their dive trajectory or eliciting a fight-or-flight response - that causes them to exceed their normal coping mechanisms for the prevention of the bends.'

'Excessive human noise or disturbance may cause a marine mammal to change its diving behaviour in ways that result in serious illness or injury.'

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I'm not surprised by this – they're mammals after all, so their bodies & vascular systems would be subject to the same pressures we'd experience.

- Ralph, Farnham, 22/12/2011 10:27

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The Bends, or Nitrogen narcosis is not a disease but a physiological condition. What the 'immune system' has to do with this is zilch. Whales and Co have been at the game of free diving for millions of years...on one breath with highly enriched blood and a vascular system that constricts the flow of gases during a dive of many hundreds of meters. There is very little nitrogen to 'bubble' into tissues and effect vital nerves. Evolution solved that one. Humans breath a considerable volume of air...think scuba and are thus saturating their tissues with nitrogen under pressure which forms dangerous tiny bubbles as they ascend and pressure decreases...think opening a bottle of lemonade. Presumably the animals investigated are dead. Could be the chemistry post mortem is what is observed here. Still more research needed!. Nice work if you can get it.

- RGH, London, 21/12/2011 20:54

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