ACADÉMIE
DE NANCY-METZ
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Subject: The power of music

Doc 1 : How to break a glass with sound ?

Legend has it that opera singers can break champagne flutes just by wailing – but is it actually possible?

You're probably familiar with the urban legend: the opera singer ascends the stage and clears his throat. His audience cheer and wave their champagne flutes in anticipation. He opens his mouth – and a roomful of glasses smash to pieces. We have no record that this has ever actually happened, but there were rumours that the legendary tenor Enrico Caruso could quiver a glass into a million pieces.

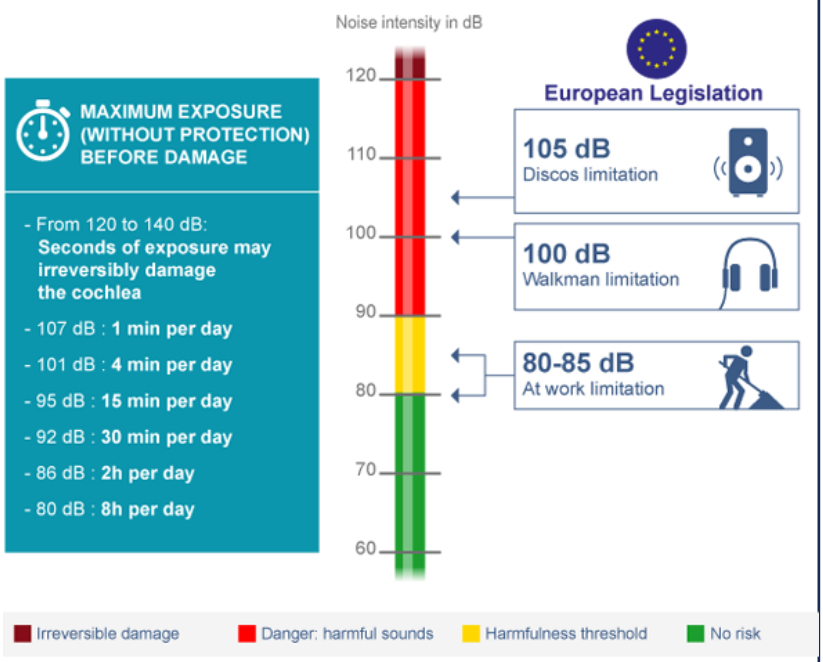
And according to physics, it should be possible. It all comes down to a phenomenon known as resonance. When sound hits an object – such as a champagne flute – it excites the particles inside, causing them to vibrate. Each object will naturally vibrate at a particular frequency – known as its resonant frequency, and if you choose a soundwave that matches that pitch, the object will start to shake more and more vigorously.

Think of it like the act of pushing someone on a swing in the park, where you give them a little shove each time they reach you. Get the pace right and you'll have them to screaming to slow down with very little effort. Get it wrong and your efforts will actually slow them down.

Doc 2 : Vocal cord

Vocal cord, either of two folds of mucous membrane that extend across the interior cavity of the larynx and are primarily responsible for voice production. Sound is produced by the vibration of the folds in response to the passage between them of air exhaled from the lungs. The frequency of these vibrations determines the pitch of the voice. The vocal cords are shorter and thinner in women and children, accounting in part for their higher-pitched voices

Doc 3: Sound level



Main ideas : What is a sound ? - frequency - sound level – tone of a sound – resonance- danger of the sound –

Other tracks: music you like – music gender – importance of music for you