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**The effects of induced loudness reduction on tone-burst
otoacoustic emissions**

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Induced loudness reduction (ILR) is a phenomenon by which the loudness of a sound is reduced when it is preceded by a higher-level sound (inducer). Because the effects of ILR can last for at least several minutes after exposure to an inducer, many clinical and laboratory test procedures may be unintentionally confounded. However, little is known about the physiologic manifestation of ILR or how it might affect clinical tests. The present study examined whether ILR could be observed in otoacoustic emission measurements, which have been shown to correlate well with loudness. Otoacoustic emissions were measured monaurally in 12 normal-hearing listeners in response to a 1 kHz 70 dB SPL tone-burst stimulus before and after a series of 1 kHz 90 dB SPL tone-burst inducers. Additionally, otoacoustic emissions were measured in two control conditions in which ILR was not expected to occur. For most listeners, the level of otoacoustic emissions decreased after inducer exposure and did not decrease in the control conditions. The results indicate that at least some component of ILR is likely to arise as a cochlear process and that although the observed effects are small, ILR may affect measures beyond just loudness judgments.