



# Tinnitus and Disorders of the Neck and/or Jaw

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## Background

There is much statistical evidence on a connection between these three disorders, most of it coming from studies in Sweden and the USA. If you take groups of persons, carefully matched for age and sex, you find there is a much higher proportion of people with tinnitus in those who have either neck disorders or disorders of the temporo-mandibular joint (TMJ), as compared with those without.

Indeed the German otologist, Costen in the 1930s described a connection between jaw disorders and a combination of imbalance, giddiness, deafness and tinnitus. It was called Costen's Syndrome. It is however, a rare condition.

Nevertheless, there definitely seems to be some direct connection between these problems. A link between jaw disorders and balance disorders is difficult to understand, but that between neck disorders and balance is easy since there are quite a number of reflexes which link the balance organ with the neck and vice-versa. Disorders

of one can create disorders of the other. It is difficult though to see any direct connection between jaw disorders and the function of the inner ear. It is likely therefore that any effects are indirect. For instance, there may be some effect mediated by the sympathetic nervous system which enables the brain to control the sensitivity of the ear, as a reaction to pain signals coming from the jaw muscles or joint. It may be that changes in muscle tension or local blood flow in response to pain and inflammation lead to a change in cochlear function and the perception of tinnitus.

The same sort of mechanism could account for the way in which neck disorders affect hearing. In the case of the neck though, there is also the possibility that arthritis, which is common beyond the age of 40 or 50 years, constricts the blood supply to the inner ear which comes up through channels in the vertebrae (bones) of the neck. Movements of the neck can then interfere with the blood supply and so cause or alter tinnitus and perhaps cause imbalance.

## **Investigation**

Detailed investigation is not often indicated. An ordinary x-ray of the neck might confirm the presence of arthritis. However, arthritis is common in those over 50 and so its presence needs to be interpreted with caution. Pulsatile tinnitus might suggest investigation of the arterial supply in the form of Doppler ultrasound or even arteriogram. If there is significant asymmetry an MRI scan may be required. Disorders of the TMJ are frequently investigated with MRI scans and even, on occasion, with arthroscopy (a small operation to look inside the joint).

## **Treatment**

Treatment depends on the cause of the problem. Arthritis of the neck is

generally managed with a combination of anti-inflammatory drugs and physiotherapeutic, osteopathic or chiropractic treatment. TMJ disorders are generally managed by a specialist in disorders of the temporomandibular joint and bite. Treatment may again involve anti-inflammatories, dietary changes and even a bite-appliance to alter some of the mechanical forces affecting the joint. In severe cases an arthroscopy and trimming of damaged tissue inside the joint may be required.

However, getting one of these disorders put right does not always guarantee that any co-existing problem will improve too. Nevertheless, where there is a combination of these disorders, it makes sense to do what can be done for them.

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**This information is not a substitute for medical advice. You should always see your GP / medical professional**

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