

# Ear Clearing methods

There are about 7 or 8 described methods for ear clearing, and all the known ones are described here:

- 1. Valsalva** Hold the nose closed by pinching, close the mouth and blow gently. This raises the pressure in the pharynx, forcing air up the Eustachian tubes into the middle ear. Don't forcefully perform this maneuver as it can damage the round window in the inner ear.
- 2. Toynbee** Hold the nose and swallow simultaneously. This causes the eustachian tubes to open momentarily, allowing air to enter the middle ear. The tubes open only momentarily and it causes a negative pressure in the pharynx, so only smaller amounts of air are able to pass into the middle ear space, it is not as effective as Valsalva. *(This is also a very useful technique to clear a reverse ear squeeze).*
- 3. Lowry** Pinch the nose, swallow and blow at the same time. (This is a combination of Toynbee and Valsalva)

There seem to be two methods attributed to Edmonds:

- 4. Edmonds No. 1** Open the eustachian tubes by wriggling the jaw from side to side or thrusting the jaw forward
- 5. Edmonds No. 2** Sometimes called "sniff and blow", it is where you suck the cheeks in with a sniff against the closed nostrils immediately followed by a Valsalva.
- 6. Frenzel** Frenzel manoeuvre is similar to the Valsalva manoeuvre in that the diver blows air against the pinched nose, but the Frenzel manoeuvre does not use the diaphragm to blow the air, into the eustachian tube, it uses the throat muscles to compress the air in the pharynx instead. Whilst the Frenzel manoeuvre can reduce the probability of a round window rupture, it does require more time to master. *(Apparently this method was used by German dive bomber pilots during WW2)*
- 7. Voluntary Tube Opening** Tense the muscles of the soft palate and the throat while pushing the jaw forward and down, as if starting to yawn. These muscles will pull and can hold the eustachian tubes open. It requires a lot of practice, but some divers have learned to control these muscles and can hold their tubes open for continuous equalization during descent.
- 8. Yawning & Swallowing in combination** Push the lower jaw forward and slightly open the jaw, while keeping the lips pursed around the mouthpiece, then swallow to clear the ears.
- 9. The head tilt** (This an aid to clearing rather than an actual method)  
Some divers find that one ear clears more easily than the other. If you tilt the head so that the uncleared ear points upward, the stretching of the Eustachian tube opening can make it easier to equalize