



## **CODE RED HEADSET'S TBCH-Pro Bone Conduction Headset**

The TBCH-Pro is a Tactical Bone Conduction Headset, ideal for the tactical professional. This headset has bone conduction speakers and microphone and is offered in connector choices for the most popular public safety 2-way radios. The download and PTT are quick disconnect so the headset can be used with any of the available connector options.

### **ADVANTAGES**

Conducting sound into the ear without having a speaker mounted directly on or in the ear has many advantages, which is why we are seeing more applications of this technology in everyday life. Some of the advantages are:

- **Hygiene:** When headphones are used every day, or shared between multiple users, they can get dirty quite quickly. With bone conduction technology there is a smooth surface that can be easily cleaned so that the part that contacts the user can be kept sanitary.
- **Safety-Hearing Protection:** Since the speaker is in front of the ears, the user can choose higher quality noise protection like ear muffs or foam ear plugs. You can also temporarily remove the hearing protection without losing your communications.
- **Safety-Situational Awareness:** With the speaker in front of the ears, the user can keep their ears open and will be able to hear surrounding noises and know which direction they are coming from.
- **Comfort:** Since there are no hard plastic or foam earpieces inside your ear, the headset is more comfortable than traditional earpieces. It is also easier to don a tactical helmet, since the headset is independent of the helmet.
- **Quality:** As mentioned above, when the ears are blocked with adequate noise protection plugs or ear muffs, the sound experience is transformed into high clarity.



- **Compensation for Hearing Impairment:** Bone conduction technology can provide better sound for some types of hearing impairment. Additionally, if the user has asymmetric hearing loss (one ear only) it will be readily apparent, as the sound will be dominated on one side. The user can compensate for this by partially closing the ear on the most impaired side. This will “amplify” the perceived sound in the bad ear and balance your hearing.

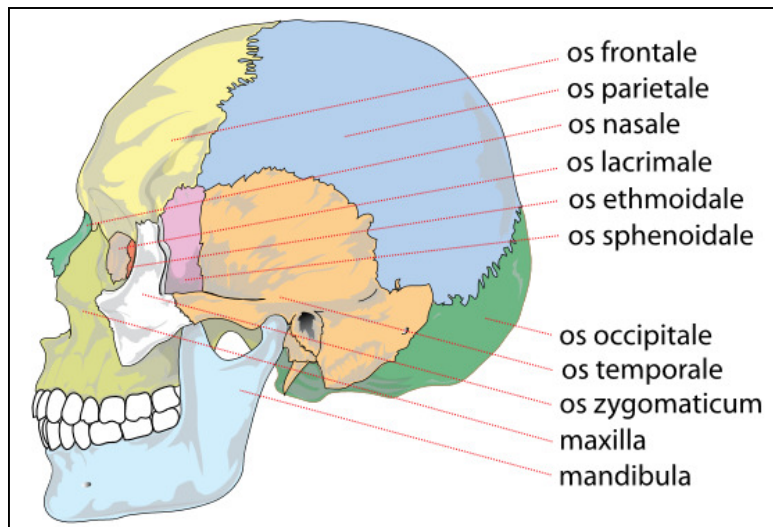
## ***TWO WAY RADIO APPLICATIONS***

Code Red Headsets offers several different bone conduction headsets compatible with 2-Way radios. The various offerings span the scope of consumer grade to the true tactical professional. Some of the headsets can be used in various applications, and suitability will be largely in the perception of the user.

## ***TECHNOLOGY BASICS***

Bone Conduction technology is not new. It has been around since the early part of the 20<sup>th</sup> Century and is most commonly used in hearing aids. Fundamentally, the technology consists of transmitting sound vibrations, through the bones of the skull, into the auditory canal where the ear receptors pick up and process the vibrations as audible sound. Bones transmit lower frequencies more clearly than air, which is why we all think our voice is deeper than it really is.

Most bone conduction headsets have the speakers mounted directly in front of the ear, transmitting the sound into the ear canal via the forward protruding flange of the temporal bone (see picture, os temporale). These devices can have a traditional microphone to transmit sound, or a bone conduction microphone as well as speakers. The TBCH-Pro uses a bone conduction microphone.



The speakers are covered in a polymer membrane which enhances the connection to the temporal bone. The sound is loud and clear and, because your ears are open to ambient sounds, you can still hear conversations, music and sounds in your environment. If you close your ears to the ambient sounds, the TBCH-Pro sound quality and intensity will be amplified.