## **Stadium Noise**

An NFL game can get very loud for a number of reasons

The average volume during an NFL game is estimated to be in the mid-90-decibel range (think power tools). Over time, sounds that are louder than 85 decibels can lead to noise-induced hearing loss.





Kansas City Chiefs fans upset the noise record for the loudest outdoor sports stadium previously held by the Seattle Seahawks CenturyLink Field. Noise levels at Arrowhead Stadium came in at a roaring 142.2 decibels (about the range of ear-damaging fireworks).



## During an NFL game, how does sound affect players and referees?



Football helmets are designed to protect players' heads, not their hearing. Openings on either side of the helmet allow them to hear crowd noise and calls on the field. When Oticon audiologists measured sound levels with a regulation helmet using KEMAR, an acoustic research mannequin, sound levels were virtually the same with and without the helmet.

## Bad Call!

A UK study showed crowd noise influenced referee calls in favor of the home team. It is suspected that noise caused greater uncertainty when determining calls, resulting in fewer penalties called against the home team.<sup>1</sup>



## Huddle Up

Players from schools for the deaf used sign language to communicate plays on the field.

Opposing teams were often able to decipher the hand signals. In 1894, a Gallaudet University QB introduced the huddle as a way to conceal upcoming plays.

