

The ability of echolocation

Do you know that there are people who have superhuman abilities?

Read about some of these real people. Based on the text, choose the correct person who can do this activity.

Human echolocation



Human echolocation is the ability of humans to detect objects in their environment by sensing echoes from those objects. This ability is used by some blind people for acoustic wayfinding, or navigating within their environment using auditory rather than visual cues. It is employed by bats, dolphins and toothed whales to find prey.

In earlier times, human echolocation was sometimes described as "facial vision" or "obstacle sense," as it was believed that the proximity of nearby objects caused pressure changes on the skin.

Notable individuals who employ echolocation

Ben Underwood

Diagnosed with retinal cancer at the age of two, American Ben Underwood had his eyes removed at the age of three.

He taught himself echolocation at the age of five. He was able to detect the location of objects by making frequent clicking noises with his tongue. This case was explained in 20/20: Medical Mysteries. He used it to accomplish such feats as running, playing basketball, riding a bicycle, rollerblading, playing football, and skateboarding.

Underwood's childhood eye doctor claimed that Underwood was one of the most proficient human echolocators.

Underwood died on January 19, 2009 at the age of 16, from the same cancer that took his vision.

Fellbach. (2014). *Dolphins* [photo]. Taken from <https://goo.gl/MoK6hx>



Parks, C. (2016). *Bat* [photo]. Taken from <https://goo.gl/ZNoM4X>

Dr. Lawrence Scadden

Dr. Scadden has written of his experiences with blindness. He was not born blind, but lost his sight due to illness. As a child, he learned to use echolocation well enough to ride a bicycle in traffic. The researchers in the lab study bat echolocation and were aware of the phenomenon described by Griffin (1959), where bats, despite continuing to emit echolocation calls, use path integration in familiar acoustic space.

Tom De Witte

Tom De Witte was born in 1979 in Belgium with bilateral congenital glaucoma. It had seemed that De Witte would become a successful flautist until he had to give up playing music in 2005. De Witte has been completely blind since 2009 due to additional problems with his eyes. He was taught echolocation by Daniel Kish and was given the nickname "Batman from Belgium" by the press.

Juan Ruiz

Blind from birth, Juan Ruiz lives in Los Angeles, California. He appeared in the first episode of Stan Lee's Superhumans, titled "Electro Man". The episode showed him capable of riding a bicycle, avoiding parked cars and other obstacles and identifying nearby objects. He entered and exited a cave, where he determined its length and other features.

Extract taken from Wikipedia (2017). *Human echolocation* [electronic publication]. Consulted on 6th April, 2017 from: https://en.wikipedia.org/wiki/Human_echolocation#Daniel_Kish

Activity 1

The ability of echolocation

In this quiz, you will check some sentences and you will have to choose the correct answer.

Read carefully the sentences and choose the correct one.

1. What is "Echolocation"?

- a) The ability to see objects in the dark.
- b) The ability to locate sounds
- c) The ability to hear objects from their vibrations

2. Who stopped playing the flute in 2005?

- a) Ben Underwood
- b) Lawrence Scadden
- c) Tom De Witte

3. Who had cancer in his eyes when he was only two years old?

- a) Juan Ruiz
- b) Ben Underwood
- c) Lawrence Scadden

4. Who noticed he had the ability of "Echolocation" when he was 5 years old?

- a) Tom De Witte
- b) Juan Ruiz
- c) Ben Underwood

5. Who can ride a bike in traffic?

- a) Lawrence Scadden
- b) Ben Underwood
- c) Tom De Witte