

Philip's ears *don't* pain when flying



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CHILDREN'S BOOK

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SANOHRA® fly is a product of Innosan GmbH.

Made in Germany

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pain when flying



Hurray! School is over. There you can see Philip and all the children cheering! 6 weeks of holidays! No mathematics, no writing and no homework. In 10 days Philip will fly with his parents and his sister Zoey to the beautiful island, on the beach and near the sea.



He is really looking forward to the vacation. He will get to play on the beach, swim with his father, mother and Zoey and build sand castles.

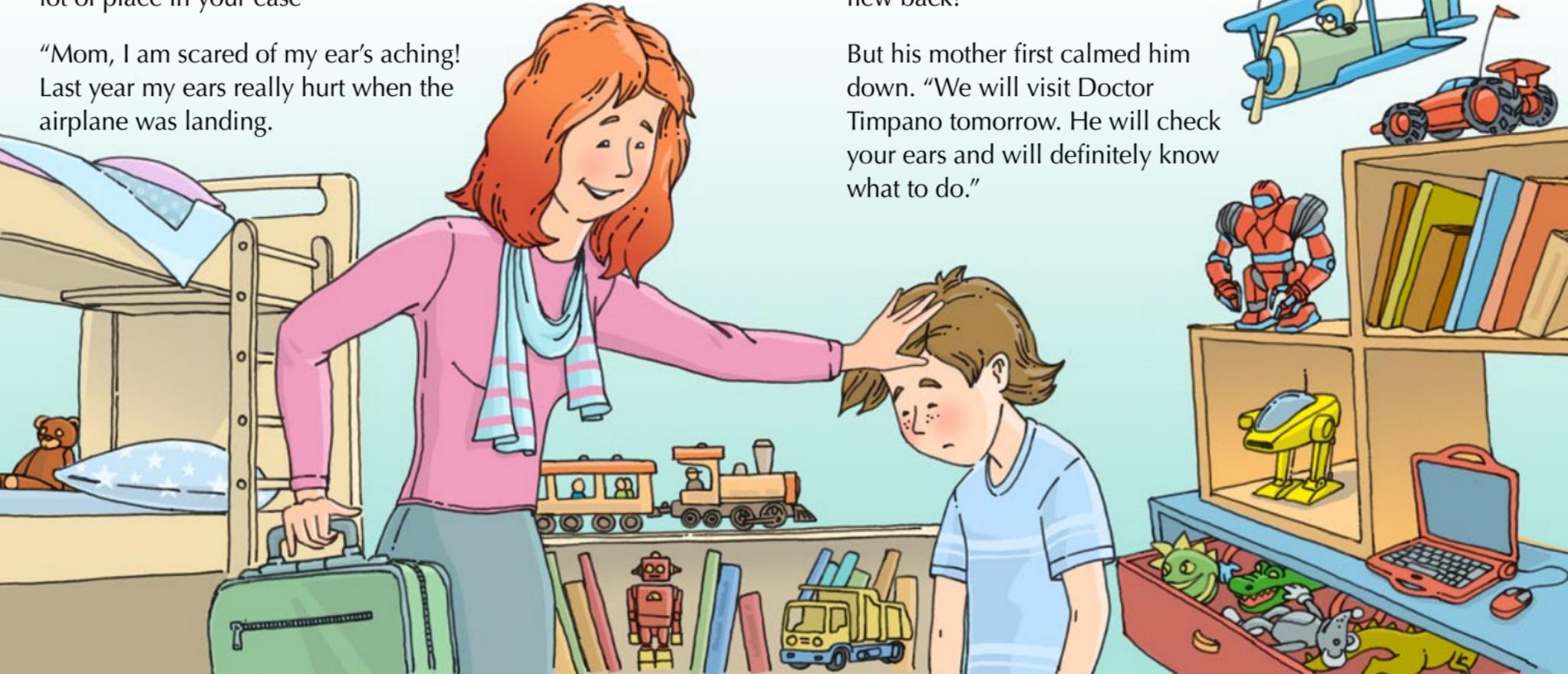
But somehow he is also a little scared!

“Have you thought of which toys you would want to take with you?” asked his mother. “But remember that you don’t have a lot of place in your case”

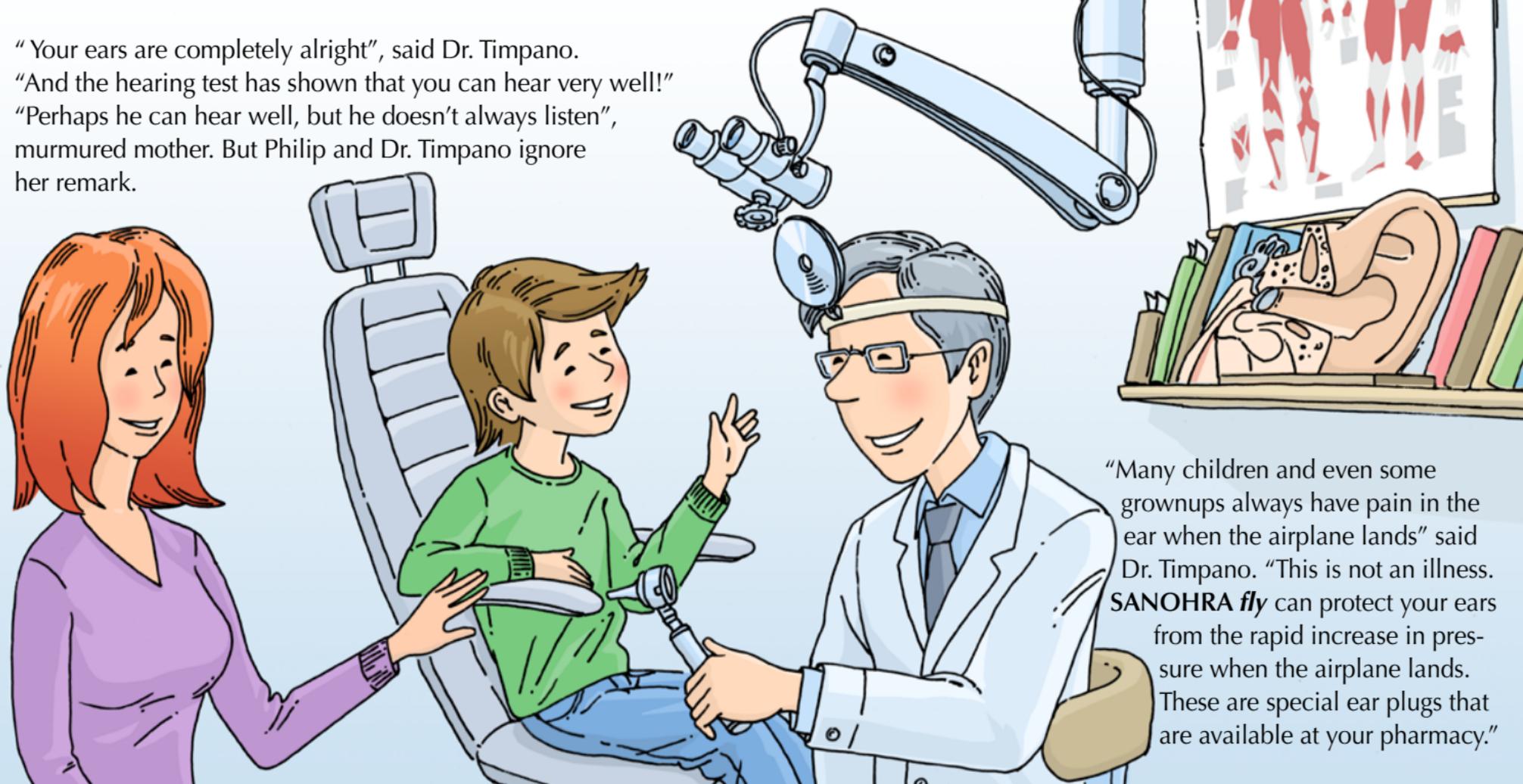
“Mom, I am scared of my ear’s aching! Last year my ears really hurt when the airplane was landing.

And the pain lasted for two days. And then it was the same when we flew back!”

But his mother first calmed him down. “We will visit Doctor Timpano tomorrow. He will check your ears and will definitely know what to do.”



“Your ears are completely alright”, said Dr. Timpano.
“And the hearing test has shown that you can hear very well!”
“Perhaps he can hear well, but he doesn’t always listen”,
murmured mother. But Philip and Dr. Timpano ignore
her remark.



“Many children and even some grownups always have pain in the ear when the airplane lands” said Dr. Timpano. “This is not an illness. **SANOHRA fly** can protect your ears from the rapid increase in pressure when the airplane lands. These are special ear plugs that are available at your pharmacy.”



Mother bought all the important things for their trip from the pharmacy. Sun protection with a high sun protection factor, something against mosquito bites and even some band aids for emergencies.

“And I also need **SANOHR**A *fly* for children. Dr. Timpano recommended it for Philip for his earache during the flight.” “Oh yes, I could also recommend those” said the pharmacist.

“They have already helped a lot of children. The instructions clearly state when and how you should use the ear plugs.”

Philip already knows the airport very well. He has handed over his case and has already checked in as well. The shuttle bus takes them to the airplane on the tarmac. They climb the gangway and board the plane immediately.



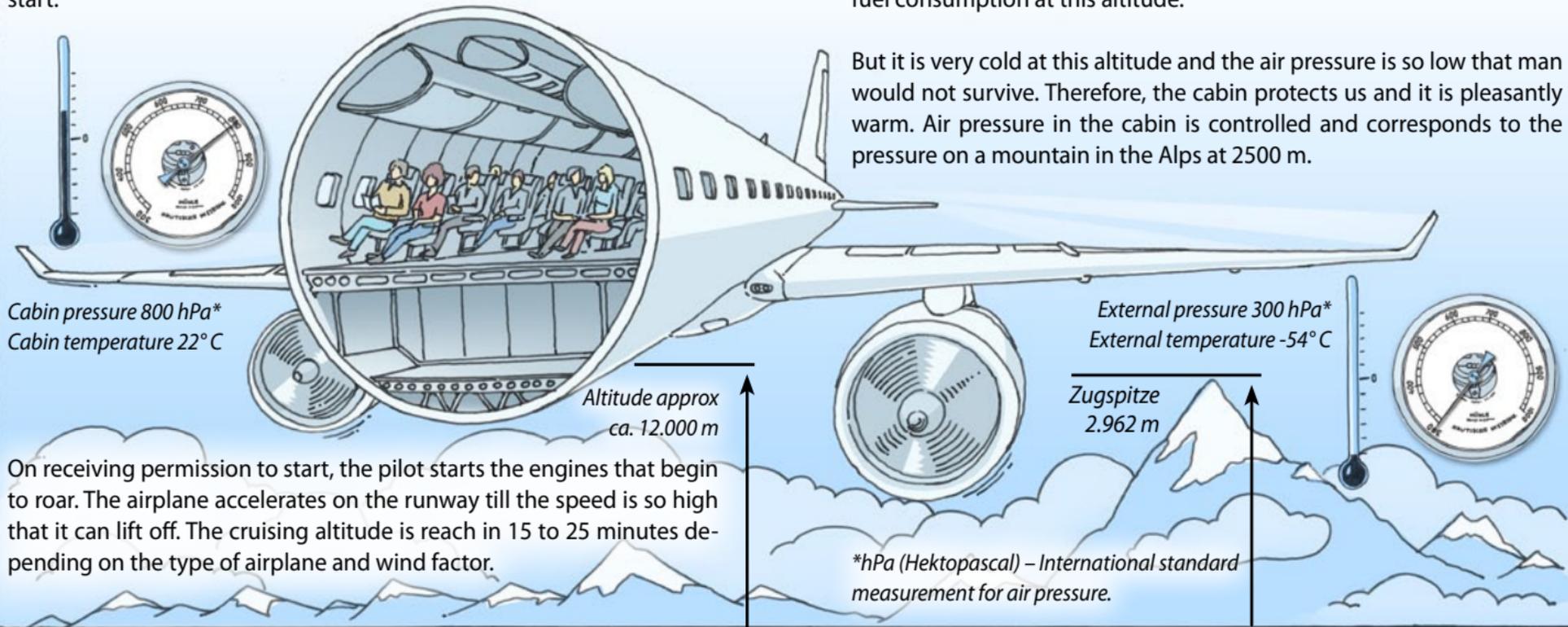
“Hold your sister’s hand!” warns Papa. Philip doesn’t like that at all. But as an experienced frequent flyer he shows everyone how to behave correctly at the airport.

Flying in altitude approx

The doors are closed once all passengers are on board and the airplane lines up for takeoff. The pilot has to wait till he gets the permission to start.

The plane is now flying at an altitude of about 12000 meters, high above the highest mountain peaks. It can fly faster and also with lower fuel consumption at this altitude.

But it is very cold at this altitude and the air pressure is so low that man would not survive. Therefore, the cabin protects us and it is pleasantly warm. Air pressure in the cabin is controlled and corresponds to the pressure on a mountain in the Alps at 2500 m.



The ear

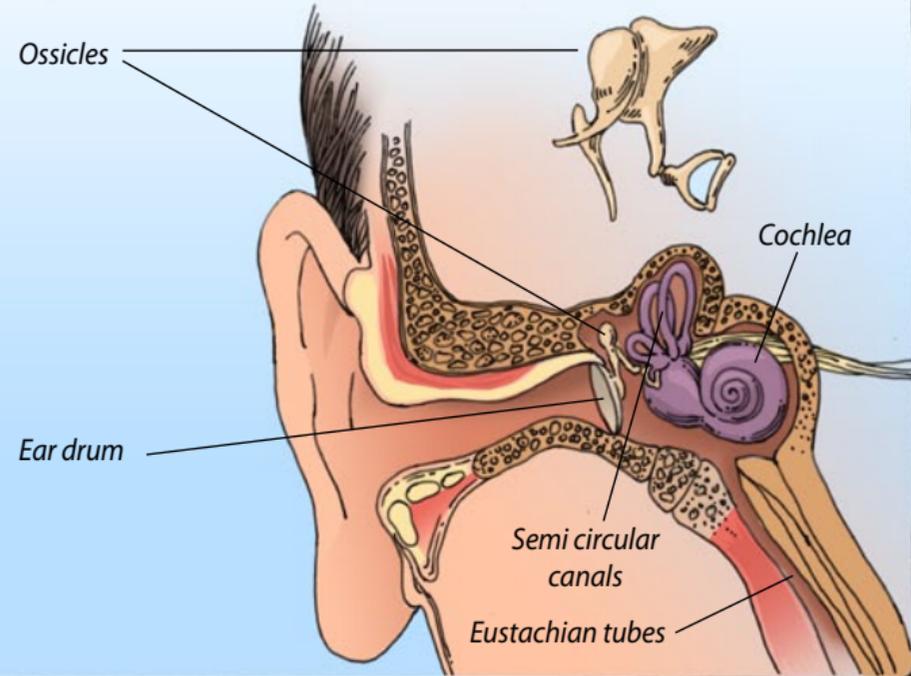
The ear is a very sensitive sense organ. For us to hear, the sound waves generated by a voice or those caused by music or other noise must be converted to nerve impulses in the ear. These can then be processed by the brain.

The shell of the ear guides the sound waves into the auditory canal. There they impact the ear drum, which then vibrates a few hundredths of a millimetre.

The vibrations of the ear drum are transmitted to the cochlea through very small bones. The cochlea conducts signals to the brain through the auditory nerves. That's how we hear!

The ear drum is a firm membrane that is water and air tight. It protects the small ossicles, the cochlea and the balancing organ with the semi circular canals from water, dirt and bacteria.

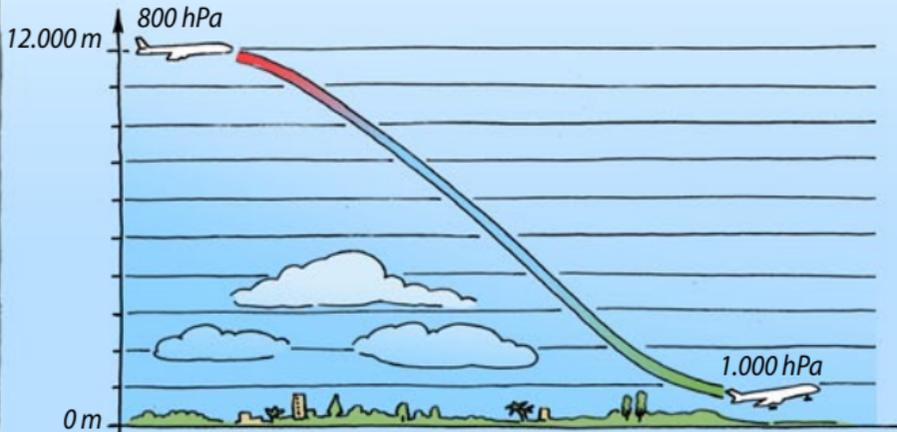
The Eustachian tubes are a tubular connection between the middle ear and the nose and throat cavity. These tubes have a particularly important job to do while flying: They must level out the pressure differences between the environment and the middle ear.



Pain in the ear while flying

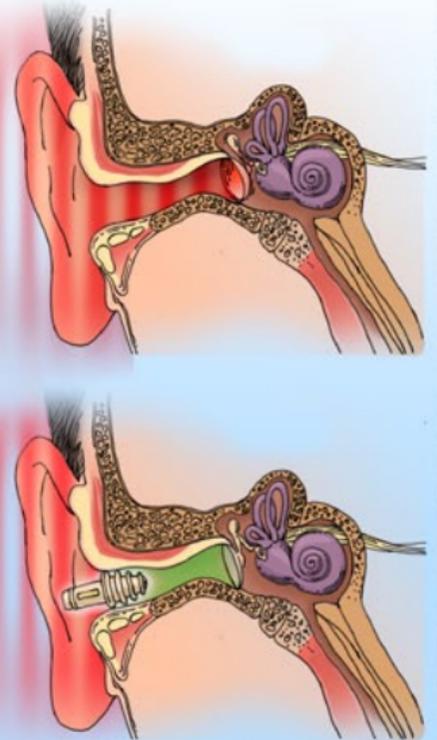
When the airplane is flying at cruising altitude, an air pressure of about 800 hPa is maintained in the cabin. When approaching landing, the air pressure again increases rapidly, because the air pressure is approx. 1000 hPa at sea level.

Now, the Eustachian tubes must ensure that the pressure in the middle ear is balanced. Doctors call it "ventilation of the middle ear". You notice it by the popping sounds in the ear. When the ventilation doesn't happen quickly enough, it creates a great difference between the pressure in the cabin and the pressure in the middle ear. The ear drum curves



towards the middle ear, because there is lower pressure on that side. This causes you to hear less and can cause great pain in the ear. Many children are affected by this, but also adults when they have a cold.

SANOHRA fly has been developed against this pain in the ear. The small ear plugs have a filter element that ensures that the pressure in front of the ear drum increases slowly. This allows the Eustachian tubes more time to ensure ventilation before a painful curving of the ear drums ensues.





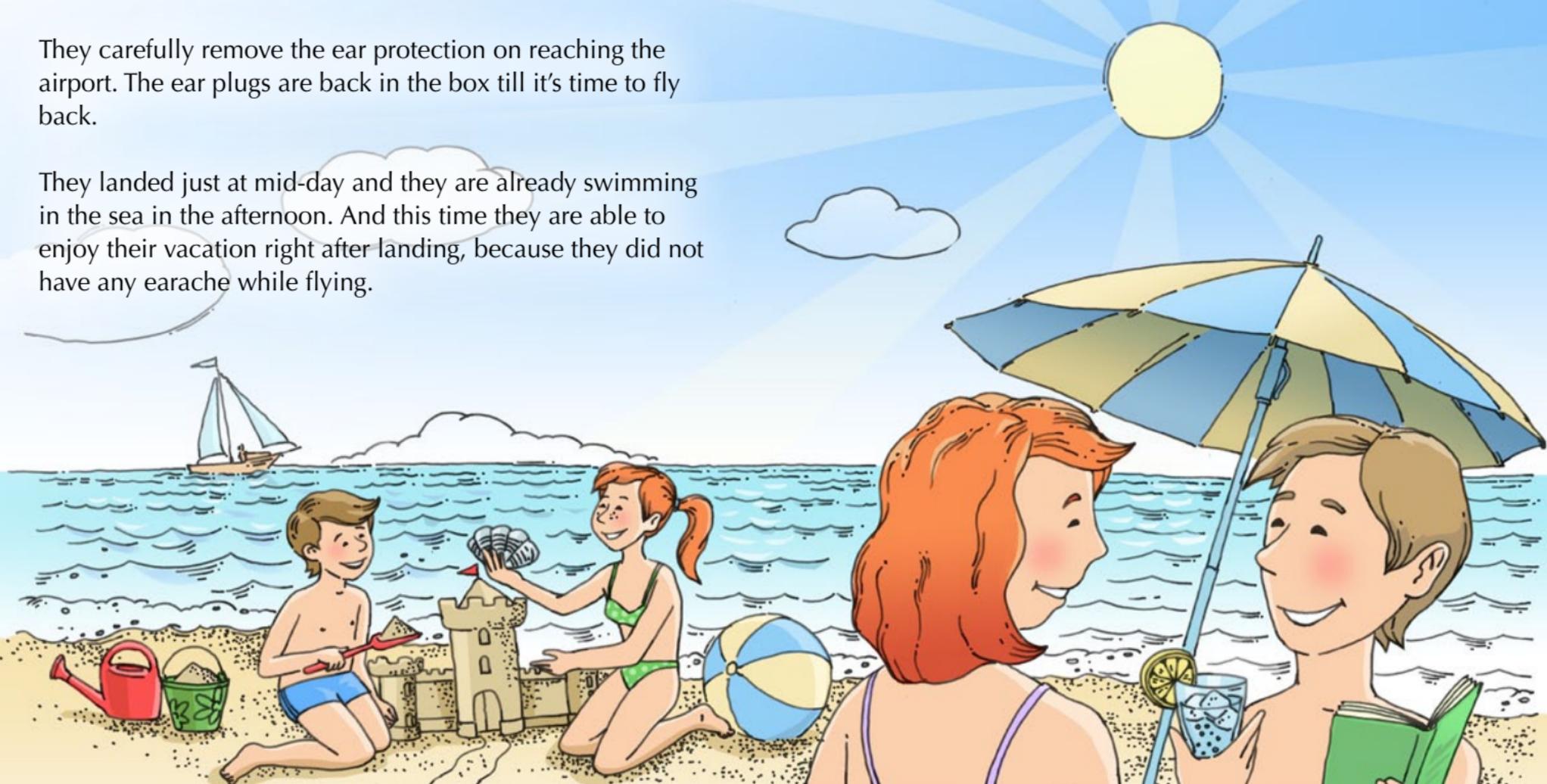
Mother also bought a pair of **SANOHRA fly** for Zoey from the pharmacy. And also a pair meant for adults for her, because she had also suffered from pain in the ear during her last flight.

But it is now time to put in the ear plugs. The airplane will land on the sunny island in 45 minutes. As soon as the airplane starts losing altitude, the pressure in the cabin increases.

Mother first shows Philip how to place **SANOHRA fly** in his ears. She puts in one for him and Philip puts the other one in the other ear all by himself. It feels a little funny in the ears. But it's much better than having an earache later.

They carefully remove the ear protection on reaching the airport. The ear plugs are back in the box till it's time to fly back.

They landed just at mid-day and they are already swimming in the sea in the afternoon. And this time they are able to enjoy their vacation right after landing, because they did not have any earache while flying.



Questions and Answers about SANOHRA fly®

More than half of all passengers that have ever flown know the unpleasant feeling of pressure or the pain in the ear that is experienced especially during the landing. Usually this is solved relatively quickly by yawning or swallowing. Earache during the flight is the most frequent complaint associated with flying. About five percent adults and 25 percent children experience this pain.

Why do the ears ache usually while landing and not during takeoff?

The air pressure in the cabin reduces quickly during takeoff. This leads to relative higher pressure in the middle ear. It is easy for the ear to balance it, since this just requires a so-called passive opening of the Eustachian tubes, i.e. the excess pressure can be balanced easily.

During landing, the air pressure in the cabin increases quickly. To now balance the relative lower pressure that occurs, the Eustachian tubes must have a so called active opening and release the air pressure to the middle ear.

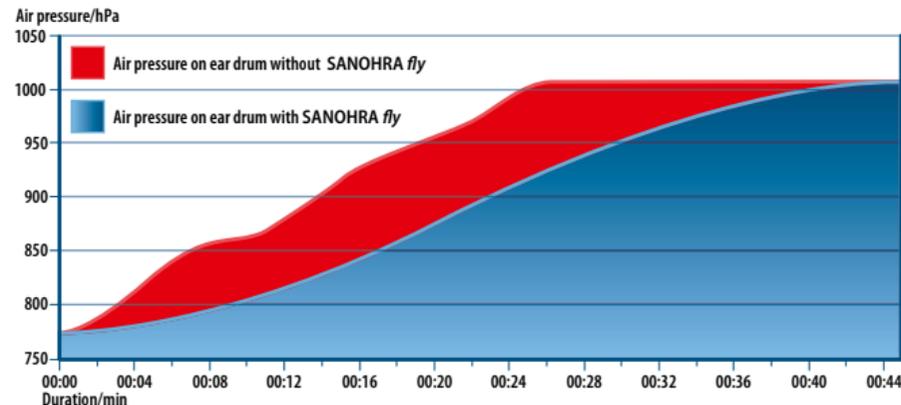
How does SANOHRA fly function?

SANOHRA fly is an ear plug with an integrated filter element or technically speaking a pressure reducer. A small chamber is formed before the ear drum by inserting the plug in the auditory canal. The filter element allows

the pressure there to build up considerably slowly and continuously as compared to the cabin. This gives the Eustachian tubes more time to take care of the ventilation to the middle ear.

Are there scientific studies on SANOHRA fly?

In a first systematic preparatory study at the HNO-clinic on the Charité Mitte campus in Berlin a small group of pro-bands with known ear problems while flying were studied in a pressure chamber. The delay in the change in pressure due to the filter and a significant improvement in the perception of pain could be proved during this study. The study was published in an internationally recognized publication for the medical profession.

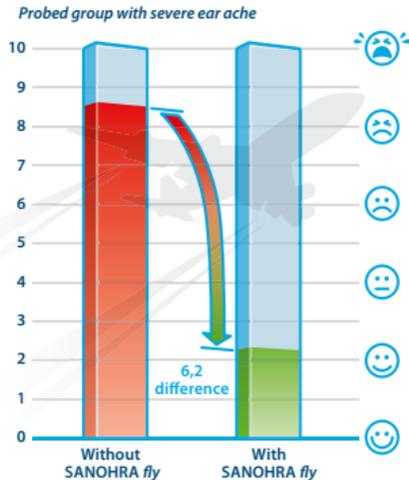


Over 500 passengers participated in a user acceptance study conducted by the Institute for Marketing and Management of the Leibniz University, Hannover for Hannover airport, TUIfly.com and the manufacturer Innosan GmbH.

- For the group of pro-bands that were particularly severely affected by ear pain when flying, the use of **SANOHR A fly** resulted in an average reduction in pain of 6.2 points on a 10 point scale of pain.
- 2/3 of these subjects noted that they were completely free of pain.
- Over 90% reported an improvement in the complaint. Around 80% of all participants of the study were completely free of pain with the use of **SANOHR A fly**.
- Over 80% of all subjects would recommend **SANOHR A fly** to their friends.

Where is SANOHR A fly manufactured?

SANOHR A fly was developed in Germany and is manufactured in Germany.



SANOHR A

Against earache when flying

Available at your local pharmacy

