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Exploring New Domains in Pediatric Amplification: Case Studies in Auditory Acclimatization

Dave Gordey, PhD



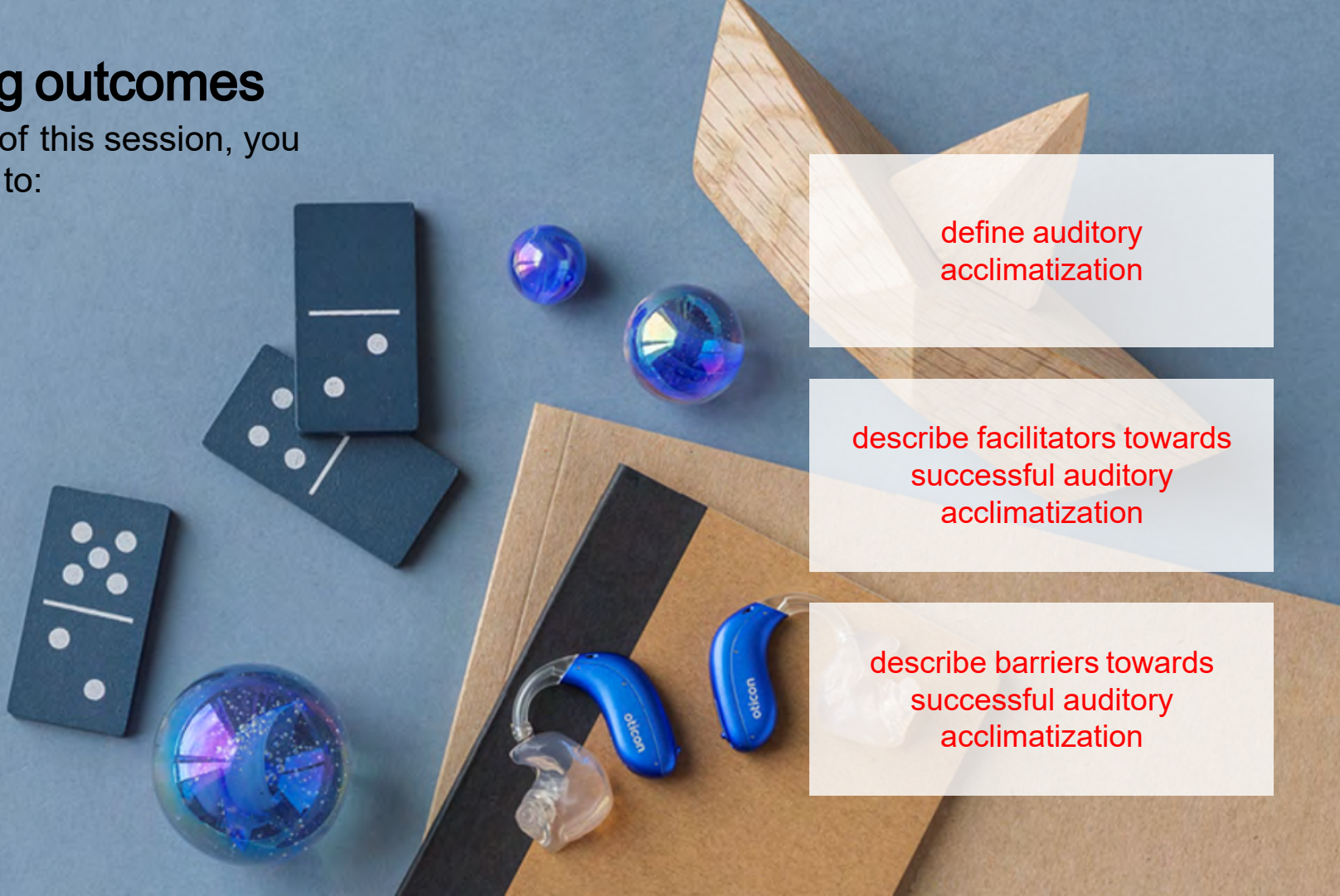
Learning outcomes

At this end of this session, you will be able to:

define auditory
acclimatization

describe facilitators towards
successful auditory
acclimatization

describe barriers towards
successful auditory
acclimatization



Evidence for Oticon Play PX



**MoreSound Intelligence
provides access to
communication**



**Oticon RemoteCare can
successfully be used with
children and parents**



**Parents have confidence in
rechargeable solutions for
their children**

Exploring further in new studies focusing on...



Auditory acclimatization



Accuracy of first fit



Voice emotion recognition



**MoreSound Intelligence
provides access to
communication**



**Oticon RemoteCare can
successfully be used with
children and parents**



**Parents have confidence
in rechargeable solutions
for their children**

What is auditory (perceptual) acclimatization?

” ...the adjustment time related to learning to accommodate new auditory inputs through hearing technology ”



Literature Review

Overview of research on auditory acclimatization

- Most research focuses on first time hearing aid fittings and adults with hearing loss.
- Research findings are mixed; acclimatization is reported with a small effect size and variability among individuals.



Overview of research on auditory acclimatization

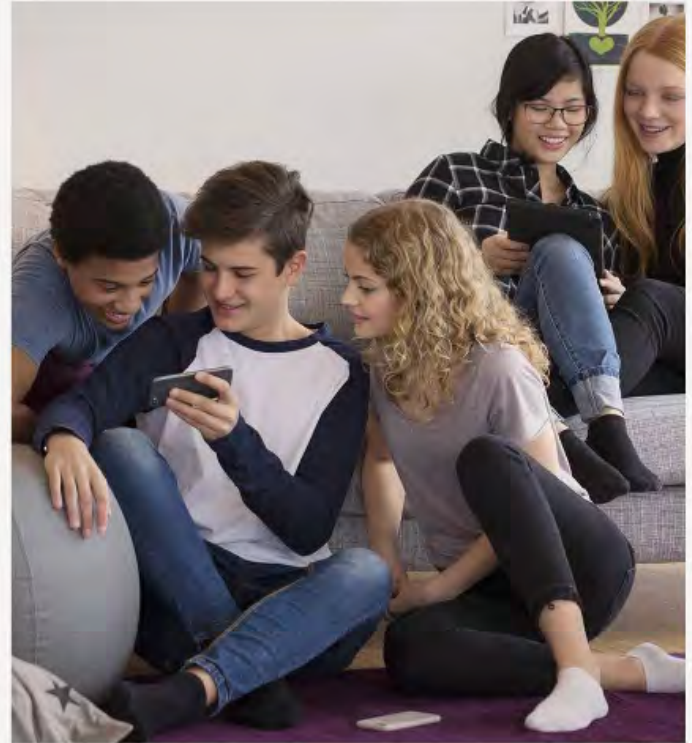
Conflicting outcomes across studies may be related to:

- Accuracy of hearing aid fitting.
- Types of signal processing.
- Age of patients.
- Test material used to measure acclimatization.



Perceptual acclimatization to frequency lowering technology

- How long does it take to adjust to frequency lowering technology for children using WDRC hearing aid processing?
- Case studies of six children, between the ages of 11 and 18 years
- The occurrence of acclimatization was measured by evaluating speech perception over time.



Perceptual acclimatization to frequency lowering technology

- For some participants, an acclimatization period was required to achieve previous performance levels on speech perception tests.
- For others, performance remained stable when transitioning from WDRC to frequency lowering.



Report of the Eriksholm workshop on auditory deprivation and acclimatization

- Eriksholm, research arm of Oticon.
- Hosted researchers with an interest in hearing aids, auditory deprivation, and auditory acclimatization.
- Explore factors related to hearing aid benefit over time.



Report of the Eriksholm workshop on auditory deprivation and acclimatization

- When should the effectiveness of amplification be assessed as it relates to auditory acclimatization?
- Does hearing aid processing strategies impact auditory acclimatization?
- How does age, configuration, and degree of hearing loss effect auditory acclimatization?



Report of the Eriksholm workshop on auditory deprivation and acclimatization

- Are there mechanisms to accelerate acclimatization?
- Conduct research to identify when auditory acclimatization may be observed.





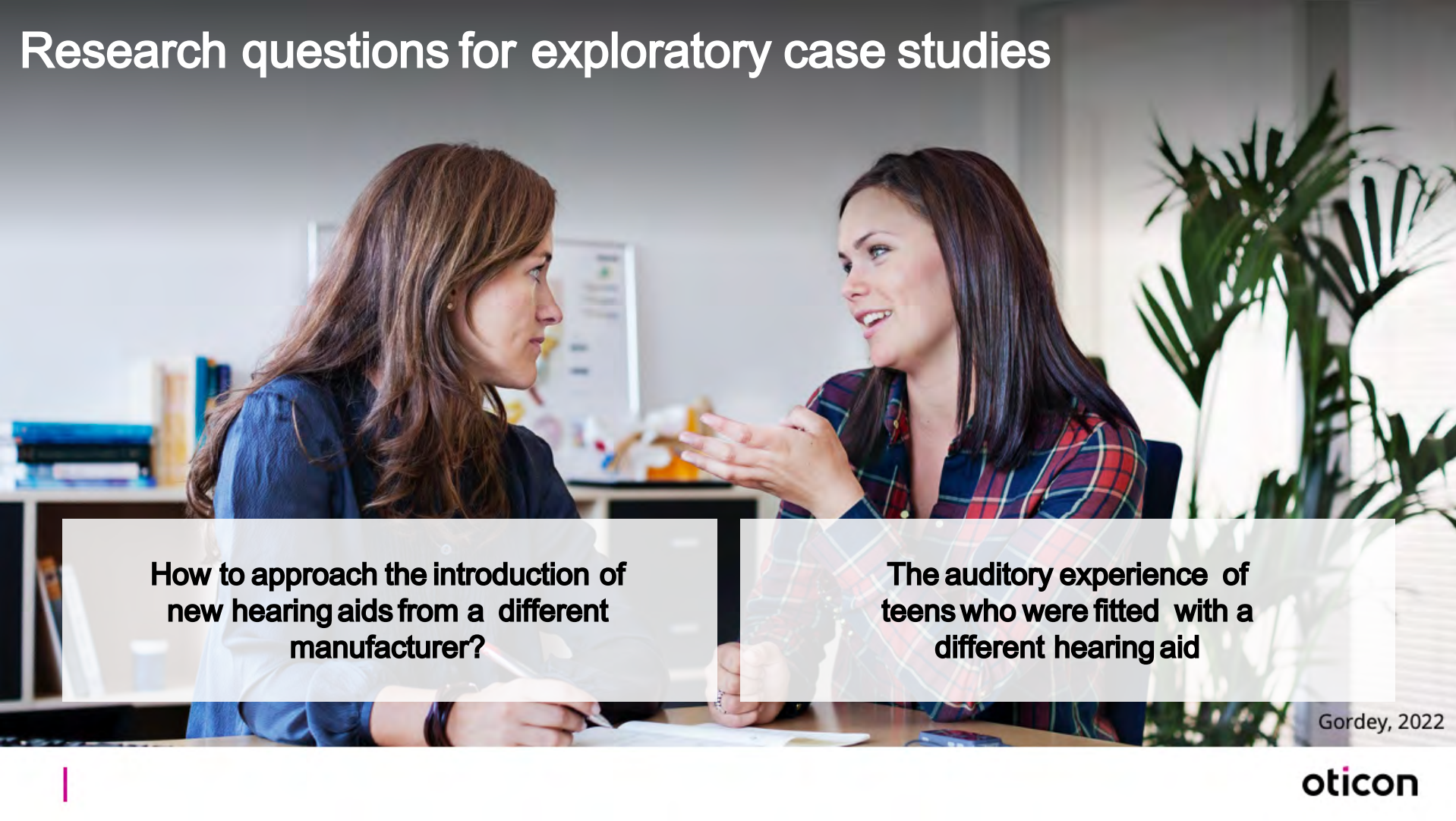
Study inspiration

A personal experience

How difficult is it for children
to change hearing aid brand



Research questions for exploratory case studies



How to approach the introduction of new hearing aids from a different manufacturer?

The auditory experience of teens who were fitted with a different hearing aid

Gordey, 2022

Participants

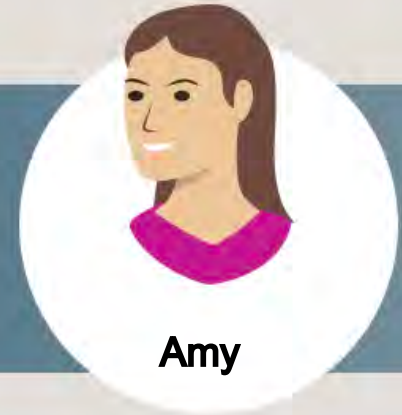
Two teens were recruited

Interview and
an “in clinic” trial with
Oticon Play PX



Abby

Age: 15 years



Amy

Age: 17 years

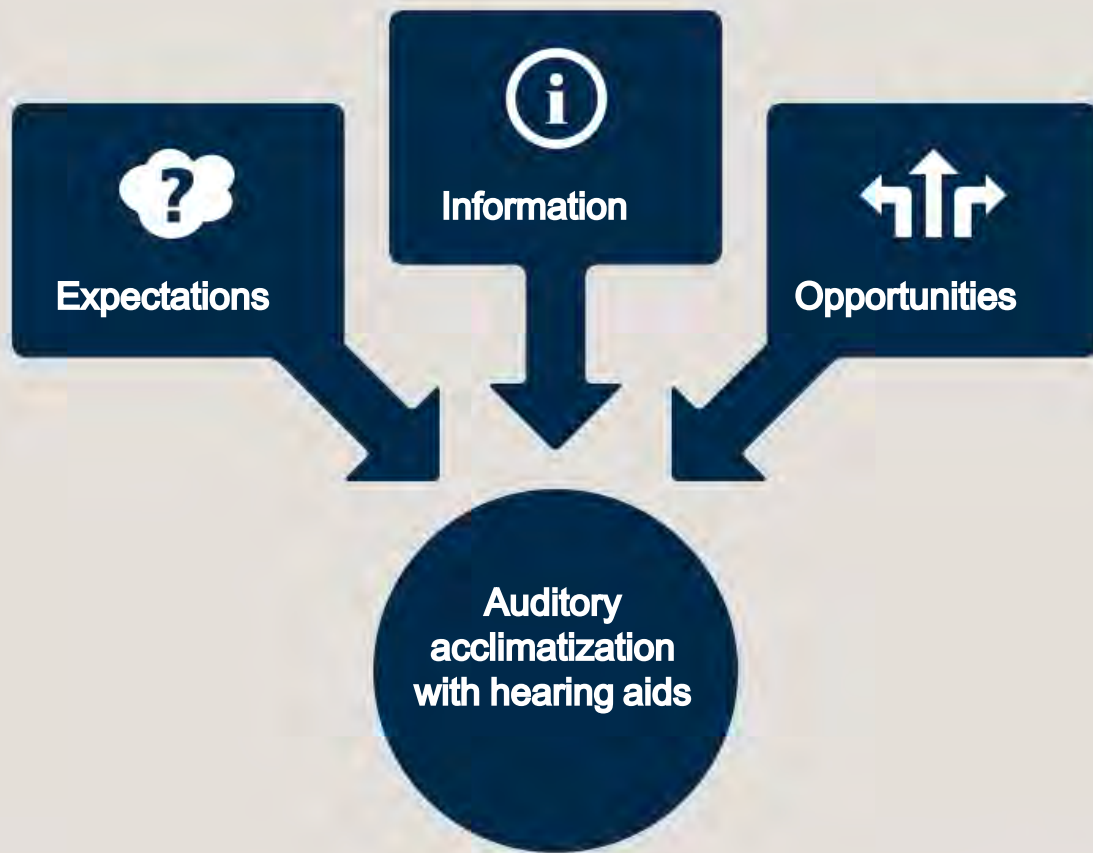
Interview questions

- 
1. How should the audiologist prepare you to try **new hearing aids from another manufacturer?**
 2. Tell me about the **sound quality of my voice and your own voice** with the Oticon Play PX hearing aids?
 3. Tell me about **listening to music and talking on your mobile phone** with the Oticon Play PX hearing aids?

Gordey, 2022

How should the audiologist prepare you?

Themes that support positive auditory acclimatization



How should the audiologist prepare you?

Themes facilitating auditory acclimatization



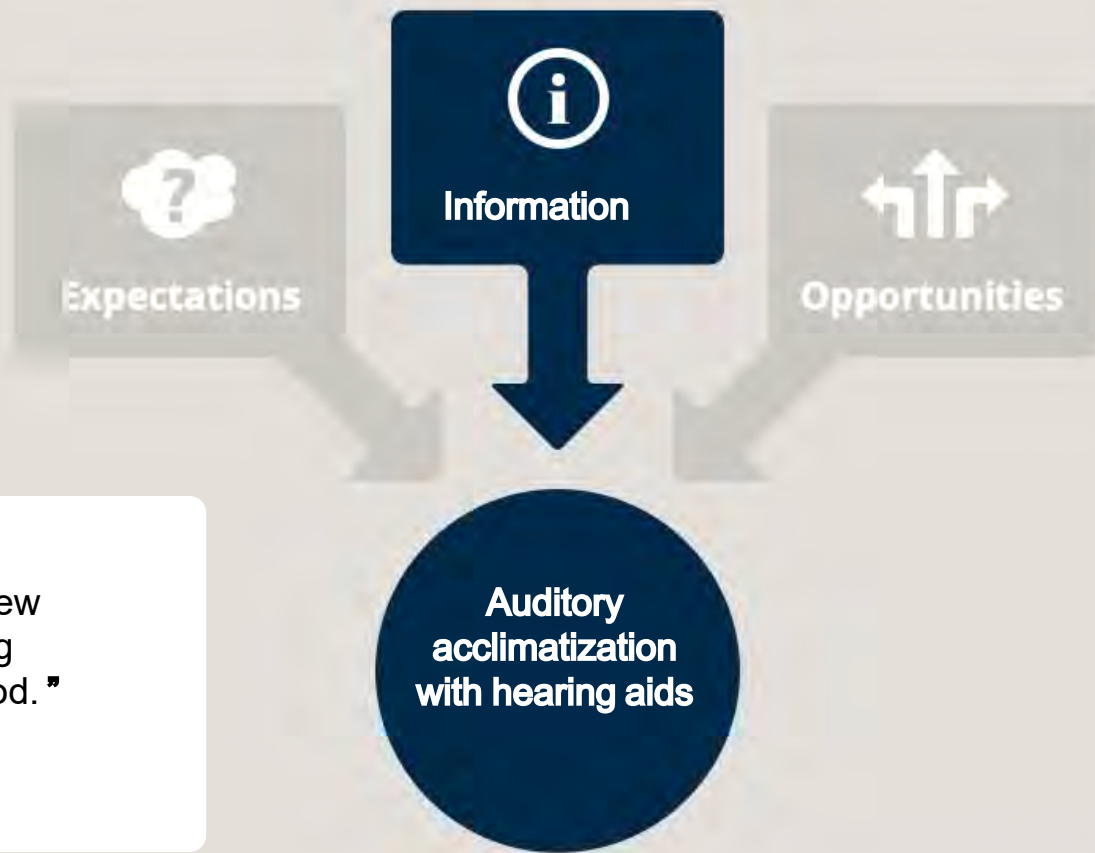
“ It helps to feel prepared that sound will be different, so that I am not blind-sided. I really like to know what to expect, even if the sound may be weird. ”

Abby, 15 years old

Gordey, 2022

How should the audiologist prepare you?

Themes facilitating auditory acclimatization



“ If you tell me I can hear more with new hearing as, without having everything magnified all at once, this is very good. ”

Amy, 17 years old

Gordey, 2022

How should the audiologist prepare you?

Themes facilitating auditory acclimatization



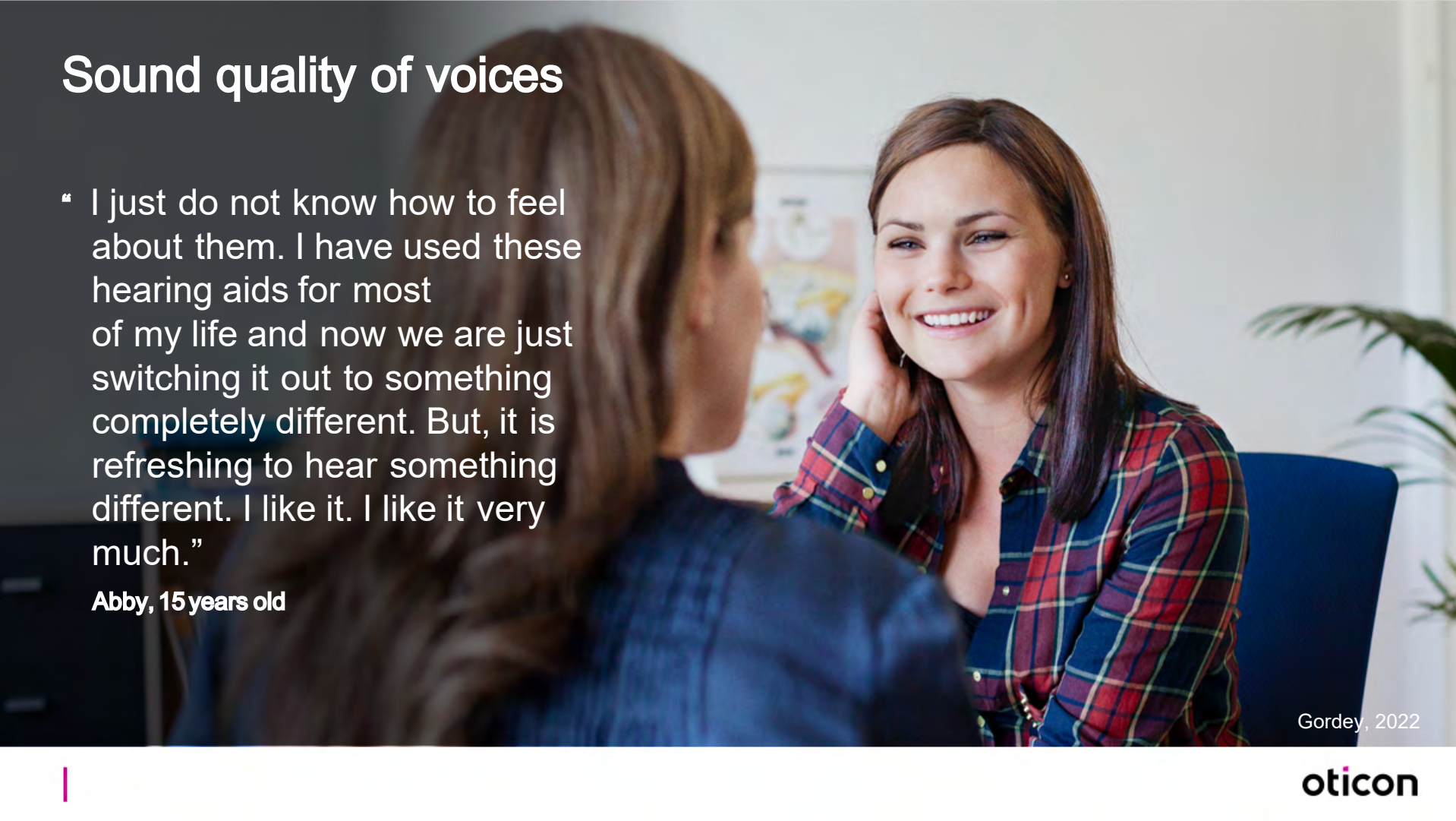
“ I thought I wasn’t going to like getting new hearing aids until I realized it’s better than the last ones. It is really cool to see the new ways I can connect to phones and computers. ”

Amy, 17 years old

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2022

oticon

Sound quality of voices

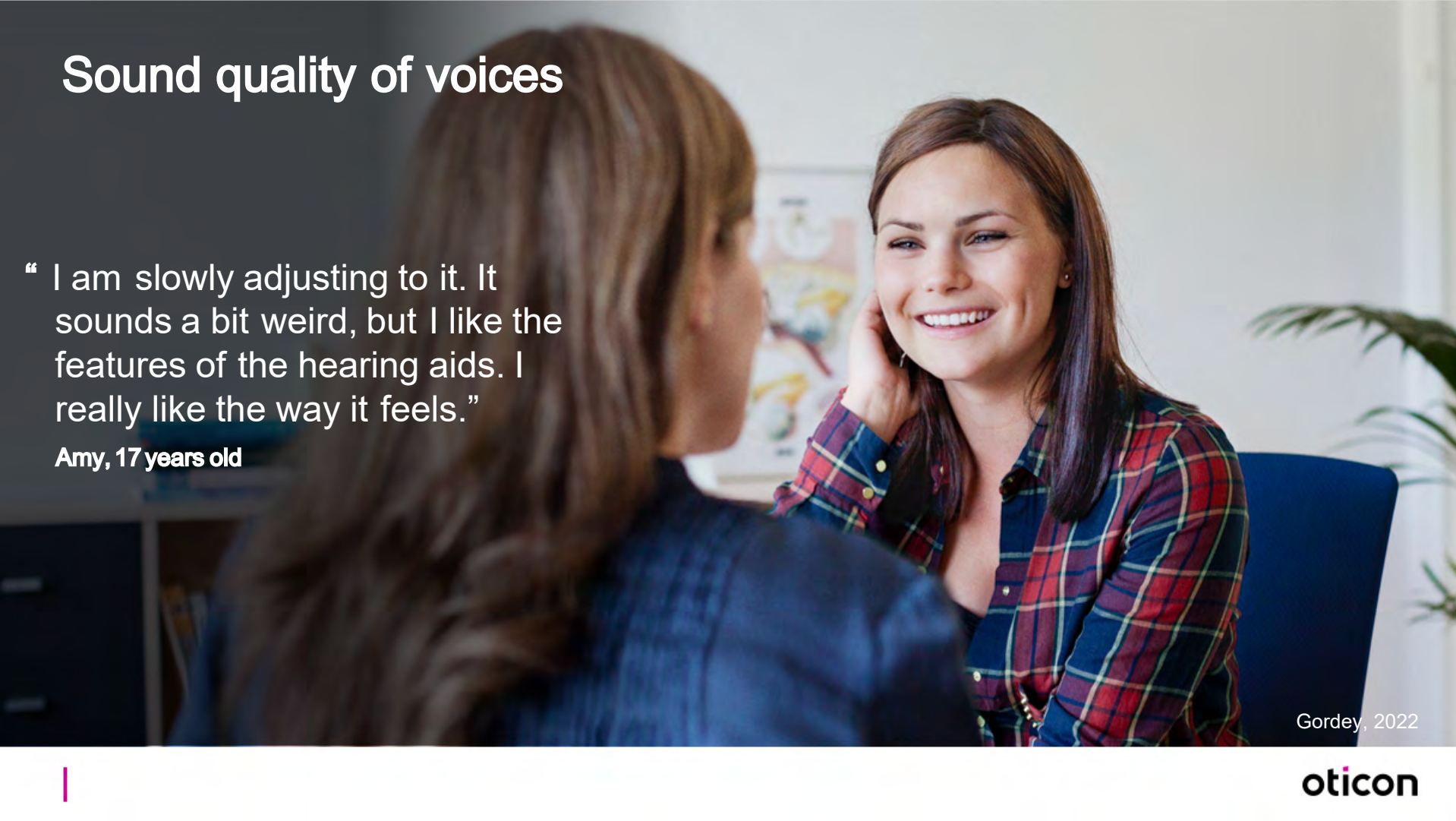
A photograph of a young woman with long brown hair, wearing a red and blue plaid shirt, smiling and listening to someone. The person she is listening to is seen from the back, wearing a dark blue jacket. The background is a bright, indoor setting with a white wall and a potted plant.

“ I just do not know how to feel about them. I have used these hearing aids for most of my life and now we are just switching it out to something completely different. But, it is refreshing to hear something different. I like it. I like it very much.”

Abby, 15 years old

Gordey, 2022

Sound quality of voices

A young woman with long brown hair, wearing a red and blue plaid shirt, is smiling and talking to another person whose back is to the camera. The setting appears to be an office or a meeting room with a blue chair and a potted plant in the background.

“ I am slowly adjusting to it. It sounds a bit weird, but I like the features of the hearing aids. I really like the way it feels.”

Amy, 17 years old

Gordey, 2022

oticon

Listening to music and talking on mobile phone

“ I like the way it connects to my phone and how clear the music comes through. I really like it ”

Amy, 17 years old

“ I can hear much better on the phone, it sounds really clear, I like that. ”

Abby, 15 years old



Gordey, 2022

How long do you think it
took Abby and Amy to get a
**positive acclimatization
experience**

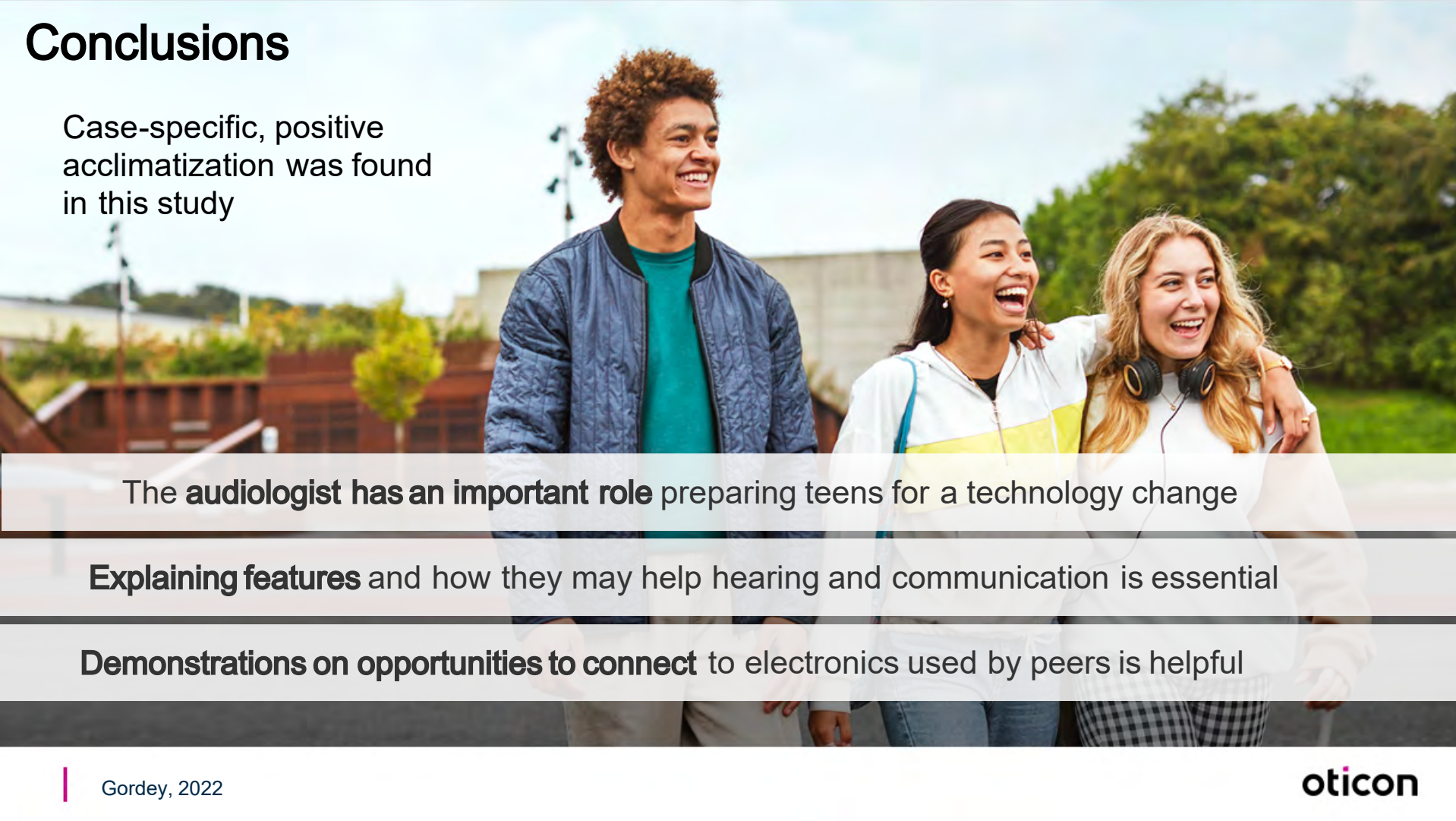




1 Hour

Conclusions

Case-specific, positive acclimatization was found in this study

A photograph of three teenagers walking outdoors on a paved path. On the left is a young man with curly brown hair, wearing a blue quilted jacket over a teal shirt. In the middle is a young woman with dark hair, wearing a white and yellow jacket. On the right is a young woman with blonde hair, wearing a white hoodie and large black headphones around her neck. They are all smiling and looking towards the right. The background shows green trees and a clear sky.

The **audiologist has an important role** preparing teens for a technology change

Explaining features and how they may help hearing and communication is essential

Demonstrations on opportunities to connect to electronics used by peers is helpful

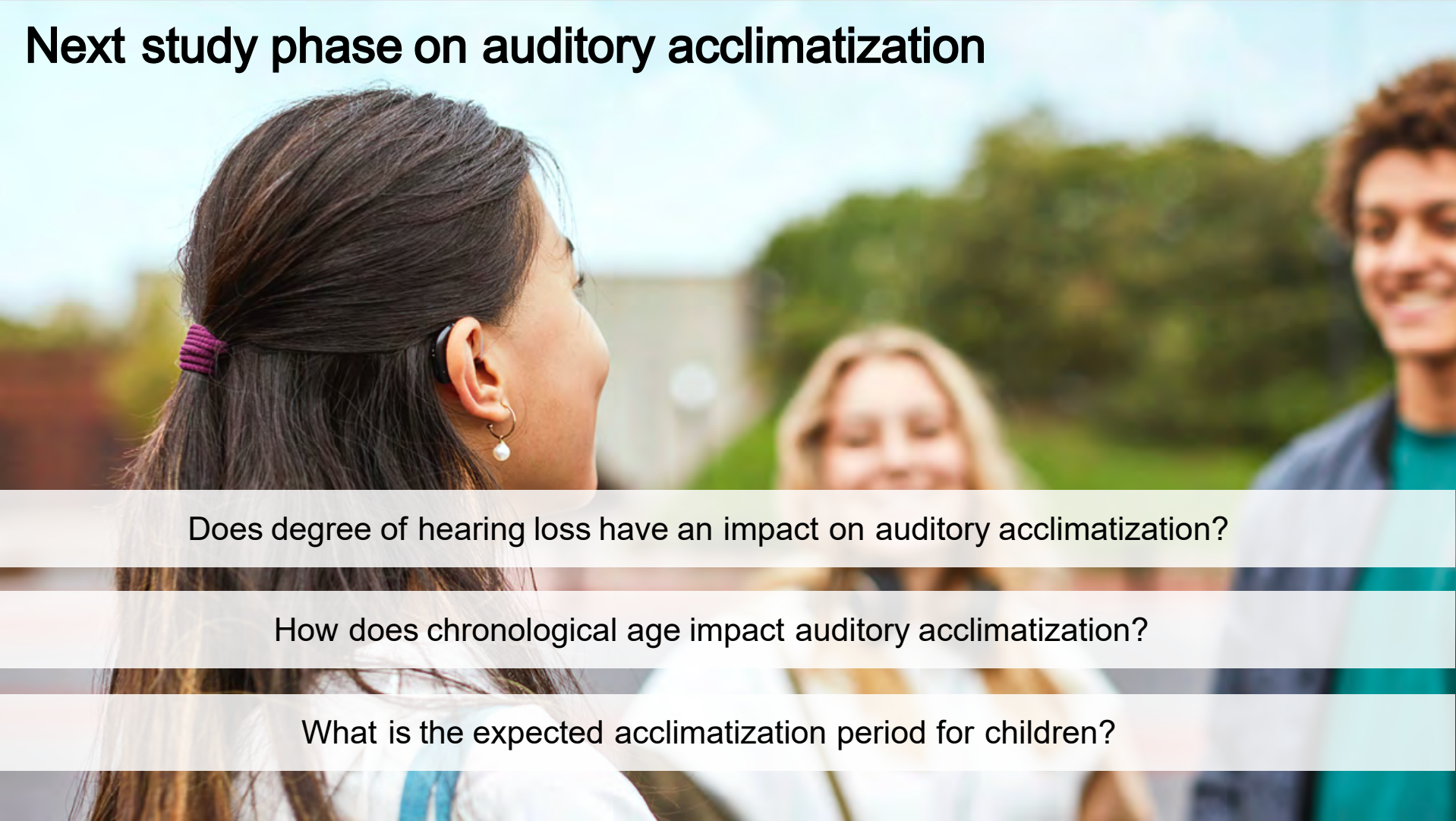
**Clinical Studies
with Oticon Play PX**
Exploring
New Domains in Pediatric
Amplification
[White paper]



Future research
on auditory
acclimatization



Next study phase on auditory acclimatization



Does degree of hearing loss have an impact on auditory acclimatization?

How does chronological age impact auditory acclimatization?

What is the expected acclimatization period for children?

A collection of blue-themed objects is arranged on a blue textured surface. In the top left is a blue pyramid. In the center is a spiral-bound notebook with a blue pen resting on it. The notebook's page features a repeating pattern of blue wavy lines. Two blue Oticon hearing aids are placed on the notebook. To the left of the notebook is a white rectangular device labeled 'EduMic'.

Thank you
davg@oticon.com