

OTICON | **Play PX**

# Unleash the magic of childhood



**oticon**  
life-changing technology

# Oticon Play PX - dedicated to childhood

New paediatric hearing aids that give children access to the full sound environment



## Unleash the magic of childhood

Children are adventurers. Always looking for new experiences. Experiences filled with sounds, conversations, interactions - elements vital to children's growth.

At Oticon, we know that children with hearing loss need access to all relevant sounds in the sound scene\*, and our latest paediatric hearing aid has been developed to do just that.

New Oticon Play PX is the world's first paediatric hearing aid with an on-board Deep Neural Network (DNN), trained with 12 million sound scenes that learned to recognise sounds through experience, like children's brains do naturally. Packed with innovative technologies, Oticon Play PX gives children with hearing loss a listening experience that supports access to the entire sound scene.

Powered by Polaris™ - our most intelligent and powerful platform ever - Oticon Play PX is available in rechargeable and non-rechargeable styles, and able to connect with remote microphones, compatible iPhone and Android™ devices.

Oticon Play PX hearing aids are available in miniBTE and miniRITE styles and support children's brain development by ensuring they have access to the sound they need to unleash the magic of childhood.

## A complete paediatric family



miniBTE R



miniBTE T



miniRITE R



miniRITE T



### Superior sound quality

The unprecedented sound processing features provide clear access to the full sound environment.



### Learning environment

Oticon Play PX is supported by EduMic - a remote microphone system built for educational settings.



### Next generation connectivity

Oticon Play PX makes it possible for children to connect to their favourite devices.



### Rechargeable

Oticon Play PX is available in two rechargeable styles, providing power for a full day\*\*.



### Child-friendly design

Oticon Play PX is robust and designed to provide comfort and safety in children's active lives.



### Best practice fitting

Oticon Play PX comes with recommended feature settings and is supported by DSL v5.0.

\* Gordey, D. & Ng, E. 2021. Paediatric BrainHearing, Oticon Whitepaper  
Please visit [oticon.co.nz/hearing-aid-users/support/information/compatibility](https://oticon.co.nz/hearing-aid-users/support/information/compatibility)

\*\* Lithium-ion battery performance varies depending on hearing loss, lifestyle and streaming behaviour.

# Experiences are vital to children's development



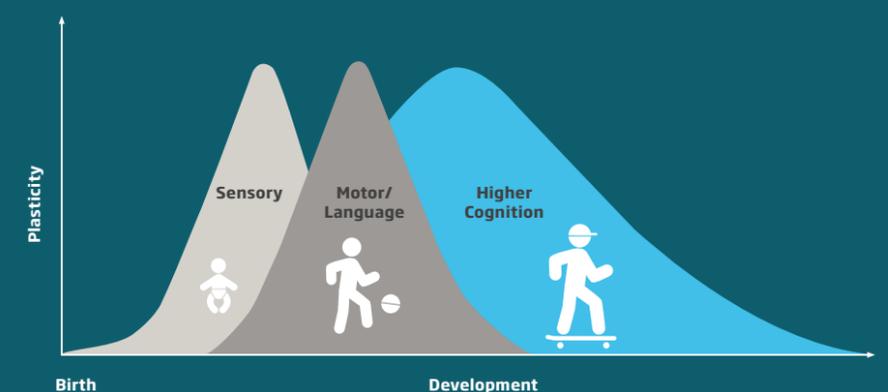
## Children's development is a result of learned experiences

Our brains start developing before we are born, and they continue to grow rapidly in early childhood and into adolescence. The experiences we encounter along the way stimulate the brain and support development of important skills, cognitive function, and other growth benefits throughout childhood.

Without full access to communication and the world of sounds around them, children with hearing loss may not get sufficient sensory input to meet developmental targets that can have a life-changing impact.

The developing brain is highly plastic. During this period of rapid development, hearing aid technology plays an essential role in helping children with hearing loss meet developmental targets and optimise their childhood experiences.

Brain development is a hierarchical process for wiring the brain with higher-level processes, building on a foundation of lower-level processes. For example, language development depends critically on sensory and perceptual development (e.g., discrimination of speech sounds)\*.



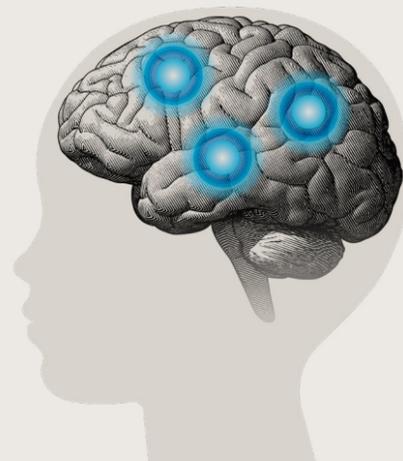
# Backed by science. Proven by children



## Oticon Play PX is designed to support the brain

Oticon has always taken the approach of developing hearing care technology that supports the brain in making sense of sound. We don't just focus on the ears, we think brain first.

Through proven BrainHearing™ technology, Oticon Play PX hearing aids give children access to the full sound environment in a more natural way. The result is optimal support for children's language, learning, and social development.



## Oticon Play PX promotes participation in everyday listening environments

### Background

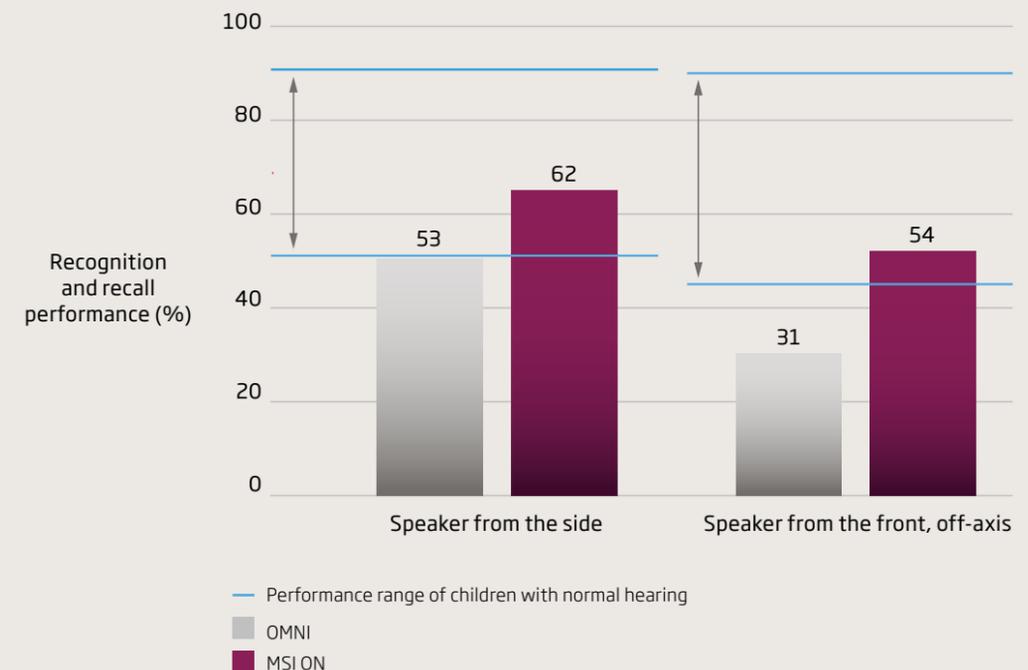
Independent research shows that to grow, develop and mature, children need access to all sounds. However, their everyday listening environments are often complex and noisy, reducing their communication access. This is why providing effective support for children with hearing loss is so crucial.\*

Many children are educated alongside their normal hearing peers, so it is crucial that they have full communication access. To participate, interact, and develop social relationships in their formative listening environments, children with hearing loss require communication access that's similar to their peers. Recognizing and recalling speech coming from several directions is essential for active social participation.\*\* However, with conventional hearing aid technology, this may be challenging in noisy environments.

To evaluate the performance of Oticon Play PX, we simulated typical listening environments including dynamic noise, and speech coming from different directions. We wanted to understand how Oticon Play PX supports children's word recognition and recall in these complex listening environments, with reference to children who have normal hearing.

When noise is present in the environment, MoreSound Intelligence (MSI) controls it and when speech is present MSI preserves it - even from multiple directions. For example, results showed that when speech is presented from the front and off-axis, or from the side, children with hearing loss had improved communication access using MSI compared to an omni-directional microphone setting. Oticon's innovative hearing aid technology continues to evolve, and we believe Oticon Play PX can make a life-changing difference to children with hearing loss by increasing their opportunities to communicate and participate in social environments.

### Improved recognition and recall when speech is presented from different directions.



\* Cruckley, J. et al. 2011. J Educ Audiol, 17. Tomblin, J. B. et al. 2015. Ear Hear, 36 (Suppl 1)

\*\* Gordey, D. & Ng, E. 2021. Oticon Play PX: Supporting Communication, Learning an Inclusion for Children and Teens, Oticon Whitepaper

# Trained with real-life sounds - just like the brain



## The world's first paediatric hearing aid with an on-board Deep Neural Network

Children's brain development is determined by their early experiences and continues as they grow. To ensure the brain has optimal support, Oticon Play PX is powered by our most intelligent platform, Polaris. It utilises the intelligent capabilities of an on-board Deep Neural

Network (DNN) that mimics the way the child's brain learns and has been trained with 12 million sound scenes from real life. This intelligence enables Oticon Play PX to create a map of what the world sounds like, the details of each sound, and how they should ideally sound.

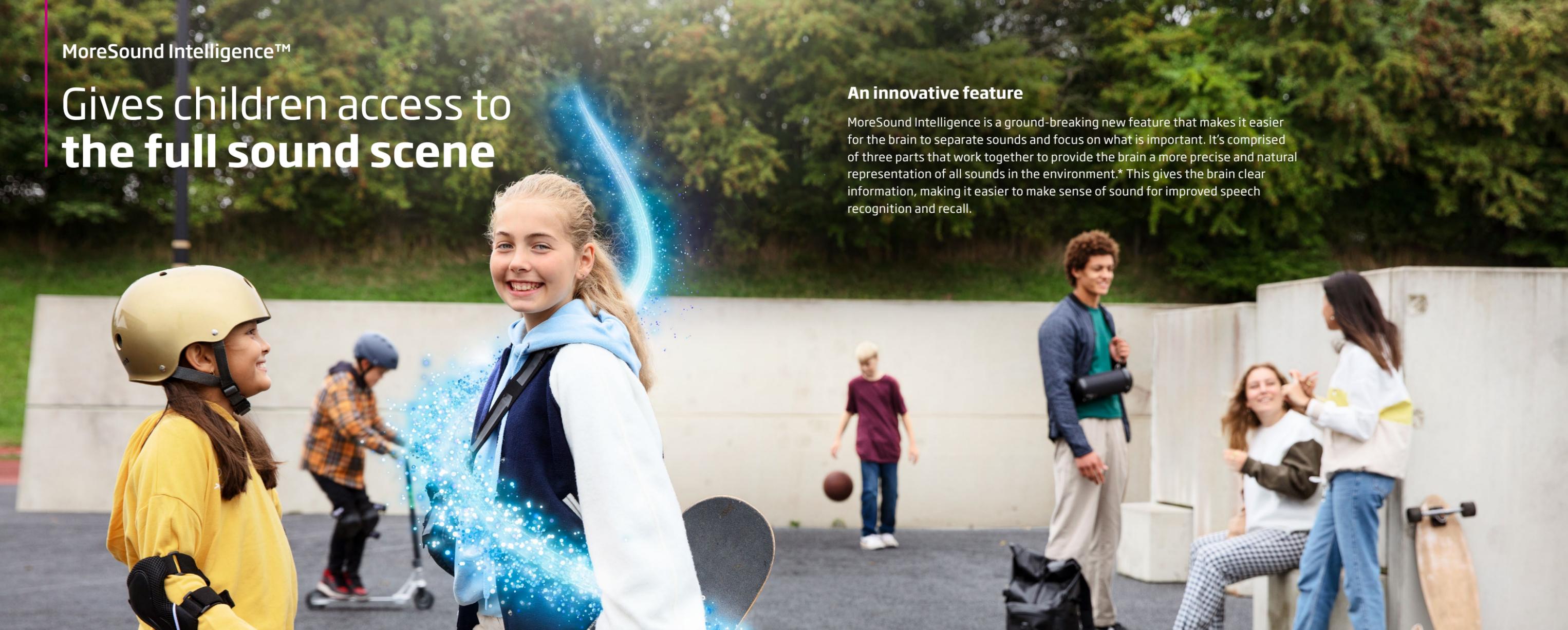
## Powered by Polaris - our most intelligent platform ever

The Polaris platform is the backbone of Oticon Play PX. As a dedicated hearing aid platform, it can constantly run a trained DNN while also powering all the hearing aid technology features in Oticon Play PX with more speed, precision, and capacity than ever possible before\*.

- 16x more capacity to execute advanced algorithms\*\*
- Twice the computation capacity and speed\*\*
- On-board Deep Neural Network processing
- Intelligent use of industry-leading 64-channel processing^
- 2x precision in 1.5-5kHz frequency bands\*\*

\* Brændgaard, M. 2020. The Polaris Platform. Oticon tech paper.  
\*\* Compared to the Velox S™ platform  
^ Oticon Play PX 1

# Gives children access to the full sound scene



## An innovative feature

MoreSound Intelligence is a ground-breaking new feature that makes it easier for the brain to separate sounds and focus on what is important. It's comprised of three parts that work together to provide the brain a more precise and natural representation of all sounds in the environment.\* This gives the brain clear information, making it easier to make sense of sound for improved speech recognition and recall.

## Three parts creating clear contrast and balance

### 1. Scanning and analysis of the sound scene

MoreSound Intelligence scans the full sound scene 500 times per second, resulting in a precise analysis of all sounds and the complexity of the surroundings. It then applies the optimised child-specific settings to establish a clear target for how to handle all varying sound scenes.

### 2. Spatial Clarity Processing

Once the environment is scanned and analysed, Spatial Clarity Processing precisely organises the sounds around the child. Spatial Clarity Processing includes two main technologies. In easy environments Virtual Outer Ear is active, modelling the filtering of real human pinnae to recreate natural and accurate spatial information. In more complex environments, the Spatial Balancer takes over. It makes sure meaningful sounds remain

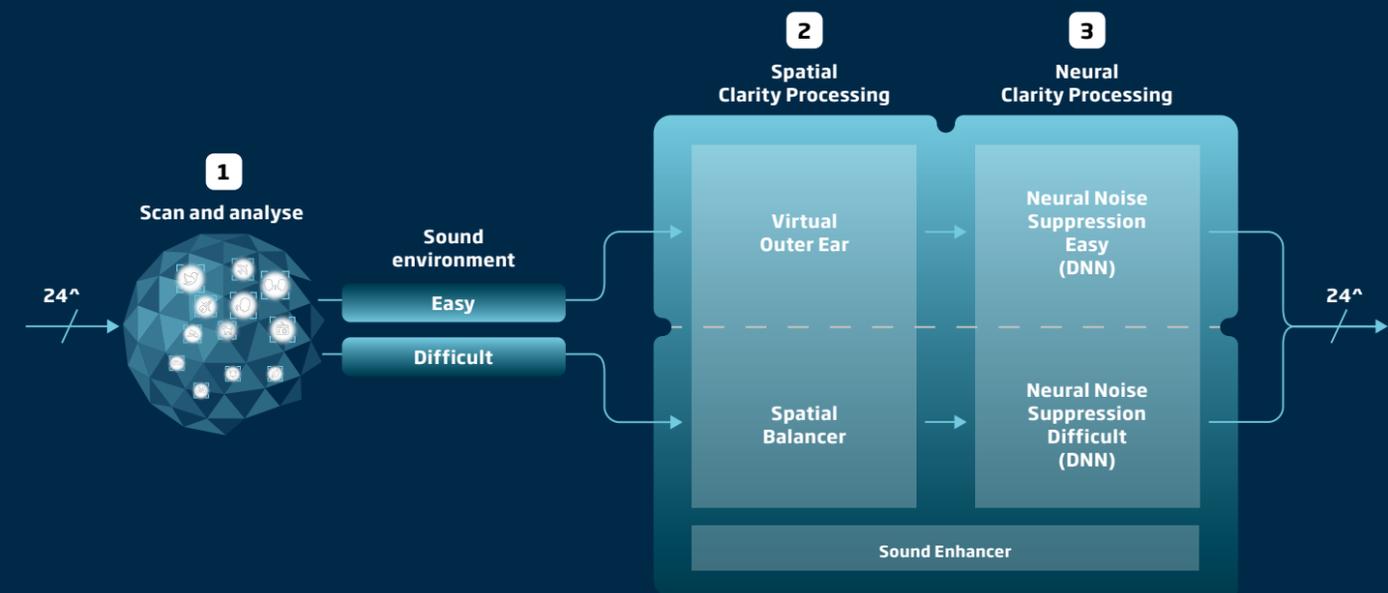
accessible and stay precisely balanced against potentially disturbing noises around the user.

### 3. Neural Clarity Processing

Neural Clarity Processing utilises the DNN's training with 12 million real-life sound scenes to analyse the intricate details of virtually all sounds to create contrast between the identified sounds. The result is a more natural\* representation of all sounds in a clear and balanced sound scene, supporting children to make sense of their surroundings.

### Sound Enhancer

Working with both Spatial Clarity and Neural Clarity processing, Sound Enhancer dynamically adds sound details in difficult environments, mainly in the frequency regions important for speech.



\* Compared to the Velox S™ platform  
 ^24 channels in Oticon Play PX 1  
 For additional information on MoreSound Intelligence, please see Brændgaard, M. 2020. MoreSound Intelligence. Oticon Tech Paper.

# Intelligent amplification and feedback prevention

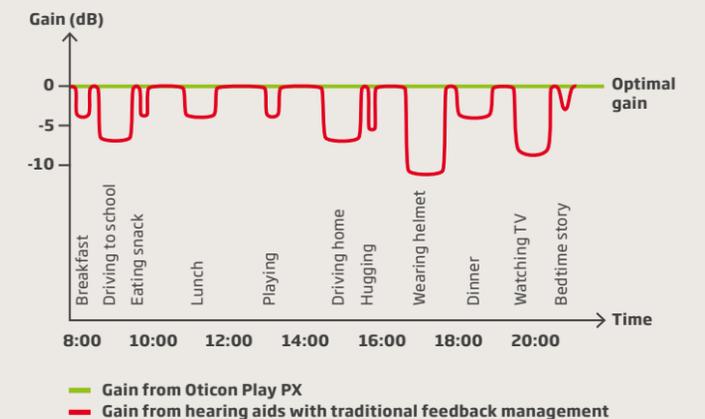


## MoreSound Optimizer™ Say goodbye to feedback

Traditional anti-feedback systems are too slow and can leave hearing aid users under fit due to unstable amplification. MoreSound Optimizer prevents feedback from happening and dramatically reduces gain reductions during the day<sup>^</sup>. Oticon Play PX provides optimal amplification in a more comfortable and stable way.

MoreSound Optimizer analyses the amplified sound at an additional 56,000 times per second and prevents feedback before it even occurs. The result is better sound quality and consistent access to speech with increased comfort<sup>^^</sup>. This means children are free to play, hug, and interact.

### Oticon Play PX - feedback prevention examples:



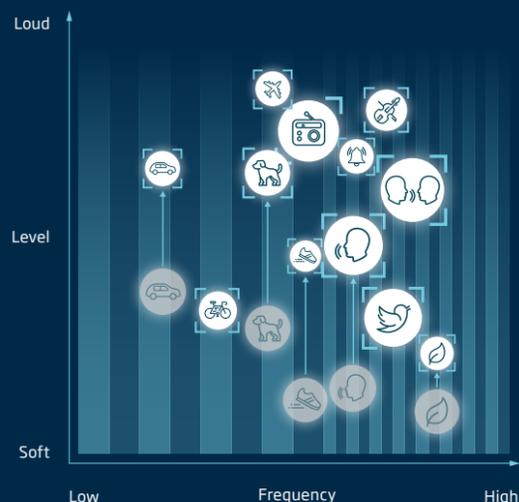
## 6 dB more gain, means up to 25% more speech cues

Without the high risk of feedback<sup>^</sup>, Oticon Play PX enables you to fit paediatric clients with up to 6 dB more stable gain\*. This provides the child's brain with up to 25% more speech cues\*\*. MoreSound Optimizer equips you with what you need to make sure the child leaves your clinic with more access to speech throughout the day.

## MoreSound Amplifier™ Balanced, precise amplification

MoreSound Amplifier is a dynamic and balanced amplification system that seamlessly adapts its resolution and speed to the nature of the sound scene at hand.

With a six-fold increase\* in resolution and an adaptive speed pilot, MoreSound Amplifier makes the full sound scene audible while maintaining the fine contrast and balance between sounds. Important speech cues are kept audible for the child to ensure the brain has access to the important information it needs to make sense of sound.



“ Sometimes I am not even aware that my hearing aids are whistling. My friend tells me, and that is sort of embarrassing. ”

— Matt, hearing aid user

<sup>^^</sup> Oticon Play PX 1 compared to Oticon Opn Play 1. Brændgaard, M. 2020. The Polaris Platform. Oticon Techpaper

\* Callaway, S. 2019. Oticon whitepaper  
\*\* Speech intelligibility index. ANSI S3.5  
<sup>^</sup> For prescribed fittings, according to best practice.

# Let children connect to the world



## A user-friendly remote microphone built for classrooms

Children acquire new words and knowledge through their everyday experiences. Learning typically takes place in educational settings like classrooms, where noise levels can be high. Acoustics are not always optimal, and reverberation and distance can have detrimental effects on speech understanding.

EduMic is an easy-to-use classroom hearing solution. It provides clear and reliable direct access to the teacher's voice from a wireless remote microphone to help children manage noise, reverberation, and distance in the classroom. Research shows that EduMic improves children's speech understanding in class, language development, learning, and social opportunities\*. In addition, EduMic performs better than traditional frequency modulated remote microphone systems when compared in noisy environments\*\*.



## Direct streaming from children's favourite devices

Oticon Play PX is a Made for iPhone hearing aid and is also compatible with the Android protocol for Audio Streaming for Hearing Aids (ASHA). This makes it possible to stream directly from compatible iPhone, iPad®, iPod touch®, and Android devices\*. Oticon Play PX can also be combined with ConnectClip to stream from a compatible Bluetooth® device, and offers an extensive range of connectivity options.

With the Oticon ON app, it becomes easy for parents or older children to control the hearing aids with just a touch of their finger. Adjust the volume, check the battery level, control EduMic streaming, switch between programs, or get a better music experience with the new Oticon MyMusic program.



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# Designed for children. Made for childhood



## Oticon Play PX stands up to the magical moments of childhood

The robust Oticon Play PX hearing aid has been designed with children's active lives and safety in mind.

### IP68 Certified

Oticon's IP68-certified intelligent mechanical design includes water, dust, and debris barriers. Oticon Play PX is nanocoated to repel water and offers protection against water in mechanical casings and electrical enclosures. The hearing aids are water ingress tested in one metre of water for two hours and able to withstand humidity and varying temperatures.

### LED light for complete peace of mind

The LED indicator on Oticon Play PX is a renowned feature that gives people caring for and teaching children with hearing loss visual confirmation that the hearing aid is functioning properly.

### Free of allergens

As well as meeting international standards on safety and biocompatibility, to minimise allergies, we have excluded more than 200 potentially harmful substances including phthalates. Oticon Play PX hearing aids are painted with biocompatible paint and are hypoallergenic which also applies to accompanying decorative stickers.

### Tamper resistance

For safety and compliance when fitting small children, the miniBTE R style is tamper resistant, because the battery is completely sealed in the hearing aid. Additionally, the miniBTE T style is available with a tamper resistant battery drawer that can only be opened with a specific tool.

## Rechargeable at home or on the go

Oticon Play PX offers two recharging options, the portable SmartCharger and powerful desk charger. Both are designed to provide convenient charging and a full day of battery life - including streaming from other devices.\*

### Charging times miniBTE R:

- Full charge in 3.5 hours
- Quick 30-minute charge provides five hours of use

### Charging times miniRITE R:

- Full charge in 3 hours
- Quick 30-minute charge provides six hours of use

### Powerful desk charger

Oticon Play PX comes with a stylish desk charger that easily lets your clients charge as they sleep.

### Portable SmartCharger

The portable SmartCharger gives children - and their caregivers - the freedom to travel light and keep the hearing aids powered, dry, and protected on the go. With a built-in power bank, the SmartCharger is ideal for travelling and trips, providing at least three full hearing aid charges when device is fully charged.



\* Lithium-ion battery performance varies depending on hearing loss, lifestyle and streaming behaviour. The SmartCharger for miniBTE R is coming soon. Please contact your local Oticon representative for stock availability.

# A hearing aid family full of options

## Oticon Play PX comes in a wide range of styles and colours

Oticon Play PX is available at two performance levels and covers hearing loss ranging from slight to severe. It comes in a choice of styles with rechargeable lithium-ion batteries or disposable zinc-air batteries.

### A style for every age

From the security of encapsulated batteries in the miniBTE R style, to the modern design of the miniRITE R, there's a style for every need.

All styles offer a full connectivity package, so children can easily connect with friends and stay active online.



miniBTE R miniBTE T miniRITE R miniRITE T

## 12 different colour options



## Powered by ground-breaking features

- MoreSound Intelligence™**  
Access to all relevant sounds in a clear, complete, and balanced sound scene
- MoreSound Amplifier™**  
Rapid high-resolution amplification that follows changes in the sound scene
- MoreSound Optimizer™**  
Optimal gain all day, without the risk of feedback
- Sound Enhancer**  
Dynamic gain primarily for speech given in complex environments
- Virtual Outer Ear**  
Models of the ear pinna to provide better spatial balance
- Spatial Sound™**  
Locate, follow, and shift focus to the most interesting sounds
- Speech Rescue™**  
Makes high frequency sounds more audible
- Clear Dynamics**  
Better sound quality with less distortion in loud environments
- Wind Noise Management**  
Improves access to speech in situations with wind noise

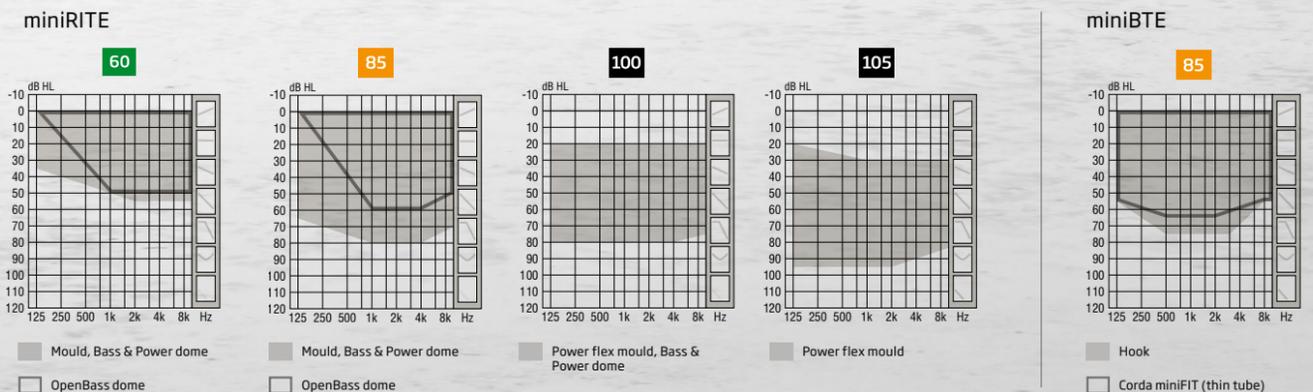
Availability and function of technology and features will vary depending on hearing aid technology level selected.

## The DSL fitting rationale

DSL is the default fitting rationale used when fitting children with hearing aids. This is implemented in our fitting software Oticon Genie 2. We recommend following best fitting practice and have done everything possible in Genie 2 to make it easier for you to do just that.

## Fitting ranges from slight to severe

Oticon Play PX offers two miniBTE styles with an 85 dB HL fitting level and two miniRITE styles with four speaker levels - 60, 85, 100, and 105. The graphs below show DSL fitting range.



Performance of the hearing devices is dependent on individual circumstances and may not be appropriate for all conditions. Always read the label and follow the instructions.



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