

Factors Related to Hearing Instrument Wearing Time



Riley Garrone, AuD



Factors Related to Hearing Instrument Wearing Time



Riley Garrone, Au.D., is the Regional Trainer at Unitron for the East. Riley received her Doctorate of Audiology from Missouri State University. Prior to joining Unitron, she was employed at a large ENT/private practice where she worked with adult diagnostic and amplification patients. Riley looks forward to contributing to the overall patient experience through Unitron technology. She lives in Charlotte, NC with her husband, Kevin and 1 year old son, Graham.

Disclosure: Riley is a full-time employee at Sonova **unitron**.



Objectives and agenda

As a result of this activity, the participants will be able to:

- Counsel clients on the relative merits of replaceable/rechargeable battery types with respect to wearing time.
- Choose hearing instrument features and technology levels best suited to the clients economic situation and explain the potential impact on wearing time.
- Evaluate potential feature choices as much upon the relative likelihood of longer wearing time as that of cost or other benefits.

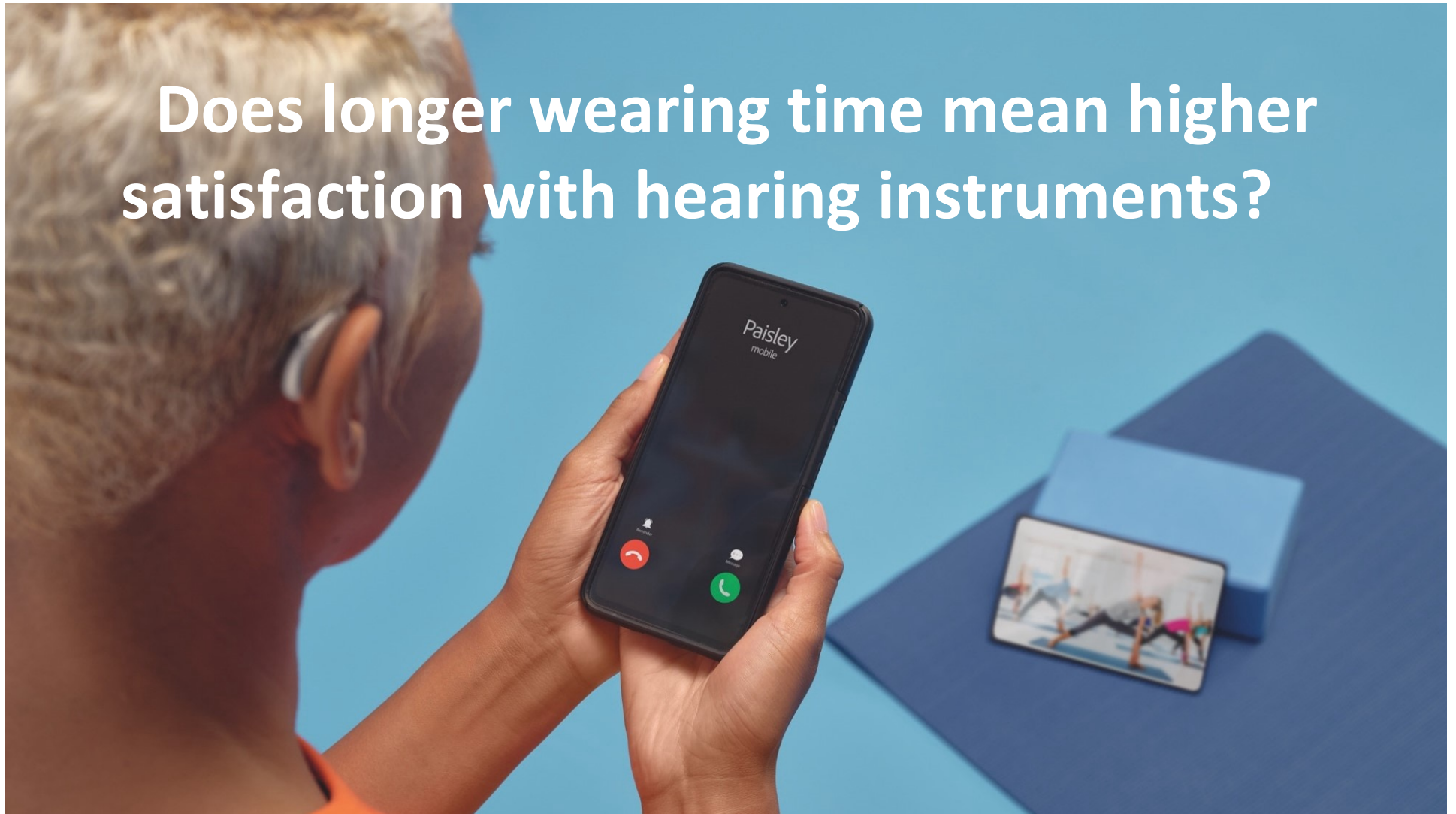
unitron

Factors related to wearing time



unitron™

Does longer wearing time mean higher satisfaction with hearing instruments?



If it meant longer
wearing time...

Would you change
your product
recommendation?

A vibrant, modern cafe scene with a warm orange-toned background. Several people of diverse ages and ethnicities are seated at small white tables with orange chairs. In the foreground, an older man with a white beard and a woman with short white hair are laughing and talking. To their left, a woman with curly hair is smiling. In the background, a man in a blue shirt is talking to a woman. On the right, a man in a yellow shirt is sitting at a table. The floor has a checkered pattern, and there are some bags on the floor. The overall atmosphere is lively and social.

**Do people with Bluetooth wireless
devices wear them more?**



Data:

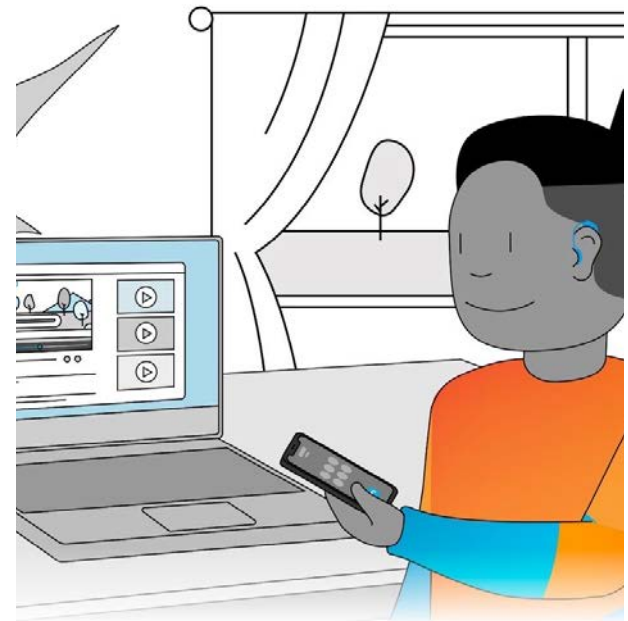
Industry regulations require us to keep track of:

- Hearing instrument models, binaural / monoaural fittings
- Average hours of use per day
- Technology levels
- Wireless protocols
- Battery types

And most fittings also include information like:

- Age
- Gender
- Audiogram

Privacy protected –
anonymous data only



unitron.

So, what factors correlate
with wearing time?

Retrospective analysis

Obtained anonymous records of fittings

- 3 mature markets – USA, Germany & France
- Restricted to data on RICs only
- Four **T**echnology **L**evels (TL3, TL5, TL7, TL9)
- Standard and rechargeable batteries
- Hearing instrument models

Model	Wireless	Battery
Discover Moxi Jump R	BT	Li-Ion
Discover Moxi Fit	BT	Z/Air
Tempus Moxi Fit	HiBAN	Z/Air

Two devices used Bluetooth wireless, the other HiBAN.

Two devices used 312 zinc/air replaceable battery cells and the other used a Lithium Ion rechargeable battery

unitron™

Wearing time differs
considerably across products.

We need to dig deeper to find
out why.



Retrospective analysis

Final analysis of 5436 records in total

- Dependent variable - **wearing time** (hours/day)
- ANOVA – compared the main effects and interactions between
 - **Wireless transmission** (Bluetooth vs HiBAN)
 - **Battery type** (Lithium-ion rechargeable vs. disposable zinc-air)
 - **Technology level** (TL3, TL5, TL7, TL9)
- There were no significant impacts due to degree of hearing loss or age



Retrospective analysis

- Both Moxi Fit products use 312 z/a batteries but they differ by the **type of wireless** transmission:
 - D Moxi Fit = 2.4 GHz, T Moxi Fit = HiBAN
- Both Discover products use 2.4GHz wireless but differ by **battery type**:
 - D Moxi Jump = Li-Ion, D Moxi Fit = 312 z/a

So we can easily compare:

- The two wireless options using D Fit and T Fit
- Battery type using the two Discover RICs

All three products have four **technology levels** and therefore, tech level is part of both comparisons

unitron.

Wireless type - wearing time comparison

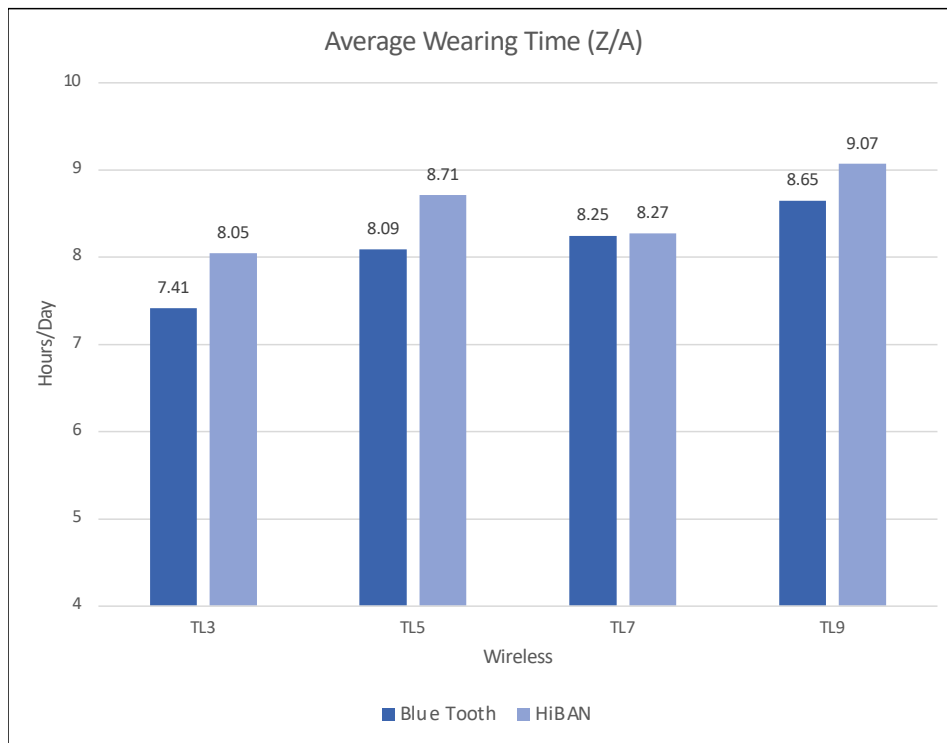
Tempus Moxi Fit vs. Discover Moxi Fit

- Wireless: Bluetooth versus HiBAN
 - There is a significant wireless main effect
 - $p = 0.0033$ (this would happen by chance about 3 times out of a thousand)
- Tech Level: (TL3, TL5, TL7, TL9)
 - Significant TL main effect
 - $p < 0.0001$ (this would happen by chance less than 1 in 10,000 times)
- Wireless x Tech Level interaction – nonsignificant
(Tech level varies consistently regardless of wireless type)

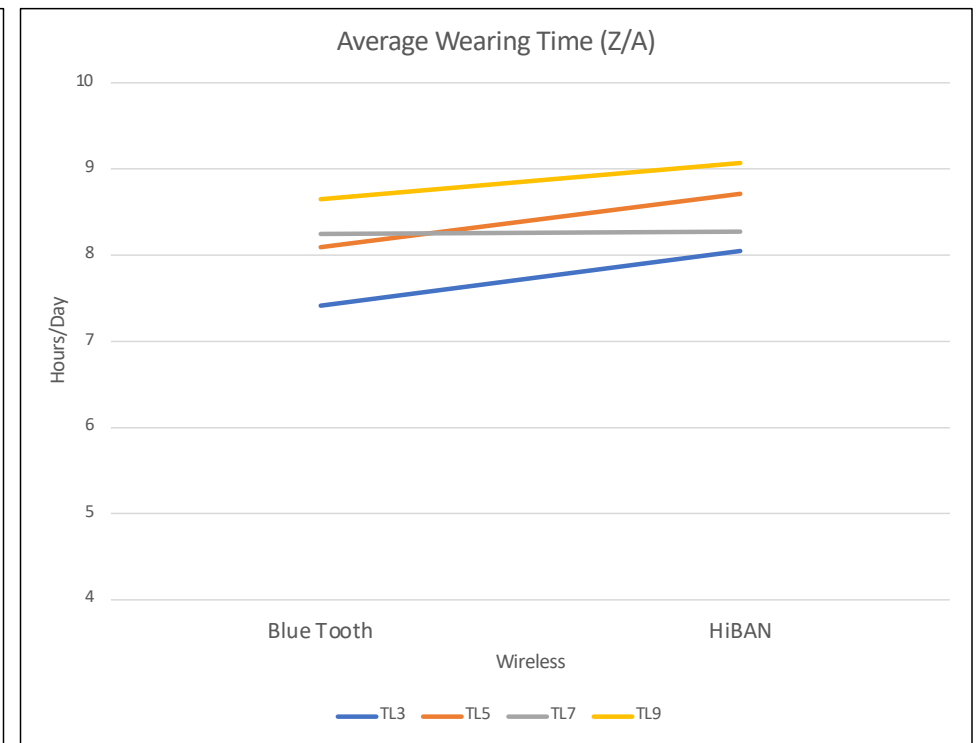
(n = 4125, all 312 z/a devices)

unitron

Wireless type - wearing time comparison



HiBAN instruments were worn about ½ hour longer per day



Tech. level 9 instruments were worn just over 1 hour longer per day than level 3 devices (BT=1.24 , HiBAN=1.02)

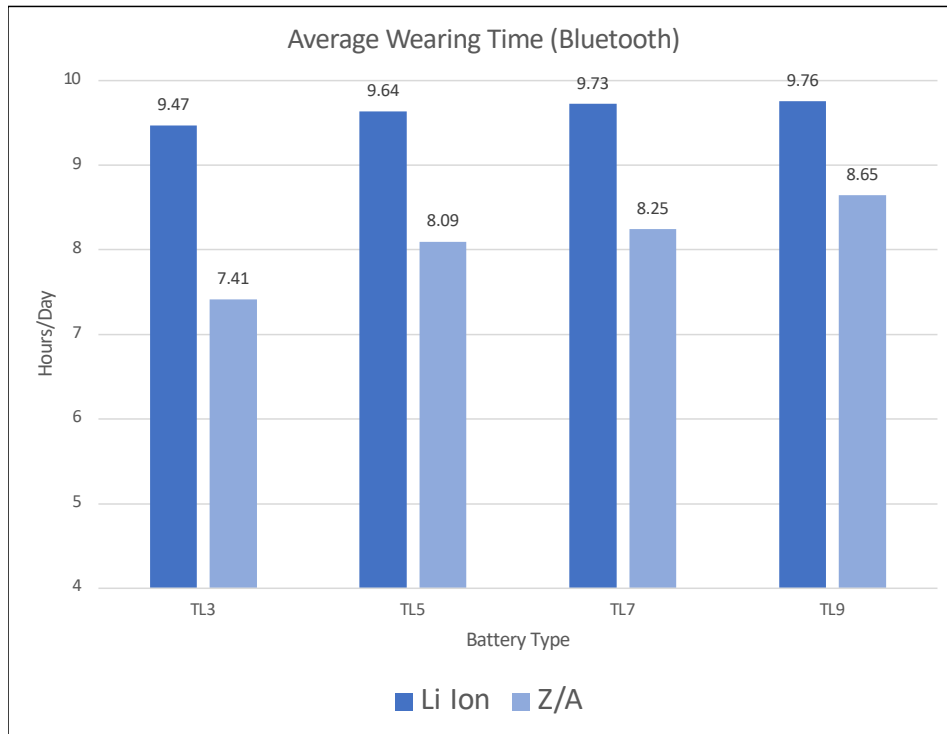
Battery type - wearing time comparison

Li-Ion rechargeable vs. 312 zinc air

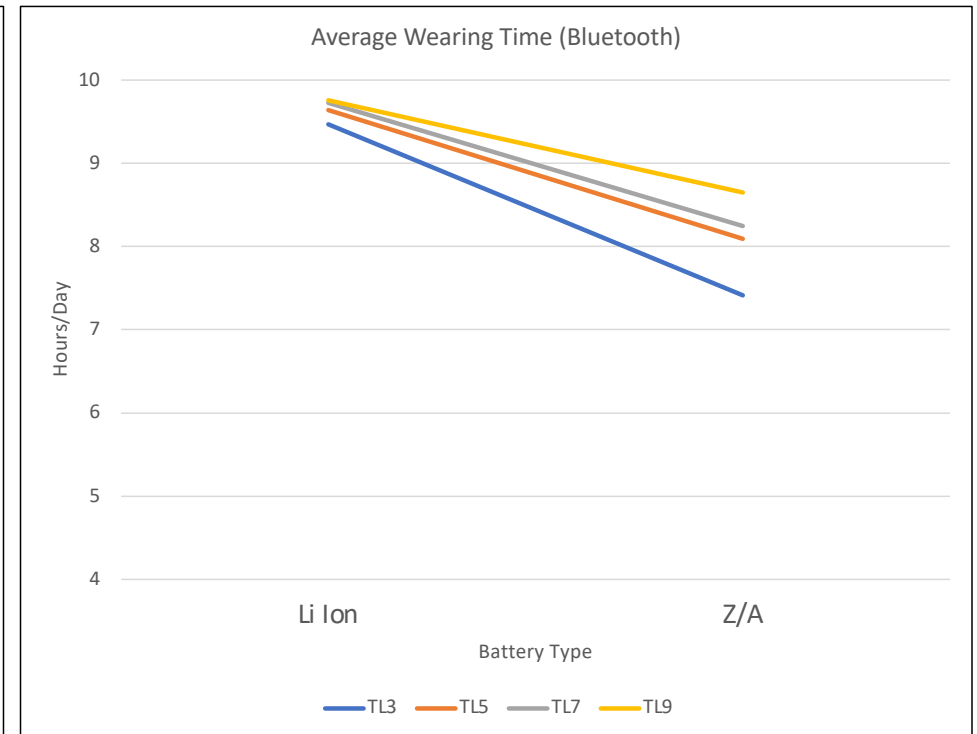
- Battery: Li-Ion versus 312 z/a
 - There is a significant battery type main effect
 - $p < 0.0001$ (this would happen by chance about once out of ten thousand trials)
- Tech Level: (TL3, TL5, TL7, TL9)
 - Significant TL main effect
 - $p = 0.0020$ (this would happen by chance no more than twice in 1,000 trials)
- Battery x Tech Level interaction – nonsignificant.
 - (Tech level varies consistently regardless of battery type)

(n = 1948, all Bluetooth devices)

Battery type - wearing time comparison

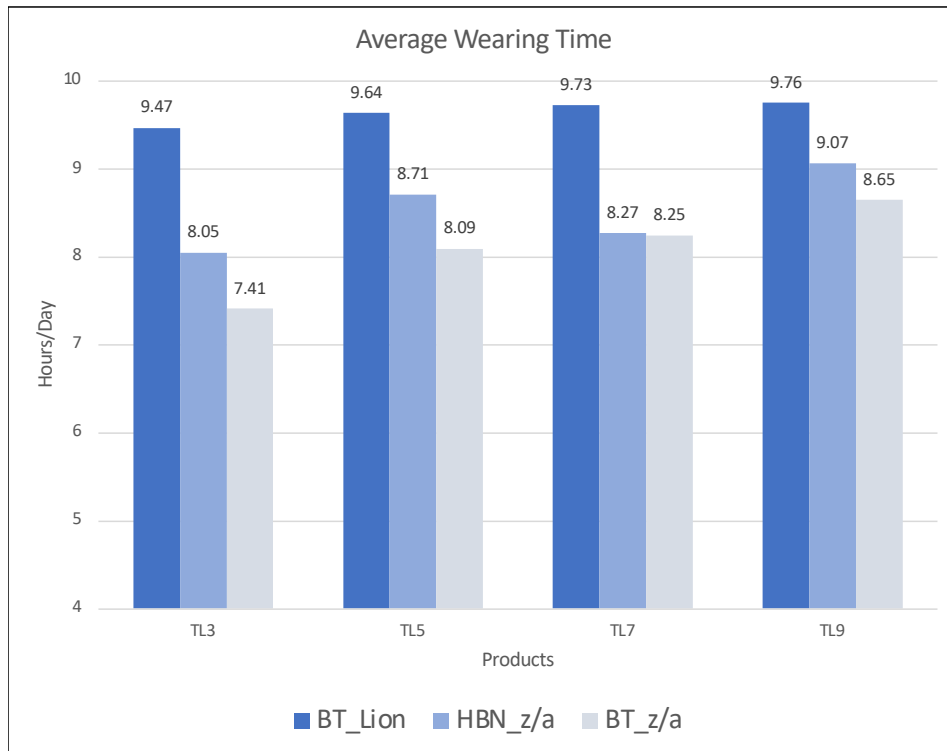


Rechargeable instruments were worn up to 2 hours longer per day

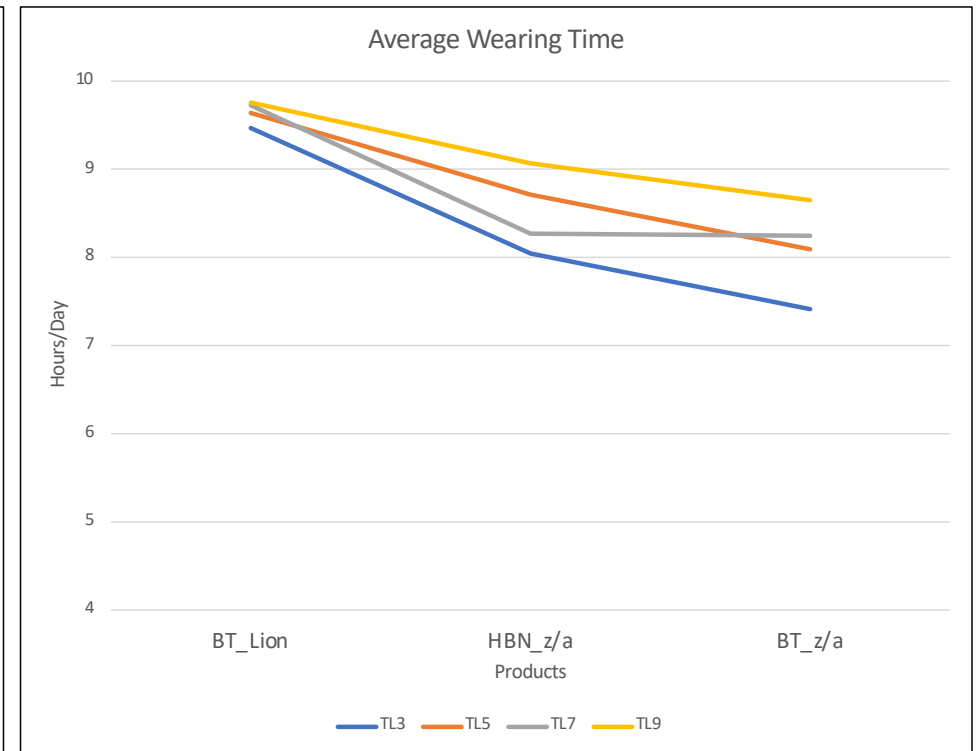


Tech. level 9 instruments were worn 0.3-1.25 hours longer per day than level 3 devices

Combined impacts of all three factors together



Bluetooth rechargeable instruments were worn more at all tech levels



Bluetooth instruments with disposable batteries showed lowest wearing time

Takeaway:

The combination of **Li-ion** rechargeability +
2.4GHz Bluetooth capability +
premium technology level
had the highest correlation with longer wearing time

Technology level	Wireless	Battery type	Mean wearing time
Technology Level 9	2.4GHz wireless	Li-ion rechargeable	9.76 hours/day
Technology Level 3	2.4 GHz wireless	Disposable battery	7.41 hours/day
Mean wearing time difference:			2.35 hours / day

Would you change
your product
recommendation?

If it meant longer
wearing time...



Sales of Rechargeables

Percentage of rechargeables relative to overall sales

	Fiscal Year 2019-2020	Fiscal Year 2020-2021	Fiscal year 2021-2022	Fiscal year 2022-2023	Fiscal year 2023-2024
Unitron	26%	41%	49%	50%	55%

OPTIONS FOR
every kind
of awesome

Welcome to the
Vivante™
experience



unitron.

New RIC designs and charging cases



Moxi V-RT



Moxi V-R



Charger Moxi V-R/RT

TURN UP THE DIAL

on hearing in style

with award-winning design
& sleek rechargeability



Stride V-PR



There is power in choice

Stride V-UP



- Ultra-Power
 - Long-lasting, standard 675 battery
 - IP68 rating
 - Telecoil
- Vivante performance
 - Ultra Power Presets
 - Made for All connectivity
 - Microphone strategy
 - Frequency compression 2

unitron™

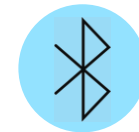
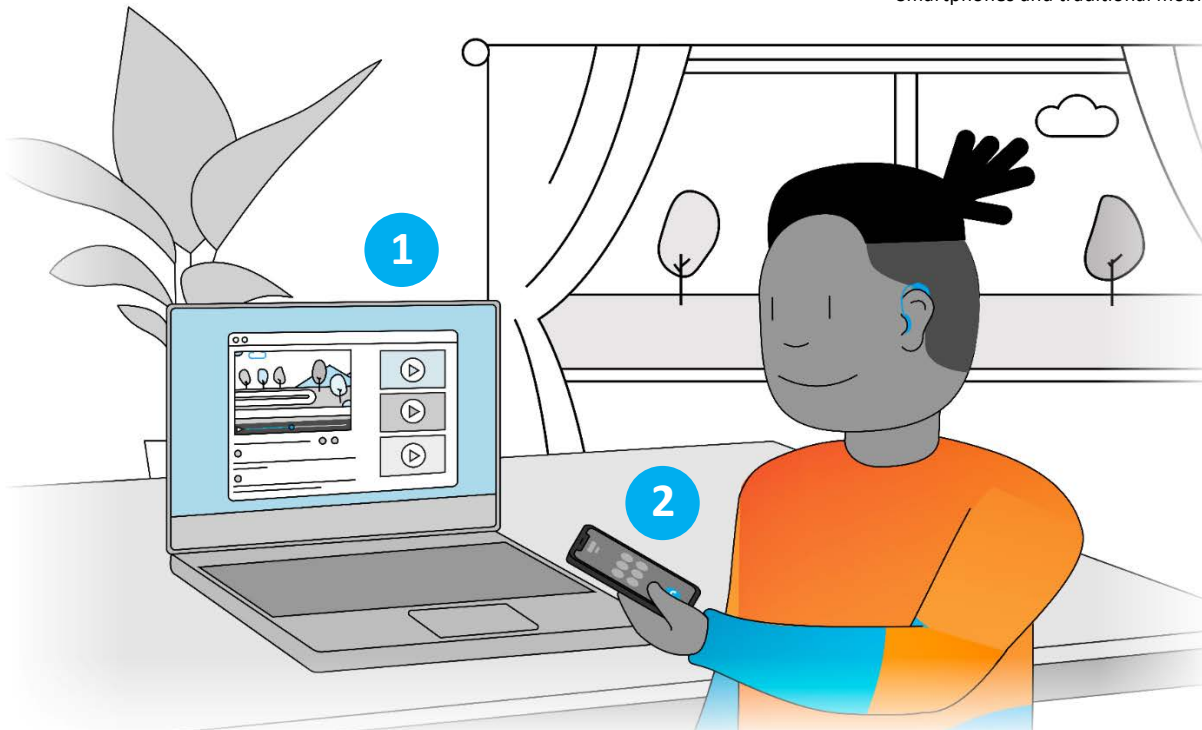
Made For All connectivity

Hands-free, multiple Bluetooth® connections

android 

 iOS

Smartphones and traditional mobile phones with a compatible Bluetooth Hands-Free Profile



2 active BT device
connections

unitron™

White Paper- Do Bluetooth® wireless devices extend wearing time?

WHITEPAPERS • PROFESSIONALS • TECHNOLOGIES • HEARING HEALTH • PRODUCTS

Do Bluetooth® wireless devices extend wearing time?



Donald Hayes, Ph.D.
Director, Clinical Research
8 min read

What variables affect wearing time?

Today smartphones are an integral part of most people's daily lives. Pairing hearing instruments to Bluetooth for streaming digital content, taking handsfree phone calls etc. in theory felt like it would extend the time a user would wear their hearing aids.

So we asked the question

Could it be true that people with Bluetooth wireless hearing devices wear them longer?

Then we analyzed data from a few thousand appointments and the findings were impressive.

Do people wear Bluetooth-

are required by regulation to undertake post-market clinical follow-up. That follow-up means access to basic information about our hearing instruments out in the field. Such access may include, the hearing instrument model, average hours of use per day, the technology level, wireless protocols or battery type. Of course, there are limits. No information is available to identify the wearer or the fitter of the products. The available data is strictly anonymous.

Using "hours of use" per day as a dependent variable it may be possible to assess which of factors of the hearing instrument were consistent with longer or shorter wearing times. Our trial was a carefully undertaken retrospective analysis of data from several thousand



bitly

ron™



Love the experience™