

It's 5 p.m. and Mitchell Pineo just woke up after a long, loud night. He was DJing late with brother-in-beats DJ Loeb at Pacifico and they both left the club feeling inspired.

"I hate it when that happens," Pineo said, "we ended up coming back here and working on music until 8 a.m."

With that kind of schedule, it's fitting the nocturnal duo called their latest release, *Morning Maniac Music*. The continuous 30-minute mixtape moves the listener through reinterpretations of radio rock classics. While guitar riffs aren't typical remix fare for club DJs, remixing songs like *Comfortably Numb*, or *Don't Fear the Reaper* is the duo's way of paying homage.

"It's what our parents listened to in the car when we were growing up," said Pineo who grew up in the Annapolis valley, "it's what was on the radio here: classic rock, top 40."

The sum of their influences: a playlist that appeals to both commuting dads and clubgoers who love the nostalgia a familiar melody brings.

"We're trying to bridge that gap for some people," said Loeb, "it's easier to get into dance music if they've heard the originals of these songs. We meet them halfway."

But classic rock nostalgia isn't the only thing Pineo and Loeb have in common with their parents' generation. At 23 and 24 years young, they've started thinking about getting their hearing tested. Although they're decades away from retirement, the DJs want to know how working in noisy nightclubs affecting how they hear the world.

"It's super overlooked by most people at our shows. I'll see somebody dancing with their head right in front of a speaker," says Loeb. He gestures dramatically, pretending it's too loud for the person to hear him, shaking his head and moving his lips slowly,

“I’ll say ‘No don’t do that!’”

Inside Pacifico, Loeb used a sound meter app on his phone to see how loud the noise was. The music in room too loud for the meter to measure it properly. It simply measured 90 decibels (dB) until Loeb turned it off.

“It stresses me out for sure,” he said.

“He was probably recording levels around 100 to 110 dB, and in those cases, the possibility of damage switches from a risk to a certainty,” said Steven Aiken, an audiologist and professor at Dalhousie University.

Aiken says people should should wear hearing protection if they’re going to be around levels of 85 dB for more than eight hours. Every 3 dB above that and the exposure time is cut in half: 88 dB for four hours, 91 dB for two hours.

Concerned about the potential damage, Pineo and Loeb got their hearing tested by Audiology students at Dalhousie. The test results showed both DJs had normal hearing, but Aiken says they should still be concerned.

He mentioned two ways a nightclub’s noise can damage a person’s hearing. There’s immediate temporary damage, where a person will hear ringing in their ears or have a hard time hearing very soft sounds. Usually this damage goes away within a day.

“You also have permanent damage,” he said, “your hearing will come back, but over time, it gradually gets worse.”

Jian Wang also researches hearing loss at Dalhousie. He and Aiken are currently looking for better ways to diagnose this long term hearing damage, which scientists nicknamed “Hidden Hearing Loss.”

“We say it’s a ‘hidden’ hearing loss because routine hearing tests only focus on sensitivity in quiet, which doesn’t detect this damage,” says Wang.

Aiken says the hidden damage happens to thousands microscopic synapses between the ear and auditory nerve. After the ear has converted sound into electrical impulses, the auditory nerve brings that information to the brain to interpret it. He described the damage by comparing the synapses to electrical cables.

“To hear one tone, you have hundreds of cables plugged in. You’re still going to hear that tone, but 50 of your cables are unplugged and you can’t plug them back in. You’ve lost resolution and temporal precision,” Aiken says.

For the music producers, hearing fine details is essential when producing and mixing songs in the studio. Losing precision in their hearing would have a huge impact on their work.

“That’s what scares me,” says Pineo, “We’re basically shaping this audio experience and we want people to hear what we’re hearing. Every little equalizer setting, every detail. That can’t be lost in translation.”

“If you have (this damage), you may have difficulty understanding what others say to you, especially when they talk fast and when background noise competes for your attention,” says Wang.

Noise induced damage can also cause chronic tinnitus, where a person hears a ringing or hissing sound in their ears. While it’s common for people to hear ringing in their ears after leaving a loud concert or arena, in some cases the head-noise is permanent.

“We have lots of reports of long term musicians that experience devastating tinnitus,” said Aiken.

Hearing a phantom ringing is why Pineo got his first hearing test as a teenager. He was working in a warehouse and listened to music to drown out ambient noise.

“For a week I blasted my music. I had a ringing in my ears for 4 or 5 days,” he said, “I thought I wasn’t ever going to hear the same again.”

When Pineo was working, he listened to music with an earbud in one ear, which adds more risk than you’d think.

“When someone listens to music from a portable device using one earbud, they have to double the volume to hear the same as they would with two earbuds,” says Wang, “there will be a higher risk of noise-induced damage.”

Both musicians experience tinnitus from time to time and for Pineo, it’s a scary reminder of what he could lose.

“Anytime I get that feeling again, I kick myself,” Pineo says, “even last night I had it a little bit, and I was wearing earplugs the whole night.”

Bright orange and green earplugs are littered around Loeb’s bedroom-turned-music studio.

“As soon as the music is on, earplugs are in,” says Pineo, squishing the spongy plug between thumb and forefinger.

Foam earplugs can prevent serious damage, but are uncomfortable and often make music sound dull. When he started performing regularly, Loeb purchased a \$20 pair of drummers’ earplugs at a music store. They reduce the overall volume, but sound clearer than foam plugs.

“I wear them pretty much the whole night, but when I play, I’ll take them out,” says Loeb.

It’s not ideal, but the earplugs prevent him from using headphones while he DJs.

“Even when you have the good (earplugs), you can’t hear what you’re doing as well. Every detail matters,” Loeb said.

Aiken says an ideal workplace for DJs is a soundproof booth, but that’s not going to be a priority for bar owners any time soon. So, Pineo and Loeb know they have to be the ones who take care of their ears.

“I’ve been that guy,” said Loeb, “at a music festival, front row, not wearing earplugs. I don’t want to be that guy again.”

Despite knowing loud music can cause long term damage, the DJs get annoyed by other clubgoers when they wear earplugs.

“It’s not cool. We’ll be wearing earplugs backstage sometimes and people will tug on them and say ‘What are you doing? Aren’t you going to enjoy the show?’” said Pineo.

Depending on volume, even a few minutes of loud noise can cause permanent damage. Some research says the damage can be repaired, but there isn’t a drug or hearing aid available that can bring back perfect hearing.

“If you’re a musician, you should treat your ears at least as well as you treat your equipment,” said Aiken, “If you’re going to buy the best sounding guitar or drum kit, would you want to buy the best ears possible too?”