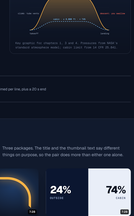
YOUTUBE EXPLAINERS DEEPDIVE PACK · 16:9 LONG-FORM · EP. 14
Open air · Cinematic

Why your ears pop at *35,000 feet*

A full script for a curious, general audience: what cabin pressure really is, the tiny tube behind your eardrum, why landing is the rough half, and what actually helps. Every claim is cited.

DURATION	AS SPOKEN	CHAPTERS	SOURCES
7:28	1,027	8	7

MIX
150 wpm, broad-use tone, plus a 20 s end screen



Titles & *thumbnails*

Three packages. The title and the thumbnail test say different things on purpose, so the pair does more than either one.



Why Your Ears Pop on Planes (and Why Landing Hurts More)
My pick. Searchable phrase up front, a second question in the middle. Thumbnail names the pain, not the topic.



The Pencil-Sized Tube That Decides If Your Flight Hurts
Curiosity package for browse and suggested. One gnarly diagram, two words.



What Cabin Pressure Is Doing to Your Body
Numbers-led for a tighter audience. Two figures, no explainer, the viewer closes to close the gap.



The first *15 seconds*

Three beats: a feeling the viewer already knows, a twist, then a promise that starts at 0:14 and gets paid off at 4:14.

0:00 Feeling · **0:09** Twist · **0:14** Promise · runs to 0:30

> "It's thirty-five thousand feet, the air outside your window has about a quarter of the pressure it has on the ground.
>
> The cabin gets pumped back up. *But not all the way.*
>
> That gap is why your ears pop, why landing can hurt…"

0:14 Moving numbers on frame one. The altimeter and dial are already moving. No logo, no "hey guys", no intro card.

0:22 Start with the seal, not the science. Everyone has been in that window seat. The definition of pressure waits until 0:32.

0:41 "But not all the way" is the open loop. The viewer wants to know why the cabin stops at 74%, so they stay for the answer.

0:54 Name the payoff out loud. "Why landing can hurt" and "why your eardrum can't equalize it anymore" are both promised by 0:57. Chapter 4 is the one that pays off 3:29 up to it early and the habit at 4:14, so the middle of the video keeps paying out.

1:15 No subscribe ask until the outro. The first ask would land right where people decide to leave.

Full *script*

Voiceover on the left, everything the editor needs on the right. Numbers in the voiceover point to the sources at the bottom. Amber tags mark retention beats.

0:00 Cold open · **0:30** The air up there · **1:28** The room behind your eardrum · **2:48** Going up: the easy half · **3:27** Coming down: the hard half · **4:06** How to pop them properly · **5:09** Kids, and when to get it checked · **6:47** Outro

00 Cold open

0:00 – 0:30 · 71 words

TIME	VOICEOVER	ON SCREEN · VISUALS, B-ROLL, GRAPHICS
0:00	At thirty-five thousand feet, the air outside your window has about a quarter of the pressure it has on the ground.[1]	Opening: Wide-angle POV, wing in hard sunlight. Altimeter graphic's the lower third ticks up to 35,000 ft. A pressure dial beside it drops to 24%.
0:09	But the cabin doesn't stay that thin. That's why it's called pressurized.[2]	Twist: Second dial labelled Cabin climbs and stops at 74%, and the 100% line. Hold one beat of silence.
0:14	That gap is why your ears pop, why landing can hurt, and why one very common habit makes it worse. And it all comes down to a tube in your head about as wide as a pencil lead.[3]	Promise: Hard cut to a clean ear cross-section, the tube glowing amber. Text: a pencil-lead wide. Cut! pop SFX, then title drop. WHY YOUR EARS POP 1:28 at.

01 The air up there

0:30 – 1:28 · 282 words

TIME	VOICEOVER	ON SCREEN · VISUALS, B-ROLL, GRAPHICS
0:30	Start with the air. Air pressure is basically the weight of all the air stacked above you. At sea level, that stack presses on you with about a hundred kilopascals, or fourteen point seven pounds on every square inch. Climb, and there's less air on top of you, so the number drops.[4]	Animated column of air above a figure on a beach. As the pressure falls the column thins and a faded cruise ship's contrail is left behind. Text: 101 kPa = 14.7 psi.
0:52	At cruising altitude it's far too thin to sit in comfortably, so airliners pressurize the cabin. But they don't pump it all the way back to sea level. U.S. rules for airliners say that in normal flight, the cabin has to stay at a cabin altitude of no more than eight thousand feet.[5]	Quote card, typewriter reveal: "a cabin pressure altitude of not more than 8,000 feet under normal operating conditions." Source chip: 14 CFR 25.841.
1:15	At eight thousand feet, air presses in with roughly three quarters of what it is at sea level. So on a normal flight, you go from the beach to a mountain town and back to sea level, in one afternoon. Your body has to keep up with that. Mostly it does it without asking you.[6]	Split screen: beach illustration left, mountain town right. Shared gauge morphs 100% → 74% → 100% as a tiny plane taxi crosses the frame.

02 The room behind your eardrum

1:28 – 2:48 · 259 words

TIME	VOICEOVER	ON SCREEN · VISUALS, B-ROLL, GRAPHICS
1:28	Now the ear. Your eardrum is a thin membrane at the end of your ear canal. On the outside, there's cabin air. On the inside, there's a small air-filled space called the middle ear, where three small bones pass sound along to the inner ear.[7]	Ear cross-section, the tube's finger-tip in amber from the middle ear down to the back of the nose. Label: eustachian tube.
1:58	The main way air gets in or out of that space is a narrow passage called the eustachian tube. It runs from the middle ear down to the back of your nose and throat.[7]	Loop: a swallow. Smoke from cold and the tube blinks open, a few air dots pass, a balance icon levels. Repeat 3× with a soft hum.
2:18	Most of the time, that tube is closed. When you swallow or yawn, it opens for a moment, a little air moves through, and the pressure on both sides of your eardrum evens out. You do this all day long and never notice.[7,8]	Chewing gum: Eardrum membrane bows out, then in. Sound design: muted beat goes muffled for two seconds, then snaps back clear.
2:38	Your eardrum moves the way it should when the pressure on both sides matches. When it doesn't, the drum gets pushed out or pulled in, and it starts to feel wrong. That's the full, stuffy, underwater feeling.[1,7]	

03 Going up: the easy half

2:48 – 3:28 words

TIME	VOICEOVER	ON SCREEN · VISUALS, B-ROLL, GRAPHICS
2:48	So, takeoff. As the plane climbs, the pressure in the cabin drops. The air trapped in your middle ear is now at a higher pressure than the cabin around it, so it pushes your eardrum outward.[1,7]	Cabin gauge falls. Arrows inside the middle ear push the drum outward.
3:06	Here's the lucky part. When the pressure inside is higher, the tube tends to open by itself and let the extra air out. Doctors describe equalizing on the way up as passive. A click, a pop, and you barely notice it happened.[7,8]	Pop beat: Tube puffs open on its own, air dots stream toward the nicer. Small text: **assent = passive.**
3:21	It's the same physics that puffs up a sealed bag of chips on a flight. Hold the temperature steady, lower the pressure around a gas, and it expands. That's how your middle ear just happens to have a release valve.[9]	B-roll: a sealed snack bag, visibly inflated, on a tray table. Lower third: **Boyle's law · if V rises constant.**

04 Coming down; the hard half

3:27 – 4:06 words

TIME	VOICEOVER	ON SCREEN · VISUALS, B-ROLL, GRAPHICS
3:27	Landing is the reverse. As the plane descends, cabin pressure climbs back toward ground level. Now the air in your middle ear is at a lower pressure than the cabin, and your eardrum gets pulled inward.[1,7]	Gauge rises back toward 100%. Drum bows inward: the frame takes a sight red tint.
3:42	And this time the tube doesn't open for you. It has to be opened on purpose, by swallowing, yawning, or a deliberate move we'll get to in a second. Stiffness, a medical reference, says it plainly: equalizing pressure on the way up, but it takes an active maneuver on the way down.[7]	Pull-quote card: "equalization … on ascent is passive, it requires an active maneuver on descent." Source chip: Stiffness, NCBI.
3:57	If you fall behind, the gap keeps growing, the tube gets harder to open, and fullness turns into pain. That's why the advice from Mayo Clinic and ear, nose and throat doctors bears so hard on the descent. And that's the habit I promised: sleeping through it, if you're descending, you're not swallowing on purpose.[7,8]	Warning: Passenger asleep against the window, neck pillow. A pause in the scene keeps rising. Text slams in: DESCENT. STAY AWAKE.
4:35	It's also why ever ears can pop in a fast elevator in a tall building, or on a winding mountain road. Any quick change in altitude does it. A plane just does it bigger, and faster.[1,7]	Quick montage, graphics only: elevator floor counter racing upward, then a switchback road drawn as a line climbing a hill.

05 How to pop them properly

4:06 – 5:09 words

TIME	VOICEOVER	ON SCREEN · VISUALS, B-ROLL, GRAPHICS
4:06	So, takeoff. As the plane climbs, the pressure in the cabin drops. The air trapped in your middle ear is now at a higher pressure than the cabin around it, so it pushes your eardrum outward.[1,7]	Numbered list builds on the right: think 1 · Swallow. Close-up: M and gum unwrapped, clarity in part.
4:20	Swallow. Yawning works too, since a yawn opens the tube the same way a swallow does.[7,8]	2 · Yawn. Short illustrated loop of a wide yawn, tube opening in sync.
4:33	If that's not enough, there's the Valsalva maneuver. Close your mouth, pinch your nostrils shut, and blow gently, as if you were blowing your nose. Gently is the important word. You're nudging air up the tube, not forcing it.[7,8]	3 · Valsalva. Illustrated head pinching nose, a small arrow travels up the tube. Caution: Gently. Never force it.
4:57	Filtered earplugs made for flying can help keep the pressure change at your eardrum more even during takeoff and landing. Mayo Clinic notes you still need to swallow and yawn with them.[8]	4 · Filtered earplugs. Unbranded product illustration, cross-section showing the small flow.
5:42	And if you're congested, that's when the tube is most likely to be blocked. Mayo Clinic suggests not flying with a cold, a sinus infection or a stuffy nose if you can help it. Some people use a decongestant spray or pill beforehand, but decongestants aren't safe for everyone, so check with a doctor or pharmacist first.[7,8]	Don't: a cold? Not from. On-screen note, bold 4 of General information, not medical advice. Ask a doctor or pharmacist.

06 Kids, and when to get it checked

5:09 – 6:46 words

TIME	VOICEOVER	ON SCREEN · VISUALS, B-ROLL, GRAPHICS
5:09	Babies and small kids have it harder. Their eustachian tubes are narrower than an adult's, and a baby can't pop its ears on purpose. A bottle or a pacifier during takeoff and landing keeps them swallowing, which does the same job.[8]	Side-by-side diagram: adult tube vs. child tube, the child's broken narrower. Illustration of a parent giving a bottle in a window seat.
5:31	Usually all of this clears up on its own. But if swallowing and yawning haven't helped after a few hours, or the pain is severe, or there's bleeding or fluid coming from the ear, or if matters hearing lasts more than a few days, that's a reason to see a doctor.[1,8]	Checklist card, items tick on one by one. severe pain · bleeding or drainage · or better after a few hours · muffled for days. Source chips: Mayo Clinic, MedlinePlus.

07 Outro

6:46 – 7:33 words

TIME	VOICEOVER	ON SCREEN · VISUALS, B-ROLL, GRAPHICS
6:46	So the pop isn't damage. It's a tiny valve doing its job, letting your middle ear catch up with a cabin that just went from the beach to the mountains and back. On the way up, it mostly handles itself. On the way down, it needs you awake and swallowing.[7]	Callback to the cold-open dial reframe to 100%. The tube blinks once, cut to the window as the wheels touch the runway.
7:04	Next time, we're looking at why the air on a plane feels so dry. I'm [host], this is Ordinary Mechanics. Thanks for watching.	End screen (20 s): two video tiles, subscribe button, channel mark. Music up.

Description *& chapters*

Paste-ready. Chapters start at 0:00 and each runs well past. YouTube's 10-second minimum.

Why Your Ears Pop on Planes (and Why Landing Hurts More)
Ordinary Mechanics · 7:28

Why do your ears pop on a plane and why can landing feel worse than takeoff? It comes down to cabin pressure and a tube about as wide as a pencil lead that connects your middle ear to the back of your throat. Here's how it works, why the descent is the hard half, and what actually helps.

0:00 Why your ears pop
0:30 The air up there
1:28 The room behind your eardrum
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Sources:
[1] Mayo Clinic Staff, "Airplane ear: Symptoms and causes," Mayo Clinic, updated April 15, 2025, https://www.mayoclinic.org/diseases-conditions/airplane-ear/symptoms-causes/syc-20351700
[2] "Ear barotrauma," MedlinePlus Medical Encyclopedia, U.S. National Library of Medicine, https://medlineplus.gov/ency/article/000054.htm
[3] "Ears and Altitude (Barotrauma)," ENT Health, American Academy of Otolaryngology–Head and Neck Surgery, https://www.entnet.org/content/ears-and-altitude-barotrauma/
[4] "Air Barotrauma," StatPearls, NCBI Bookshelf (NBK459311), https://www.ncbi.nlm.nih.gov/books/NBK459311/
[5] 14 CFR § 25.841, "Pressurized cabins," Electronic Code of Federal Regulations, https://www.ecfr.gov/current/title-14/chapter-I/subchapter-C/part-25/subpart-D/section-25.841
[6] "Earth Atmosphere Model, Metric Units," NASA Glenn Research Center, Pressure at 0, 8,000 and 35,000 ft computed from its troposphere and lower-stratosphere curve fits (100.4, 73.4 and 23.8 kPa), www.grc.nasa.gov/www/k-12/airplane/atmosmet.html
[7] "Middle-Ear Equalization," Divers Alert Network, dan.org
[8] "Middle-Ear Equalization," Divers Alert Network, dan.org

Chained November 2026. Health content is general information written to watch tense aviation, and isn't medical advice.

Sources

1. Mayo Clinic Staff, "Airplane ear: Symptoms and causes," Mayo Clinic, updated April 15, 2025. www.mayoclinic.org
2. "Ear barotrauma," MedlinePlus Medical Encyclopedia, U.S. National Library of Medicine, reviewed April 29, 2026. medlineplus.gov
3. "Ears and Altitude (Barotrauma)," ENT Health, American Academy of Otolaryngology–Head and Neck Surgery. www.entnet.org
4. "Air Barotrauma," StatPearls, NCBI Bookshelf (NBK459311). www.ncbi.nlm.nih.gov
5. 14 CFR § 25.841, "Pressurized cabins," Electronic Code of Federal Regulations. www.ecfr.gov
6. "Earth Atmosphere Model, Metric Units," NASA Glenn Research Center. Pressures at 0, 8,000 and 35,000 ft computed from its troposphere and lower-stratosphere curve fits (100.4, 73.4 and 23.8 kPa). www.grc.nasa.gov
7. "Middle-Ear Equalization," Divers Alert Network. dan.org