

WHY DOES MY PIERCING SMELL?

Sebum, skin cells and biofilm inside a healed piercing channel —
what the research shows and how to clean it safely

An evidence-informed e-book for clients and professionals

Before we start: not a glamorous topic, but a real one

You shower, wash your hair, cleanse your face and maybe even polish your jewellery. But when did you last clean the hole itself? In the studio we see it almost daily: someone looks after their piercings well, yet has worn the same earrings for years. Take the jewellery out, and that typical smell sometimes comes with it.

That is not a sign of poor hygiene, and usually not an infection either. It is normal skin biology in a place you can barely reach. This e-book explains exactly what happens, what the research says about it, and how to clean a fully healed channel safely — and when you should not.

The essentials in five lines

- A healed piercing is a skin-lined tunnel (fistula) that produces sebum and sheds skin cells.
- Skin bacteria break down that sebum and keratin, creating odour compounds — the same chemistry as body odour.
- Biofilm can form on jewellery and inside channels: a bacterial layer that is hard to rinse away.
- Smell alone is not an infection. Pain, heat, redness, swelling and pus are.
- Cleaning threads are meant for old, fully healed holes — never for a fresh or irritated piercing.

What does “evidence-informed” mean?

We combine dermatological and microbiological literature, hygiene guidelines and professional practice standards. There is no clinical comparative research on “piercing smell” specifically, or on cleaning threads. The underlying mechanisms — sebum production, keratin, the skin microbiome, biofilm and metal corrosion — are well studied. Wherever we infer rather than cite, we say so.

1. What is a healed piercing channel, really?

A healed piercing is not an open wound and not a hole into nothing. It is a fistula: a channel lined on the inside with epithelium — the same kind of skin cells as on the outside. That lining makes the channel stable, but it also makes it behave like skin.

Skin does three things that matter for smell:

Process	What happens	Effect inside the channel
Desquamation	The epidermis renews continuously; old keratinocytes let go. Full renewal takes roughly 40–56 days.	Dead skin cells build up in a narrow space with no friction or rinsing.
Sebum production	Sebaceous glands secrete sebum: triglycerides, wax esters, squalene and fatty acids.	Oil glues cells together into a whitish, cheese-like mass.
Sweat	Eccrine glands give water and salts; apocrine glands (armpit, partly the ear) give protein- and lipid-rich sweat.	Moisture and nutrients for skin bacteria.

Add what arrives from outside — shampoo, conditioner, hairspray, make-up, skincare, dust, sweat from sport — and within a few months you have a dense, oily, low-oxygen layer. Exactly the conditions in which odour-forming bacteria thrive.

A piercing hole is a small, hidden piece of skin. Hidden spots sometimes need a little extra attention.

2. The chemistry of the smell

Body odour almost never comes from sweat or sebum themselves. When fresh, both are largely odourless. The smell appears when skin bacteria break them down into small, volatile molecules. That mechanism has been studied extensively for underarm odour and applies in the same way to a closed-off piercing channel.

Compound group	Formed from	Odour character	Research
Branched fatty acids (e.g. 3-methyl-2-hexenoic acid)	Protein-bound precursors in apocrine sweat, released by <i>Staphylococcus hominis</i> and relatives	Sour, musty, “sharp sweat”	Well documented (Natsch et al.; James et al.)
Sulphur compounds (thioalcohols, e.g. 3-sulfanylhexas-1-ol)	Cysteinyglycine conjugates converted by a specific bacterial enzyme (C-T lyase)	Oniony, sulphurous, penetrating	Strong evidence; enzyme and genes identified
Short-chain fatty acids (butyric, isovaleric acid)	Breakdown of sebum triglycerides by lipases of <i>Cutibacterium acnes</i> and <i>corynebacteria</i>	Rancid, “cheesy”	Strong evidence from sebum and acne research
Squalene oxidation products	Squalene in sebum oxidising with air, light and heat	Musty, oily	Well studied in sebum chemistry

So the main actors are not “dirty” invaders but normal residents of your skin: *Cutibacterium acnes* in sebaceous glands, *Staphylococcus epidermidis* and *hominis* on the skin, and *Corynebacterium* species — the strongest odour producers in underarm research. They are present even on perfectly cared-for skin. The difference lies in the build-up that never gets removed.

An important distinction

- Smell without symptoms = build-up of sebum, keratin and bacterial breakdown products. Solvable with hygiene.
- Smell with pain, heat, redness, swelling, pus or fever = possible infection. Do not “clean it away”; have it assessed.
- Persistent foul discharge from one specific point may indicate a cyst or embedded material and should be checked professionally.

3. Biofilm: why rinsing is not enough

Bacteria rarely live loose. On solid surfaces — and jewellery in a moist channel is an ideal solid surface — they form a biofilm: a community embedded in a self-made layer of sugars and proteins. That layer adheres strongly and is poorly penetrated by rinsing fluid and even by antiseptics.

Finding	What the research shows
Biofilm on piercing jewellery	Electron microscopy of removed tongue piercings showed extensive bacterial biofilm on virtually all jewellery, including in wearers without symptoms.
Surface roughness	Scratches, burrs, porous coatings and poorly finished threading increase biofilm adhesion. Mirror-polished implant-grade material demonstrably does so less.
Resistance to cleaning	Biofilm can be hundreds of times less sensitive to antimicrobials than free-floating bacteria. Mechanical removal is therefore more effective than rinsing alone.
Analogy from dentistry	For dental plaque — also a biofilm — mechanical disruption (brushing, flossing) is the proven basic method; rinsing alone is insufficient.

This answers the common question: “but I shower every day?” Shower water runs along the outside and barely passes through a narrow channel with jewellery in it. Worse, shampoo and conditioner can get trapped behind an earring back and act as extra food there.

So the logic behind cleaning threads is the same as flossing: where there is no friction, the layer stays. Note — this is a reasonable inference from biofilm research, not something proven in a clinical study of piercing threads. That study does not exist (yet).

4. Earlobes: the forgotten holes

Strikingly, the heaviest build-up is usually not in new piercings but in old earlobe holes. People are careful with a new helix, tragus or conch, while the holes from their childhood have known nothing but “earring out, earring in” for ten years.

Risk factor	Why the earlobe in particular
High sebum density	The head and neck area has many sebaceous glands; the earlobe and behind the ear are classic oily zones.
Hair products	Shampoo, conditioner, dry shampoo and hairspray land on and behind the ear every day.
Back of the fastening	A butterfly or screw back creates a narrow gap that never gets rubbed clean.
Years of the same jewellery	Without changing, the layer is never mechanically disturbed.
Phone, pillow, face mask	Contact surfaces add extra dirt and oil.

Dark or greenish discolouration

Sometimes there is grey, dark or greenish residue on the jewellery or around the hole. Several explanations exist, and they do not exclude one another:

Possible causes of discolouration

- Corrosion of copper-containing alloys. Copper reacts with sweat, sebum and oxygen into greenish salts that temporarily stain the skin. Known with cheap or low-karat jewellery.
- Silver sulphide. Silver blackens through sulphur compounds from sweat, air and cosmetics; the residue can rub off onto the skin.
- Oxidised sebum and keratin. Old, oxidised build-up itself turns grey-brown.
- Worn coatings. Plated base metal exposes reactive material underneath — also relevant for nickel release.

5. How to clean an old, healed hole

The method below applies only to a fully healed, symptom-free piercing. Not sure whether something is healed? Then the answer is: not yet.

Step	What you do	Why
1	Wash your hands thoroughly with soap and water.	Your hands are the main route of contamination.
2	Remove the jewellery carefully.	Without removal you cannot reach the channel or the fastening.
3	Clean the jewellery separately: warm water with mild soap, a soft brush for the fastening, rinse well and dry.	Mechanical cleaning removes biofilm; rinsing alone does not.
4	Gently pass a clean, thin cleaning thread through the hole.	Mechanical disruption of the layer inside the channel itself.
5	Pull it through calmly — no pushing, forcing or sawing. Feel resistance or pain: stop.	Resistance means the channel is not open or calm enough.
6	Rinse with lukewarm water or sterile 0.9% saline and pat dry with clean disposable material.	Flushes residue away; leaving moisture encourages new build-up.
7	Put the clean jewellery back in.	Do not leave an old hole empty longer than needed if you want to keep it.

How often?

- You do not need to “floss” every morning. For most people a thorough session every few weeks to monthly is plenty.
- Consider more often with: heavy sport or sweating, multiple holes, daily hair products, years of the same jewellery, or a noticeable smell after removal.
- Do not overdo it: cleaning too often or too roughly irritates the epithelium and can actually cause problems.

6. When you absolutely should not do this

This is the most important chapter of this e-book. A cleaning thread in the wrong situation is not a harmless action.

Do not use with

- A fresh or still-healing piercing. The channel is not stable epithelium but fragile granulation tissue. A thread causes microtrauma, delays healing and can push bacteria deeper.
- Pain, redness, heat, swelling or pus. Have it assessed first — do not clean, do not force, and do not remove the jewellery on your own initiative if infection is suspected.
- An irritation bump, hypergranulation or keloid. Mechanical stimulation usually makes these worse.
- Cartilage piercings that are not yet fully stable. Cartilage heals slowly and has poor blood supply; complications there are more serious.
- Any doubt about healing. Ask your piercer before you pass anything through the channel.

A fresh piercing needs completely different aftercare

Leave the jewellery in, touch it as little as possible, rinse according to the studio instruction and follow the written aftercare you were given. At Piercings Works you receive that instruction verbally and on paper and by e-mail, so the information is exactly the same. What this e-book says about cleaning threads is not part of that aftercare.

Seek medical help the same day with

- Rapidly increasing redness, heat, swelling or throbbing pain.
- Pus combined with spreading redness or feeling unwell.
- Fever, chills or clear malaise.
- A red streak running from the piercing, or a rapidly expanding area of skin.
- With ear or facial piercings: hearing problems, eye complaints or severe headache.

7. Material and jewellery choice against smell

Smell is partly a maintenance issue, but partly a material issue too. What you wear determines how much biofilm adheres and how quickly corrosion products form.

Choice	Principle	Rationale
Implant-grade titanium	Corrosion resistant, low in nickel, polishes well.	Strong professional consensus; nickel allergy research supports avoiding nickel-rich alloys.
Solid gold (14k+, nickel-free)	Suitable provided it is nickel-free and well finished.	Alloy and finish determine the result, not the word “gold”.
Avoid	Unknown alloys, plated or coated base metal, porous or scratched jewellery.	Coatings wear off; a rough surface increases biofilm adhesion and corrosion.
Fastening	Threadless or internally threaded, smooth, without open gaps.	Fewer places where material collects.
Finish	Mirror polished, without scratches or burrs.	Surface roughness is a known factor in biofilm formation.

Practically: jewellery that you can open and clean easily, with a smooth finish, stays noticeably fresher than a decorative piece with lots of gaps, settings and threading.

Ask the studio directly

- What material is this jewellery, and to which standard?
- Is this fastening easy to clean?
- In your opinion, is my piercing fully healed?
- What is a sensible cleaning frequency for me?

8. Frequently asked questions

Is smell a sign of infection?

Usually not. Smell without pain, redness, heat, swelling or pus points to build-up of sebum, skin cells and bacterial breakdown products. If inflammatory signs do appear, have it assessed.

Why does only one ear smell?

Sleeping position, phone use, hair falling on one side, different jewellery or a narrower channel can explain it. Differences between left and right are very common.

Can I use alcohol, peroxide or tea tree oil?

No. Those agents irritate skin and epithelium and are advised against in modern piercing aftercare. Mild soap and water for the jewellery, and sterile 0.9% saline if needed, are enough.

Does showering more often help?

Barely. Water does not flow effectively through a narrow channel, and shampoo residue can be left behind. Mechanical cleaning is the key.

Can I just use a thread from home?

Use clean threads made for this purpose. Sewing thread, flavoured dental floss or rough material can shed fibres, fray or irritate.

How long can I leave my jewellery out?

With old holes sometimes hours, sometimes less than you think — channels can shrink faster than expected. Clean promptly and put the jewellery back.

I see a white, cheese-like plug. What is that?

Usually a mixture of sebum and dead skin cells — the same composition as in a blocked pore. Harmless, but the main source of the smell.

A painful bump with foul-smelling content appears. Also just dirt?

No, that can be a cyst or abscess. Do not squeeze it yourself; have it medically assessed.

Should I do this with navel, nipple or nose piercings too?

The same principles apply, but some channels are more fragile or deeper. Discuss per piercing with your piercer what is sensible.

Is there scientific proof that cleaning threads work?

Not in the form of clinical studies. The rationale comes from biofilm and sebum research and from the analogy with oral hygiene. We therefore present it as sensible maintenance practice, not as a proven treatment.

9. Sources and the limits of the evidence

No study directly measures “piercing smell” or clinically tests cleaning threads. The references below support the underlying mechanisms: skin renewal, sebum chemistry, odour-forming bacteria, biofilm on jewellery, metal reactions and hygiene.

Natsch A, et al. (2003–2006). A specific bacterial aminoacylase cleaves odorant precursors secreted in the human axilla. *Journal of Biological Chemistry* 278(8):5718–5727. Mechanism of odour formation from odourless precursors.

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RIVM/LCHV. Hygiene guideline for piercing and piercing aftercare instruction. rivm.nl/hygienerichtlijnen/piercen

Association of Professional Piercers. Aftercare and Jewelry for Initial Piercings. safepiercing.org — professional guideline, not clinical research.

An honest conclusion

- The smell is explainable: sebum, keratin, sweat and cosmetics converted by normal skin bacteria into volatile acids and sulphur compounds.
- Biofilm explains why showering alone is not enough; mechanical cleaning is the logical addition.
- Cleaning threads are sensible maintenance practice for healed holes, not a clinically proven treatment.
- With a fresh, painful, swollen or possibly infected piercing: do not use threads — have it assessed.
- This e-book is information, not medical advice. A doctor makes the diagnosis; your piercer assesses jewellery, channel and healing.

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