

Music to your ears

Headphones can cost as little as £5 and as much as £200, but which are the best for listening to music?

In a recent Which? survey, 47% of MP3 or MP4 player owners had upgraded their headphones to improve sound quality or increase comfort. However, our tests show that those aiming to improve sound quality may be wasting their money.

Quality counts

We tested the headphones provided with three typical MP3 players: the Sony NW-A805 (4), the Samsung YP-U3 (13) and the Apple iPod (7). We also tested other headphones available to buy separately in the shops.

Our results show that unless you're going to spend a lot of money on a pair of over-ear headphones, there's little value in replacing the set that came with your Sony or Apple MP3 player.

However, if you own the Samsung YP-U3, you can improve sound quality by switching to a plug-style pair that scored at least four stars in our testing, or a high-scoring on- or over-ear pair.

Good over-ear models offer considerably better sound quality than good in-ear models. If excellent sound quality is your top



priority, give in-ear headphones a wide berth. In-ear headphones are, however, lighter and generally cheaper to buy, which makes them convenient for use with portable players.

Perfect fit

Fit is crucial to get the best sound quality, particularly for in-ear plug headphones. A bad fit can result in poor-quality bass tones. Most headphones come with several silicon or foam sleeves that can be changed to accommodate different ear sizes and shapes.

Less than impressed

Wireless headphones have been around for a while, but they are still unimpressive. We tested an in-ear and on-ear set, and neither had particularly good sound quality.

Our Don't Buy headphones from Gear 4 BluPhones (19) were uncomfortable and awkward to use, and you will have to buy a separate Bluetooth transmitter, so it's best to steer clear of them.

You are better off with the Logitech headphones (26), though their sound still isn't top-notch (see 'Which should you choose?', p50).

Insider information

Our experts look at how noise-cancelling headphones work and whether they're worth the extra money

Noise cancelling is a way of trying to reduce the amount of background noise that you can hear when listening to music.

Passive noise cancelling

All headphones provide at least some passive noise cancelling, as they form a physical block between the ambient noise in the room and what you are listening to through the headphones. Our tests indicate that the in-ear plug-style headphones are best at providing passive acoustic shielding. Make sure there's a good seal between

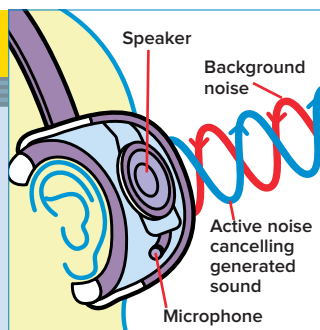
your ear and the headphones – foam sleeves may help create a better seal.

Active noise cancelling

This system uses a small microphone positioned near the ear to pick up ambient sound. An electronic circuit then generates a sound wave with the same amplitude but opposite polarity to the ambient noise, cancelling it out (see diagram, above).

Does it work?

All the models we tested that made specific claims about



noise reduction failed to meet the claims or achieved them only within certain frequencies. We found that the noise-cancelling system could reduce background noise by up to 11dB in the low-frequency range. Mid- and higher-range frequency compensation was not as good. Turning on the noise-cancelling system on the Panasonic model (14) actually emphasised mid-frequency sounds.

How we test

Our testers tune in to quality

Sound standards

To test sound quality we use a panel of five expert listeners. They listen to a range of music as well as speech recordings.

Fitting comfortably

The listening panel rates comfort and fit, then two ergonomists rate how easy it is to set up the headphones, put them on, adjust the fit and operate any controls.

Music for dummies

Our scientists use a dummy head with small microphones in its ears to test how much noise headphones keep out and in.





1 IN EAR/PLUG

64% Sennheiser CX 400 £35

Our highest-scoring plug headphones are reasonably priced and they only just missed out on a four-star sound-quality rating.

They're easy to fit and come with three sets of removable silicon pads to improve comfort.

The standard cable length is only 67cm, but there's also an extension cable measuring just over a metre. As well as a handy shirt clip, you also get a travel pouch and a cable winder to protect the headphones when not in use. The style-conscious will appreciate that they're available in several different colours.

They are cheapest at Amazon.
WORTH KNOWING The CXL 400 headphones from Sennheiser are the same as the CX 400 we tested, but come with extra cabling that loops round your neck, so that the ear buds dangle against your chest rather than on the floor.

Available Online Type Plug Weight 17g Cable length 67cm Colour Black, white, silver, aqua, dark red Noise cancelling No Case Yes



2 IN EAR/PLUG

63% Ultimate Ears metro.fi 2 £40

Commuters looking to block out the noise of other passengers will appreciate the high acoustic shielding of these plug-style headphones.

Fitting headphones into the ear canal reduces the amount of noise leaked out to those around you, so you won't be bothering others with your music either.

Sound quality of all types of music was good.

However, as with in-ear headphones, the bass reproduction will suffer if they don't fit the wearer correctly. Usefully, there are four different silicon sleeves to help improve fit.

A small carrying pouch helps protect them when not in use.

We were impressed with the manual, but felt that instructions for the proper removal of the headphones were a little excessive.

They are cheapest at Currys.
WORTH KNOWING Many of our testers found plug-style headphones uncomfortable.

Available Currys Type Plug Weight 19g Cable length 121cm Colour Black Noise cancelling No Case Yes



The Denon headphones would be particularly good for listening to a hi-fi at home



20 OVER EAR/ON EAR

86% Denon AH-D1001 £100

These Denon headphones are a cut above the other sets we tested, producing excellent sound that is well balanced across both high frequencies and bass tones.

Our testers felt that they would be particularly good for listening to a hi-fi at home. The cable isn't very long, but it can be extended to 3 metres.

On-ear headphones can be a bit weighty, but at just under 200g these aren't too heavy. They also feature a good-quality, thick cable and a large, gold-plated connector.

The only downside to this pair is the low acoustic shielding for bass sounds such as the low rumble of an aeroplane's engines.

They are cheapest at John Lewis.
WORTH KNOWING As well as being really comfortable, these headphones have low levels of sound leakage, so they won't annoy those around you.

Available John Lewis Type Over ear Weight 199g Cable length 120cm Colour Black Noise cancelling No Case Yes



Sony noise-cancelling issues

It's hard to hear the sound of silence with these humming headphones

We tested the Sony MDR-NC60 noise-cancelling headphones and found a strong humming sound caused by the noise-cancelling circuit, so they received just one star for sound quality. With noise cancelling turned off, sound quality was

fine. We tested three sets and found the problem present to varying degrees in each one.

We contacted Sony and it was unable to ascertain the cause. We are not including them in our table due to the ongoing investigation into the

issue, but Sony believes it is not a widespread problem.

Sony told us: 'If customers experience any product fault, contact the retailer where they purchased the item, or contact the Sony Customer Information Centre on 0870 511 1999.'

WHERE'S PHILIPS?

We tested headphones from all the leading manufacturers, but Philips was unable to confirm the long-term availability of its models. See www.which.co.uk/headphones for details of additional models.

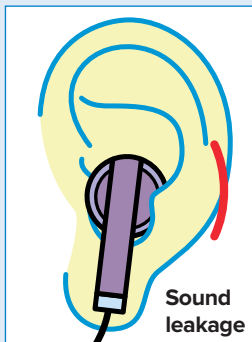


A comforting sound

A handy reference guide to the important differences between the four types of headphones available

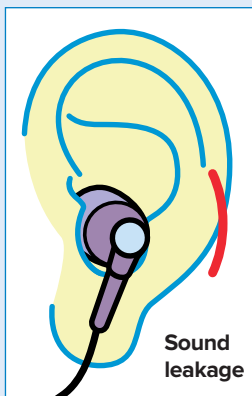
■ **IN EAR** Provided with most MP3 players, this type of headphone rests in the opening of the ear. Sound quality depends on how well they fit your ears. Most users find them comfortable, but those with particularly large or small ears may have difficulty keeping them in.

Comfort ★★★★★
Leakage ★★★★★



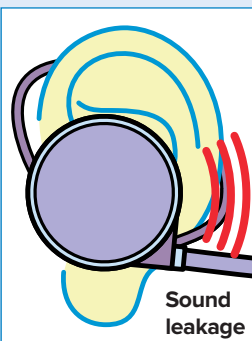
■ **PLUG** These types of headphones don't suit everyone – many testers found them uncomfortable. If fitted correctly, they are good at blocking outside noise and stopping sound leaking out. It's important to get a good seal between the ear and the headphones, so try out the different sleeves they come with.

Comfort ★★★
Leakage ★★★★★



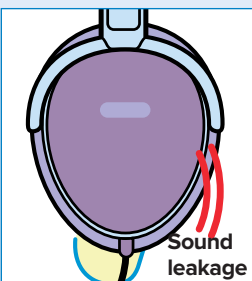
■ **ON EAR** Although these headphones have pads that rest on the ears, they can be surprisingly uncomfortable. However, they're easy to try out in the shop, so make sure you do so before you buy. Sound leakage is a problem for these headphones.

Comfort ★★★
Leakage ★★★



■ **OVER EAR** These traditional-looking headphones have cushioned pads that cover the whole ear. If you have very big ears, you may find they feel pinched. Sound leakage is minimal.

Comfort ★★★★★
Leakage ★★★★★



Which should you choose?

Best for wireless

LOGITECH FREEPULSE WIRELESS HEADPHONES £50 Music lovers who want to go cable-free and are less concerned about sound quality or comfort could consider the **Logitech FreePulse (26)**. They come with a Bluetooth transmitter and several fittings to ensure compatibility with most MP3 players and phones, but we found them fiddly to use.

Over-ear headphones can sometimes be uncomfortable for those with large ears so ensure you try them on before you part with your cash.



Best on a budget

JVC HA-FX66 £20 While the Sennheiser CX 400 (1) are great value for a Best Buy, those seeking an even bigger bargain should look at the lightweight JVC HA-FX66 plug headphones (3). Sitting just below our Best Buys on the table, this lightweight pair was one of the cheapest on test and was easy to use, producing good sound with minimal leakage. Available at Currys and John Lewis.



Best for travel

SENNHEISER PXC 350 £122 Frequent travellers will get the most out of the **Sennheiser PXC 350 (22)**. The noise-cancelling system was the best we tested, so should help block out background noise when on the move. They fold away when not in use and come with a quality travel case and an aeroplane adaptor.



Tune out these headphones

Gear 4 BluPhones lose out on audio quality

Disappointing sound quality combined with awkward ease of use means that we can't recommend this set of headphones. Designed mainly for use with mobile phones, there's no Bluetooth transmitter included so you'll have to buy one separately.

Although they look like they'd sit on your ears they're actually in-ear devices with a flexible wired cable between the two ear pieces. The

cable joining the two ear pieces isn't adjustable – a potential issue for those with large or small heads.

There's no standard mains charger so you'll have to use the USB one provided and connect it to your PC or laptop.



Contacts

Apple 0800 048 0408
www.apple.com/uk

Audio-Technica 0113 277 1441
www.audio-technica.com

Beyer Dynamic
01444 258258
www.beyerdynamic.co.uk

Bose 0800 085 9021
www.bose.co.uk

Denon 01753 680568
www.denon.co.uk

Gear 4 www.gear4.com

Goldring 01279 501111
www.goldring.co.uk

Grado
www.gradolabs.com

JVC 0870 330 5000
www.jvc.co.uk

Logitech 01753 870900
www.logitech.com

Panasonic 0870 535 7357
www.panasonic.co.uk

Samsung 0845 726 7864
www.samsung.com/uk

Sennheiser 01494 551551
www.sennheiser.co.uk

Shure 01992 703058
www.shure.co.uk

Sony 0870 511 1999
www.sony.co.uk

Ultimate Ears
www.ultimateears.com

V-Moda www.v-moda.com

MODEL	SPECIFICATION					WHICH? TEST PERFORMANCE				SCORE %
	PRICE (£)	TYPE	WEIGHT (g)	CABLE LENGTH (cm)	WIRELESS	SOUND	LEAKAGE	NOISE CANCELLING	EASE OF USE	
IN EAR/PLUG										
1 SENNHEISER CX 400	35	Plug	17	67		★★★★	★★★★★	n/a	★★★★	64
2 ULTIMATE EARS metro.fi 2	40	Plug	19	121		★★★★★	★★★★★	n/a	★★★★	63
3 JVC HA-FX66	20	Plug	11	106		★★★★	★★★★★	n/a	★★★★	62
4 SONY MP3 player headphones^a	73	Plug	15	47		★★★★★	★★★★★	n/a	★★★★★	62
5 SONY MDR-EX85LP	40	Plug	15	130		★★★★	★★★★★	n/a	★★★★	62
6 DENON AH-C551	70	Plug	22	52		★★★★	★★★★★	n/a	★★★★★	61
7 APPLE iPod headphones^b	19	In ear	6	115		★★★★	★★★★★	n/a	★★★★	60
8 SENNHEISER MX760	35	In ear	19	51		★★★★	★★★★★	n/a	★★★★★	59
9 PANASONIC RP-HJE300	20	Plug	13	67		★★★★	★★★★★	n/a	★★★★	57
10 SENNHEISER CX 55	18	Plug	11	125		★★★★	★★★★★	n/a	★★★★★	57
11 JVC HA-FX300	61	Plug	15	107		★★★★	★★★★★	n/a	★★★★★	56
12 SENNHEISER MX 460	15	In ear	13	108		★★★★	★★★★★	n/a	★★★★★	56
13 SAMSUNG MP3 player headphones^c	30	In ear	15	125		★★★★	★★★★★	n/a	★★★★★	55
14 PANASONIC RPHC30	35	Plug	35	154		★★★★	★★★★★	★★★★	★★★★	52
15 V-MODA Vibe	59	Plug	14	123		★★★★	★★★★★	n/a	★★★★	52
16 GOLDRING GX200	50	Plug	16	109		★★	★★★★★	n/a	★★★★	49
17 SHURE SE110-K-EFS	70	Plug	30	47		★★	★★★★★	n/a	★★★★	48
18 BEYERDYNAMIC DTX50	55	Plug	13	122		★★	★★★★★	n/a	★★★★	46
19 GEAR 4 BluPhones	50	In ear	29 ^d	n/a	✓	★	★★★★★	n/a	★★★★	35
OVER EAR/ON EAR										
20 DENON AH-D1001	100	Over ear	199	120		★★★★★	★★★★★	n/a	★★★★★	86
21 PANASONIC RP-HC500	115	Over ear	194	146		★★★★★	★★★★★	★★	★★★★★	69
22 SENNHEISER PXC 350	122	Over ear	312	166		★★★★	★★★★★	★★★★★	★★★★★	68
23 BOSE Triport (On Ear)	119	On ear	139	115		★★★★	★★★★★	n/a	★★★★★	61
24 AUDIO-TECHNICA ATH-ES3	40	On ear	68	127		★★★★	★★★★★	n/a	★★★★★	57
25 GRADO iGrado	40	On ear	79	113		★★★★	★★★★	n/a	★★★★	57
26 LOGITECH FreePulse Wireless Headphones	50	On ear	58 ^d	n/a	✓	★★★★	★★★★★	n/a	★★★★★	56

^a We tested the headphones supplied with the Sony NW-A805. These are the standard headphones supplied with all Sony MP3 players ^b These are the standard headphones supplied with all Apple iPods

^c We tested the headphones supplied with the Samsung YP-U3 MP3 player. Supplied headphones vary across the Samsung range ^d Weight without cable

USING THE TABLE

The more stars the better.

Specification

Price For Best Buys we give the cheapest widely available high-street price as we went to press. If we couldn't find them at major high-street retailers we give the most common online price. Prices for other models are a guide.

Go to www.which.co.uk/shopping for the latest prices.
Weight Includes cable.

Test performance

Sound Based on our expert listeners' assessments.

Leakage Based on technical measurement of sound leakage. **Noise cancelling** Based on expert assessment of how well headphones with

active noise-cancelling features block outside noise.

Ease of use Includes fit and comfort; based on both expert assessment and technical measurements.

Score

Ignores price and is based on:
Sound 75%
Ease of use (including comfort and adjusting fit) 25%

OUR RESEARCH

When choosing products to test, we consult service providers, market intelligence reports and industry experts. We include top sellers and new models from big brands.

In February 2008, we asked 991 Which? online panel members who own an MP3 or MP4 player whether they had replaced the provided headphones and why.