

RECORDINGS & MICS

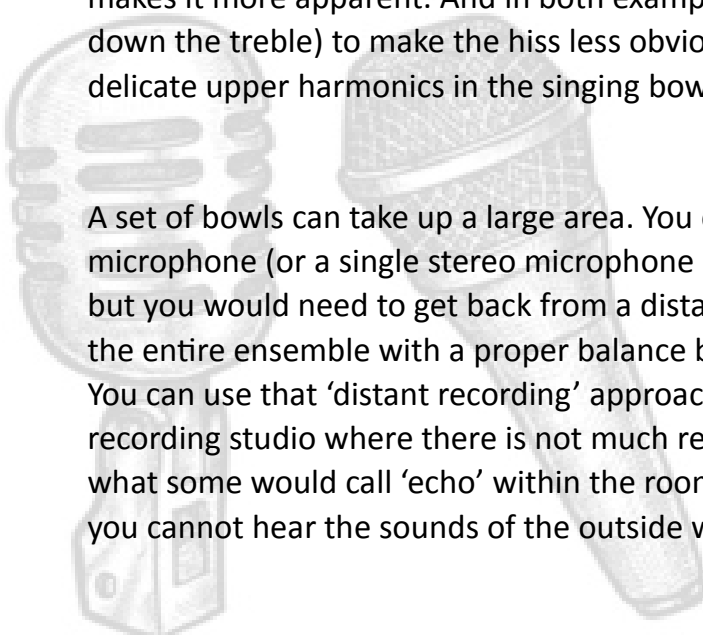
Few Options for Mics advised by [Greg Simmons](#), Top Sound Engineer and writer for Sound magazines and producer of Sound Expeditions:



For recording singing bowls you ideally need very quiet microphones. The bowls are not very loud or very bright so you need a quiet microphone, but ideally not a microphone that sounds bright or 'tinny'. You want quiet microphones that don't make much much hiss, because singing bowls (and drums, handpans and similar) don't create a lot of high frequencies to hide ('mask') the noise, so it becomes very obvious.

Many of the instruments used in sound healing are, by their very nature, 'dull'. By that I mean that they don't have a lot of high frequencies (i.e. treble content) compared to something like an acoustic guitar or a violin or most other instruments. So there is nothing much in the sound of a singing bowl to hide the hiss. It's a similar problem with hang drums/handpans. Beautiful mellow tone, but not much high frequency content so there's nothing to hide the hiss, which makes it more apparent. And in both examples, if we reduce the high frequency content (turn down the treble) to make the hiss less obvious, we also reduce the level of the important and delicate upper harmonics in the singing bowls and finger sounds of handpans.

A set of bowls can take up a large area. You could get a good recording using a single microphone (or a single stereo microphone like the Røde NT4 or the Audio-Technica AT825), but you would need to get back from a distance, perhaps 1.5m to 2m, if you want to capture the entire ensemble with a proper balance between the numerous items (bowls, bells, etc.). You can use that 'distant recording' approach in a properly designed and acoustically isolated recording studio where there is not much resonance or reverberation (boomy room sound or what some would call 'echo' within the room) and where there is enough sound isolation that you cannot hear the sounds of the outside world. But if you're not recording in such a space



you will probably end up with a recording that sounds 'roomy' and also full of outside noises.

The human ear/brain has an amazing subconscious ability block out unwanted sounds – like the boxy sound of a small room, the constant hum of an air-conditioner, or the outside noise of traffic, birds and dogs – but the microphone does not have that ability. After we record a sound the human ear/brain system loses its ability to isolate the unwanted sounds because it relies strongly on the directions the sounds are coming from, and a sound recording does not provide the ear/brain system enough directional information in that respect – unless it is a binaural recording, but that's an entirely different approach. Without the directional information coming from the right places during playback, we notice those external unwanted sounds and we are less capable of blocking them out. You would be amazed by the number of times that musicians have assured me that they have found a quiet space to record in, but when I go there to record there is a lot of traffic noise or other things that the musician's ear/brain system subconsciously blocked out because they were focusing on the good things about the room (nice light, nice colours, nice vibe, nice sound on their instruments) and blocking out the bad things (passing traffic, buzzing insects, etc.)

So when deciding if a place is quiet enough for recording, it is a good idea to just sit there quietly for about 10 minutes with your eyes closed and focus on listening. It's a kind of 'reverse meditation' or 'reverse sound healing' where the goal is to sit quietly and focus on all the sounds you don't want to hear rather than the sound you do want to hear. The microphone has no ability to decide what it will capture and what it won't, so you need to be able to listen as if you are the microphone and listen for every single sound you can hear, because that's what the microphone will capture. It's an exercise I call 'Be The Microphone'.

In any ensemble of singing bowls, it is probably best to use what we call a 'matched pair' or a 'stereo pair' of microphones; two microphones of the same make and model, and hopefully from the same production run (consecutive or very close serial numbers) so they are very similar in tone and level.

Two mics will give you two channels, which means you can do stereo. And then you can capture a lot of the sense of 'spaciousness' and 'immersion' that goes with singing bowls, gongs and similar. You need stereo for that sense of immersion because it relies on different information to each ear, one from each microphone.

Two mics also allows you to get a bit closer to cover the entire ensemble, rather than the 'single microphone at a distance' described earlier. Getting a bit closer means more level from

the bowls and therefore less noise from outside, which is good if you are not in an acoustically designed and isolated recording studio.

Two microphones means you can do stereo while also covering a relatively large area like a set of bowls from a closer distance. Most sound healers and others tend to always set up their equipment in the same way, so once you learn where to place the microphones for the best results then it just becomes part of the setup and you can get to work. The differences between recordings will be due to the performance and the acoustics of the space.

Here are some microphone recommendations at different price points... :



Lewitt Audio LCT540 is very quiet, in fact it's one of the quietest microphone on the market (they don't get any quieter and still be useful!) and not too expensive. A quiet microphone means it is a microphone that does not generate a lot of hiss, and that's important when recording singing bowls because they don't generate much high frequency energy to 'mask' (hide) the hiss, and if we use too much equalization to reduce the hiss (like, turning down the treble) then we affect the delicate harmonics of the singing bowls themselves. The LCT540 is about \$700 US for one, but ideally you would have two. It has a cardioid response which means it is slightly directional and rejects sounds arriving from behind a little bit. That is helpful in non-studio environments.

[Note that \$700 US may seem like a lot of money but it is not expensive for a good microphone. Microphones are delicate electro-mechanical devices, which is why they were traditionally packaged and sold like jewellery in padded felt-lined wooden boxes. And in the microphone world, you really do get what you pay for. In most cases the more expensive microphone will always sound better than the less expensive microphone of the same type. There is no 'paying for the brand' in the microphone market any more; the surge of low cost microphones from China and Russia over the last two decades has ensured that. Apart from sound quality, when you pay more for a microphone you are also paying for a reputation for reliability, service, ruggedness and longevity.]

Going cheaper than the Lewitt Audio LCT540, a pair of Røde NT1As is a good option. The Rode NT1A is almost as quiet as the Lewitt Audio LCT540, but much cheaper at about \$230 US for one. It has a reputation for being very quiet, very affordable, but also a bit bright for some people – which means that compared to the Lewitt Audio LCT540 it will probably capture more of the sound of the stick rubbing against the bowl or the slap of the fingers on a handpan. You can fix that to a certain extent with equalization in mixing and mastering, and perhaps the end result of the Røde NT1A with equalization won't be much different to the sound captured by the Lewitt Audio LCT540 without equalization and so you can get a good result for a cheaper price with the Røde – but remember that the Lewitt Audio will probably still sound nicer in this application to start with.



Another good option from Røde is the TF-5 matched pair kit, which includes two very nice microphones (a matched pair) and a stereo bar so it is easy to set them up as a stereo pair. These are very nice sounding microphone, very mellow and relatively quiet. I used them to record a set of crystal singing bowls in a house in Bali and the healer was very happy with the results. It costs about \$1500 US for the pair and is a very good solution. I also used them to record gongs in the Pyramids of Chi in Ubud, Bali, and got very promising results.

Sonically, I think the best mic would be Pearl's ELM-A. This is still a very quiet microphone, not as quiet as the other two but quiet enough and an absolutely beautiful tone. It is a trickier microphone to use, needing two channels to record in mono (four for stereo) and it also requires some clever sound engineering to get it right, but a gorgeous sounding microphone. Its price is measured in thousands of dollars, and you'd need two of them.

And I should also mention here the Sennheiser MKH80xx series of microphones. These are not very cheap, but they are small and compact, very low noise for their size, and are very immune to humidity. If you are recording in tropical areas or where there is a lot of rainfall and moisture in the air, the MKH80xx series of microphone will keep on working beautifully when other microphones are making crackling and spitting sounds due to the high levels of moisture in the air. A matched pair of MKH8040 cardioids will cost around \$2600 US. Not cheap, but if

you're working in humid areas they might be your only choice.

A pair of Neumann TLM103s is a great recommendation; they're about \$1000 US each. They're not very cheap, but they do fall in a nice price point among all the mics listed here. I have not used them outside of studios but my friend Time Cole and Bao Bao Chen of the Small Island Big Song project took them 2/3 of the way around the world, from Taiwan to Madagascar, over a few years, recording all sorts of things and had no problems with humidity or moisture. They're very quiet and have that very classy and expensive sound – like all Neumanns do. If you could afford it, you would be very happy with a pair of them. You can do all sorts of things with them.

Neumann, as a brand, are considered the 'top' or 'the best' microphone brand among most recording studio engineers. It's a brand they lust for. However, for those who have to record acoustic music outside of the controlled and relatively small spaces of recording studios (in concert halls, old churches, temples, etc.) Neumann is one of a number of top brands, and there many engineers would consider as good or better.



For those who have to record in concert halls and similar, where it's important to capture the full sound of the room as well, the very top microphones are DPA and Schoeps are often chosen over Neumann, but we use a lot of Neumann in those scenarios as well. It's always very hard to go wrong with Neumanns; you could do better, but you could do much worse!

If you're talking to a recording studio person you'll get the impression that Neumann are the top. They are very good microphones, so there's no problem there. But if you're talking to someone who has to work in more challenging spaces than acoustically designed recording studios (which are very easy places to work in because they are isolated from outside noise AND have acoustic treatment inside) then often we are looking at the more expensive brands (DPA, Schoeps) or the mics that specialise in doing one thing very well (like being super quiet like the Lewitts or able to handle humidity better like Sennheiser MKH80xx, or other special applications).

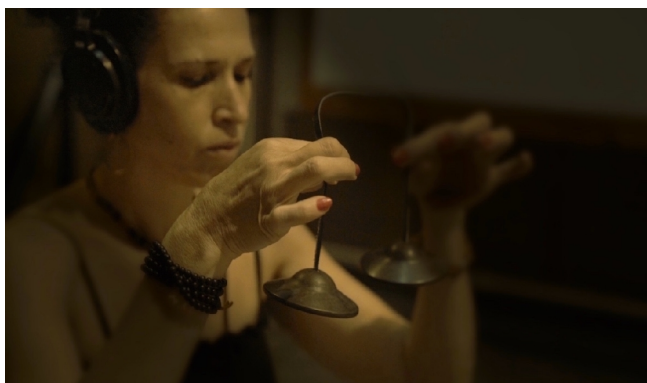
Pearl and Milab are two of those very specialized brands. They use a rectangular diaphragm instead of a circular diaphragm. It means they sound different if used horizontally than if used vertically, so we have to be careful of how we angle them. However, their rectangular diaphragms give them a very natural sound with very weak resonance (that is why nobody makes a rectangular drum, LOL!), so they are very natural sounding. But expensive. I had a pair of Milab DC196s for years and found them to be very versatile; I used them on all sorts of things. Again, however, they are not cheap microphones. Here's a live concert recording I made with a pair of Milab DC196s some years ago: https://youtu.be/5g9Hvb_RB4c - No other mics were used for this recording, just the DC196s (white microphones) seen hanging at the front of the stage. It might sound easy, but a lot of work went into finding just the right spot for those microphones and also moving the musicians around a little bit to make it work as well as it did. (Listen in headphones or through good speakers.) These microphones have a self-noise of 12dBA and I'm recording from a considerable distance away, and it is not a noisy recording.

Another recommendation is a pair of Audio Technica 4050s (around \$850 per mic) AudioTechnica's 4050 is interesting in that it has a rather 'dark' sound; its hiss is not so bright and so it can be a good choice for this application and actually ticks a lot of boxes; it's relatively quiet, has numerous polar responses, and offers a good price/performance ratio. It's a bit more expensive than the Lewitt Audio LCT540 but it is more versatile and sounds good. It is very hard to go wrong recommending the AT4050.



[At the very low budget end I will mention a pair of LOM Usi Pro microphones (125 Euros for a pair). These are tiny microphones that are very quiet for the price. At 14dB A self-noise they are nowhere near as quiet as the Lewitt Audio LCT540 or the Rode NT1A, but only marginally noisier than the Milab DC196s. They are popular with nature recordists and others who have to make low noise recordings because of their good balance of low noise, small size and low price. The only problem is that it is likely they will overload and distort on a loud sound.

They are designed for recording soft sounds up close so they will distort much sooner than most other microphones will. The LOM Usi Pros are made in small batches and they sell out very fast (often within hours of being announced on line!) so they are hard to get. They would be very good



at making a close recording of the sound of the stick rubbing the bowl, but it's possible they might overload and distort on a bell or a tingsha or when the side of a singing bowl is struck loudly. A similar microphone, using the same capsule as the LOM Usi Pro (they both use a capsule made by Primo), is the Clippy from FEL. It is essentially the same microphone with the same abilities and limitations, but different electronics. I want to mention them here due to their overall balance of sound quality, noise, size and price, BUT I would warn any potential buyer that they might distort on a loud sound. They will distort at levels above 122dB SPL. To put that into perspective, that's roughly equivalent to the SPL you'll hear with your ears about 30cm above the strings of a grand piano during normal playing, or 30cm in front of the beater on a kick drum. It's not that loud, and I'm pretty sure the attack of a bell/tingsha sound that is often used to start and end sound healing sessions would overload these microphones if placed too close. They are rated at 122dB SPL, while most studio microphones are rated at around 135dB SPL or higher.]

So... if you ask a studio engineer, for example, their best mics are always going to be the expensive Neumanns. That's mostly what they know, and in the studio world Neumann are king. The reason Neumann are king in the studio world is because the better mics don't offer any significant day-to-day advantage in the controlled acoustic environment of the recording studio, and so studio engineers often see the more expensive mics as being unnecessarily expensive. They don't really need or understand the benefits of the more expensive mics, and they don't get exposed to the kinds of situations that make them worthwhile.



Also, in studio world, the vast majority of what they have to work with is not quiet like singing bowls, rubbed gongs or handpans. It is medium volume (spoken voice) to loud (drums, singing, electric guitars). Also, in most cases they are working in acoustically isolated rooms that have no outside noise getting in, and are also acoustically treated inside so that they sound good. and they're recording one instrument at a time. That allows them to put the microphone at whatever distance sound best, although they usually stay very close which helps reduce the level of the room and outside noise even further. In those situations it is hard to go beyond Neumann, which explains why they are 'king' for studio engineers.

Most studio engineers have no idea how easy their working lives are; until they come with me

to India or somewhere and have to make recordings without the luxury of a sound-isolated and acoustically treated room. Suddenly using microphones is much more complicated than simply pointing a good microphone at the sound you want. Because of background noise we have to get closer, and we often have to work with other sounds in the background. And in those scenarios we find the much-loved microphones of studio world are not the amazing microphones we assume them to be.

And it's also a matter of individual aesthetics. Some people don't notice hiss ('ssssshhh' noise) in the background of a recording, for other people it drives them mad. When you are recording something relatively quiet and 'dull' like singing bowls or handpans, hiss becomes a major consideration. That is one of the reasons I started these recommendations with the Lewitt Audio LCT540. It is, essentially, silent. In comparison, on the same sound at the sound distance, a Neumann M149 – perhaps one of the loveliest sounding and best and most expensive studio mics ever made, is going to sound like a hiss machine compared to the LCT540 in the same position. And even more so if you are adding numerous tracks together. Hiss builds up.



Often we have to put aside thoughts of the 'best sounding microphone' and go towards 'the most pragmatic microphone'. There is no point in using a gorgeous sounding M149 if the recording has so much hiss that you cannot enjoy it, or at the very least, the hiss attracts attention to itself and ruins the 'willing suspension of disbelief' that we aim for in movies and sound recordings when we try to transport the listener or viewer into a different 'space' for the recording. Although, to be fair, the M149 has a self-noise of 13dBA which is essentially the same as the Milab DC196s heard in the linked video.

If you have the luxury of recording in a properly acoustically designed recording space, with good isolation from sounds from the outside world and good acoustic treatments inside, and an engineer to work with, then you have a wider range of options. If you are planning on something you can do yourself, eventually finding a microphone choice and placement that works and you can use repeatedly, I'd be staying away from those expensive Neumann M149s. Especially if you want to travel because they are tube microphones with external power supplies and considerable weight.

