

# Series: Sleep and the Rhythms of Life

## Episode title: Dance Music, Wakefulness and Embodied Rhythm – Part 1

### Transcript

Sally Shuttleworth:

Welcome to this podcast, the second in the series, brought to you by the sleep and the rhythms of Life project at the University of Oxford. I'm Sally Shuttleworth and I'm here to introduce our two guests, who will be in conversation today. Eric Clark is emeritus professor of music at the University of Oxford. He works on the psychology of music. Who's the author of many books, including ways of listening and music and consciousness. My other guest is Michael Diamond, who's a producer, DJ and musician, but also a newly qualified Dr. He has combined his medical studies with acting as resident DJ at one of the UK's longest running electronic music club nights, and has also released his widely acclaimed electronic album, *Third Culture*. Both Eric and Michael share interests in the intersection between music, neuropsychology and medicine. In this podcast series, we seem to be developing a habit of approaching the topic of sleep and the rhythms of life through rather unexpected routes. Last time, the sleep scientist Russell Foster, an architect, Ian Ritchie, discussed the relationship between sleep light and architect. Today we take an even more unusual route to consider. The relationship between dance music, bodily rhythms, and states of wakefulness. The relationship between music and sleep is well represented by the long history of lullabies. But what about the extraordinary states of wakefulness which can be produced by music, not least in our own culture, where electronic music in clubs seems to enable people to dance all night rather like the dancing princesses in the fairy tale? What is happening to bodily rhythms in this case and other things we could learn about the body and its relationship to music, which would help our understanding of sleep and the role that music could play more widely in forms of medical care? Eric and Michael, can we start with a question of what are the forms of relationship between music and the rhythms of life?

Eric Clarke:

It's one of those. Often, repeated statements that there are no human cultures that have been found that do not have music. So it's clear that music is somehow very deeply embedded in human culture and in human psychology. And we can see this in a sense from birth to the grave. Many of the significant moments in a human life are either accompanied by, or even orchestrated by, the music that goes along with them. So, as Sally has already mentioned, we have the long history of lullabies. And we have the ways in which music is used to calm and also excite children and adults throughout their lives. And then there is the equally long history, the ways in which music is built into death, rituals of one sort or another, and perhaps one way to. Get into the question about how music might be related to sleep and wakeful. Us and rhythm in this very large scale sense in human lives is to think a little bit about what it is that makes music such an apparently effective technology in helping people to manage and control the rhythms of their lives. So what is it, for instance, about a lullaby that makes it effective as a way of inducing sleep in an unsettled infant? If we think about a classic lullaby like rockabye baby, so rockabye baby on the tree top when the wind blows the cradle Will Rock, and so on. What is it about that song that. As sleep inducing or calming qualities, it has a

slow tempo. It has a very predictable and simple rhythmic structure which includes a great deal of repetition. It tends to be sung at a relatively low register in the human voice and at a quiet volume and all of those things are characteristic of sleepy behaviours and of a slowness of bodily rhythm. So what this suggests is that music has the capacity to lock onto the physical behaviour of a. In this case an infant and two, in a sense, get that infant to mimic those rhythms and thereby lull them into calmness and hopefully sleep and this principle. Of a kind of linking of the sounds of music with the bodily behaviours of an infant can be captured by the notion of entrainment. So let me just say a little bit more about what I mean by entrainment. As long ago as the middle of the 17th century, a Dutch clockmaker and physicist called Christian Higgins discovered that his pendulum clocks when left on the same shelf would apparently spontaneously come into rhythm with one another so that the pendulums were exactly synchronised and he was puzzled by why this was the case. If those two clocks were on different shelves, this wasn't the case. But when they sat on the same physical base. Then the two pendulums came into sync. Actually, and this was the basis of what we mean by entrainment physical systems, as long as there is a mechanism by which energy can be transferred between them, a kind of coupling mechanism, if you like, physical systems will come into synchrony with one another. And the same thing seems to be true of living organisms. In fact, there are many species that show these kinds of entrainment processes. If you think about crickets chirping or frogs making sounds together, or Gibbons making their whooping so. All of these species, as well as human beings, show the capacity to become synchronised with one another in this very kind of magnetic fashion, in a fashion that actually binds those organisms together into social groups and human beings, being the periodic. Organisms that we are with, you know, brain rhythms and heartbeat. Beats and circadian rhythms, day, night rhythms and menstrual cycles. All of these things are periodic processes at various scales of periodicity in the human body, and we know that those processes can become synchronised, and what it seems that music can do is to act a bit like an external device that encourages us not only to become synchronised with the music, but by virtue of the music to become kind of synchronised and entrained upon one another. So what we can say about a lullaby is that it helps to entrain an infant into a slowing down of their bodily processes and in the same way. We can use music to entrain bodily rhythms in the other direction, to entrain them into a more energetic and excited and hence wakeful and in some cases extendedly wakeful state, and there is an equally long history of the relationship between music and wakefulness, and getting people to do things in active ways. So that rhythms that have a kind of positive energy force about them and perhaps kind of complexity onto which we can latch on, maybe the kinds of rhythms that can induce us into active participation in, in whatever it is. So from thinking about those kinds of processes. That are now within the organisms these these kind of broad theories about how it is that organisms can become coordinated in this way. I think it'd be really interesting to know a bit more about what it is in the musical materials that can induce these kinds of behaviours. So Michael, as a DJ and producer, can you just tell us something about what it is that you're thinking about and what techniques you're using when you make dance music and when you're playing dance music in a club as a DJ, what, what kinds of things are you thinking about that mix? Be important in helping people to feel either more or less energetic to. If you like, play your crowd and by ramping up or ramping down their energy.

Michael Diamond:

Umm, there's a combination of so many factors that come into play. Sometimes I'm consciously thinking about things. Sometimes it just happens naturally. A few ways which I've discussed with some other DJs. For example object whose incredible DJ and many people would consider, you know, one of the best in the world. And he was talking about this idea of contrast, which I think may make sense if those contrast at different levels of scale between one track to the next, but also

between a whole segment of a set compared to the next segment of a set that creates interest. I think it gives something. For people to attend to and it doesn't get boring. As a result, human brains have probably evolved to follow and focus on something that is constantly changing because it's salient if it's constantly. And that applies to music music that feels like it's constantly evolving, changing over time. So much is to do with external factors. You know non musical factors as well, like the club environment, the, the crowd, the kind of crowd. The specific club you're at, I think, plays a huge influence. You know what that club is known for? The kinds of people that go there, the sort of scene it's involved in time of day. You're playing massive influence. The number of people, there's clearly so many other things. And yeah, and another major way in which I've noticed, and clearly other DJ's have noticed that creates some sort of effect on the dance floor is by playing something which has some familiarity. Do it and that might be in the form of a very recognisable sample or a vocal sample. It might be warped in some way and you know, presented in a new lens. But. Is still recognisable on some level. You know, I think there was a trend of like Britney, Britney Spears samples going round at some point, but the vocals would be mashed up and maybe modulated and made more interesting. When I've played some of these tracks on the dance floor, I feel like it gets a reaction. Because people still recognise as a Britney sample, it acts on peoples episodic memory and musical conditioning to. Activate certain brain pathways which may not have been activated by music that they don't recognise and it gives something that people can relate to.