



# LSD ENHANCES THE EMOTIONAL RESPONSE TO MUSIC

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## BECKLEY / IMPERIAL RESEARCH PROGRAMME

### What is this study about?

This is the first study to examine how LSD and music work together to change consciousness. It is part of a larger study using state-of-the-art brain imaging to give us the first insights into what happens in the brain to produce LSD's psychedelic (and potentially therapeutic) effects.

### Why did we do this study?

- Music is an effective tool for evoking and studying emotions.
- Psychedelics were used in psychotherapy in the 1950s and 60s. It was believed (but not scientifically evaluated) that music was an important component of this therapy.
- This is the **first modern, placebo-controlled study** to investigate the hypothesis that psychedelics enhance the emotional response to music.
- **In this study, we wanted to know: Does LSD enhance music-evoked emotions? What is the role of music in spiritual-type experiences?**

### What did we do?

- We gave 10 healthy volunteers either **LSD** (40-80µg intravenous) or **placebo** (saline) on 2 separate days.
- On each day, they listened to 5 tracks of **instrumental music** (mostly neo-classical and ambient).
- After each track participants were asked: "How emotionally affected were you by the music?".
- Participants also completed questionnaires about specific aspects of their emotional experience: wonder, transcendence, power, tenderness, nostalgia, peacefulness, joyful activation, and tension.
- Finally, participants rated their subjective experience on LSD.

### About the research team

Amanda Feilding is the founder and director of the Beckley Foundation. She and David Nutt are Co-Directors of the Beckley/Imperial Research Programme. Robin Carhart-Harris is the Programme's lead investigator. Mendel Kaelen is a PhD student who led this study.

### What did we find?

#### 1. LSD PRODUCED STRONG SUBJECTIVE EFFECTS.

- LSD produced a range of subjective experiences.
- The highest ratings were for the following: "my thoughts wandered freely", "my imagination was extremely vivid", "I felt amazing", "things looked strange" and "I felt an inner warmth".

#### 3. RELATIONSHIP BETWEEN THE INTENSITY OF LSD EXPERIENCE AND MUSIC-EVOKED EMOTIONS.

- The more intense was the overall LSD experience, the more emotionally arousing music felt, the strongest emotion being 'transcendence'.

### Why is it important?

- Emotions of transcendence and wonder are traditionally thought of as key aspects of peak and spiritual experiences. The fact that LSD specifically affects these emotions provides an important support the importance of combining both LSD and music for psychotherapy.
- Having spiritual-type or peak experience have been shown to correlate with sustained improvements in well-being and life satisfaction and also with increases in the personality trait of openness.
- Our study supports the view that music is an important element in psychedelic-assisted therapy.

#### 2. LSD INCREASED THE EMOTIONAL RESPONSE TO MUSIC.

- People under the effect of LSD reported being significantly more emotionally affected by the music.
- LSD significantly affected the emotions of 'wonder', 'transcendence', 'power' and 'tenderness'.

