

THE EFFECT OF MONOTONOUS DRUMMING ON SUBJECTIVE EXPERIENCES¹

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ABSTRACT

Background. Rhythm is a very important characteristic of music. When listening to rock music, youths frequently experience a trancelike state of consciousness. In shamanism, drumming was used for inducing a trance. Rhythm is very effective, but it is not clear how it influences our experiences.

Aims. The aims of the present research were to measure the effects of drumming on subjective experiences and analyze the mechanism of how rhythm effects our experiences.

Method. Subjects were presented with a monotonous drumming from an audio tape, while they were sitting in a comfortable armchair and were involved in an imaginary task. The length of drumming was 30 minutes. At the end of the experiment subjects recalled their experiences in their imaginary task, after that they completed the Phenomenology of Consciousness Inventory (PCI) (Pekala, 1985). The experiences of this group were compared with the experiences of three other groups: alert; imagery without drumming; hypnosis. The interviews were content analyzed with the Atlas ti. software.

Results. Statistical analysis of PCI scores indicates that drumming induced a significant change in subjective experiences, compared with alert state. The quality and quantity of changes were similar to the changes in hypnosis. But if they were involved in the same imaginary task, without drumming, there were no significant changes in subjective experiences. Content analysis shows that rhythmic activities can be found in subjective experiences during imagery. This is probably the effect of drumming.

Conclusion. Drumming can induce an altered state of consciousness, similar to hypnosis. It influences subjective experiences through association, similar to the way it happens in indirect hypnosis induction techniques.

1. BACKGROUND

Daily we can experience in listening to music what a strong effect it's rhythm has on us. We can see frequently that youths, listening to rock music, experience a trancelike state of consciousness. Drumming has an important role in inducing shaman's trance. In our times there are popular exercises of neo-shamanism, during which participants listening monotonous drumming experience peculiar experiences make imaginary journeys into the under or upperworld.

Though anthropologists claim that monotonous drumming has very strong effects on our subjective experiences, there are no exact examinations concerning the quality and quantity of these changes. It is not clear further as to the mechanism of how drumming effects our experiences. In our present research these questions were studied.

Our hypotheses were:

1. Drumming has a significant effect on subjective experiences.
2. These experiences are similar to the altered state of consciousness induced by hypnosis.
3. The drumming has an effect on the content of the experiences.

2. METHODS

2.1. Subjects

118 university students volunteered to participate in the experiments. None of them had hypnosis experience. They were divided into the following groups:

- listening drumming during imagery (28 Ss)
- imagery (24 Ss)
- hypnosis (22 Ss)
- and alert control (44 Ss).

2.2. Experimental order

The experiments were carried out in a quiet, dimly lighted laboratory. They participated individually in the experiment. During the experiments subjects sat in a comfortable armchair. The drumming was played back from tape. The drumming was recorded from synthesizer; its rhythm was 210/min.

Subjects were asked to close their eyes and listen to the drumming, and to make an imaginary journey into the underworld. The instruction and the rhythm of drumming corresponded to Harner (1990). The duration of the experiments was 30 minutes.

Control groups:

1. "Imagery": They were given the same imagery task, but without drumming.
2. "Hypnosis": They were hypnotized with the induction procedure of the Stanford Hypnotic Susceptibility Scale (Weitzenhoffer, Hilgard, 1959). After the hypnosis induction an imagery task was given to them.
3. "Alert": They spent 3 minutes in silence, with eyes closed.

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2.3. Measures

Interviews. After the experiments the subjects reported their experiences. This was tape recorded for content analysis. The experimenter listened to them without interruption.

Phenomenology of Consciousness Inventory (PCI, Pekala 1985) was administered. This is a Likert type questionnaire, with several subscales, and is used in the research of the altered state of consciousness.

3. RESULTS

3.1. Drumming vs. alert

The subjective experiences during drumming and the alert state, measured with the PCI, were compared. Multivariate analysis of variance was counted. There were significant differences between the experiences of the two groups (MANOVA, Hotelling's Trace $F=1,97$ $df=17$ $p<0.05$). This means, that drumming had a significant effect on subjective experiences. These differences can be measured with the PCI.

Unpaired "t"-test was counted to identify the PCI scales, where differences are. The drumming caused significant differences on the next scales:

PCI scale	Drumming	Alert	Sign.
Body image	3,09	2,27	*
Time	3,06	2,03	*
Perception	2,83	1,77	**
Meaning	2,67	1,47	***
Self-consciousness	3,57	4,74	***
State of consciousness	3,45	1,77	***

Table 1. PCI scales during drumming and alert state.

* $p<0,05$; ** $p<0,01$; *** $p<0,001$.

Body image. Subjects, while they were listening to drumming, felt their body image changed. They felt as if their body had expanded beyond the usual. Subjects in different trance states frequently report this.

Perception. They felt changed in their perception of the surrounding world, and themselves.

Time. They felt changes in the passing of time. They felt that time was passing slower or quicker than usual. It is a usual experience in hypnosis or meditation.

Meaning. The meaning of things had been changed. Subjects sometimes report after trance experiences that they understood or revalue something suddenly.

Self-consciousness. They felt that their self-consciousness were less distinct. The border between the self and the world became fuzzy.

State of consciousness. They felt that their state of consciousness differed from the normal, alert state.

3.2. Imagery vs. Alert

The PCI scores in the two situations were compared with MANOVA. There were no significant differences. If subjects were involved in the same imagery task, but without drumming, their state of consciousness had not been changed.

3.3. Drumming vs. Hypnosis

The PCI scores during drumming and hypnosis were compared with MANOVA. There were no significant differences between PCI scores. This means that subjects, who were listening to the drumming, experienced the same strong alteration of their subjective experiences as subjects, who were in hypnosis.

3.4. Content analysis

During the content analysis of the interviews we found some rhythmic activities, which are probably the effects of drumming.

Category	Frequency
Dance	19
Other rhythm	15
Heart beat	3

Table 2. Rhythmic categories in the content of the interviews.

Dancing. This activity frequently appeared in the reports. Generally they were dancing, sometimes they saw other persons dancing. E.g.

"I remember when I was very young, in the first class, my mother made me a little skirt from the leafs of corn. I wore this one, and I felt that I am dancing, at the rhythm of the drumming." Or

"I felt the rhythm and I was dancing."

Rhythm. There were reports without drumming or dancing, but with other kind of rhythmic activities. E.g.

"I was falling in a mine car, in which the coal is transported, and that car was clicking very loudly." Or

"It was like the underground is running in the darkness, and on the wall of the tunnel lights are flashing, repeatedly." Or

"Somebody hammered swords."

Heart beat. Sometimes subjects felt their heart beat or their mothers' heart beat. E.g.

"The rhythm of drumming was living within myself, I felt it in my chest, and this helped me to relax." Or

"I heard a heart beat, if I were in the womb of my mother."

Birth. May be that the very fast rhythm induced near birth experiences, which were associated with very great effort and heart rate.

“I reached a place, where I had to break through a wall or a rock, and after that I was in a horizontal funnel, and I was not able to follow the way.”

Control. There were reports without any kind of rhythm activities. Though in many cases, subjects felt if they were directed by the drumming. Sometimes they wanted to stop in a place of their imaginary world but the drumming drove them away. Others wanted to move but they felt that the drumming did not let them to do so. E.g.

“I became more and more tense. This was caused by the music. This music did not let me see. It didn’t let me to wander over the area I imagined.” Or

“There was a passage, downwards. It was of stones and there was darkness. I felt that there are ways to the right and left, and I wanted to see them, but the music did not let me to do so. In these cavities there were colors and fragrances. The music didn’t let me to go there.” or

“The music drove me further. It was like, when you are passing by a shop-window, you could see that but you had to continue, and you were driven further. The drumming had a definitive role in the experiences.”

“It was the drumming, that controlled the process and not me, Everything was ruled by the drum.”

These statements indicate also that the drumming had a very strong effect on subjective experiences. There was none of this kind of phenomena in the reports of the “imagery” group.

Regression. It was usual that after the experiment subjects, reporting their experiences could speak only with difficulties. They were looking for the right word, and formed sentences, which were incorrect grammatically. This uncertainty dissolved only by the end of the reports. This is an indication of the deep regression also. The regression appeared in the content of the reports also.

“I saw my grandfather, who took me by my hand, I was a young boy”. Or

“I saw my grandmother. I was very young when she died. I saw her gray hair.”

Transcendence. In some cases subjects reported important, transcendent feelings.

“I felt the freedom, I saw the ocean below and the sky was beautiful.” Or

“I tasted that essence and I felt the power coming into myself.”

Sometimes they reported ecstatic feelings E.g. “I was totally involved in the whirling.”

There were experiences they could not communicate.

4. CONCLUSIONS

Results show that if subjects were listening to drumming, subjective experiences altered significantly from the experiences in the usual alert state. They felt changes in their perception of body image, and the perception of time changed also. The perception of self and the world changed and subjects felt that the meaning of things had been changed. Their self-consciousness became less accurate, and the border between the self and the outside world became fuzzy. Subjects felt that during drumming their state of consciousness had changed very strongly. All these changes indicate that drumming can induce an altered state of consciousness.

The drumming has a definitive role in the process, because if subjects were given the same imagery task without drumming, there were no significant changes in subjective experiences.

The alterations of consciousness during drumming were very similar to the alterations in hypnosis. There were no differences between the effects of drumming and hypnosis, measured by the PCI.

The drumming has affected the content of the imagery process also. In some cases subjects imagined that they are dancing or they imagined someone else dancing. In other cases there were other rhythmic activities, a train is clattering along, hammering etc. In some cases there were heartbeats and near birth experiences.

Subjects frequently felt that the direction and speed of their imaginary journey were controlled and guided totally by the drumming. They felt that the drumming was bringing (or driving?) them or making them fly, and they couldn’t stop, or the drumming didn’t let them view something, they’d like to see.

The effect of drumming was very strong. Sometimes subjects were crying, because they met important persons and very deep emotions from childhood. They relived important events and sometimes were talking to relatives who were dead a long time ago.

We suppose that the drumming influenced subjective experiences very strongly and effectively because the experimental situation was rather unstructured. Subjects were sitting with eyes closed while involved in their imagery. In this situation the associations evoked by the continuous drumming can influence the content of the subjects’ imaginary processes. It may be that all the rhythmic experiences are somehow in connection with heartbeat or near-birth experiences and this is the reason of the effectiveness of drumming.

We suppose that this kind of association mechanism is in the background of the effectiveness of other kinds of music.

A similar mechanism is used during indirect hypnosis induction procedures. In this situation the hypnotist frequently influences the patients’ imagery process through associations. This is a hidden but very effective way of communication in hypnosis.

4. REFERENCES

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