

# Relaxation Effects of Snoezelen Environments on an Infant with Severe Motor and Intellectual Disabilities

— Using heart rates as an indicator —

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## **Abstract**

In recent years, scientific research has been conducted on the relaxation effects of Snoezelen on infants with severe motor and intellectual disabilities, etc. However, there have not been any reports on the effects of Snoezelen environments created by different combinations of Snoezelen equipment. In view of this, I prepared two Snoezelen environments that combined two distinct visual stimuli with audio stimuli and olfactory stimuli, and by investigating the case of an infant A with severe motor and intellectual disabilities, I measured and examined the infant's heart rates in a Morning Meeting environment and the two Snoezelen environments. The results showed that the Snoezelen 1 environment with audio stimuli, olfactory stimuli and visual stimuli (mirror ball and solar projector) and the Snoezelen 2 environment with audio stimuli, olfactory stimuli and visual stimuli (fiber glow and bubble tube) have virtually the same relaxation effects. In addition, the mean of heart rates counts and standard deviation values of heart rates counts decreased together as I repeated session by Individual Infancare after Snoezelen 2 and understood that infant A was relaxed. Based on these findings, it was thought that, in ongoing individual care and treatment using Snoezelen, adequate relaxation effects could be induced even in a small space or with small equipment. This suggested that, in the future, relaxation could be conducted by using a single room at hospital, a class room at school or a corner of a room at home.

**Key words :** Snoezelen Environment, Infant with Severe Motor and Intellectual Disabilities,  
Relaxation Effects

## **Introduction**

The philosophy of Snoezelen is concerned with spending a happy time that is filled up with a variety of environmental stimulants which create a safe multiplex sense simulative environment where one can use sight stimulation and hearing stimulation, sense of smell stimulation to stimulate the human five senses comfortably and which promotes interesting activity and relaxation, both for a person with disabilities and mutually for persons without said disabilities are concerned (Anezaki, 2006 b).

Snoezelen was begun as a leisure (spare time) activity for seriously mentally-disabled persons. However, it turned into a realization that it could be used both as therapy and as educational medium as indicated by research results (Mertens, 2003 ; Anezaki, 2007).

The relaxation effects of Snoezelen have come to attract attention in recent years, and scientific research with physiological guideline have been carried out both domestically and outside in Japan. For example,

heart rates count decreases due to the effects of Snoezelen are shown to be effective with the heart rates count and blood pressure of children with serious illness (Hereinafter referred to as child with serious symptoms) (White,1997), as well as for senior citizens (Shapiro, 1997 ; Diepen, 2002 ; Baillon, 2004) resulting in increased relaxation (Anezaki, 2006 c).

However, the Snoezelen environment, which can be varied, is created by a combination of machinery used for Snoezelen (which has not been reported until now) concerning what kind of effects have been observed. It is thought that these offer documentation which may be useful for Snoezelen care and treatment / education which will be clarified hereinafter.

### Purpose

Therefore this report will go into a comparison between the results of examination of the “Morning Meeting” and both scenes of “Snoezelen 1” (each using the machinery of mirror ball, solar projector, Snoezelen music, aroma strome), and using the pulse oxymeter to give more examples used during the “Morning Meeting” and both scenes from “Snoezelen 2” (each using the machinery of fiber glow, bubble tube, Snoezelen music, aroma strome) and measuring the change of heart rates counts. We will report on one Infant with Severe Motor and Intellectual Disabilities (ISMID) case wherein the mother and infant go to a infant treatment center for care and treatment to compare a “Morning Meeting” scene and two “Snoezelen” scenes.

### Case studies of infant, care and treatment period and treatment times

Infant A was five years one month old who is bedridden by Oshima’s classification 1. Said subject has both cerebral palsy and mental disabilities, namely epilepsy. The care and treatment period is from April, 2005 to December, 2005 (10 times in total). Infant A participated for 20 minutes in total of individual participation in which I set the environment for “Snoezelen 1” at 10 minutes and “Snoezelen 2” at 10 minutes) for a sequence of 10 minutes following the “Morning Meeting”. However, infant A has received, mother and infant care treatment of Snoezelen 22 times in total before this. Snoezelen care and treatment lasted continuously until December, 2004 from December, 2002.

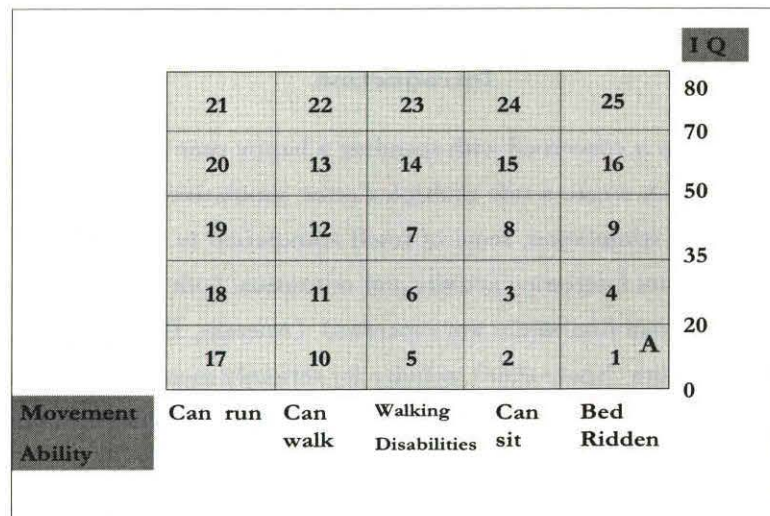


Fig.1 Oshima's Classification and Infant A

## The Morning Meeting

Two or three infant care professionals teach 5-7 with ISMID (mainly, 2-5 years old). Each mother was assigned to the side of their respective infants. Infant A was able to sit at the table in a stable upright position. Through 10 times in total the meeting consisted singing a morning song, grabbing an attendance seal, and playing with toys.

## Environmental setting of Snoezelen

I darkened a room about 7-mats in size where no noise could be heard using a blackout curtain. We had both the caregiver and the proper treatment background, and infant A made up one session. I used the following things as machinery / tools of Snoezelen and created a so-called "White Room" (cf. Fig. 3).

The first (Snoezelen 1) uses a mirror ball, a solar projector, an aroma strome (a sweet orange), Snoezelen music for infants, a CD radio cassette tape recorder, and one beaded cushion for each participant (Fig. 3-1).

The second (Snoezelen 2) uses a fiber glow, a bubble tube, an aroma strome (a sweet orange), Snoezelen music for infants, a CD radio cassette tape recorder, and one beaded cushion for each participant (Fig. 3-2).

Infant A participated both times with a stable posture and was able to sit upright on the beaded cushion.

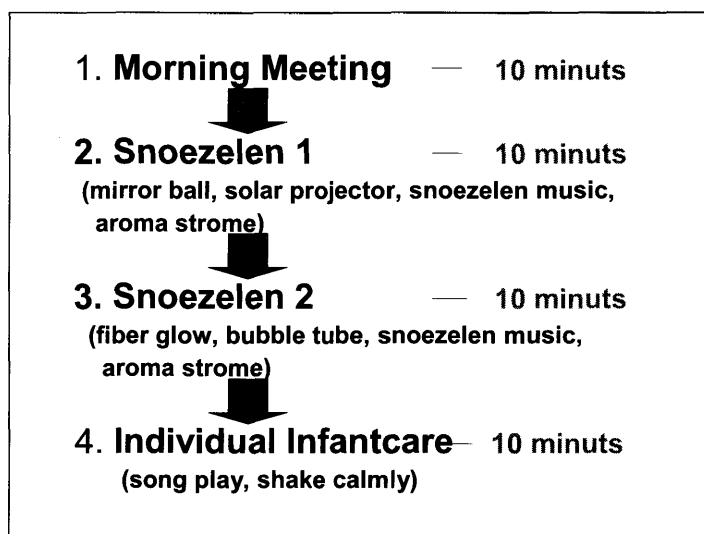


Fig.2 Program of Research

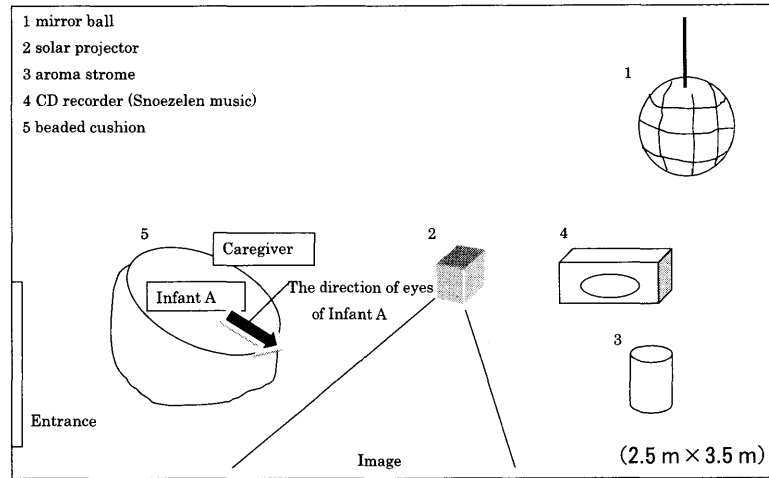


Fig.3 - 1 Environmental setting of Snoezelen 1

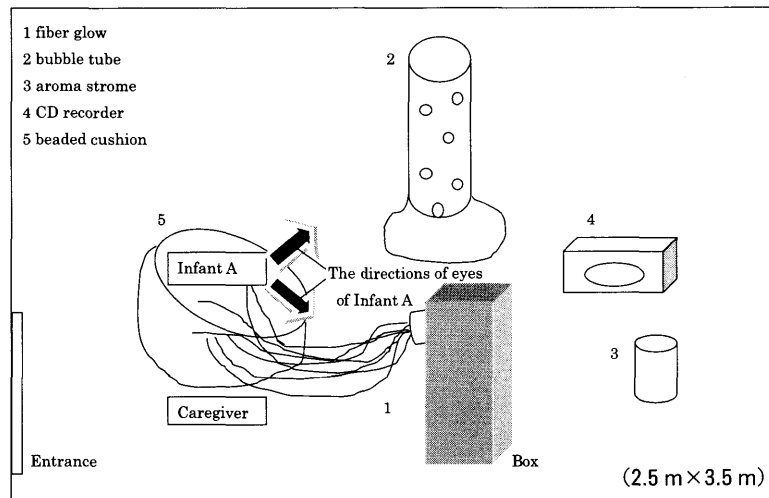


Fig.3 - 2 Environmental setting of Snoezelen 2

### Wearing and analysis of pulse oxymeter

I bound the thumb of the left hand of infant A with medical care tape and mounted it with a universal Probe (UD-5 C) of PULSOX-M 24 made by Teijin (a Japanese company) and installed the main body of the pulse oxymeter to the left arm each time. The probe considered the physical movement of infant A and I chose the part that I could measure precisely, mounting it accordingly. The jar of the probe and the main body worn inside was not particularly observed by infant A. I analyzed the data with analysis software (Teijin DS-M).

### Results

In the “Morning Meetings”, infant A took part in the meeting while listening to the singing of the morning song. In addition, the infant was assisted in grabbing the attendance seal, and in the playing with toys sections with the assistance of the subject’s mother alone.

In addition, the major actions observed within sessions of Snoezelen are as follows. In “Snoezelen 1”, the

participants intently watched a picture projected by a projector intently as well as the hand puppet shadow that she made with her hands projected to a wall. In “Snoezelen 2”, the participants watched a fiber glow lamp and moved her right hand and hauled in it towards the subject’s body many times, sometimes watching the bubble tube.

In the session I attempted to separate mother and infant at this time and carried out Snoezelen with only two care and treatment professionals on Infant A, but the tendency to cry was not particularly strong. However, due to physical illness, Infant A was seen to grow tense at three and four times.

Concerning both scenes of the “Morning Meeting” and “Snoezelen 1”, I showed the mean (Fig. 4) of the heart rates counts of infant A as well as the standard deviation values (Fig. 6) of heart rates counts. In addition, concerning both scenes of the “Morning Meeting” and “Snoezelen 2”, I derived the mean (Fig. 5) of heart rates counts of Infant A and standard deviation values (Fig. 7) of heart rates counts. Furthermore, regarding both scenes of “Snoezelen 1” and “Snoezelen 2”, I showed the mean (Fig. 8) of heart rates counts of Infant A and standard deviation values (Fig. 9) of heart rates counts.

Since our results for three or four runs were irregular, the standard deviation values of heart rates counts of the “Morning Meeting” each scene of “Snoezelen 1” and “Snoezelen 2” increased for each respective illness. However, when compared with the “Morning Meeting”, the scenes of “Snoezelen 1” and “Snoezelen 2”, were fewer in band width deviation regarding heart rates counts (cf. Fig. 6 & Fig. 7).

I have compared these findings for “Morning Meeting” with heart rates counts for “Snoezelen 1” and “Snoezelen 2”. In Fig.4 and Fig.5, we can see a meaningful increase herein ( $P < .01$ ). In addition, a significant difference was not seen (N.S.) in the standard deviation value of heart rates counts of “Snoezelen 1” and “Snoezelen 2” in Fig.8 and Fig.9. Moreover, heart rates counts shown in Fig.10 and Fig.11 showed a meaningful decrease in the standard deviation values of heart rates counts “Snoezelen 1 and “Snoezelen 2” ( $P < .01$ ).

A tendency to decrease was accepted for the mean of heart rates count of and standard deviation value of heart rates count of A infant as I repeated a session by “Individual Infantcare” after “Snoezelen 2” (Fig. 10 & Fig. 11).

In addition, as a result of having compared “Snoezelen 1” and “Snoezelen 2” with “Individual Infantcare”, as a whole, a clear tendency to decrease was recognized in the mean of heart rates count and standard deviation value of heart rates count in particular as I repeated session.

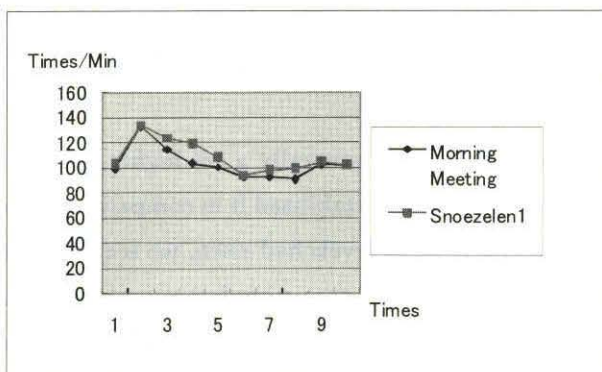


Fig.4 The Mean of Heart Rates

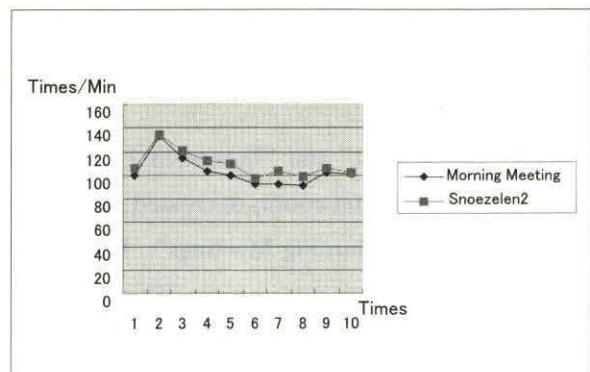


Fig.5 The Mean of Heart Rates

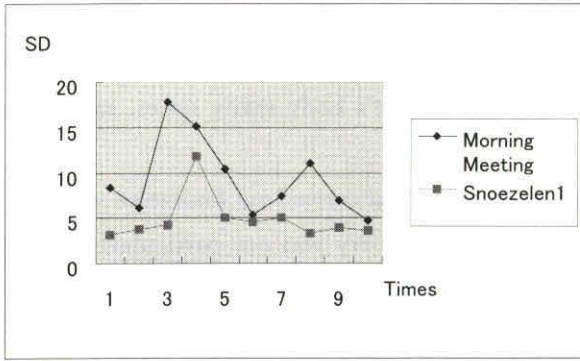


Fig.6 SD of Heart Rates

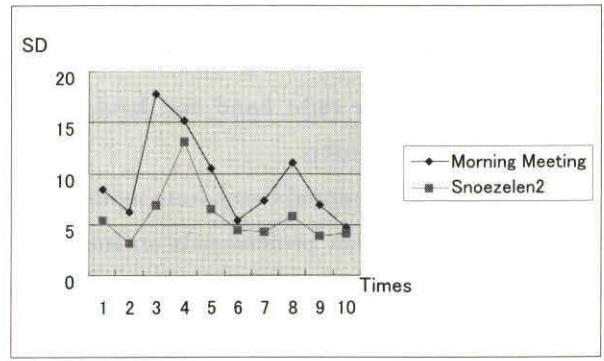


Fig.7 SD of Heart Rates

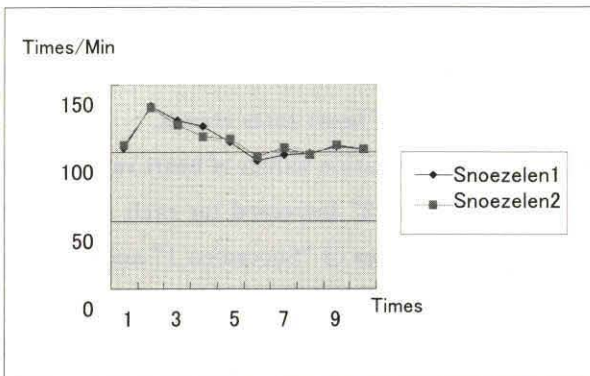


Fig.8 The mean of Heart Rates

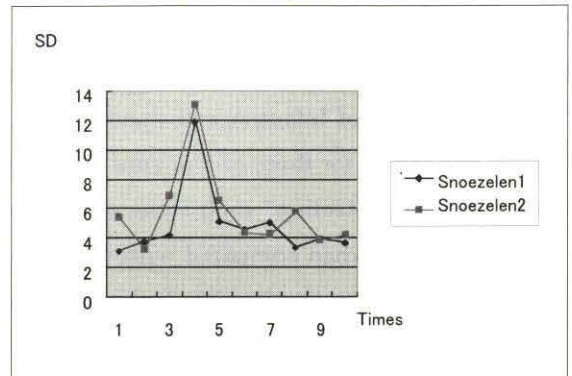


Fig.9 SD of Heart Rates

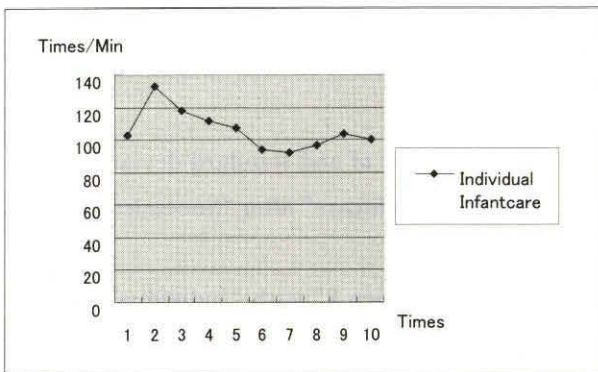


Fig.10 The Mean of Heart Rates

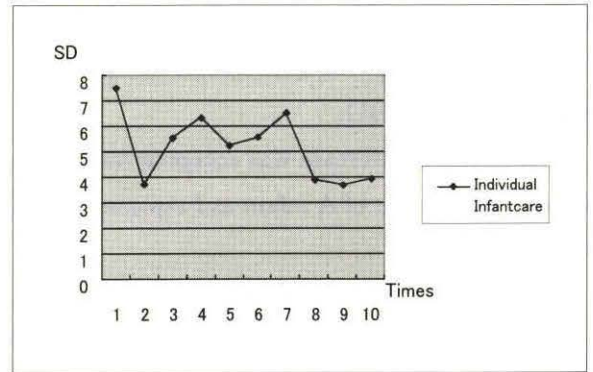


Fig.11 SD of Heart Rates

**Discussion**

With “Snoezelen 1” and “Snoezelen 2” the heart rates counts became generally a bit higher, but the bands of the heart rates counts decreased and the heart rates depended and stabilized it in comparison with the results of the “Morning Meetings”. Due to the fact that, excitement levels had risen, we see a rise in the number said heart rates counts. This was because of the influence of sense stimulation such as sight stimulation. However, the tendency was seen wherein the change calmed down for the whole heart rates counts. Therefore, “Snoezelen 1” and “Snoezelen 2” provided stability in the psychological sphere for infant A and it can be seen that both promote relaxation and beneficial effects.

The following results are basically identical with the results of research projects carried prior to my own.

(Anezaki, 2006 c). I made comparisons with the “Morning Meeting” wherein I used sight stimulation provided by four items : a mirror ball, a solar projector, a fiber glow, a bubble tube, together with hearing stimulation and sense of smell stimulation as part of the environment of Snoezelen along with the precedent study. Here I focused on the relaxation effect in Snoezelen was focused upon.

In addition, from the results of Fig.8 and Fig.9, it is thought that “Snoezelen 1” and “Snoezelen 2” were environments existing without major differences from the point of view of promoting relaxation.

It was suggested that I did not always need much stimulation to get the results of this research to facilitate relaxation in ISMID in the Snoezelen environment. In other words, I found a stable seat rank, and it was thought that this was enough for hearing stimulation and sense of smell stimulation to promote relaxation of, furthermore, there was an addition of two sight stimuli.

### **Conclusion**

As a result, this means that we do not always assume the need for large spaces and extensive equipments to carry out Snoezelen. It is thought that even a small space and minimal equipments can engender sufficient relaxation effect.

In addition, the mean of heart rates counts and standard deviation values of heart rates counts decreased together as I repeated a session by “Individual Infantcare” after “Snoezelen 2” and understood that infant A was relaxed.

Therefore, we will use a corner of one room of hospital and a classroom of school and a home room in the future. I believe that it should be possible to utilize Snoezelen effectively with little equipment. This means that Snoezelen can be utilized easily anywhere.

But it is necessary to secure a quiet place where it is easy to concentrate on Snoezelen where one can provide individual care and treatment based in the principles of the Snoezelen context, Any noise should also facilitate a continuous relationship of mutual trust between care and treatment givers and the subject party.

By this research, I examined two combinations of the mirror ball & solar projector and fiber glow & bubble tube for sight stimulations in particular. Here I showed and clarified that there was a relaxation effect of the same quality. I will examine combinations of various machinery equally in the future.

### **Author’s Notes**

A part of this paper was presented in a workshop at the 5th International Snoezelen Symposium, Montreal in Canada, Sep. 2007.

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