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A Fetal Education based on Fetal Hearing Function Prepared for Newborn Life

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Introduction

We prepared a HP 3311A function generator to stimulate the fetus from outside of uterus, including 250, 500 and 1,000 Hz sine wave signals, a power amplifier, a loudspeaker and an audiometer to measure the speaker sound intensity at 1 meter distance from the speaker. Intensity of 1,000 Hz sound was 80 dB in 28 weeks and 60 dB at 40 weeks of pregnancy when sound duration was 2 seconds. The difference of 1,000 Hzsound effect was significant between 28 and 40 weeks of pregnancy. Fetal reaction was recorded by fetal movements followed by transient fetal heart rate (FHR) increase (acceleration) in fetal resting state, which were recorded by Maeda's actocardiogram (ACG), while the difference was insignificant if the sound frequency was 250 or 500 Hz. Thus, the standard change was achieved when the sound frequency was 1,000 Hz, but not by 250 or 500 Hz sound in adult conversation. Light stimulation was the flush light of photo strobo light flushed at pregnant abdomen, where fetal response was movement and FHR acceleration, which were noted after 24 weeks of pregnancy, where fetal response to light was fetal movement followed by FHR acceleration, thus, a fetus also responded to light after formation of retina [1,2].

Fetal Education

As the fetal acoustic stimulation was significantly positive to 1.000 Hz sound, thus, every fetal acoustic education will be done with 1,000 Hz sound from the outside of uterus, i.e, a fetus, rather than newborn, will be educated about the life after birth through 1,000 Hz voice, where an examples of voice changers are shown in Figure 1, which will have the effect to give the fetus on postnatal life, without long newborn cry, namely, 4 newborn babies cried longly in a TV image. The author understood that a newborn did not know the outside life, thus, the fetuses should be educated on stressful outsides life before birth.

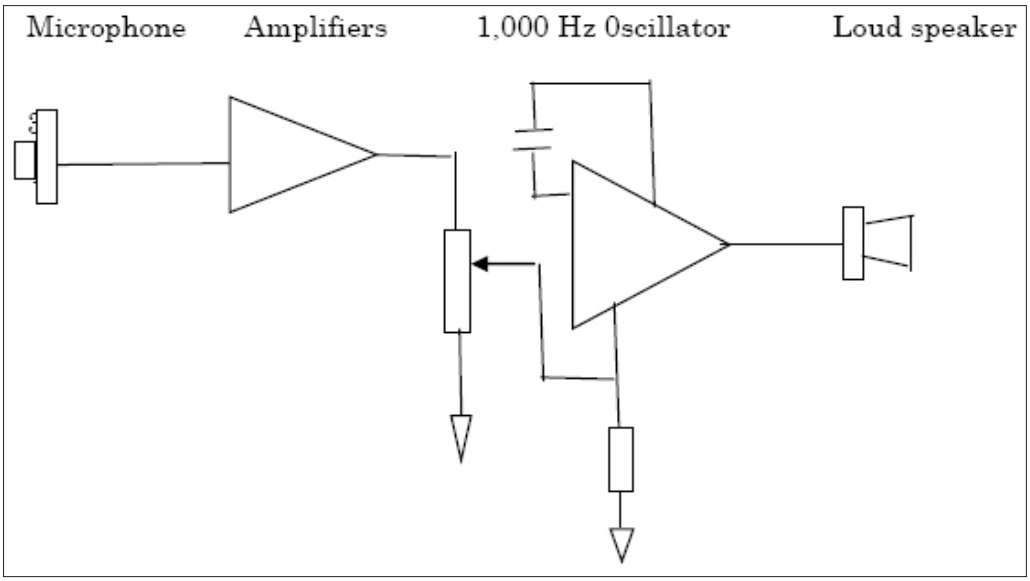

Fig 1. *400 to 1,000 Hz voice changer, which is necessary to speak to the fetus. The device is similar to high-pitched fetal heart sound listener, hand-made by Maeda in 1962.*

Methods and Conclusion

As stated in fetal sound stimulation, 1,000 Hz sound was effective to communicate with the fetus in the pregnancy, while adult conversation sounds of 250 and 500 Hz are ineffective to listen by the fetus, namely, teachers voice should be changed to 1,000 Hz with a voice changer. Fortunately, 60 Hz fetal heart sound was changed to 1,000 Hz to clearly listen to fetal heart tones to count fetal heart rate for fetal monitoring in 1962, by Maeda hand-made. As the fetus may speak with 1,000 Hz sound, another 1,000 to 500 Hz voice changer is necessary for fetal conversation then, teacher voice frequency is changed 1,000 Hz (Figure 1). As fetus may speak 1,000 Hz tone, another voice changer is needed that is 1,000 to 500 Hz. Then, fetal education is completed with two voice changers during pregnancy.

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