



# Clinical Case Report Competition

Utopia Academy

Spring 2010

Second Place Winner

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The effects of massage therapy on infant growth

**KEYWORDS:** Low Birth Weight, Gestational Period, Weight Gain, Eating Habits, Sleep Habits, Behaviors.

## **ABSTRACT**

**OBJECTIVE:** The effect of massage therapy on an infant of low birth weight is investigated.

**METHODS:** A low birth weight infant received ten massage therapy treatments aimed at full body massage and constipation relief. Outcomes of eating habits, sleeping patterns, and behaviors were measured/noted, as well as weight gain, compared to a baseline measurement.

**RESULTS:** Compared with baseline values there was not much change in eating habits; however, hours of sleep was increased. There was marked increase in facial expressions and body movements. There was also an increase in the weight of the infant. The massage treatments effectively treated constipation.

**CONCLUSION:** Massage therapy has the potential to be effective in increasing the weight of an infant of low birth weight. It also has the potential to help increase sleep and behavioral patterns, and is effective in treating constipation.

## **INTRODUCTION:**

A healthy gestational period is approximately 38 to 42 weeks. On average, a healthy infant born at 40 weeks is seven and a half pounds. Generally a few days after birth, a baby will lose six to ten percent of their birth weight, most of which is lost in water. Between days three to six, a baby will gain that weight back, and by day fourteen they will have surpassed their birth weight. For the next three months an infant can gain up to one ounce per day (approximately 1.8lbs a month).

There are various factors that can affect the growth of a baby. Body type is one factor, and is usually determined by genetics. For instance, “banana babies” (long and lean babies) generally have a high metabolic rate, and burn calories very quickly. Whereas “apple” and “pear” shaped babies are the opposite. A baby’s temperature also affects the amount of weight gained; active babies with persistent motor-driven personalities will burn more calories than babies who are less active. Another factor is whether or not the baby is breastfed. Some studies have shown that infants who are formula-fed consume more calories and a higher volume of milk than those who are breastfed. This seems to be an indication that breastfed infants have an incredible ability to self-regulate their caloric intake according to their needs.

Some causes of low birth weight in an infant who is small for their age (born between 38 and 42 weeks) include: restricted growth in the womb, poor maternal health and nutrition, inadequate prenatal care, and smoking during pregnancy. One study also suggests that hyperemesis gravidarum or milder

forms of this condition may also be a cause of low birth weight (Chin, R. K. and Lao, T. T.)

Specific medical treatment of low birth weight infants is generally determined by a physician and is based on several factors: gestational age and medical history, tolerance of medications and procedures, and overall health of the infant. Treatment often includes care in the NICU, and special feeding procedures (which may include strict feeding times or possibly a feeding tube). Medications and other procedures may need to be followed depending on the complications of the infant.

Massage therapy for infants is something that has not been investigated extensively and I believe could potentially be an important part of this discipline. People often misunderstand the exact purpose of massage therapy and are unaware of the enormous effects it could potentially have on infants with a variety of conditions, including low birth weight. One research article stated that “Following massage therapy protocols using moderate pressure, preterm infants have gained 31–49% more weight on average” (T. Field). Another study stated that “when infant massage therapy is properly applied to preterm infants, they respond with increased weight gains, improved developmental scores, and earlier discharge from the hospital” (Beachy JM). Although these studies were performed on preterm infants and infants in the NICU, I believe that massage will have a similar effect on infants of low birth weight for their gestational age.

If ten massage therapy treatments are performed on an infant of low birth weight, the infant will gain weight and eat more than prior to the first treatment.

## **METHODS:**

**SUBJECT:** Massage treatments were performed on a two and a half month old infant. The infant had some complications at birth. Born at 39 weeks, he was 5.24 pounds, considered low birth weight. The baby was hospitalized for the first month and a half in an incubator. He needed oxygen and was also having seizures of an unknown cause. The baby had lots of testing done (genetic, neurology, and cardiology) and no results were found. Prior to treatment one, the biggest concern was his low weight. Once out of the hospital the infant had a feeding tube in, as he was not consuming enough food via formula. He constantly removed this tube, creating feeding difficulties for the infant.

Consent to perform massage therapy on the infant was received prior to treatment one, and before each treatment session by the parent of the infant.

**TREATMENTS:** Ten massage therapy treatments were performed on the subject with low birth weight. The initial aim of the treatments was to improve weight gain. Eating, sleeping, and behavioral patterns were also noted.

Each massage therapy treatment was approximately 15 minutes in length. They consisted of full body massage using techniques with and without oil. Range of motion techniques were performed to all joints in the upper and lower extremities. General Swedish techniques with moderate pressure were used on the full body to promote circulation, and increase muscle function and nerve firing. There was also focus on abdominal massage to relieve symptoms of

constipation. After each treatment I spent approximately half an hour with the subject noting any behavior changes compared to previous treatments.

## **FINDINGS:**

After 10 massage therapy treatments there was not a significant change in eating habits (the number of times and amounts per day). There was not a significant change in sleeping habits as shown by the recorded data; however, the parent noted much change from the time of the first treatment to before the last treatment. There was an improvement in weight gain. The amount of weight gained from birth to treatment one was very similar to the amount of weight gained from treatment one to treatment ten. Meaning the same amount of weight was gained in half the time. There was a significant change in some behavior patterns. Personality changes began to show as well. There was an increase in facial expressions from treatment one to ten (smiling, mouth and eye movements). The infant also became more vocal throughout the ten treatments.

## **DISCUSSION:**

There were many variables in this case study that may have created challenges in receiving accurate data. The subject did have many complications at the time of birth, which may have altered the outcomes of the data recorded. A subject who was healthy, but was low birth weight may have shown a different or more substantial outcome.

Although there was not a significant increase in the amount of food intake, the infant did not have a consistent eating schedule nor did the parent set one out during the ten treatments. Perhaps if there were set times for eating, the data would show an increase in the amount of food intake.

The data also shows an insignificant increase in sleeping patterns. However, the parent noted an increase in the amount of sleep between treatment one and ten. Since the sleep data was only recorded prior to treatment one and after treatment ten, they may not supply enough information. If this data was recorded throughout the ten treatments, the information that displays sleep habits may be shown more accurately.

There were also various subjective behaviors noted throughout the study. Since there is no direct way to measure facial and vocal expressions, it is not as reliable as measurable data.

## **CONCLUSION:**

The results of this study suggests that massage therapy does help increase weight gain in infants of low birth weight. Compared with baseline measurements, the amount of weight gained between treatment one and treatment ten was almost a 50% increase compared to the amount of weight gained from birth to treatment one. The results also suggest that there was not a significant increase in eating habits, or sleep patterns displayed by the data.

The most subjective data noted was behavior patterns. Prior to the first treatment, the infant did not express many facial expressions, nor make any vocal noises. By the tenth treatment, there was a significant increase in emotion shown on the infants face (smiling, excitement, etc.). The infant also became more vocal throughout the ten treatments. Although these findings were noted, they are very subjective findings.

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