

# Effect of oil massage therapy in low birth weight preterm neonates

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## Abstract

**Background:** To minimize the stress and optimize the developmental outcomes of preterm babies several interventions in the past two decades have been researched. Some of these interventions have included Kangaroo mother care, massage therapy, cluster care, nonnutritive sucking, positioning, swaddling, unlimited parental visitation and decreasing light and noise. To date only two of these interventions have provided conclusive evidence regarding their efficacy: KMC and non nutritive sucking. There is paucity of data as far as the Indian context is considered on the effect of oil massage therapy on weight gain. With this background, we conducted this research so as to find out the effect of oil massage therapy on weight gain among preterm neonates in Indian setting. **Aim:** To determine whether massage therapy promotes weight gain in preterm low birth weight neonates. **Objectives:** Comparison of massage group and control group for weight gain to determine the effect of massage therapy. **Materials and Methods:** It is a randomized control trial conducted on randomly selected (by block randomization) 28 to 36 weeks neonates who fulfill inclusion and exclusion criteria admitted at NICU of MGM Hospital, Aurangabad over a period of 2 years from October 2014 to September 2016. **Results:** Study was carried out in 216 preterm low birth weight neonates and our study showed that daily weight changes is clearly higher among massage group compare to control group. Mean final weight of babies on day 7 was higher in massage group compared to control group, mean daily weight gain of babies was higher in massage group compared to control group indicating positive effect of massage on babies daily weight gain. **Conclusion:** Massage therapy to the low birth weight preterm neonates was effective for quick weight gain compared to the babies not given massage therapy. **Keywords:** oil massage, weight gain, preterm neonates.

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Received Date: 19/09/2016 Revised Date: 15/10/2016 Accepted Date: 10/11/2016

## Access this article online

Quick Response Code:



Website:

[www.medpulse.in](http://www.medpulse.in)

DOI: 18 March 2017

## INTRODUCTION

A recent study comparing KMC to massage concluded that both interventions are equally effective in improving weight and reducing hospital stay and can be used interchangeably. However, it is not possible to make definite recommendations on the benefits of massage or

to predict whether the benefits are long-lasting. There is paucity of data as far as the Indian context is considered on the effect of oil massage therapy on weight gain. We were able to find a very few studies conducted in India on this aspect of the effect of oil massage therapy. With this background, we conducted this research so as to find out the effect of oil massage therapy on weight gain among preterm infants in the Indian setting

## MATERIALS AND METHODS

**Study Type:** Randomized control trial

**Study Setting:** The present study was conducted on randomly selected 28 to 36 weeks born neonates admitted at Neonatal Intensive Care Unit of MGM Hospital, Aurangabad.

**Study Period:** The period of data collection was spread over two years from October 2014 to September 2016.

The collected data was analyzed over a one month period and the report writing was completed by end of October 2016.

### Sampling Method and Sample Size

216 randomly selected 28 to 36 weeks born neonates admitted at Neonatal Intensive Care Unit were included in the study. Patients were included in the study after taking their voluntary informed consent from their parents. The random selection of the cases into the two groups was done by block randomization. Each block was filled with 10 chits and 5 chits of massage group and 5 chits of control group. Once all chits of a block were completed we again filled with 10 chits. Both genders were included in the study.

### Inclusion Criteria

- Gestational age of 28 to 36 weeks. (according to New Ballard score)
- Birth weight less than 1800 grams.
- Babies on full feeds (including RT feeds, Direct breast milk, wati spoon feeds)
- Babies older than 10 days

### Exclusion Criteria

- Restricted movement or inability to undergo intervention.
- If mother had chronic medical condition
- Baby on ventilator

### Study Tools

The present study was thoroughly explained to parents and written consent was taken. For accurate reading of information an observer was supervising the whole process. Weight of the baby was measured every day early morning with infant digital weighing scale in both the groups.

### Process Of Neonatal Massage

There are no fixed guidelines describing exact methodology of neonatal massage. Massage can be done by mother or if mother is not available then care giver can do massage therapy. Chest and stomach regions will not be massaged. FIELD, in her extensive research, has described a method which has been followed by most studies on massage therapy. Consists of both tactile and kinesthetic stimulation.

- Tactile stimulation followed by kinesthetic stimulation followed by tactile stimulation.
- Baby in prone position - Tactile stimulation for 5 min.
- Baby in supine position - Kinesthetic stimulation for 5 minutes.
- Baby in prone position - Tactile stimulation for 5 min.
- 15 minutes two times a day for 7 days.
- Two sessions of neonatal massage in a day, First session 1 hour after morning feeding and Second session 1 hour after evening feeding.

**EACH SESSION:** Tactile stimulation for 5 minutes, 5 minutes divided into 5 sections, each section divided into 6 fractions of 10 seconds each.

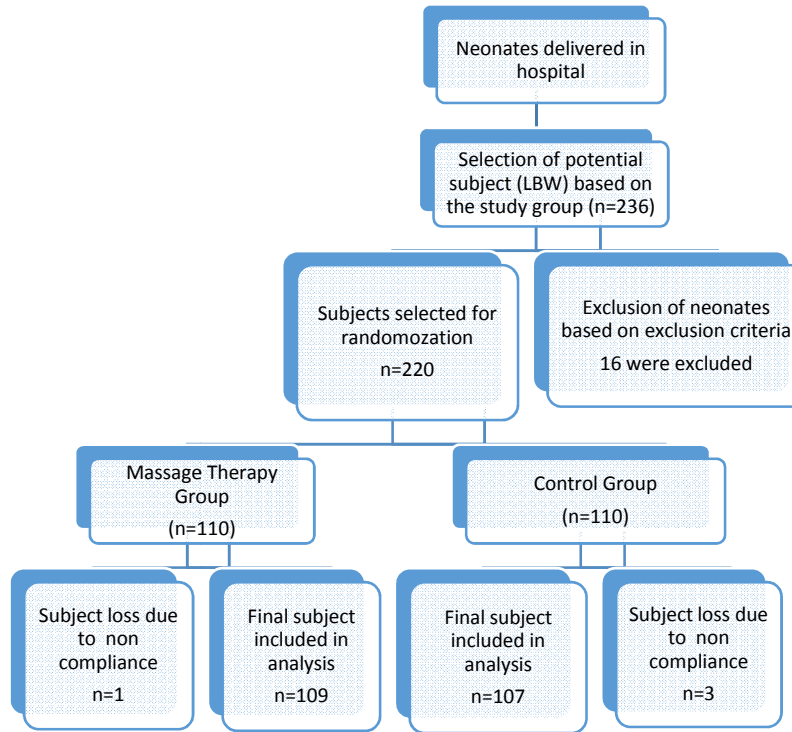
### TACTILE STIMULATION:

- **FIRST FRACTION:** Head to neck and back to head.
- **SECOND FRACTION:** Posterior neck to shoulder and back to posterior neck on right and left side simultaneously.
- **THIRD FRACTION:** Massage of right hand from shoulder to wrist.
- **FOURTH FRACTION:** Massage of left hand from shoulder to wrist.
- **FIFTH FRACTION:** Shoulder down to buttocks.
- **SIXTH FRACTION:** Simultaneous massage of both legs from hip down to soles and back.
- Tactile stimulation is followed by kinesthetic stimulation for 5 minutes, Kinesthetic stimulation consists of movement of joints like shoulder, elbow, wrist, hip, knee and ankle joints. Massage can be interrupted for few minutes when baby passes stools, urine or cries excessively.
- **Oil massage:** Massage of newborn may be done using a lubricant oil to avoid friction between surfaces. Oil used in present study will be olive oil, as many studies proved olive oil massage showed better weight gain velocity.

## RESULTS

Following chart shows recruitment of study subjects for the present study. Finally, 109 cases in massage therapy group and 107 cases in control group.

### Study Chart



Mean gestational age of massage group is  $31.5 \pm 2.2$  and in control group is  $31.7 \pm 2.1$ . P value is 0.495 indicating that there is no significant difference of mean gestational age in massage group and control group. Four neonates (3.67%) in massage group and six neonates (5.5%) in control group had blood stream infection. P value is 0.498 indicating that there is no significant difference of presence of blood stream infection in massage group and control group. Postnatal age in massage group is  $11.4 \pm$

$5.5$  and in control group is  $12.7 \pm 5.6$ . P value is 0.086 indicating that there is no significant difference of postnatal age in massage group and control group. Mean weight of babies in massage group is  $1501 \pm 243$  gms and in control group is  $1462.1 \pm 268$  gms. P value is 0.263 indicating that there is no significant difference of mean weight of babies at the time of randomization in massage group and control group.

**Table 5:** Comparison of daily weight of babies between massage group and control group

Days	Massage Group (n=109)		Control Group (n=107)	
	Actual weight (mean in gm)	Weight gain compared to previous day (mean in gm)	Actual weight (mean in gm)	Weight gain compared to previous day (mean in gm)
Day 0	1501.0	-	1462.1	-
Day 1	1523.70	22.70	1485.10	23.10
Day 2	1548.10	24.40	1509.30	24.20
Day 3	1574.40	26.30	1534.10	24.80
Day 4	1602.80	28.40	1559.50	25.40
Day 5	1633.60	30.80	1585.40	25.90
Day 6	1667.20	33.60	1611.70	26.30
Day 7	1703.80	36.60	1638.80	27.10

# P value non significant

After 2<sup>nd</sup> day the weight gain is clearly higher among massage group compare to control group.

**Table 6:** Comparison Weight of babies between massage group and control group on day 7 of the study

Weight of babies	Massage Group mean ± SD n=109	Control Group mean ± SD n=107	t value*	P value
Final weight on day 7	1703.8 ± 244	1638.8 ± 231	2.394	0.017#

# P value significant

P value is 0.017 indicating that there is significant difference of mean final weight of babies on day 7 in massage group and control group.

**Table 7:** Comparison of daily weight gain of babies between massage group and control group

Weight gain	Massage Group mean ± SD n=109	Control Group mean ± SD n=107	t value*	P Value
Weight gain per day during 7 days of therapy, g/d	27.1 ± 6.9	25.2 ± 5.8	2.188	0.029#

# P value significant

P value is 0.029 indicating that there is significant difference of mean daily weight gain of babies in massage group and control group. Mean daily weight gain of babies was higher in massage group compare to control group indicating positive effect of massage on babies daily weight gain.

## DISCUSSION

In study conducted by Jyoti Arora et al<sup>1</sup> on effect of oil massage on growth and neurobehaviour in very low birth weight preterm neonates, the mean weight gain of cases after 28 days in oil massage group was 365 ± 165.2 gms, in only massage group was 290 ± 150.2 gms and in no massage group was 285 ± 170.4 gms. The weight gain was greater in oil massage group compared to other group but they are not significant.

## CONCLUSION

From this randomized control trial conducted on 216 babies we conclude that the massage therapy if given as described in the methodology to very low birth weight babies is effective for quick weight gain compared to the

babies not given massage therapy. The effect of massage therapy by mean of gaining weight is obvious after 2 days of massage therapy. As the day progresses during massage therapy amount of weight gain per day proportionately increased.

## REFERENCES

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Source of Support: None Declared  
Conflict of Interest: None Declared