Impact on growth development in preterm babies receiving *Massage Therapy* in Kangaroo Position (Skin-Skin contact)

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WHAT IS OUR AIM?

Early interventions such as **Kangaroo Mother Care (KMC)** and **Massage Therapy in Incubator (MTI)** allow us to develop a new technique, created by using Massage Therapy delivered in Kangaroo Position (MKP), empowering the benefits from skin-skin contact of KMC and the physiological response in weight gain of MTI.

OUTCOMES

- Comparison between two interventions; Massage Therapy in Kangaroo Position (MKP) vs. Massage Therapy in Incubator (MTI) on growth in very low birth weight infants.
- Measure the growth development according to the chronological age.

HOW DO WE CHOOSE OUR PRETERM BABIES?

METHOD

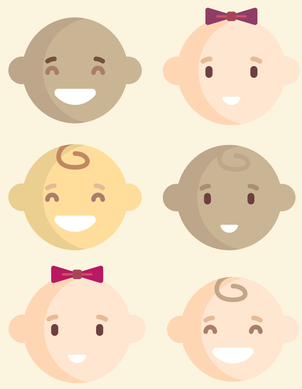
- A randomized controlled trial conducted in a teaching hospital in Bogota, Colombia. From January 2013 to July 2015. Based on a sample of preterm babies practicing Kangaroo Mother Care in a daily bases.

SUBJECTS

- 66 VLBW were randomized to Massage Therapy in Kangaroo Position (MPK) and Massage Therapy in Incubator (MTI).

SELECTION CRITERIA

1. VLBW (birth weight ≤1500 g) infants.
2. Birth at ≤33 weeks of gestation.
3. Stable health condition.
4. Not with any respiratory support.
5. Infants with congenital anomalies were excluded.
6. With more than 15 days of chronological age were excluded.



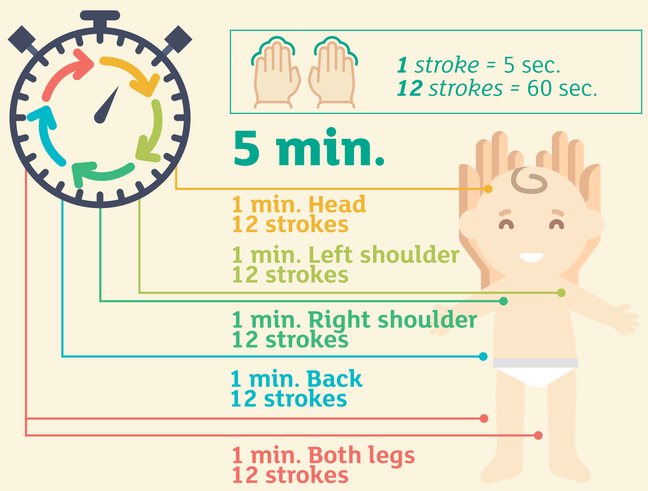
HOW WE MANAGE THE PROTOCOL AT THE HOSPITAL?

PROCEDURE

The parents were enrolled the study during 5 days practicing 3 times per day

Massage therapy in Kangaroo Position (MPK): The infants who required, were taken out of the incubator and moved to skin-skin contact (SSC), were dressed with a diaper, cap and socks and placed in prone position on the chest of the mother or the father in direct skin-skin contact. Adjustable cotton is allocated around the baby and the mother or the father to maintain the position. The researchers supervised the accurate position of the baby's head, arms and legs.

Massage therapy in incubator (MTI): Infants were placed at the incubator, dressed only with a diaper. Parents delivered the massage in supine position with moderate pressure stroking with the flats of the fingers.



WHAT WE FOUND?

RESULTS

Base line socio-demographic and neonatal characteristics were similar in both groups.

Neonatal clinical characteristics of the infants and parental demographic information

Variables	MKP (n =33) Means (±SD)	MTI (n =33) Means (±SD)	*p*
Birth Weight	1708.2 ± 330.3	1626 ± 293.2	.87
Birth HC	30.39 ± 2.0	31.11 ± 1.5	.34
Birth length	42.03 ± 2.9	42.11 ± 3.0	.32
Gestational age at birth (wk)	32.12 ± 1.0	32.25 ± .83	.44
Female	16	17	
Male	17	16	
Age in days at the beginning of the intervention	7.66 ± 4.34	7.21 ± 4.38	.94
Mother Age	27.43 ± 7.3	28.75 ±7.8	.22
Father Age	30.78 ± 10.5	32.74 ± 8.5	.57

Neonatal clinical characteristics of infants categorized by chronological age at the moment of intervention

Variables	MKP (n =33) Means (±SD)	MTI (n =33) Means (±SD)	*p*
<5 days			
Number of Infants %	11 (16.6)	12 (17.8)	
Weight at birth (g)	1851 ± 420.7	1766 ± 270.4	.40
HC at birth (cm)	31.38 ± 1.48	31.14 ± 1.63	.59
Length at birth (cm)	42.97 ± 2.16	43.03 ± 2.29	.85
6 to 10 days			
Number f Infants %	13 (19.69)	14 (21.21)	
Weight at birth (g)	1736 ± 244.27	1646 ± 278.02	.54
HC at birth (cm)	30.45 ± 1.77	29.74 ± 1.35	.35
Length at birth (cm)	43.18 ± 2.46	41.38 ± 3.06	.51
> 10 days			
Number f Infants %	9 (13.63)	7 (10.60)	
Weight at birth (g)	1492 ± 213.4	1346 ± 159.13	.21
HC at birth (cm)	29.09 ± 2.51	29.09 ± .78	.20
Length at birth (cm)	41.85 ± 1.13	39.93 ± 3.23	.15

First Outcome

The average weight gain (g/kg/day) post-randomization was higher for the group MPK.

Weight Gain in grams per day 5 days 15 days and 40 wks

Variables	MKP (n =33) Means (±SD)	MTI (n =33) Means (±SD)	*p*
5 days	9.7 ± 1.6	3.4 ± 3.5	0.001
15 days	11.8 ± 0.7	9.60 ± 0.9	0.005
40 weeks GA	2922 ± 418	2690 ± 327	0.001

Second Outcome

A second analysis found an effect in the variable weight, according to the variable chronological age < 5 days of chronological age. For the group MKP.

Effect of the treatments at <5 days chronological age at the beginning of the intervention on outcomes at 5 and 15 days post intervention and at 40 weeks of GA.

Variables	MKP (n =33) Means (±SD)	MTI (n =33) Means (±SD)	*p*
Weight gain (g/kg/day)			
5 days	.02 ± 6.9	.02 ± 6.9	0.012
15 days	10.06 ± 5.6	7.3 ± 4.2	0.013
40 weeks GA	2951 ± .510	2618 ± .337	0.014
HC gain (mm)			
15 days	.91 ± .40	.84 ± .32	0.77
40 weeks GA	.66 ± .26	.67 ± .17	0.89
Length gain (mm)			
15 days	.85 ± .99	1.86 ± 2.29	0.16
40 weeks GA	.57 ± 29	.61 ± .20	0.75

A third analysis found an effect in the variable weight, according to the variable chronological age 5 to 15 days of chronological age. For the group « KMC & MKP»

Effect of the age at the beginning of the intervention between 6 to 10 days of chronological age on outcomes at 5 and 15 days post intervention and at 40 weeks of GA

Variables	MKP (n =33) Means (±SD)	MTI (n =33) Means (±SD)	*p*
Weight gain (g/kg/day)			
5 days	16,33 ± 7.30	9.72 ± 8.99	0.11
15 days	14.05 ± 4.05	10.00 ± 4.65	0.11
40 weeks GA	3052 ± 271.5	2755 ± 390.9	0.016
HC gain (cm)			
15 days	1.00 ± .30	1.16 ± .99	0.52
40 weeks GA	.80 ± 17	.77 ± .27	0.75
Length gain (cm)			
15 days	1.05 ± .93	.99 ± .55	0.92
40 weeks GA	.65 ± .34	.75 ± .24	0.42

Other Neonatal Outcomes

- The practice of MKP increase the time spent in KMC (skin-skin contact).
- Decrease length of hospitalization.

Variables	MKP (n =33) Means (±SD)	MTI (n =33) Means (±SD)	*p*
Total hours in SSC during the first 5 days of intervention	25.4 ± 13.6	20.86 ± 10.2	0.005
Total hours in SSC during at 15 days post intervention	133.3 ± 64.9	110.0 ± 71.0	0.000
Length of hospitalization	15.44 ± 8.8	20.59 ± 13.0	0.009

CONCLUSION

WHY WE SHOULD PRACTICE MKP?

- As a consequence of MKP the preterm babies who are less than 11 days of chronological age, showed improvement in their weight gain, opposite to the physiological weight lost that is normally seen in this patients.
- Contribute to practice KMC increasing the hours of skin-skin contact.
- Decrease the days of hospitalization.

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