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AIM

METHODS

To compare the effect of Vojta therapy with other physiotherapy treatments on gross and fine motor development of preterm infants during the first 18 months of life.

84 preterm infants diagnosed with motor delay, with a gestational age mean (GA) of 30.87 weeks (SD=3.01) and birth weight (BW) of 1491.35 g (SD=528.54) were allocated into two study groups: an experimental group (EG) with Vojta therapy (EG: N=47 participants) and a control group (CG) with other physiotherapy treatments (CG: N=37 participants). Both groups had similar **GA [EG=31.24 (SD=2.94) weeks y CG=30.39 (SD=3.07) weeks; p-value=0.205]** **BW [EG=1570.49 g (SD=519.42) y CG=1390.81 g (SD=529.86) ; p-value=0.124]** and **gender distributions [p-value=0.908]**. Both groups received two weekly 50-minute sessions of physical therapy. EG with Vojta and CG with other physical therapy methods (Le Métayer and Bobath). Four measurements were performed: during the first trimester of life (3M), at 6 (6M), 12 (12M) and 18 (18M) months of corrected age, using the Bayley Scales of Infant Development 3rd edition (BSID-III) for gross and fine motor capacities. EG preterm infants were treated at Early Intervention Centre of Lorca and the preterm infants of CG were treated at Early Intervention Centre of Child Health Foundation of Elche and Early Intervention Team of Murcia, between January 2009 and July 2013. A t-student test was carried out for independent samples among the gross scalar score (GS), the fine scalar (FS) and the composite score (CS) of the BSID-III between both groups, at the different time points. Additionally, effect size was calculated using *d* statistics.

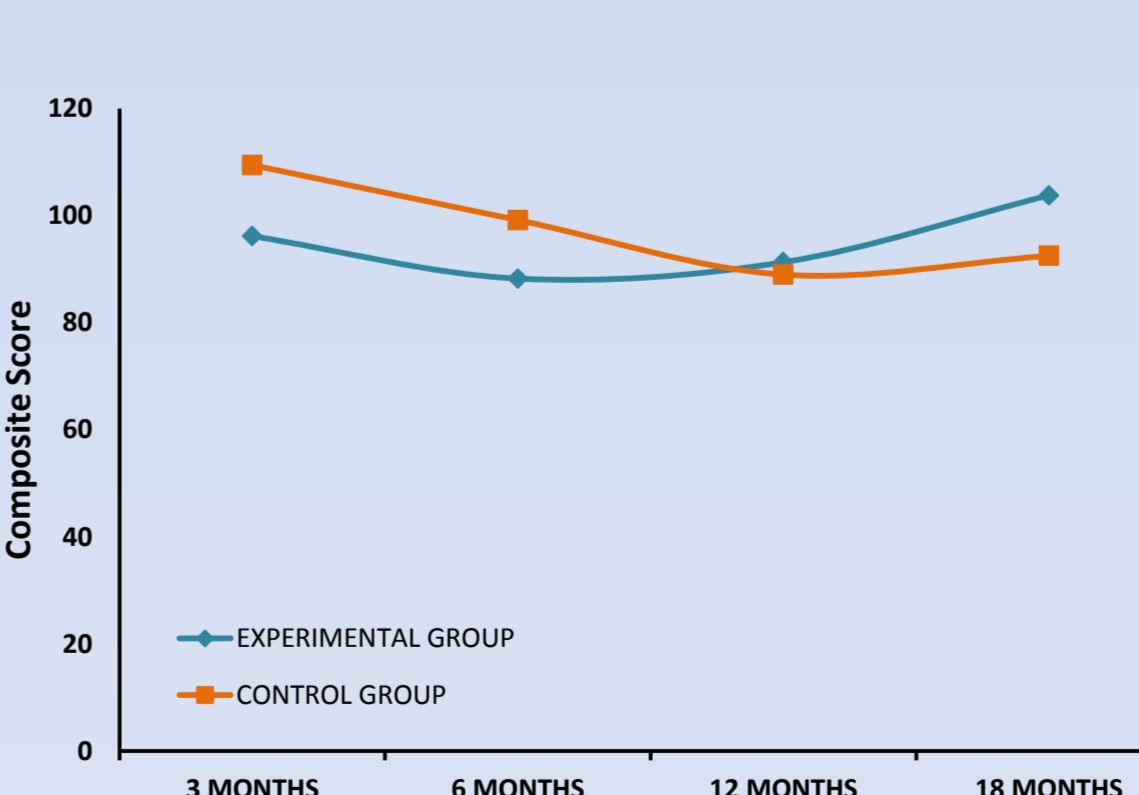
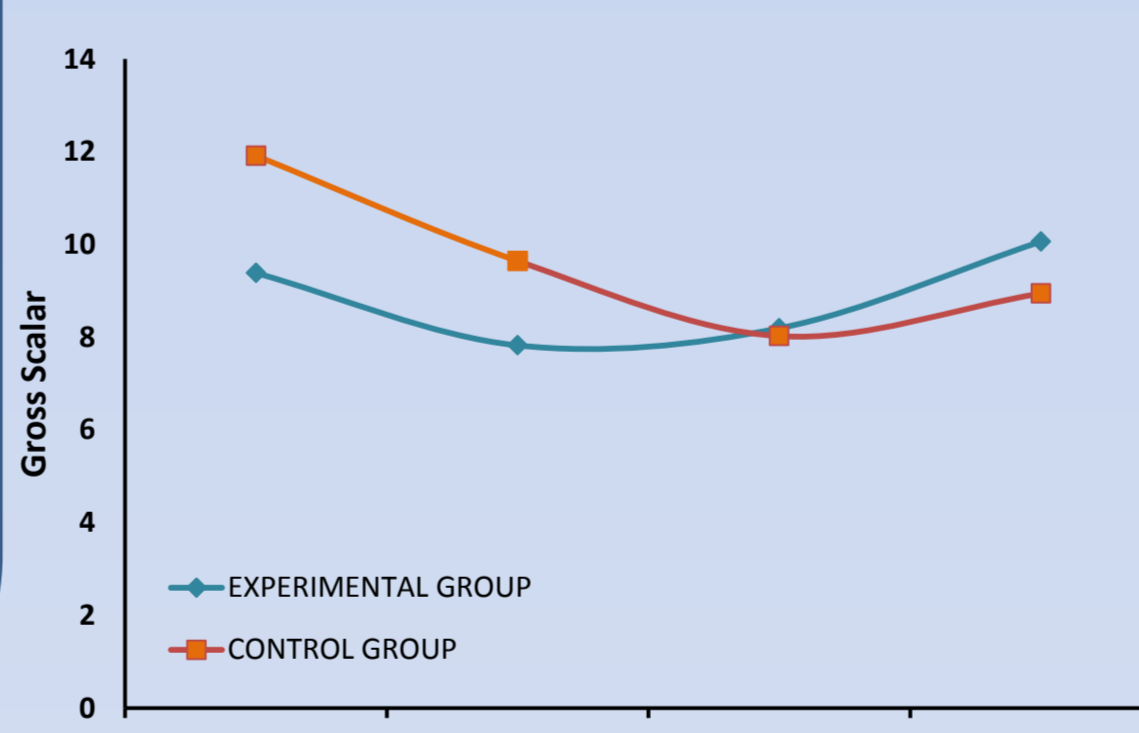
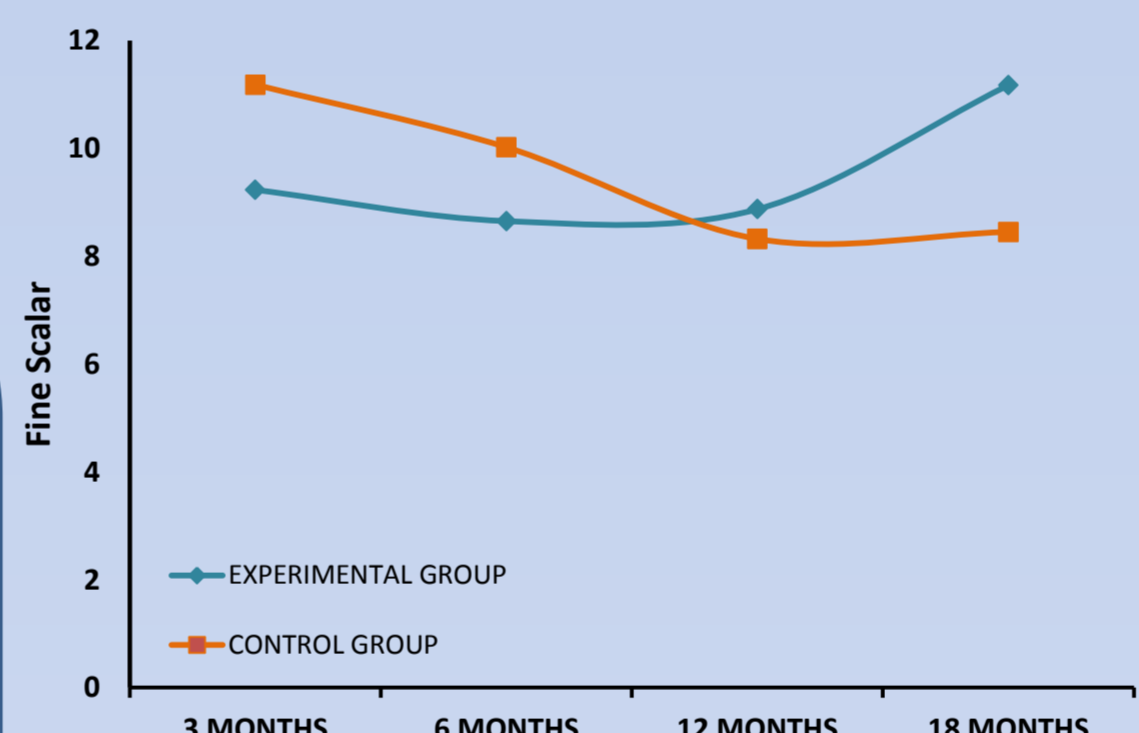


	GROUPS	N	MEAN	ST.DEV
3 MONTHS				
FINE SCALAR				
	EXPERIMENTAL	47	9.234	2.928
	CONTROL	37	11.189	3.062
GROSS SCALAR				
	EXPERIMENTAL	47	9.383	2.847
	CONTROL	37	11.918	2.732
COMPOSITE SCORE				
	EXPERIMENTAL	47	96.170	14.657
	CONTROL	37	109.432	16.24
6 MONTHS				
FINE SCALAR				
	EXPERIMENTAL	47	8.659	3.177
	CONTROL	37	10.027	2.842
GROSS SCALAR				
	EXPERIMENTAL	47	7.829	3.157
	CONTROL	37	9.648	2.214
COMPOSITE SCORE				
	EXPERIMENTAL	47	88.234	21.812
	CONTROL	37	99.162	13.853
12 MONTHS				
FINE SCALAR				
	EXPERIMENTAL	47	8.872	2.916
	CONTROL	37	8.324	1.564
GROSS SCALAR				
	EXPERIMENTAL	47	8.191	4.073
	CONTROL	37	8.027	2.640
COMPOSITE SCORE				
	EXPERIMENTAL	47	91.298	18.968
	CONTROL	37	88.973	9.976
18 MONTHS				
FINE SCALAR				
	EXPERIMENTAL	47	11.17	3.136
	CONTROL	37	8.459	2.630
GROSS SCALAR				
	EXPERIMENTAL	47	10.063	3.571
	CONTROL	37	8.945	2.655
COMPOSITE SCORE				
	EXPERIMENTAL	47	103.787	19.071
	CONTROL	37	92.486	15.042

RESULTS

Vojta therapy

Results show significant differences at 3M and at 6M in favour of the CG in the motor scales of the BSID-III [FS 3M: $t_{82}=-2.977$ $p=0.004$, 6M: $t_{82}=-2.050$ $p=0.044$; GS 3M: $t_{82}=-4.124$ $p=0.000$, 6M: $t_{82}=-2.974$ $p=0.004$; CS 3M: $t_{82}=-3.925$ $p=0.000$, 6M: $t_{82}=-2.653$ $p=0.010$]. Additionally EG is superior in the FS y CS at 18M [FS 18M: $t_{82}=4.216$ $p=0.000$; CS 18M: $t_{82}=2.952$ $p=0.004$]. Treatments different from Vojta show high effect size for the GS and CS at 3M (0.91 and 0.86) and moderate for the FS (0.65) and at 6M a low effect size for the FS (0.45) and moderated for the GS and CS (0.65 and 0.60). **Vojta therapy at 18M shows high effect size for the FS (0.93), moderated for the CS (0.65) and low the GS (0.40).**



	t-TEST					EFFECT SIZE d
	t	FG	P-value	MEAN DIFFERENCES	STANDARD ERROR	
3 MONTHS						
FINE SCALAR	-2.977	82.00	0.004	-1.955	0.657	0.65
GROSS SCALAR	-4.124	82.00	0.000	-2.536	0.615	0.91
COMPOSITE SCORE	-3.925	82.00	0.000	-13.262	3.379	0.86
6 MONTHS						
FINE SCALAR	-2.050	82.00	0.044	-1.367	0.667	0.45
GROSS SCALAR	-2.974	82.00	0.004	-1.819	0.612	0.65
COMPOSITE SCORE	-2.653	82.00	0.010	-10.928	4.118	0.60
12 MONTHS						
FINE SCALAR	1.102	73.26	0.274	0.548	0.497	0.29
GROSS SCALAR	0.213	82.00	0.832	0.164	0.773	0.04
COMPOSITE SCORE	0.675	82.00	0.502	2.324	3.444	0.15
18 MONTHS						
FINE SCALAR	4.216	82.00	0.000	2.711	0.643	0.93
GROSS SCALAR	1.589	82.00	0.116	1.118	0.704	0.35
COMPOSITE SCORE	2.952	82.00	0.004	11.301	3.828	0.65

CONCLUSIONS

Infants treated with Vojta therapy had improved scores during every assessment despite starting at lower scores in the first time points. **Using the BSID-III motor scale, preterm infants treated with Vojta showed a superior motor development at 18 months, especially in the fine motor skills, compared to infants treated with other modalities of physical therapy.**

ACKNOWLEDGEMENTS

This study was approved by the internal review board of the University of Murcia, implementing all the procedures stipulated in the Declaration of Helsinki.

REFERENCES

- Bauer H, Appaji G, Mundt D. *Vojta Neurophysiologic Therapy*. Indian J Pediatr. 1992; 59: 37-51
- Fernández-Rego FJ, Gómez-Conesa A, Pérez-Lopez J. *Efficacy of early physiotherapy intervention in preterm infant motor development. A systematic review*. J Phys Ther Sci. 2012; 24(9): 933-40
- Bayley N. *Bayley Scales of Infant and Toddler Development. 3rd ed*. San Antonio, (TX): Harcourt Assessment; 2005.
- Kanda T, Pidcock FS, Hayakawa K, Yamori Y, Shikata Y. *Motor outcome differences between two groups of children with spastic diplegia who received different intensities of early onset physiotherapy followed for 5 years*. Brain Dev. 2004; 26: 118-26.

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