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The Effect of Tummy Time Exercise on Gross Motor Skills in Babies Aged 3-6 Months

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Abstract. *Babies who experience delays in gross motor development will reduce the baby's creativity in adapting and make it difficult for the baby to recognize the surrounding environment. Growth and development is a continuous process that occurs since conception and continues until adulthood. One of the early steps to accompany child growth and development is carried out through stimulation, namely stimulation to improve infant motor skills with tummy time exercise. The purpose of this study was to determine the effect of Tummy time exercise on gross motor skills in infants aged 3-6 months. This study used the methoda quasi-experimental with control group design.Data analysis using the Mann Whitney test.Gross motor development is assessed usingDenver Developmental Screening Test (DDST). The results of this study showThe average gross motor development in the intervention group after tummy time exercise for 3 weeks showed faster gross motor development compared to babies in the control group who were not given intervention. While the p value obtained was 0.000. The conclusion of this study is that tummy time exercise has a strong influence on infant motor development. So it can be recommended to give tummy time exercise to babies.*

Keywords: *Baby, Gross Motor, Tummy Time*

1. BACKGROUND

The golden period is a period that requires optimal stimulation for growth and development. In this period, developmental disorders often occur, including disorders in gross motor development. Babies who experience delays in gross motor development will reduce the baby's creativity in adapting and make it difficult for babies to recognize their surroundings (Hewitt et al., 2020). In addition, gross motor disorders in babies that often occur are babies who are not yet able to roll over or turn their bodies over on their own, are not yet able to control and lift their heads, and are not even able to crawl.(Nitsos et al., 2017).

Based on WHO data in 2019, it was reported that the number of babies worldwide was around 52.9 million, and babies who experienced developmental delays were around 54%. Developmental delays in babies 95% generally occur in countries with low to middle incomes (Mendres-Smith et al., 2020).

One of the preventive measures that can be taken to overcome delays in the development of gross motor skills in infants is to carry out early detection and stimulation. One of the problems that is always found in infants is the lack of opportunities for stimulation (Koren et al., 2019). One form of stimulation for gross motor development in infants is lifting the head

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by doing Tummy Time Exercise. The method that can be done to accompany the growth and development of children is by stimulation. One form of stimulation to improve the motoric ability to lift the baby's head is by tummy time exercise (Hewitt et al., 2017). Tummy time exercise is a term used for weight-bearing exercises by positioning the baby in a prone position to support the baby in active cervical movements. The purpose of this movement is to stimulate the baby to lift his head so that the neck can be trained and strong. The ability to lift the head is the basis of motor skills as a development for further development (Hewitt et al., 2019).

2. THEORETICAL STUDY

Growth is the increase in the size and number of cells and intercellular tissues, meaning an increase in the physical size and structure of the body in part or in whole, so that it can be measured in units of length and weight. Development is the increase in the structure and function of the body that is more complex in the ability of gross and fine motor skills, speech and language, as well as socialization and independence (Palmer et al., 2019).

Tummy Time Exercise is to provide therapy or exercise to the baby while lying on his stomach and resting on his stomach. The benefits of Tummy Time Exercise are to train the neck and head muscles, train the chest and arm muscles, prevent flat head syndrome, and improve the baby's ability to understand the surrounding environment. Tummy Time can also reduce the back of the baby's head from becoming flat or flat due to the baby often sleeping on his back (Widodo et al., 2018).

Babies who experience delays in gross motor development will have difficulty lifting their heads at the age of 1-2 months. Even up to the age of 3-4 months, babies still have difficulty lifting their heads as high as 45 degrees and making the duration of time lifting their heads shorter. And at the age of 6 months, babies still have difficulty controlling their heads properly and cannot even position them upright (Fajriah & Nurchasanah, 2022).

3. RESEARCH METHODS

This research method uses a quasi-experimental design with a control group. The intervention group is a group that carries out tummy time exercise. While the control group does not carry out tummy time exercise. Data analysis uses the Mann Whitney test. The population in this study were all infants aged 3-6 months at PMB Choirul Mala. The sampling technique used a total sampling of 20 respondents divided into 10 respondents in the intervention group and 10 respondents in the control group. The intervention was carried out

for 3 weeks twice a day.Gross motor development is assessed using Denver Developmental Screening Test (DDST).

4. RESULTS AND DISCUSSION

Table 1. Frequency Distribution Based on Respondents' Age

Characteristics		Frequency (f)	Percentage (%)
Age of respondents	3 months	9	45
	4 months	5	25
	5 months	3	15
	6 months	3	15
Total		20	100

Based on the table above, it can be seen that based on the age of the respondents, it can be seen that the majority of respondents are 3 months old, namely 9 (45%).

Table 2.Mann Whitney Test Results in the Intervention Group and Control Group

Group	Mean	Elementary school	*p value*
Intervention	Fast	0.423	0.000
Control	Normal	0.676	

This study involved 20 respondents, namely infants aged 3-6 months. The results of the Mann Whitney test shown in table 1 show that the average gross motor development in the intervention group after tummy time exercise for 3 weeks showed faster gross motor development compared to infants in the control group who were not given intervention. While the p value obtained was 0.000, meaning that there was a difference in the gross motor development of infants who had been given tummy time exercise stimulation in the form of infants in the control group.

The results of this study are in line with (Silaban et al., 2024) which states that there is a significant relationship between the effect of tummy time exercise on increasing motor skills to lift the head in infants aged 0-16 weeks at the Kalipucang sub-district Posyandu. Giving tummy time exercise for 4 weeks to the treatment group can increase motor skills to lift the head, for example in the 0-4 week age group, the pre-test results were obtained with an average head lifting time of 1.2333 seconds and increased to 8.003 seconds in the average post-test results.

Tummy time, when done outside of sleep time, can help improve the strength of the baby's neck and back muscles. Daily interactions with people and the environment can also affect the physical structure of the brain. There are specific sensitive periods for babies but are

limited to times when organs are most susceptible to environmental influences. Sensitive periods indicate that without stimulation, babies may fail to develop their abilities (Ramadhania & Sriwenda, 2022).

According to (Palmer et al., 2019)6-month-old babies who had regular tummy time (more than once a day) had significantly higher motor scores than other babies in the youngest group who were rarely placed in prone play. Tummy time has been shown to be positively correlated with the ability to move while prone in achieving larger skills, such as rolling, sitting, and walking. This is a stage of motor development that can be achieved and is a motivating factor, especially for babies who do tummy time.

5. CONCLUSION AND SUGGESTIONS

Based on the results of the study, it can be concluded that routine tummy time exercise can help improve gross motor skills in infants aged 3-6 months with a p value of 0.000. The results of this study can be used as a recommendation to provide counseling to infant mothers about the benefits of tummy time exercise.

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