



## **The first year in the life of your child**

**The importance of the motor functions** – that is the way how you move – for the human development is obvious. The human being can react to changes in his environment only by movements, can influence it or concern himself with this subject. Therefore the motor functions are the crucial window when examining consciousness in the first year of one's life. When infants are examined for their faculties, the criteria of the motor functions are of crucial importance for the developmental neurological diagnostic. The reason for this is that the motor functions of an infant are relatively mature and developed in a widely differentiated way. Therefore the whole and immensely strong dynamic of the development during the first year of one's life must be known and recognized.

Nowadays it is undisputed that an early recognition of developmental disturbances is necessary. The discovery of an abortive development is especially useful if as a result specific countermeasures are possible, i.e. an early therapy.

So young parents gain a lot with this booklet as an important help to judge their child's level of development. The authors succeeded in describing the most important stage of development of human life in a precise, easily understandable and vivid way. The actual level of development is easily detectable, obstacles for the development are quickly recognizable and there are also links for sensible supporting measures.

So one can only hope or assume that this booklet finds many readers and supports many children on their way to a positive development.

Dr.med Jörg Hohendahl

Head of the development neurology department, clinic for paediatrics and adolescence at the Ruhr-University Bochum

## **The newborn child**

As the head is always turned to one side the prone-position is called asymmetrical. The child lies mainly on the part of the breastbone and the back head side of the body. The arms lie in the joint of the shoulder and the elbow next to the body (so-called "handle position) and the hands form a loose fist. At this age you can't talk of a supporting function of the arms and so the child "rolls" its head over to the chin, when it moves the head from one side to the other. After 4 -6 weeks the child can support itself with its forearms and lift the head for a short time to "grasp" something with the eyes. The pelvis of the newborn is lifted and the legs are bent in the hip-joint and the knee-joint. When the infant is kicking about with its legs the inside of the knees and the big toes should be in contact with the underlay. The supine position is also an asymmetric position at this moment.

Because of its stage of development the newborn reacts to any stimulus with mass-movements i.e. the whole body is moving. This "restless" position changes at the age of 4-6 weeks when 50 -75 % of the children begin to focus. Now they are able for a certain period of time to concentrate on an

object or the mother's face and try to follow the noticed object with the eyes.

### **3<sup>rd</sup> month**

The underlay has become a supporting surface in the last 3 months. Now the child is able to support itself against the elbow which is lying in front of the shoulder belt (symmetric elbow-support).

The centre of gravity has shifted in the direction of the pubic bone and so the head can be carried against the gravity. The spinal column of the neck is stretched, it can be turned freely to both sides and a changing of the sight is possible without moving the head at the same time. The posture of the pelvis which is similar to an animal at the beginning isn't noticeable any more and the legs lie on the base turned to the outside with a loose bend of the hip and the knee. At that moment also the supine position can be described as a safe, supporting position.

The upper part of the body together with the back of the head form a supporting basis and so create the condition that the hands can be used purposely to grasp and that the legs can be carried against the gravity with a right-angled position of the hip, the knees and the feet.

Now an isolated changing of the sight without moving the head is possible just as in the prone position.

Beside the coordinated contact of both hands an associated grasp of the mouth and the feet can be noticed i.e. if the infant grasps a toy with its hands and leads it towards the mouth, it is mostly already opened in anticipation and the legs move towards each other (a pattern of the whole body when grasping)

### **6<sup>th</sup> month**

In the last three months a lot has happened. Lying on the stomach the child is able to shift its weight on one side and so can support itself with one arm and grasp with the other one.

The head and one arm can now be held and moved against gravity (Support on one elbow 4 1/2 months).

At the age of 6 months the infant can support itself with stretched arms and hips on its opened hands and can lift the trunk from the underlay to the thighs (symmetric support of the hand).

Lying in the supine position the infant has discovered the shifting to and over one side for itself. At the age of 4 1/2 months it began to grasp across the middle of the body which finally at the age of 6 months resulted in the purposeful turning from the back to the stomach.

The child is now able to grasp any toy from nearly every position and can change it from one hand to the other and is nearly able to grasp its feet and to put them into the mouth.

### **9<sup>th</sup> month**

The stages of development cannot any longer be described separately when you talk about the stomach position or the supine position. The infant is discovering its first moving around and at the age of 7 months it begins to explore its surroundings by crawling or rolling (safe turning from stomach to the back at the age of about 8 months).

One can watch first attempts to discover the space upwards between the 7<sup>th</sup> and 8<sup>th</sup> month, when the child gets to the "sloping" seat via the "stable" side position and the side seat.

With reaching the long seat (about 9 months) one can talk of an independent sitting position.

At this time the infant is able to get from the lying position via different variations to the four-legged position. In contrast to a similar starting position at the age of 6 months where the child bobs symmetrically forwards and backwards with the bottom, the child can now lift a hand or a knee from the underlay and can start crawling.

## **12<sup>th</sup> month**

For the further discovery of the space the child now begins to move “upwards”.

By pulling itself up above the arms the child crawls along the wall or up the object and so reaches a standing position via the one leg stand and after a short time it starts to walk sideways along the objects.

But now it will take some time until the child learns that the legs can carry the body. It begins to wander back and forth between different stops to hold e.g. pieces of furniture.

At the age of about 12 months 50% of the children are able to make their first free steps.

They test their new abilities whenever they have the chance, but at the beginning with frequent stumbling.

Beside the simple locomotion the conquest and the grasping of the space, the walking and the “moving away” helps to develop one’s own self, to create social development and the communication

As already before the parents are challenged to offer their children an adequate, safe and also “supporting” surroundings to give them the possibility to gain experience. The parents should praise them suitable to the situation, motivate them after little faulty starts and should only help when it is really getting dangerous.

It will cost a lot of time and nerves but your little explorer will thank you on its way to independence.

### **If you notice something unusual, please contact your paediatrician**

Your child has a favourite position in which it always lies onesided and in a sloping position

Your child “develops” a sloping head

Your child has problems when drinking

Your child holds its hands mainly as a fist

Your child is 6 weeks old and still doesn’t look at you

Your child is 4 months old and can’t hold its head when lying on its stomach

Your child hasn’t smiled at you until the 16<sup>th</sup> week

Your child is 6 months old and doesn’t grab any objects

Your child is 7 months old and doesn’t turn over from the back position to the prone position

Your child is one year old and doesn’t crawl

### **Car-seat**

At every age a child must be a hundred percent protected – there are good devices for it. But some children spend several hours in a car-seat (in the house as well).

The child hasn’t got enough space to move and isn’t free to move similar to a seesaw. Therefore one should only use the car-seats during the drive.

## **Aids to carry a baby**

A carrier cloth makes it easier to deal with the child. It is important to tie the cloth appropriate to the age of the child in order to stabilize the head and the spinal column. Carrier devices where the children are carried in front of the stomach by their mother or father will cause an upright position too early for the child. It can damage the spinal column and will put strain on the lumbar vertebra of the person who carries the child.

## **Seesaw**

The part of the back is sloping and doesn't offer the child any support. After a short time the infant is lying in a sloping position. That can lead to a bad posture of the spinal column. It's very fatal if the infant has already got a favourite side. It will be intensified by the seesaw. The range of sight is restricted and the child can't gain any experience how to move.

## **Baby-jump**

Many children sit already at the age of about 6 months or even earlier in these textile trousers. They now kick themselves with tiptoe from the ground with a more or less upright posture and jump up and down. This can cause a pointed foot (German: Spitzfuß). With shortening the sinews of the calf musculature – possibly the child develops into a tiptoe walker.

## **High chair**

When the child sits down alone the time for a high chair begins. Important : The chair should be made absolutely safe from falling over. The offspring also uses this piece of furniture for climbing. You should never leave your child unobserved on the high chair. The seat should fit the child's measurements.

## **Free-walker**

This so called "help to learn how to walk" suggests parents their child could walk earlier with it. But this is very problematic. At an age, when children crawl, pull themselves up, make their way along the furniture, the free-walker hampers this important physiological process. They dash through the flat hanging in it and pushing themselves off the floor with their tiptoes. Important activities will be missing like squatting down, changing or testing the balance. Besides the risk of accidents mustn't be ignored.

## **The playpen**

It only helps to protect the child for short periods of time, when it is not looked after. A cot or a barred door is an alternative.

As soon as a child is able to move along one should only put it in a playpen in case of need. It shouldn't be in a playpen if it is able to pull itself up or to walk. Children like to climb over a bar which could cause an injury. Curiosity and the urge to move will be hampered as well.

**Attention:** The MOT (TÜV in Germany) –sign only assesses the technical safety of the apparatus (toy as well).

By the way: The child should get its first pair of shoes when it walks safely. So the small foot can develop freely. Shoes are there to protect the feet and not to learn how to walk.

Always look out for good shoes no matter how old your child is.

### **Why do babies need the prone position ?**

The muscles of the stomach, the back and the shoulders as well as the arms will be strengthened. The child learns how to support on the elbows or arms and to raise the head. That is necessary for a straight posture. Balance and coordination are trained intensively. This is an important prerequisite for the further steps of development. Besides the position- distortion (?) of the head(caused by wrong position ?) can so be prevented. The maturing of the hip-joint will be encouraged by the prone position.

German Federal Association of Physiotherapy (ZVK)  
Arbeitsgemeinschaft VOJTA