

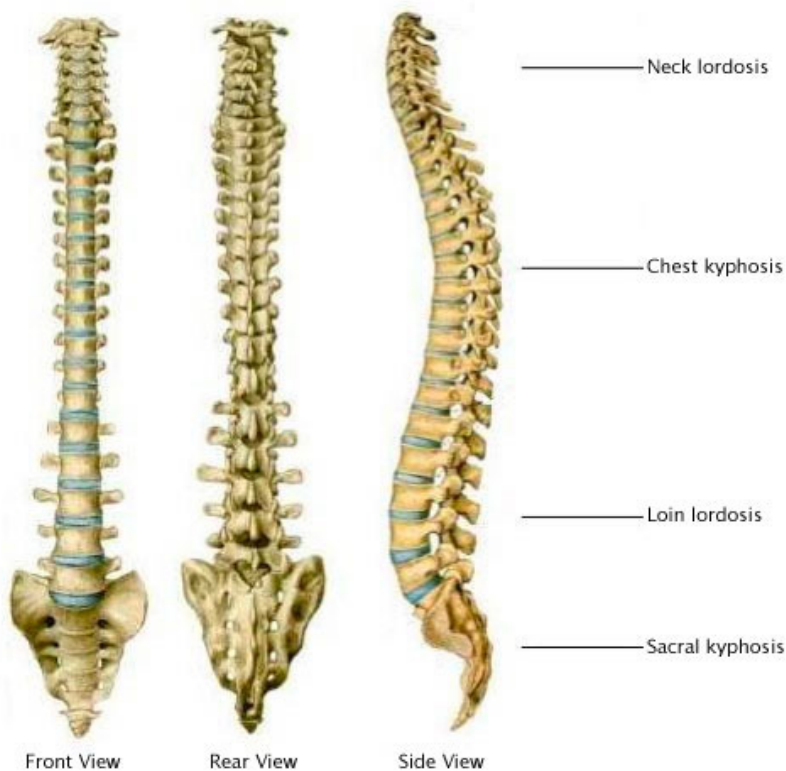
## Infant Spinal Development and Correct Baby Carrier Support

by Annika Kral (Senior Manager Research)

What is the spread-squat-position, and is it important for my child to be in it? This question is discussed widely and this article aims clarify this matter.

When a child is born he/ she is in a state of so-called total kyphosis (the back is rounded so much as to resemble the letter C). The child's spine is still bent as it was in the womb. Even though the child's hip joint already receives its final shape in the womb, it only matures after birth, since the cartilaginous matter of which the hip joint consists turns into bone over time.

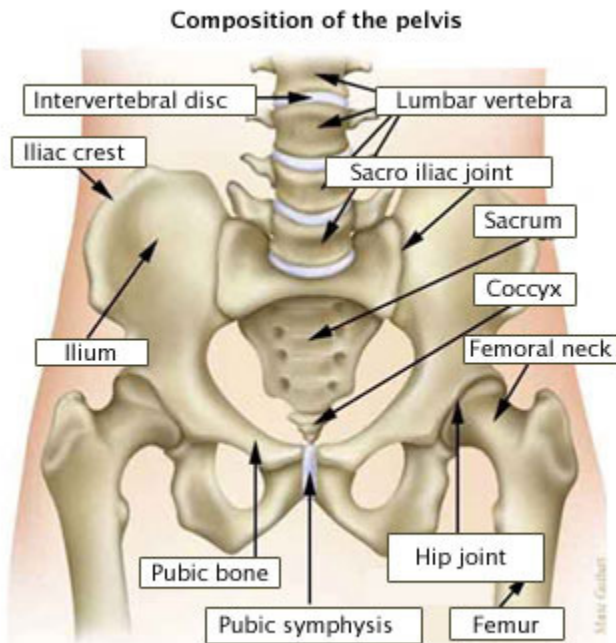
However, the orthopaedist Dr Ewald Fettweis says: "This is no reason to worry, but rather is completely normal". [1]



**ILLUSTRATION 1**

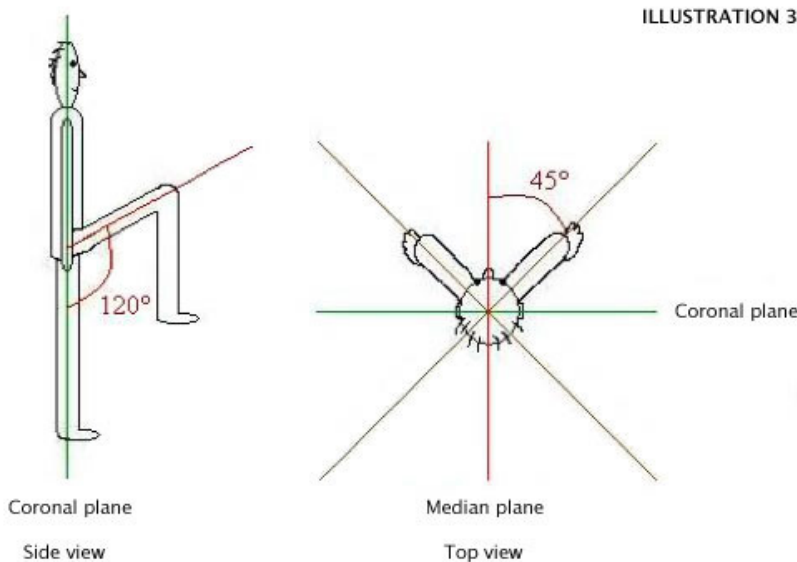
According to Prof. Dr J. Büschelberger, the spine and the pelvis are connected to the hip joint by the sacro iliac joint. The movements of the spine directly influence the movements of the pelvis, as well as the other way around. When the child can round his / her back, the pelvis tilts forward slightly, which makes a healthy development of the hip joints possible. Here parents should note that a baby's back is rounder than that of an older child. If the child's back is kept

straight or even pressed into a hollow back, then the pelvis tilts backwards, which can have a negative influence on the development of the hip joints. [2]



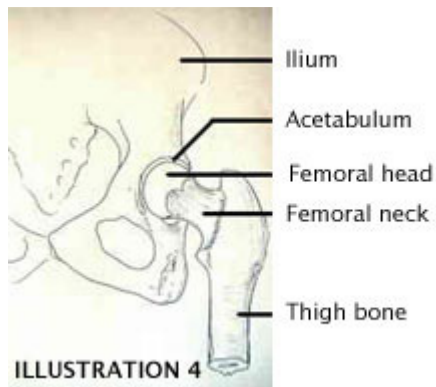
**ILLUSTRATION 2**

In order to guarantee an ideal hip development, it should be strained as little as possible during the development period. This is possible by the child bending and spreading her / his legs as often as possible. [3]



When doing this, each thigh bone, or femoral, should be bent at 120° (90° minimum) in the hip joint, and the spreading angle should average at 45° [4]. If the knees are at the same level as

the bellybutton, and the legs are spread just as in the illustration above, then the child is in the spread-squat-position [5], which positions the femur heads correctly in the socket of the hip joint, or acetabulum. (The socket of the hip joint is the ilium's articular surface.) Thanks to this spread-squat-position, all areas of the acetabulum are strained equally, which is necessary for the development of the ossification centre, meaning the core of the bone.



You can carry your child in this position starting at birth; if there are indications of hip dysplasia, this is even recommended.

"Now, it is not the case that this bending position is necessary for all babies. Still, when parents position their babies they should try to approach this optimal state and especially avoid everything that counteracts it. In many cases it is not apprehended that, through unfavourable influences on the child's body, well-developed hip joints can turn into damaged ones." [1]

The spread-squat-position is intended by nature for a reason, and, when carrying, should be used. After all, children pull their legs automatically in that position as soon as they are lifted up.

Do, however, take care that the seat of the carrier, whichever you happen to be using, is large enough to go to the hollow of the knee of the child. The back has to be well supported, which is rounded according to age and spine development of the child. The younger the child the rounder will be the back. Also, please take care, especially with the very youngest, to support the head. If the back is well supported - contrary to public opinion - it is not overstrained by carrying, but the opposite: this is good for the development of the spine and for the strengthening of the muscles.

The spread-squat-position is not just a doctors' recommendation, be it Dr. Ewald Fettweis: "For the hip joints to mature, it needs only slight spreading, [...] a flexion of 90°, and a restraint of the active and passive stretching and abduction", which corresponds to the anatomic conditions; or be it Dr Detlef Bonnemann: "The more frequent the infant can be in this position the better roof and rim of the acetabulum develop" - the acetabulum, of course, consisting only of cartilage in the beginning; or be it Dr. Thomas Oberst who thinks that it is "ideal when the baby [can slumber] with spread legs and bent knees in its carrier bag." It mostly is the instinctive behaviour of the child, mirroring his / her needs best of all. [6]

## Index of Definitions and Sources

[1] Dr. Ewald Fettweis: Development Goes on after Birth, Patients' Information Portal of the Orthopaedic Specialists' Professional Association, accessed on 10th April 2007.

URL: <http://www.orthinform.de/new/fachartikel/artikel.php?id=236>

[2] Dr. Evelin Kirkilionis: Carrying an Infant - More than the Possibility of "Child Transport", accessed on 10th April 2007.

URL: <http://www.didymos.de/cgi-bin/didyhops.pl?kirk99.htm>

[3] In anatomy, the coronal plane is a vertical plane that partitions the body into two parts, front and back. The median plane is a vertical plane that parts the body into two identical parts (left and right).

[4] Dr. Evelin Kirkilionis: A Baby Wants to be Carried, Kösel Verlag, 2005, S. 44.

[5] The spread-squat-position is also called frog-leg-position, frog position, or squat-spread-position. The term used here represents the most frequent name spread-squat-position.

[6] Dr. Ewald Fettweis: The Condition of Infantile Hip Luxation.

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