

Swaddling and Neonatal Hip Dislocation

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Hip dislocation in the newborn is quite unlike other musculoskeletal anomalies such as congenital club foot or spina bifida. Although dislocated, the anatomy of the hip joint is initially normal and only deteriorates if the dislocation is allowed to persist. In other conditions, obvious bony anomalies are present early in fetal development.

While in the womb, the legs of the fetus are flexed at the hips and moderately abducted.

These observations were made by Salter [1] in studies of DDH. He also noted some racial variations and possible genetic factors in a minority of patients. Ligamentous laxity was the most consistent finding.

More significant is the fact that all neonates carry maternal hormones for the first week or two of life. These include those that relax the pelvis to aid delivery.

In fact, the hip joints in the newborn are frequently unstable and can sometimes be dislocated manually by adducting and extending the legs. Reduction consistently occurs when the legs are then flexed and abducted.

The most significant factor in the incidence of early hip dislocation in different racial groups is not the genetic variation, but the traditions of how their neonates are handled and transported.

His study revealed that hip dislocation in early infancy occurred most frequently in Northern Italy, West Germany and among Laplanders in Northern Scandinavia. Traditionally, in these regions, babies are wrapped in blankets with the legs extended, to keep them warm.

Neonates in other geographic locations are held strapped to their mother's sides or backs, with the hips abducted. These include the Black people of Central and Southern Africa, the Chinese in Hong Kong and Inuits in Northern Canada. Neonatal hip dislocation in these populations is rare.

Salter undertook a most revealing study of neonatal hip dislocation in two genetically identical North Canadian Indian tribes who handled their infants differently. One tribe strapped their babies with the legs extended to a tikonagan (cradle board). The other left the legs free to abduct and flex. The incidence of hip dislocation was ten times higher in those using the cradle board.

The evidence is compelling that maintaining the legs extended in the first weeks of life, significantly increases the incidence of permanent hip dislocation. Nevertheless, the tradition of swaddling the legs, thus holding them adducted and extended, is still commonly practiced.

It is believed that infants are more relaxed when returned to the confined physical position held in the womb. This may well be true, but it is not appreciated by those advocating swaddling the legs in extension, that in the intrauterine location the hips are flexed and moderately abducted.

It is clearly important to leave the hips free to flex and abduct during the first few weeks of life. Indeed, this anatomical position can be encouraged by carrying neonates in body devices that hold the legs separated.

If swaddling is deemed essential, limit this to the arms.

Bibliography

1. Salter RB. "Etiology, Pathogenesis and Possible Prevention of Congenital Dislocation of the Hip". *The Canadian Medical Association Journal* 98.20 (1968): 933-945.

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