Valeology: International Journal of Medical Anthropology and Bioethics
(ISSN 2995-4924) VOLUME 03 ISSUE 1, 2025

# HIP JOINT DEVELOPMENT AFTER FUNCTIONAL TREATMENT OF CONGENITAL HIP DISLOCATION IN INFANTS

**AKHTAMOV A.**
Samarkand State Medical Institute, Uzbekistan

**AKHTAMOV A. A.**
Samarkand State Medical Institute, Uzbekistan

**Abstract:**

The problem of restoring the anatomical integrity and functional usefulness of the hip joint in children with various forms of dysplastic changes of congenital etiology is still very relevant, socially significant and difficult to solve. In the structure of congenital diseases of the musculoskeletal system in children of the first year of life, hip dysplasia and congenital hip dislocation account for 73.24% of cases. An original device has been developed that allows you to get the greatest number of good results and prevent the development of complications due to its gentle effect on the bone-cartilage and soft-tissue structures of the joint. The optimal treatment strategy is proposed.

**Keywords:** dysplasia, congenital dislocation, hip subluxation, hip joint, first-year children.

## Introduction

### Introduction

A study of the results of conservative treatment of congenital dislocation and subluxation of the hip shows that even at an early stage of treatment, a normal pelvic-femoral joint does not always develop [2,6,10,6,10].

One of the most important indicators that characterize the effectiveness of any method of treating congenital hip dislocation is pre-development (formation) use it after removing the dislocation.

D. Tonnis (1950) wrote that the most important problem in the treatment of congenital hip dislocation is to influence the pre-development of the hip joint after the dislocation is eliminated [3,4,15,4,15]. Proper formation depends on several factors: the potential of the joint for further development of recovery as a result of treatment of head-cavity contact, preservation of hip joint

function during treatment and rehabilitation, the general condition and reactivity of the child [1,5,9,11,5,9,11].

**Objective:** to study the development of the hip joint after functional treatment and to identify the causes of abnormal development of the hip joint.

**Material and methods of research.** The work was based on the study of pelvic-femoral joint formation in 51 children treated with functional methods at 3-5 months of age.

The study was conducted in a consultative polyclinic on the basis of the Samarkand branch of the Republican Specialized Scientific and Practical Medical Center for Traumatology and Orthopedics.

Among the surveyed children, 35 girls (68.6%) and 16 boys (31.4%) were registered.

The study of radiographs of patients with congenital subluxation and dislocation of the hip, performed after functional treatment and monitoring in dynamics of changes in individual radiological conditions of the hip joint in different age periods, make it possible to judge the features of its formation.

X-ray diffraction was performed using a Ter-Egiazarov-Yukina protractor grid according to the generally accepted method.

The dynamics of articular cavity formation was determined by measuring the acetabular angle, the angle of vertical inclination of the plane of the entrance to the cavity. The development of the proximal end of the femur was characterized by the value of the cervical-diaphyseal angle and the angle of antetorsion of the femoral neck. The degree of congruence of the articular surfaces in the hip joint was determined by the Viberg angle, the angle of vertical correspondence, and the coefficient of head cavity coverage.

**Results and their discussion.**

On the basis of the study, 3 groups of hip joints were identified.

1. The group consisted of favorably developing joints, which according to X-ray parameters in children by the age of 2 are close to the indicators of healthy joints.
2. The group consisted of joints with delayed development in the dynamics of development of which after 3 years was determined to approach a healthy joint.
3. The group consisted of joints with unfavorably developing joints.

Based on the dynamics of hip joint parameters in 3 groups, we set ourselves the task of identifying those signs that can be used to predict the development of the joint in advance for timely surgical interventions.

Judging the congruence of the articular surfaces is possible only with radiometry of the main indicators of the hip joint.

1. The acetabular angle. In a favorably developing joint of 9-12 months - $23^0\pm3^0$, in 2 years-$20\pm3^0$, in 3 years-$19.8^0\pm2^0$ in 4 years-17.6 $0.^0$In joints with delayed formation at 2 years – $32.5^0\pm3^0$, at 3 years-$30.5^0\pm3^0$, at 4 years-$22.5^0$. In unfavorably developing joints, this angle at 2 years and at 4 years is $40^0\pm3^0$.
2. The congruence of articular surfaces is also determined by the value of the cervical-diaphyseal angle (SHD) and the angle of antetorsion of the femoral neck (AT). With a favorable development of the hip joint, the SDU changes slightly: at 6-12 months - $139.0^0\pm3.0^0$, at 2 years-$^0136.0\pm3.0^0$, and at 4 years-$^0136.0\pm3.0^0$.

In joints with delayed formation at 6-12 months$^0$±2$^0$- 144.0±2.0, at 2 years-141.5$^0$±2.0$^0$, at 4 years-139.0$^0$±3$^0$±3.0.

In joints with unfavorable development, the SDR at 2 years is 152$^0$±3$^0$, at 3 years 155$^0$±3$^0$, at 4 years 156$^0$±3$^0$.

3. The antetorsion angle is normal in children of all ages, it does not exceed 20$^0$±5$^0$.

   In joints with favorable development, this angle is equal to 32$^0$±5$^0$ at 2 years, 30$^0$±3$^0$0±3 0 at 3 years, and 27 0±3 0 at 4 years$^0$±3$^0$.

   In joints with delayed angle formation, antetorsion is 39$^0$±5 0 at 2 years$^0$of age, and 40$^0$±3 0 at 3-4 years$^0$of age. In joints with unfavorable development, antetorsion is equal to 64$^0$±3$^0$ at 2 years, 66$^0$±3$^0$0±3 0 at 3 years, and 65 0±3 0 at 4 years$^0$±3$^0$,

4. The Viberg angle reflects the degree to which the acetabular cavity covers the head. Its value depends on the degree of ossification of the roof of the acetabular cavity and its depth, on the degree of displacement of the femoral head. In favorably developing joints at 9-12 months of age, it is equal to 25$^0$±3$^0$, at 2 years of age it is equal to 27$^0$±2$^0$, at 3 years of age it is equal to 29$^0$±3$^0$, at 4 years of age it is equal to 30$^0$±3$^0$. In joints with delayed formation at 9-12 months of age, this angle is 21$^0$±3$^0$, at 2 years of age it is 23$^0$±3$^0$, at 3 years of age it is 25$^0$±3$^0$, at 4 years of age it is 26$^0$±3$^0$. In joints with unfavorable development, the Viberg angle is equal to 10 0±2 0 at 9-12 months, 10$^0$±3$^0$at 2 years$^0$±3$^0$, and 9 0±3 0 at 4 years$^0$±3$^0$.

5. The angle of vertical correspondence in favorably developing joints at 9-12 months of age ranges from 83$^{0-85}$-85$^0$, at 2 years of age it is 83$^0$±2$^0$, at 4 years of age it is 83.5±2$^0$.

   In joints with delayed formation, the angle of vertical correspondence at 9-12 months of age is 72$^0$±3$^0$, at 2 years of age 72$^0$±3$^0$, at 4 years of age 74$^0$±3$^0$.

   In unfavorably developing joints at 9-12 months of age 65$^0$±3$^0$, at 2 years of age 66$^0$±2$^0$, at 4 years of age 65$^0$±3$^0$.

6. The head cavity coverage ratio depends on the depth of insertion of the head into the acetabular cavity and reflects the stability of the joint.

In favorably developing joints, this coefficient is 0.94±0.03 at 9-12 months of age, 0.93±0.05 at 2 years, and 0.92±0.03 at 4 years.

With delayed joint formation at 9-12 months of age, 0.74 ±0.03, at 2 years of age, 0.76±0.03, and at 4 years of age, 0.77±0.03.

In poorly developing joints, the coverage ratio gradually decreases with the growth of children. At 9-12 months of age, 0.72±0.03, at 2 years - 0.71±0.03, at 4 years-0.65±0.03.

Thus an increase in the acetabular angle and antetorsion angle from 2 years of age is more than 38±3$^0$;

- increase in the acetabular angle from 2 years to more than 36$^0$±3$^0$;
- the angle of vertical correspondence from 2 years is less than 37$^0$±3$^0$.
- an increase in the cervical-diaphyseal angle from 2 years of age over 140$^0$±3$^0$;
- a decrease in the head cavity coverage ratio from 2 years of age to less than 0.65 is a sign of unfavorable development of the hip joint.

Comparative analysis of the development of hip joint components with a favorable development of joints after bloodless reduction revealed that an increase in acetabular parameters precedes an increase in hip head indicators and ensures congruence of articular surfaces.

Treatment that was carried out in children of the first (3-6) months of life with good centering, excessive antetorsion undergoes reverse development until closer to the age norm, and the acetabular cavity develops well.

In children with delayed hip joint formation, a satisfactory result was not achieved immediately, but after persistent treatment, it returned to normal after several years.

In children older than one year (13-18 months), it is much more difficult to achieve good centering due to secondary changes (pathological antetorsion, flat depression). With such changes in the joint, the satisfactory centering that was achieved in the Lorentz position was sometimes disrupted when the legs were lowered.

Therefore, the normal development of the hip joint may depend on the effective implementation of the preparatory stage for reduction and the correct choice of treatment tactics.

**Conclusions.** 1. Treatment started at an early stage and without complications, and during the treatment a satisfactory centering of the femoral head is achieved, will lead to normal hip joint formation.

2. The unfavorable development of the hip joint is due not only to "dysplasia", but also to the development of aseptic necrosis of the femoral head and its unsatisfactory centralization in the acetabulum.

Therefore, the treatment of a child with a good long-term result in most cases depends on the ability of orthopedists.

**Literature.**


1. Куценок Я.Б., Рулла Э.А., Мельник В.В. Врожденная дисплазия тазобедренного сустава. Врожденный подвывих и вывих бедра. // Киев, Здоровья, 1992. С.180.
2. Тер-Егиазаров, Г.П. Юкина. Состояния, определяющие развитие тазового сустава после консервативного лечения врожденного тазобедренного сустава. // Ортопедия, травматология и протезирование. №9. 1976. С. 1-7.
3. Ахтамов А.А., Ахтамов А., Джураев А.М. Чақалоқларда ва кўкрак ёшдаги болаларда чаноқ-сон бўғими дисплазиясини эрта ташхислаш усуллари (Адабиётлар шарҳи) // Ўзбекистон врачлар ассоциацияси бюллетени, 2017.-№4. –С. 109-115.
4. Ахтамов А.А., Ахтамов А., Султонов Р.Р. Кичик ёшдаги болаларда соннинг туғма чиқишини консерватив усулда даволашда реабилитация муолажаларини қўлланилиши ва натижалари // Ўзбекистон врачлар ассоциацияси бюллетени, 2019.- №1 (94).- С. 68-72.
5. Ахтамов А., Ахтамов А.А. Чақалоқларда ва кўкрак ёшдаги болаларда чаноқ-сон бўғимининг дисплазиясини клиник ва рентгенологик текшириш натижалари // Ўзбекистон врачлар ассоциацияси бюллетени, 2020.-. №3 (100) - С. 38-72.
6. Ахтамов А., Ахтамов А.А. Чақалоқларда ва кўкрак ёшдаги болаларда чаноқ-сон бўғимининг дисплазиясини клиник ва рентгенологик текшириш натижалари // Биология ва тиббиёт муаммолари, 2016.- №4 (91). –С. 129-132.
7. Ахтамов А., Джураев А.М., Ахтамов А.А., Ахмедов У.Б. Кўкрак ёшдаги болаларда соннинг туғма чиқишини консерватив даволаш натижалари // Травматология, ортопедия ва реабилитация, 2021.- №1.-С. 19-23.
8. Ахтамов А.А. Кўкрак ёшдаги болаларда соннинг туғма чиқишини функционал даволашда ортопедик реабилитациянинг ўзига хос жихатлари // Травматология, ортопедия ва реабилитация, 2021.- №3. – С. 13-16.

9. Akhtamov A. A., Gofurov F. A., Sultonov R. R. Rehabilitation of children after closed elimination of congenital dislocation and subluxation of the hip / BIMCO JURNAL / / Abstract book of the congress BIMCO. Chernivtsi, 2018, p. 388.
10. Akhtamov A. A. Metodika funktsional'nogo lecheniya innate dislocation of the hip in infants / Problemy meditsiny i biologii / / Materialy Mezhdunarodnoi nauchno-prakticheskoi konferentsii molodykh uchenykh i studentov. Kemerovo, April 11-112, 2019.- P. 227-230.
11. Ахтамов А.А., Жураев А.М., Ахтамов А. Кичик ёшдаги болаларда соннинг туғма чиқишини функционал усулда даволаш натижалари / Травматология ва ортопедиянинг долзарб муаммолари // Илмий-амалий конференция материаллари. - Jizzakh, June 8, 2019. - B. 174-175.
12. Tonnis Dictrich. Dic angeborene Hiifdysplasie und Hiifluxation Springer-Verlag Berlin Heidelberg. 1984. P. 534.
13. Axtamov A., Axtamov A.A., Shamsiev J.Z. Complication after hip endoprosthetics of the hip joints and their prevention // European Journal of Molecular and Clinical Medicine. Volume 8, No.2. 2021. 827-832 p.
14. Axtamov A., Axtamov A. A., Djuraev A.M. Formation of the hip joint after functional treatment of congenital hip discharge in children // Turkish Journal of Physiotherapy and Rehabilitation, 2021.-32 (3).-P. 7132-7135.