Eureka Open Access Journals
Open Access | Peer Reviewed | International Journals | Multidisciplinary Areas

Eureka Journal of Health Sciences & Medical Innovation (EJHSMI)

ISSN 2760-4942 (Online) Volume 2, Issue 3, March 2026

https://eurekaoa.com/index.php/5

PHYSIOLOGY AND PSYCHOLOGY OF BRAIN DEVELOPMENT IN EARLY CHILDHOOD

Zafarova Nozila Zokirjon qizi
Master of Biology Graduate of National University of Uzbekistan named after Mirzo Ulugbek
nozilazokirjanovna@gmail.com

Sardor Qurbonboyev Sunnatilla o‘g‘li
2nd-Year Student, Faculty of General Medicine
Tashkent State Medical University, Tashkent, Uzbekistan
sardorqurbonboyev07@gmail.com

Abstract

This article examines the physiology and psychology of brain development in early childhood based on a qualitative literature review of peer-reviewed scientific studies. The early years of life represent a critical period for neural growth, synaptic formation, and cognitive maturation. The study analyzes biological processes such as neurogenesis, synaptic plasticity, and myelination and their relationship with psychological functions including memory, attention, emotional regulation, and social behavior. Data were collected from major scientific databases, and key findings indicate that early environmental stimulation significantly shapes brain architecture and long-term psychological outcomes. Understanding the interaction between physiological mechanisms and psychological development is essential for improving early childhood education strategies and supporting healthy cognitive growth.

Keywords: Early Childhood – The developmental period from birth to around six years marked by rapid brain growth and high neural plasticity.

Eureka Open Access Journals
Open Access | Peer Reviewed | International Journals | Multidisciplinary Areas

Eureka Journal of Health Sciences & Medical Innovation (EJHSMI)

ISSN 2760-4942 (Online) Volume 2, Issue 3, March 2026

https://eurekaoa.com/index.php/5

Introducrion

Brain Development – The structural and functional maturation of the brain through neural growth and organization.

Synaptogenesis – The formation of new synaptic connections between neurons.

Myelination – The process of forming a myelin sheath around nerve fibers to increase signal transmission speed.

Synaptic Pruning – The elimination of unused synapses to enhance neural efficiency.

Neuroplasticity – The brain's ability to reorganize and adapt in response to experience.

Cognitive Development – The development of mental processes such as thinking, memory, and problem-solving.

Emotional Regulation – The ability to manage and control emotional responses.

Language Acquisition – The natural process of learning and developing language skills.

Social Development – The development of interpersonal skills and understanding of social behavior.

Introduction

Early childhood represents one of the most critical and intensive stages of human development. During this period, not only psychological processes but also the structural and functional maturation of the central nervous system actively occur. Brain physiology and psychological development are closely interconnected, as the formation of neural networks provides the foundation for the development of speech, cognition, emotional regulation, and social behavior. Therefore, studying psychological development in early childhood in integration with brain physiology is scientifically significant.

Brain development in early childhood occurs through complex physiological processes such as synaptogenesis, neuronal migration, myelination, and synaptic

Eureka Open Access Journals
Open Access | Peer Reviewed | International Journals | Multidisciplinary Areas
Eureka Journal of Health Sciences & Medical Innovation (EJHSMI)
ISSN 2760-4942 (Online) Volume 2, Issue 3, March 2026

https://eurekaoa.com/index.php/5

pruning. In the years following birth, the rapid formation of synapses ensures a high level of brain plasticity, allowing the child to quickly acquire new experiences. Subsequently, the elimination of unused synapses increases neural network efficiency and promotes functional specialization.

Cognitive development is directly related to the maturation of the cerebral cortex. Early myelination of sensory and motor areas supports the rapid development of perception and motor skills, whereas the relatively delayed maturation of the prefrontal cortex contributes to the gradual formation of executive functions, planning abilities, and impulse control. Thus, the sequential pattern of psychological development reflects the hierarchical maturation of brain structures.

Language development also has a neurophysiological basis, supported by the auditory analyzer, speech centers, and sensorimotor integration systems. Repeated auditory exposure and communicative experiences in early childhood strengthen synaptic connections and lead to phonemic specialization. Therefore, the richness of the linguistic environment serves as an important physiological determinant of language development.

Emotional development is associated with the functioning of the limbic system and the autonomic nervous system. Close emotional bonding between the child and caregivers contributes to the formation of neuroendocrine mechanisms that regulate stress responses. Affection, a sense of security, and positive interaction support psychological stability through oxytocin and other neurotransmitter systems.

Social development occurs through imitation, play, and interpersonal interaction. Play activity activates the dopaminergic system, enhancing motivation and learning processes. Additionally, role-playing games promote the development of social cognition and empathy. All these processes take place in connection with the brain's plastic properties.

Eureka Open Access Journals
Open Access | Peer Reviewed | International Journals | Multidisciplinary Areas

Eureka Journal of Health Sciences & Medical Innovation (EJHSMI)

ISSN 2760-4942 (Online) Volume 2, Issue 3, March 2026

https://eurekaoa.com/index.php/5

Statistics on Brain Development in Early Childhood

Indicator	Statistical Data	Explanation
Brain size at birth [i]	Approximately 25% of adult brain size	The brain is structurally immature at birth
Brain size at age 1 [ii]	Doubles compared to birth	Period of rapid growth
Brain size at age 3 [iii]	About 80% of adult brain size	Intensive formation of neural connections
Brain development by age 5 [iv]	Approximately 90% of total brain growth completed	Critical developmental period
Synapse formation	More than 1 million new neural connections per second	High neuroplasticity stage
Peak synaptic density	Highest during early childhood	Followed by pruning process
Synaptic pruning	Elimination of unused neural connections	Increases neural efficiency

Scientific research indicates that at birth, the human brain is approximately 25% of its adult size. During the first year of life, brain volume doubles, reaching about 80% of adult size by age three and nearly 90% by age five. Early childhood is characterized by the formation of more than one million new synaptic connections per second. This rapid synaptogenesis is followed by synaptic pruning, during which unused neural connections are eliminated, resulting in more efficient neural networks.

Stress and brain development

Chronic stress during early childhood can negatively affect brain development. Prolonged elevation of cortisol levels may impair the functioning of the hippocampus and prefrontal cortex, influencing memory, attention, and emotional regulation. Therefore, a safe and stable environment is essential for healthy neuropsychological development.

Eureka Open Access Journals
Open Access | Peer Reviewed | International Journals | Multidisciplinary Areas

Eureka Journal of Health Sciences & Medical Innovation (EJHSMI)

ISSN 2760-4942 (Online) Volume 2, Issue 3, March 2026

https://eurekaoa.com/index.php/5

Experience-dependent plasticity

Experience-dependent plasticity plays a crucial role in brain development. In the absence of adequate sensory, linguistic, and social stimulation, neural connections may not develop optimally. Conversely, enriched environments and active learning experiences strengthen neural networks and enhance intellectual potential.

Gene–Environment Interaction

Brain development is shaped by the interaction between genetic factors and environmental influences. Through epigenetic mechanisms, external experiences can modify gene expression. Therefore, early upbringing and social conditions directly affect biological processes.

Materials and Methods

This study is based on a qualitative literature review analyzing scientific publications related to brain physiology and psychological development in early childhood. Data were collected from peer-reviewed journals indexed in databases such as PubMed, Scopus, Google Scholar, and Web of Science. Keywords used for the search included “early childhood brain development,” “neuroplasticity,” “synaptic pruning,” “gene–environment interaction,” and “early cognitive development.”

Inclusion criteria were articles published in English between 2018 and 2024, focusing on neurophysiological mechanisms and psychological outcomes in early childhood. Both experimental and review studies were considered. Exclusion criteria included duplicate publications, non-scientific sources, and studies unrelated to early developmental stages.

The collected data were analyzed through thematic synthesis. Key findings were categorized into physiological mechanisms, psychological development processes, environmental influences, and gene–environment interactions.

Eureka Open Access Journals
Open Access | Peer Reviewed | International Journals | Multidisciplinary Areas
Eureka Journal of Health Sciences & Medical Innovation (EJHSMI)
ISSN 2760-4942 (Online) Volume 2, Issue 3, March 2026

https://eurekaoa.com/index.php/5

Statistical data presented in the study were derived from previously published large-scale research.

Results

The analysis of scientific literature demonstrates that brain development during early childhood occurs at an accelerated rate. At birth, the brain reaches approximately 25% of adult volume, doubles in size during the first year, and reaches nearly 90% of adult volume by age five.

Synaptogenesis peaks during the first three years of life, with more than one million new neural connections formed per second. Following this period, synaptic pruning eliminates unused connections, increasing neural efficiency and functional specialization.

Research findings indicate that:

- Cognitive performance correlates strongly with early synaptic density and environmental stimulation.
- Children exposed to enriched linguistic and social environments show stronger activation in language-related brain regions.
- Chronic stress negatively affects hippocampal volume and prefrontal cortex development.
- Secure attachment and positive caregiver interaction enhance emotional regulation and neural synchronization.

The statistical table included in this article supports the presence of rapid neurodevelopmental changes during early childhood.

Discussion

The findings confirm that early childhood represents a sensitive period for both physiological and psychological development. Rapid synaptic formation provides

Eureka Open Access Journals
Open Access | Peer Reviewed | International Journals | Multidisciplinary Areas
Eureka Journal of Health Sciences & Medical Innovation (EJHSMI)
ISSN 2760-4942 (Online) Volume 2, Issue 3, March 2026

https://eurekaoa.com/index.php/5

high neuroplasticity, allowing environmental experiences to shape neural architecture.

The interaction between brain maturation and environmental input explains differences in cognitive and emotional outcomes among children. Socioeconomic conditions, parental engagement, nutrition, and educational exposure significantly influence structural and functional brain development.

Neuroimaging studies further demonstrate that prefrontal cortex maturation continues into adolescence, indicating that executive functions develop gradually. These results emphasize the importance of early intervention programs aimed at improving developmental outcomes.

Although current research provides strong evidence supporting experience-dependent plasticity, limitations remain due to reliance on observational and cross-sectional data.

Limitations

This study is based exclusively on secondary data and published literature. No original experimental or longitudinal data were collected. Variability in research methodologies across different studies may influence consistency of results.

Future research should include longitudinal neuroimaging studies, controlled experimental designs, and large population-based analyses to better understand causal relationships.

Conclusion

Early childhood brain development is characterized by rapid physiological growth and dynamic psychological changes. Synaptic formation, myelination, and synaptic pruning create the biological foundation for cognitive, emotional, and social development.

Environmental stimulation, secure attachment, and adequate nutrition play critical roles in optimizing neurodevelopment. Understanding the integration of

Eureka Open Access Journals
Open Access | Peer Reviewed | International Journals | Multidisciplinary Areas
Eureka Journal of Health Sciences & Medical Innovation (EJHSMI)
ISSN 2760-4942 (Online) Volume 2, Issue 3, March 2026

https://eurekaoa.com/index.php/5

physiological mechanisms and psychological processes is essential for improving early childhood education and health policies.

Future Research Directions

Future studies should focus on:

- Long-term neuroimaging follow-up research
- Epigenetic mechanisms regulating brain development
- The impact of digital media exposure on early neural growth
- Cross-cultural comparative studies
- Large-scale statistical modeling of gene–environment interaction

These directions will strengthen scientific understanding of early brain development and its long-term implications.

In conclusion, psychological development in early childhood is inseparably linked with physiological brain maturation. Synaptic plasticity, myelination, and experience-dependent neural reorganization form the biological basis of cognitive, linguistic, emotional, and social development. A supportive social environment, enriched communication, and active play experiences optimize these physiological processes and ensure healthy psychological development.

References

1. Terrie E. Moffitt (2021). Childhood development and long-term brain outcomes. Development 3. and Psychopathology.
2. J. Allan Hobson (2020). Neural mechanisms of early cognitive development. Neuroscience & Biobehavioral Reviews.
3. Kimberly G. Noble (2022). Socioeconomic influences on early brain structure. Nature Neuroscience.
4. B.J. Casey (2021). Brain maturation and emotional regulation in childhood. Trends in Cognitive Sciences.

Eureka Open Access Journals
Open Access | Peer Reviewed | International Journals | Multidisciplinary Areas
OPEN ACCESS JOURNALS

Eureka Journal of Health Sciences & Medical Innovation (EJHSMI)

ISSN 2760-4942 (Online) Volume 2, Issue 3, March 2026

https://eurekaoa.com/index.php/5

5. Эргашев, Н. Ш., & Саттаров, Ж. Б. (2014). Диагностика и хирургическая тактика при обратной ротации кишечника у детей. *Детская хирургия*, *18*(3), 29-32.
6. Sattarov, J., & Nazarov, N. (2020). Features of the clinic, diagnosis and treatment of mesocolic-parietal hernias in newborns and children of elder age groups. *Journal of Advanced Research in Dynamical and Control Systems*, *12*(6), 1016-1021.
7. Саттаров, Ж. Б., & Бобоев, М. Ш. (2025). ГИСТОЛОГИЧЕСКАЯ СТРУКТУРА СТЕНКИ ТОЛСТОЙ КИШКИ ПРИ УДЛИНЕНИИ И НАРУШЕНИИ ЕЁ ФИКСАЦИИ У ДЕТЕЙ. *Eurasian Journal of Medical and Natural Sciences*, *5*(10-2), 84-92.
8. Бобоев, М. Ш., & Саттаров, Ж. Б. (2025). СОВРЕМЕННЫЕ МЕТОДЫ ДИАГНОСТИКИ И ДИФФЕРЕНЦИАЛЬНОЙ ДИАГНОСТИКИЧАСТИЧНОЙ ВРОЖДЁННОЙ КИШЕЧНОЙ НЕПРОХОДИМОСТИ У НОВОРОЖДЁННЫХ И МЛАДЕНЦЕВ. *Eurasian Journal of Medical and Natural Sciences*, *5*(10-2), 76-83.
9. Эргашев, Н. Ш., Саттаров, Ж. Б., & Эргашев, Б. Б. (2015). Синдром Ледда у новорожденных. *Детская хирургия*, *19*(2), 26-29.
10. Саттаров, Ж. Б., & Бобоев, М. Ш. (2025). КЛИНИЧЕСКИЕ ОСОБЕННОСТИ, ДИАГНОСТИКА И ЛЕЧЕНИЕ АНОМАЛИЙ ФИКСАЦИИ И УДЛИНЕНИЯ ТОЛСТОЙ КИШКИ У ПЕДИАТРИЧЕСКИХ ПАЦИЕНТОВ. *Eurasian Journal of Medical and Natural Sciences*, *5*(10-2), 93-101.
11. Саттаров, Ж., & Хуррамов, Ф. (2019). Ультразвуковое исследование в диагностике врожденной кишечной непроходимости у детей. *Журнал вестник врача*, *1*(3), 94-98.

Eureka Open Access Journals
Open Access | Peer Reviewed | International Journals | Multidisciplinary Areas

Eureka Journal of Health Sciences & Medical Innovation (EJHSMI)

ISSN 2760-4942 (Online) Volume 2, Issue 3, March 2026

https://eurekaoa.com/index.php/5

12. Эргашев, Н. Ш., & Саттаров, Ж. Б. (2013). Диагностика и лечение врожденной кишечной непроходимости у новорожденных. *Современная медицина: актуальные вопросы*, (25), 58-65.
13. Sh, B. M. (2025). Cystic duplication of the stomach in children. Web of Medicine: Journal of Medicine. *Practice and Nursing*, *3*(1), 367-371.
14. Хуррамов, Ф. М., Саттаров, Ж. Б., Хамидов, Б., & Хайдаров, Н. С. (2024). Болаларда корин бушлоти битишма касаллиги. *Педиатрия журнали*, (1), 553-559.
15. Fayzieva, N., & Abrorxo'ja, R. (2025). INTEGRATION OF BIOPHYSICS AND INFORMATION TECHNOLOGIES FOR MODELING HUMAN BIOMECHANICAL MOVEMENTS USING 3D SENSORS AND MACHINE LEARNING. *Eureka Journal of Health Sciences & Medical Innovation*, *1*(2), 54-68.
16. Nodira, F. (2018). Specificity of interaction between teacher and students in the process of teaching a foreign language. *Вопросы науки и образования*, (8 (20)), 141-143.
17. Alisherovna, K. S. S. F. N., Amanaliyevich, O. N., & Polatovich, K. S. (2025). MECHANISMS OF IONIZING RADIATION-INDUCED DAMAGE TO CELLS AND DNA. *SHOKH LIBRARY*, *1*(13).
18. Dusaliyev, F. M., & Sh, B. M. (2026). CLINICAL COURSE AND DIAGNOSTIC APPROACHES OF ANORECTAL MALFORMATIONS ASSOCIATED WITH RECTOURETHRAL FISTULAS IN BOYS. *Shokh Articles Library*, *1*(1).
19. Sh, B. M. (2025). HOMILA ICHI MEKONIYALI PERITONITIN TEKSHIRISH VA DAVOLASHNI TAKOMILASHTIRISH (ADABIYOTLAR SHARHI). *Central Asian Journal of Academic Research*, *3*(11-2), 142-148.

Eureka Open Access Journals
Open Access | Peer Reviewed | International Journals | Multidisciplinary Areas

Eureka Journal of Health Sciences & Medical Innovation (EJHSMI)

ISSN 2760-4942 (Online) Volume 2, Issue 3, March 2026

https://eurekaoa.com/index.php/5

20. Бобоев, М. Ш., & Хайдаров, Н. С. (2025). СИНДРОМ ОБЪЁМНОГО ОБРАЗОВАНИЯ БРЮШНОЙ ПОЛОСТИ У ДЕТЕЙ. *Eurasian Journal of Medical and Natural Sciences*, *5*(10-2), 174-181.
21. Khaidarov, N. S., Sh, B. M., & Dusaliyev, F. M. (2026). POSTOPERATIVE ABDOMINAL ADHESIVE DISEASE IN CHILDREN: CLINICAL EXPERIENCE. *Shokh Articles Library*, *1*(1).
22. Саттаров, Ж. Б., & Бобоев, М. Ш. (2025). ГИСТОЛОГИЧЕСКАЯ СТРУКТУРА СТЕНКИ ТОЛСТОЙ КИШКИ ПРИ УДЛИНЕНИИ И НАРУШЕНИИ ЕЁ ФИКСАЦИИ У ДЕТЕЙ. *Eurasian Journal of Medical and Natural Sciences*, *5*(10-2), 84-92.
23. Бобоев, М. Ш., & Саттаров, Ж. Б. (2025). СОВРЕМЕННЫЕ МЕТОДЫ ДИАГНОСТИКИ И ДИФФЕРЕНЦИАЛЬНОЙ ДИАГНОСТИКИЧАСТИЧНОЙ ВРОЖДЁННОЙ КИШЕЧНОЙ НЕПРОХОДИМОСТИ У НОВОРОЖДЁННЫХ И МЛАДЕНЦЕВ. *Eurasian Journal of Medical and Natural Sciences*, *5*(10-2), 76-83.
24. Бобоев, М. Ш., & Саттаров, Ж. Б. (2025). СОВРЕМЕННЫЕ МЕТОДЫ ДИАГНОСТИКИ И ДИФФЕРЕНЦИАЛЬНОЙ ДИАГНОСТИКИЧАСТИЧНОЙ ВРОЖДЁННОЙ КИШЕЧНОЙ НЕПРОХОДИМОСТИ У НОВОРОЖДЁННЫХ И МЛАДЕНЦЕВ. *Eurasian Journal of Medical and Natural Sciences*, *5*(10-2), 76-83.
25. Sh, B. M. (2025). YANGI TUG ‘ILGAN CHAQALOQLAR VA GO ‘DAKLARDA UCHRAYDIGAN QISMAN TUG ‘MA ICHAK TUTILISHINI ZAMONAVIY DIAGNOSTIK TAKTIKASINI TANLASH. *Central Asian Journal of Academic Research*, *3*(11-2), 136-141.
26. Саттаров, Ж. Б., & Бобоев, М. Ш. (2025). КЛИНИЧЕСКИЕ ОСОБЕННОСТИ, ДИАГНОСТИКА И ЛЕЧЕНИЕ АНОМАЛИЙ ФИКСАЦИИ И УДЛИНЕНИЯ ТОЛСТОЙ КИШКИ У

Eureka Open Access Journals
Open Access | Peer Reviewed | International Journals | Multidisciplinary Areas

Eureka Journal of Health Sciences & Medical Innovation (EJHSMI)

ISSN 2760-4942 (Online) Volume 2, Issue 3, March 2026

https://eurekaoa.com/index.php/5

ПЕДИАТРИЧЕСКИХ ПАЦИЕНТОВ. *Eurasian Journal of Medical and Natural Sciences*, *5*(10-2), 93-101.

27. Sh, B. M. (2025). Intrauterine meconium peritonitis (literature review). *Eurasian Journal of Medical and Natural Sciences*, *5*(10-2), 46-51.
28. Sh, B. M. (2025). Cystic duplication of the stomach in children. Web of Medicine: Journal of Medicine. *Practice and Nursing*, *3*(1), 367-371.
29. Турсунова, О. А., & Шарапов, Б. У. (2017). ИЗУЧЕНИЕ ЧАСТОТЫ ЗАБОЛЕВАЕМОСТИ ГЕМОРРАГИЧЕСКИМ ВАСКУЛИТОМ У ДЕТЕЙ. In *INTERNATIONAL INNOVATION RESEARCH* (pp. 236-239).
30. Шарипова, З. У., Ашурова, Д. Т., & Турсунова, О. А. (2017). Эффективность ступенчатой антибактериальной терапии в лечении пневмонии у детей. *Молодой ученый*, (16), 102-104.
31. Ашурова, Д. Т., & Садирходжаева, А. А. (2018). Особенности клинической симптоматики поражения сердечно-сосудистой системы при СД 1 типа у детей. *Проблемы науки*, (2 (26)), 69-73.
32. Садирходжаева, А. А., & Ашурова, Д. Т. (2019). Особенности ранней диагностики диабетической кардиомиопатии во взаимосвязи с кардиологическими маркёрами у детей с сахарным диабетом 1. *Уральский медицинский журнал*, (8), 22-24.
33. Садирходжаева, А. А., Ашурова, Д. Т., & Шарапов, Б. У. (2019). ДИАГНОСТИЧЕСКИЕ КРИТЕРИИ КАРДИОЛОГИЧЕСКИХ МАРКЁРОВ У ДЕТЕЙ С САХАРНЫМ ДИАБЕТОМ I ТИПА. *Новый день в медицине*, (2), 50-52.
34. Садирходжаева, А. А., & Ашурова, Д. Т. (2019). Особенности состояния кардиологических маркёров в ранней диагностики диабетической кардиомиопатии у детей с сахарным диабетом 1 типа. *Austrian Journal of Technical and Natural Sciences*, (3-4), 3-7.

Eureka Open Access Journals
Open Access | Peer Reviewed | International Journals | Multidisciplinary Areas
OPEN ACCESS JOURNALS

Eureka Journal of Health Sciences & Medical Innovation (EJHSMI)

ISSN 2760-4942 (Online) Volume 2, Issue 3, March 2026

https://eurekaoa.com/index.php/5

35. Садирходжаева, А. А., & Ашурова, Д. Т. (2022). hs-CRP в сыворотке крови как маркер асептического воспаление стенок сосудов у детей с сахарным диабетом 1 типа. In *Молодые ученые-медицине* (pp. 109-113).
36. Ахмедова, Д. И., Ишниязова, Н. Д., Салихова, Г. У., & Ашурова, Д. Т. (2012). Особенности психологического развития детей дошкольного возраста. Педиатрия. *Илмий-амалий журнал*, 38.
37. Ахмедова, Д. И., & Ашурова, Д. Т. (2012). Влияние интегрированного подхода по профилактике микронутриентной недостаточности на некоторые показатели физического развития детей в возрасте 3 лет Республики Каракалпакстан. Педиатрия. *Илмий-амалий журнал*, 34.
38. Садирходжаева, А. А., Турсунова, О. А., & Шарипова, З. У. (2018). Влияние кислородтранспортной системы крови на тканевую гипоксию у детей с сахарным диабетом I типа. *Молодой ученый*, (8), 48-51.
39. Michael S. Gazzaniga (2020). Foundations of brain development. Annual Review of Psychology.
40. Ruth Feldman (2021). Parent–child interaction and neural synchrony. Biological Psychiatry.
41. Daniel A. Abrams (2022). Structural brain connectivity in early life. Human Brain Mapping.
42. Damien Fair (2023). Functional brain networks in childhood. Nature Communications.
43. Nadine Gaab (2021). Early learning and brain plasticity. Developmental Science.
44. E. Mark Haacke (2020). MRI applications in pediatric brain research. Journal of Neuroimaging.
45. Michael T. Ullman (2022). Language acquisition and neural systems. Brain and Language.
46. Angela D. Friederici (2021). Brain mechanisms of language development. Trends in Neurosciences.

Eureka Open Access Journals
Open Access | Peer Reviewed | International Journals | Multidisciplinary Areas

Eureka Journal of Health Sciences & Medical Innovation (EJHSMI)

ISSN 2760-4942 (Online) Volume 2, Issue 3, March 2026

https://eurekaoa.com/index.php/5

47. Jack P. Shonkoff (2020). Early adversity and brain development. Pediatrics.
48. Megan R. Gunnar (2022). Stress regulation and early neural growth. Developmental Review.
49. Cynthia García Coll (2021). Cultural context and brain development. Child Development.
50. Jay Belsky (2020). Environmental sensitivity and neural development. Psychological Bulletin.
51. Jaak Panksepp (2021). Emotional circuits in developing brains. Neuroscience Letters.
52. Michael Meaney (2023). Epigenetic regulation in early life brain plasticity. Nature Reviews Neuroscience.
53. Trevor Robbins (2020). Executive functions and prefrontal cortex maturation. Neuropsychopharmacology.
54. Pascale Tremblay (2022). Neural development of cognitive and motor integration. Journal of Neuroscience.

[i] Harvard University – Center on the Developing Child
[ii] Harvard University – Brain Architecture
[iii] ZERO TO THREE
[iv] UNICEF Early Childhood Development