



Child is sensitive to loud noises. My child is overly sensitive to noise. My child is sensitive to loud noise. Why is my child sensitive to loud noises. What does it mean when a child is sensitive to loud noises. My child is very sensitive to noise. My child is sensitive to noise.

mature phase in the life of an organism for others, see the window of opportunity. in development psychology and development biology, a critical period is a maturing phase in the life of an organism does not receive the nervous system is particularly sensitive to certain environmental stimuli. If, for some reason, the organism does not receive the nervous system is particularly sensitive to certain environmental stimuli. appropriate stimulus during this "critical period" to learn a certain skill or tract, it may be difficult, ultimately less successful, or even impossible, to develop certain associated functions for the survival of an organism, such as vision, are particularly likely to develop during critical periods. The "critical period" also refers to the ability to acquire the first language. researchers found that people who have passed the "critical periods" and "weak critical periods" and "weak critical periods" (aka sensitive periods) after defining weak critical periods "/" sensitive periods "as longer periods, after which learning is still possible. [2] other researchers consider the same phenomenon. [3] for example, the critical periods for the binocular vision of the human child is considered between three and eight months, with sensitivity to damage that extends up to at least three years of age. further critical periods have been identified for the development of the hearing [4] and the vestibular system. [1] strong critical periods of strong crit weak critical periods include tuning of the phoneme, grammar processing, joint control, vocabulary acquisition, musical training at any age. [7] [8] critical periods mechanisms the opening of critical periods of plasticity occur in the prenatal brain and continue throughout childhood until adolescence and are very limited during adulthood. two main factors influence the opening of critical periods: cell events (i.e. changes in the molecular landscape) and sensory experience (i.e. audio, visual input, etc.) both must coincide for the critical period to open properly. on a cellular level, critical periods are characterized by the maturation of inhibitory circuits. [9] More precisely, factors such as neurotrophic factor derived from the brain (bdnf) and orthodentic homebox 2 (otx2)At the maturation of a large class of neurons inhibitors: interneurons of ParvalBumin-positive (PV cells). [9]. Before the beginning of the critical period, the modulation of this circuit is hampered by primitive factors such as polysial acid (PSA). [9] PSA acts, partly, preventing OTX2 OTX2 After opening the critical period, PSA levels decrease, allowing photovoltaic cells to maturity by activating Gabaa inhibitor receptors that facilitate remodeling of the inhibitory circuit. Artificial removal of the PSA, or the experimental manipulation of the inhibitory transmission can lead to the premature opening of the critical period. [10] [11] While the times of these molecular events seem to be partially explained by the genes of the clock, [12] the experiments of sensory deprivation were shown to interfere with the correct timing of the periods Critics. [13] [14] [15] The activity theory dependent on the activity: if two neurons have both the potential to make a connection with a cell, the neuron that the most fires will do. Ocular domain This competition phenomenon dependent on the activity is particularly seen in the formation of ocular dominance columns within the visual system. At the beginning of development, most of the visual cortex is binocular, which means that it receives input approximately the same from both eyes. [16] Normally, while development progresses, the visual cortex will seer to monocular columns that receive input from one eye. [16] However, if an eye is patched, or otherwise prevented to receive sensory inputs, the visual bark moves to the representation of the discovered eye. This demonstrates the competition dependent on the activity and the theory of Hebbian because the inputs from the discovered eye. information: Axon axis training and growth are another fundamental part of the competition dependent on plasticity and activity. Axon's growth and branching was demonstrated to be inhibited when neuron electricity is suppressed under the level of a nearby neighbor. [18] This shows that asylum growth dynamics are not independent but rather depend on local circuits within which they are active (ie the activity of other neurons that compete for connections). Microglia intrinsically plays a role in synaptic pruning during adolescence. As resident immune cells of the central nervous system, the main role of Microglia is phagocytosis and exculfution. Studies have discovered that during critical periods in the visual cortex, neural synapses become the objective of microglial phagocytosis. [19] The neurons who received a less frequent entry from the cells of the ridge ganglion during the first postnatal periods were more inclined to be swallowed and free of Microglia, as for monocolater deprivation experiments. [19] Similar results were found during manipulation G-Coupled purinergic receptors on microglial processes. Block these receptors or perform a significantly lowered elimination experiment microglical interactions and syntactic pruning during the first critical period of the visual cortex. [20] More recently, the expression of the component 4 gene of the complement has been found to contribute significantly to abnormally high levels of synaptic pruning during the early stages of development in schizophrenic and microglia neurons, suggesting a genomic connection between the immune system and critical periods. [21] The dendritic morphology of a neuron, in particular the appearance and disappearance of the small protrusions known as thorns. In the first postnatal days from 11 to 15, the motility of the spine is thought to have a role in neurogenesis. [22] Motility levels decrease significantly before the beginning of the critical period of the visual cortex and monocular deprivation experiments show that motility may not be explicitly involved in this process. [23] However, binocular deprivation before the eye opening led to a significant increase in the motility of the spine until the culmination of the critical period, [24] which led to controversial results regarding the role of motility is the balance of exciterating and inhibitor inputs. At the beginning of development, GABA, the leading inhibitory neurotransmitter in the adult brain, shows an excitation effect on its target neurons. [25] However, due to changes in internal chloride levels due to the up-regulation of potassium chloride pumps, GABA then switches to inhibitory synaptic transmission. [25] The maturation of the GABAergico inhibitory system helps to trigger the occurrence of critical periods. [11] Enhanced GABAergic systems can lead to an early critical period, while weaker GABAergic inputs can delay or even prevent plasticity. [26][27] Inhibition is particularly important in columnar formation driving in the visual cortex. [28] Ebbiana theory provides a vision of the importance of inhibition within neural networks: without inhibition, there would be more synchronous and therefore more connections, but with inhibition, less excitation signals pass through, allowing only the most salient connections to mature. [29] Periodic closures for European networks The closure of the critical period was demonstrated by the maturation of inhibitory circuits, mediated by the formation of perinEuropean networks around inhibitors in the extracellular matrix formed by proteoglycans chondroitine sulphate, hyalurona and link protein. [30] These structures wrap the soma of theinhibitors in the central nervous system, appearing with age to stabilize mature circuits. [30][31] The development of PNN and the critical timing of the period are delayed in dark learning. [31] For example, PNN digestion by ABC chondroitinasis in rats leads to changeeye dominance over monocular deprivation, which is normally limited to its critical period long before in development. [32] Furthermore, PNNs are charged negatively, which is theorized to create a cation-rich environment around cells, potentially leading to an increase in the combustion rate of inhibiting neurons, thus allowing an increase in inhibition after the formation of PNNs and helping to close the critical period. [33] The role of the PNN in the closing of critical period is further supported by the finding that the parvalbulminal-positive interns with rapid squeeze are often surrounded by PNN.[33] Perin-European networks have also been found to contain chemorepulsive factors, such as semaphorin3A, which limit the growth of the axis necessary for plasticity during critical periods. [34] In all these data suggest a role for PNNs in the maturation of CNS inhibition, in the maturation of CNS inhibition, in the maturation of CNS inhibition. Myelin sheaths are formed by oligodendrocytes in the CNS that wraps segments of axons to increase their cooking speed. [35] Myelin is formed in the early stages of development brain areas (i.e. those associated with higher brain functions such as frontal lobes) which have subsequently reappointed. [36] The maturation of mielization in intracortical layers coincides with the critical closure of the period. [37] Myelin is known to bind many different assonic growth inhibitors that prevent plasticity seen in critical periods. [38] The Nogo Receptor is expressed in miline and binds to the assonic growth inhibitors Nogo and MAG (among others), preventing the growth of axone in mature and milinated neurons. [38] Instead of affecting the timing of the critical period, Nogo receptor mutations temporarily prolong the critical period. critical period for monocular dominance from about 20 - 32 days to 45 or 120 days, suggesting a probable role of myelimination are limited temporally, since my elimination itself can have its own critical period and timing. [36] [39] Research has shown that the social isolation of mice leads to reduce the thickness of myelin and to a poor working memory, but only during a critical period of youth. [39] In primates, isolation is correlated with abnormal changes in white matter potentially due to a decrease in myelination. [40] In everything, myelin and its receptorsThey bind different important axial growth inhibitors who help close the critical period. [37] [38] The timing of this myelination, however, depends on the brain region and external factors such as the social environment. [36] [39] Neuromodulation while the presence or absence of sensory experiences more the development of the brain during the critical period, the behavioral context (i.e. the amount of attention, excitement, fear and reward experienced) has been suggested to be important in adjusting the mechanisms of brain connectivity, these behavioral and contextual inputs activate the neuromodulatory system, which have a substantial state The research that uses this approach highlighted the role of neuromodulation in sensory processing during the critical period. [11][44][45][48][49] For example, on the one hand, in kittens, a change in eye dominance resulting from monocular deprivation during the critical period is reduced by the combined destruction of noradrenergic and hilly neurons. [48] Moreover, prenatal exposure to selective inhibitors of serotonin reuptake (sri) causes a change in the perceptive narrowing of the language previously in development. [50] On the other hand, neuromodulatory stimulation, adult mice listening to a specific frequency tone showed the expansion of the tonotopic area in the hearing cortex that specifically responds to the sounds of that frequency. [43][44] Mechanized inhibit neuro-modulatory cells [49]Critical period Hypothesis The first acquisition of the language Hypothesis of the Ipothesis critical period (CPH) states that the first years of life constitute the time during which the language develops promptly and after which (a little over 5 years and puberty) the linguistic acquisition is much more difficult and ultimately has less success. [52] The hypothesis that the language was acquired during a critical period was proposed for the first time by the neurologist Robert Linmar Lenneberg argued that children who experience brain injury in advance in life develop far better language skills than adults with similar injuries. Dr. Maria Montessori was one of the previous educators who brought attention to this phenomenon and called it "sensitive periodes", which is one of the pillars of his philosophy of education. The two most famous cases of children who did not acquire a language after the critical period are Genie and the wild son Victor of Aveyron. [53] However, the tragic circumstances of these cases and moral and ethical impermeability of replicating them make it difficult to draw conclusions on them. childhood, or their inability to develop language could be derived from the deep negligence and abuse they suffered [52] Many later researchers have further developed CPH, especially Elissa Newport and Rachel Mayberry. Studies conducted by these researchers have further developed CPH, especially Elissa Newport and Rachel Mayberry. since children never reach full competence, even after 30 years of daily use. [54] While the effect is deeper for people who do not receive sign language at the age of 5 were significantly less fluent than native deafers (whose exposure to a sign language began at birth). Early language exposure also affects the ability to learn a second language later in life: deep individuals with early-language exposure reach comparable levels of competence in a second language exposure reach comparable levels of competence in a second language exposure reach comparable levels of competence in a second language exposure reach comparable levels of competence in a second language exposure reach comparable levels of competence in a second language exposure reach comparable levels of competence in a second language exposure reach comparable levels of competence in a second language exposure reach comparable levels of competence in a second language exposure reach comparable levels of competence in a second language exposure reach comparable levels of competence in a second language exposure reach comparable levels of competence in a second language exposure reach comparable levels of competence in a second language exposure reach comparable levels of competence in a second language exposure reach comparable levels of competence in a second language exposure reach comparable levels of competence in a second language exposure reach comparable levels of competence in a second language exposure reach comparable levels of competence in a second language exposure reach comparable levels of competence in a second language exposure reach comparable levels of competence in a second language exposure reach comparable levels of competence in a second language exposure reach comparable levels of competence in a second language exposure reach comparable levels of competence in a second language exposure reach comparable levels of competence in a second language exposure reach comparable levels of competence in a second language exposure reach competence in a second language exposure reach competence in a second levels of competence in a second language exposure reach competence in a second language exposure reach competence in a second levels of competence in a second language exposure reach competence in a s evidence comes from neuropsychology in which it is known that adults well beyond the critical period are more likely to suffer a permanent linguistic impairment from brain damage than children, considered due to the youth resilience of neural reorganization [52]. Steven Pinker discusses CPH in his book, the language instinct. According to Pinker themust be seen as a concept rather than a specific language because sounds, grammar, meaning, vocabulary and social norms play an important role in language because the acquisition. [56] The physiological changes in the brain are also provocative causes for the terminus of the critical period for language because the acquisition. stage, similarly the attachment of child parents is crucial for the child's social development. A child learns to trust and feel safe with the parent, but there are cases in which the child remain in an orphanage where he does not receive the same attachment with their caregiver. Research shows that children who have not been able to develop this attachment have had great difficulties in maintaining narrow relationships, and have had malapente behaviors with the parents adopted. [1] The discussion of the linguistic critical period suffers from the lack of a commonly accepted language definition. Some aspects of language, such as phonetic optimization, grammar processing, joint control and vocabulary acquisition, can be significantly improved by forming at any ages and therefore have weak critical periods. [7] [8] Other aspects of language, such as prefrontal synthesis, have strong critical periods. [7] [8] Other aspects of language, such as prefrontal synthesis, have strong critical periods. [7] [8] Other aspects of language, such as prefrontal synthesis, have strong critical periods. [7] [8] Other aspects of language is discussed in general, without dissection in the components, the arguments can be built both in favor and against the strong critical period of the acquisition of a second language (SLA), which influenced researchers on the field on both sides of the spectrum, support and nonsupport of CPH, to explore. [59] However, the nature of this phenomenon was one of the most fiercely discussed issues in psycholicing and cognitive science in general for decades. Certainly, the older students of a second language rarely reach the native flu-like that younger students show, although they often progress more quickly than children in the early stages. This is generally accepted as proof that supports the CPH. Incorporating the idea, "the same equal younger" by Penfield, David Singleton (1995) states that in learning a second language there are many exceptions, noticing that five percent of adult bilingual master of a second language even if they start to Learn when they are well in adulthood â  $\in$  "very after any critical period has presumably reached a conclusion. The hypothesis of the critical period has presumably reached a conclusion. The hypothesis is that the acquisition of the second language is relatively fast, of successful and qualitatively similar to the first language only if it occurs before the EtÅ della PubertÅ. [60] To better understand the SLA, it is essential to consider linguistic, cognitive and social factors rather than etÅ alone, as they are all for the acquisition of the instructor's language. [59] Over the years, many experimenters have tried to find evidence in support or against critical periods for the acquisition of the second language more easily than adults, but there areSpecial cases of adults who acquire the language more easily than adults, but there areSpecial cases of adults who acquire the correlation "from causality. [61] In 1989, Jacqueline S. Johnson and Elissa L. Newport found support for the claim that second languages are more easily acquired before puberty, or more specifically before the age of seven. [62] They tested students of the second language of English, who arrived in the United States at various ages from three to thirty-nine and found that there was a decline in grammatical correctness after the age of seven. Johnson and Newport have attributed this statement of a decrease in language learning ability with age. Opponents of the critical period argue that the difference in language skills found by Johnson and Newport could be due to the different types of input that children and adults receive; Children received a reduced entrance while adults receive more complicated facilities. Further evidence against a severe critical period for formance even after the critical period f phonology. [63] Their experiment can be a special case in which subjects must lose their first language to acquire their second one more perfectly. There is also a little debate on how you can judge the native quality of the participants in the produced speakers and what exactly it means to be a native native speaker of a second language. [64] White et al. Found that it is possible that non-native speakers of a language become native in some aspects, but such aspects are influenced by their first language. Recently, a link model has been developed to explain the changes that take place in learning the second language assuming that the sensitive period affects the lexic learning and the syntactic learning parts of the system differently, which remains a further light on how the first and second acquisition of the language changes the course of student development [65] Vision in mammals, neurons in the brain that the vision process actually develops after the eyes. An experiment of a reference point of David H. Hubel and Torsten Wiesel (1963) has shown that cats who had an eye sewn from birth to three months of age (single-faced deprivation) only vision fully developed in the open eye. They have shown that the columns in the primary visual cortex that receive input from the open eye. In general electrophysiological analysis of axons and neurons in the geniculate nucleusshowed that the properties of the visual receptive field were comparable to adult cats. However, the bark layers that process the view) connected to the closed eye, and andLarge, large columns connected to the open eye. Because the critical period was spent, it would be impossible for the kittens altering and developed their vision during their critical period. Subsequent experiments in monkeys have found similar results consistent with the strong critical period. [66] In a follow-up experiment, Hubel and Wiesel (1963) explored the cortical responses present in kittens after binocular deprivation; They found it difficult to find any active cell in the cortex, and the answers they got were both slow-moving or fast-fatiguing. Furthermore, the cells that responded selected for edges and bars with distinct orientation preferences. However, these kittens have developed normal binocularity. Hubel and Wiesel explained the mechanism for the first time, known as selectivity of orientation, in the visual bark of mammals. Tuning orientation, a model that originated with their model, is a concept in which the receptive fields of neurons in the LGN excites a simple cortical period for the correct development of the normal columns of ocular dominance in the side core of the geniculated, and therefore able to explain the effects of monocolare deprivation during this critical period. The critical period for cats is about three months. [67] In a similar experiment, Antonini and Stryker (1993) examined anatomical changes that can be observed after monocular deprivation. They compared geniculocortical axonal arbori in monocularly long-term private animals (4- weeks) short-term (6-7 days) during the critical period established by Hubel and Wiesel (1993). They have discovered that in the long term, monocular deprivation causes reduced branching at the end of neurons, while the quantity of afferent assigned to the non-private eye has increased. Even in the short term, Antonini and Stryker (1993) discovered that geniculocortical neurons were equally affected. This supports the concept of a critical period for a correct neural development for vision in the cortex. [68] The studies of persons whose sight was restored after a long cecieta (both from the birth that from a subsequent point of life) reveal that they cannot necessarily recognize objects and faces (as opposed to color, movement and simple geometric shapes ). Some hypothetical that being blind during childhood prevent a part of the visual system necessary for these higher level tasks to be developed correctly. [69] The general conviction that a critical period lasts up to 5 or 6 years is Contested by a 2007 study that found that elderly patients could improve these skills with years of exposure. [70] The expression of the LYNX1 protein has been associated with the normal end of the critical period for syntactic plasticity in the visual system. [71] [71] Konrad Lorenz in Psychology, imprinting is any type of rapid learning that occurs in a particular phase of life. While this rapid learning is independent of the behavioral result, it also establishes it and can influence behavioral result, it also establishes it and can influence behavioral result. group and took note of how he was immediately accepted, followed, and called as if he were himself. As the first moving object encountered, Lorenz studied the phenomenon as quickly geese were able to form such an irreversible bond. Through his work he showed that this developed only during a short period", which was about a few hours after the hatching, suggesting a strong critical period. [72] Lorenz also discovered a lasting effect of his studies, and this was a shift in the sexual imprinting of the species as a result of imprinting on an adoptive mother of a second species. For certain species, if raised by a second, develop and maintain impressed preferences and approach the second species that have been raised rather than choose their own, if given a choice [73]. The footprint serves as the distinctive factor between her mother and the child both identify each other, this is a strong moment of bonding for humans. It provides a kind of model or guide to adult behavior as well as other factors such as nutrition, child protection, guidance and nutrition. Also the process of imprint, Lorenz also found, brought a sense of safety and comfort for the subject and in reality encourages the behavior of imprinting. Pheromones play a key role in the fingerprint process, activate a biochemical response in the recipient, leading to a confirmed identification in the other newborn. If this happens, then the life of the child would be in danger unless it was claimed by a substitute mother, possibly leading to embarrassing social behaviors in the next life. [74] In relation to human beings, a newborn during the critical period identifies with the perfume so f his mother and other peoples since his perfume is one of the most developed senses at that point of life. The newborn uses this identification of pheromones to search for the people with whom he identifies, when in times of anguish, hunger and discomfort as a skill of[75] Inferences could be made for infants based on Lorenz's studies. When the imprint of their mothers, newborns look at them for nourishment, a sense of safety and comfort. Human infants are among the most targeted known with Ranking of second newborns. The newborns of these species have a very limited series of survival innate. Their most important and functional ability is to form links with neighboring individuals who are able to keep them alive. facilitates the ability of the newborn to form links with other individuals, from childhood to adulthood. Holding processing Many studies have supported a correlation between the type of hearing stimuli present in the first postnatal environment and in the development of the auditory system. [4] The first reports on critical periods came from children and deaf animals that received a cochlear plant to restore hearing. Approximately at the same time, both an electroencephalographic study of Sharma, Dorman and Spahr [76] and a in vivo survey of cortical plasticity in the non-hearing cats of Kral and colleagues [77] has shown that adaptation to the cochlear implant is It is subject to an early and developmental sensitive periods probably involves a multitude of processes that in their combination make it difficult to reopen these behind. [4] The understanding of the mechanisms behind critical periods has consequences for the medical therapy of hearing loss. [78] M. Merzenich and colleagues showed that during an early critical period, noise exposure can affect the organization of the auditory cortex frequency [79]. Recent studies have examined the effects of noise on development in the primary hearing cortex in rats. In their study, rats were exposed to impulse noise during the critical period had cortical neurons that were less able to respond to repeated stimuli; The earlier auditory environment has interrupted the normal structural organization during development. In a related studio, Barkat, Polley and Hensch (2011) examined how exposure to different audio frequencies influences the development of the tonotopic map in the primary auditory cortex and the ventral gene body. In this experiment, the mice were bred in normal environments or in the presence of 7 KHz tones during a critical period P11- P15 had an atypical tonotopic map in the primary hearing cortex. [80] These studies support the notion that exposure to certain sounds within the critical period car influence the development of tonotopic tonopic tonopic tonopic maps and neuron response properties. THE Critics are important for the development of the brain for the development of the deve capacity Main article: Absolute pitch is almost always manifested before adolescence and rarely, if ever among individuals who are exposed for the first time to music or phenomena Similar (for example, tonal languages) in advance at maturity is a necessary condition for its development or improvement. Studies that ask musicians and non-musicians to sing or well-known popular songs that have definitive recordings (and therefore are sung in standardized keys) show that, on average, the participants sing within a halftone of the standardized keys) show that ask musicians are sung in standardized keys) show that ask musicians to sing or well-known popular songs that have definitive recordings (and therefore are sung in standardized keys) show that ask musicians are sung in standardized keys. "barbell curve" which reflects the degree of approximation to the standard key is wide and flat). These results suggest that almost all human beings have an innate attitude for the absolute recognition of the field, although other factors can improve or limit the level of this aptitude. chronological observations suggests that the first medium-aging exposure to the environments whose interpretation depends on the field is a "trigger" of development for any aptitude that an individual owns. Vertibic system in our vestibular system, neuronal birth and mature during the critical period of the first 2-3 weeks postnatal. Thus, ripening of maturation during this period can cause changes in normal balance and movement through space. Animals with an abnormal vestibular genetic deficits during this critical period have altered vestibular phenotypes, most likely due to insufficient input from semicircular channels and dopaminergic anomalies. Furthermore, exposure to abnormal vestibular stimuli during the critical period is associated with the irregular engine development. The results of studies carried out on ferrets and rats strengthened the idea that the vestibular system is very important for engine control and balance normally. [83] The initial neonatal period. If the vestibular receptors are present during the initial neonatal period. If the vestibular system is very important for engine control and balance normally. vestibule-eyepiece reflex (VOR) is a reflected eye movement of the head. It produces an eye movement of the head. It produces an eye movement of the head of view. Studies on fish and amphibians revealed a sensitivity in their VOR. They launched in space flight for 9-10, some with the development of VOR and others with already developed reflections. Fish with developing reflections. Fish with developing reflections developed a upward upward upward upward upward to microgravity has led to a change of orientation. [84] Recent studies also support the possibility of a critical period for the development of neurons that mediate memory processing. Experimental evidence supports the notion that young neurons of adult dentate have a critical period (about 1-3 weeks after neuronal birth) during which they are an integral part of memory formation. [85] Although the exact reasoning behind this observation is uncertain, studies suggest that the functional properties of neurons at this age make them more appropriate for this purpose; These neurons: (1) Stay hyperactive during the formation of memories; (2) are more excitable; and (3) More easily depolarized due to GABAergic effects. It is also possible that hyperplasticity makes neurons more useful in memory formation. If these young neurons in adult dentate gyrus in memory processing is further supported by the fact that behavioral experiments have shown that an intact dentate gyrus is an integral part of hippocampal memory formation. [85] It is speculated that the dentate gyrus acts as a relay station for information about storage memory. The probability of a critical period could change the way we see memory processing, because ultimately it means that the collection of neurons present is constantly reconstituted as new neurons replace the old ones. If a critical period really exists, this could mean that: (1) The different populations of neurons can distinguish between similar events, independent of the temporal position; O (3) Separate populations can mediate the formation of new memories when the same events occur frequently. [85] Sports In physical sports, humans need several years of practice before reaching the highest competitive level. To date, no professional football or basketball player was able to play in the best leagues after the beginning of the practice at 20 years. In general, to reach the highest level in sports, first a person starts training, the better. 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