RESEARCH ARTICLE

Trance Stereotypes in Human and Primate Pantomime

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Abstract

The authors conducted a review and analysis of Russian and foreign experimental studies on pantomime stereotypes. Initially, stereotypical behavior was given a negative assessment. Modern studies consider adaptive functions and possibilities of stimulation as a way to harmonize emotional and mental state. A comparative analysis of circular, pendulum and diagonal movements in children and monkeys of the old world was carried out using an ethological approach to the study of behavioral patterns. Human observations were carried out in the neuropsychiatric department of the Regional Children's Clinical Hospital named after N.N. Silishcheva in Astrakhan, 40 preschool children with mental dysontogenesis participated in it. In the Sukhumi nursery, five laboratory macaques and a family of hamadryad baboons were observed, kept in an aviary with homologous kinesics. According to the author's team, walking (running) in a circle and diagonally, swinging the body "right-left" in the pantomime production of children and monkeys are associated with self-stimulation of an altered state of consciousness. Trance stereotypes distract attention from external stressors and stimuli and harmonize mental homeostasis. The study may be of interest to anthropologists, primatologists, specialists in the field of studying the psyche and pathological behavior of animals and homo sapiens.

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The emergence of stereotypes in the behavior of preschool children is associated with the onset or development of early mental pathology, including autism spectrum disorder (ASD). In fact, children with autism show more frequent and repetitive patterns of sensory-motor behavior between the ages of one and two than children with cognitive calculations and intellectual disabilities [Lewis, Kim:130]. But the occurrence of non-specific verbal and non-verbal products can also occur in other mental pathologies, for example, in schizophrenia or obsessive-compulsive disorder (OCD) [Rajapakse, Pringsheim:254].

Foreign and Russian authors identify auditory, visual, sensory, pantomimic, proprioceptive stereotypical actions that have an impressive variety [Attaeva:16]. Accumulating experimental data supports the idea that repetitive behaviors may have different pathogenesis. The appearance of stereotypes is explained by various destructive changes in the work of the brain: from age-related immaturity, to frontotemporal, parietal, cerebellar, ganglion, limbic disorders [Khalil, Tindle:670]. Some authors associate them with high excitation of subcortical or stem structures [Takumi, Tamada:41], with genetic and hormonal disorders [Mattei, Notter: 27], including a decrease in plasma oxytocin levels [Burmistrova, Filippova:65]. A number of works by foreign scientists are devoted to the influence of the gut microbiota on autism [Cenit, Sanz: 5491]. It has been found that the use of probiotics containing Bifidobacterium species improves certain symptoms of the disease, since representatives of this genus are the main producers of lactic acid, which inhibits the growth of E. coli, reduces inflammation in the intestine and interacts with the immune system [Hashemi, Fouhse:11]. Sanctuary M. R. Research A group of scientists studied the effect of probiotic supplements of B.infantis and prebiotic oligosaccharides on intestinal functioning in children with ASD. The results of a 12-week experimental work showed that a group of subjects who were injected with an additive and prebiotic oligosaccharides demonstrated a significant decrease in stereotypes in the behavior of respondents [Sanctuary, Kain:129]. Cheng Y. and the co-authors conducted a preliminary meta-analysis and suggested that omega-3 fatty acids can reduce repetitive actions [Cheng, Tseng: 2540].

The nature of nonspecific kinesics is variously explained by behavior studies. According to N.A. Bernstein, its appearance is due to the collapse of the body scheme and spatial orientation [Bernstein:212]. Some authors attribute them to the pretentious language of communication. K. S. Lebedinskaya connects movements with the autostimulation of the hypercompensatory character [Lebedinskaya:230]. According to psychiatrist J. Bowlby, stereotypes can arise when parental love is deprived in the "mother and child" system [Bowlby:110]. Currently, negativity towards stereotypical behavior has decreased, and adaptive functions and capabilities have been assigned to it. An alternative hypothesis proposed by Mason G. J., that repetitive behavioral models are necessary to overcome stress and reduce the effects of a stressor, is gaining popularity [Mason:1128]. A large number of foreign researchers consider the benefits of stereotypes. M. McCarthy and O. Brambak believe that in autism there are fluctuations in the auditory, visual and motor systems. The authors believe that rhythmic sensory feedback is formed due to repetitive motor activity, which normalizes brain rhythms and improves the processing of sensory information [McCarty, Brumback:37]. Stimulation is considered as a protective behavioral pattern against the stressful stimuli of the surrounding world [Petty, Ellis] and a way to cope with difficulties [Araujo, da Silva:220]. Diverse stereotypes, as compensatory forms of behavior, differentiate Kapp S. co-authors. Self-reports from an experimental group of adult patients with ASD indicate that repetitive actions reduce anxiety, internal tension and anxiety. They cause a feeling of relaxation, pleasant emotions, allow you to organize your thoughts, focus and get rid of neuropsychic tension. They provide relief from excessive environmental stimulation, emotional arousal, including increased anxiety [Kapp, Steward:1786].

Nonverbal stereotypes are manifested not only in patients with mental disorders, but also in healthy people. Our clinical observations of healthy and autistic preschool children show that repeated jumping movements - "spring" and flapping of the hands - "wings" are the motor skills of the emotion of joy. In autism, the amplitude and duration of movements increase in response to any stimulus, or there is a non-congruent situation. In neurotic patients, pantomime fades when their need is satisfied and always corresponds to the context.

Stereotypical kinesics in the form of increased gesticulation occur in psychologically healthy individuals and in a stressful state. In a state of fear (stress), people repeatedly and unconsciously produce differentiated bodily archaisms. Our ethological observations in the Sukhumi Monkey Nursery reveal phylogenetic patterns of human gestures in primate pantomime [Goncharenko, Taisaeva 2022:425]. Manipulator gestures, which are illustrated by the high activity of small mechanics with inanimate objects, jewelry and accessories, are based on the cub's clinging reflex for the mother's fur. Self-cleansing gestures, in the form of compulsive cleansing of one's own body, clothes, and nails with one's hands, are based on animal grooming. The monotonous rocking of the body in the form of a "Chinese dummy" and legs (back and forth) occurs from the rocking of the cub's body under the belly of the female mother. The repetitive movements that a person produces during stress reproduce the ancestral forms of tactile contact of the "mother and child" dyad in order to restore psychological homeostasis and reduce neuropsychic tension [Goncharenko, Taisaeva 2023:250].

Of all the variety of stereotypical behavior, which is illustrated both in norm and pathology in preschool children, it was interesting for us to analyze the nature of circular, diagonal and pendulum motor acts in our study. We turned to an ethological approach and a comparative analysis of human and animal pantomimics. Circling around its own axis,

according to V. R. Dolnik, has an evolutionary significance. Ethologists attribute kinesics to the reproduction of the arboreal form of the habitat of the ancestors of modern man and is often illustrated by children [Dolnik:117]. But Lameira A. and Perlman M. found that the multi-fold unwinding of monkeys on vines (ropes) is not due to tree climbing, but to a change in perception of reality and consciousness, therefore humans and anthropoids intentionally introduce themselves into an altered state of consciousness (ISS) [Lameira, Perlman:320].

Circular and pendulum pantomimics are often found in the choreographic and religious-ritual plasticity of movements [Samokhvalov:113]. At the same time, emotional changes occur that affect mood, relieve frustration and anxiety. Such a way of influencing the emotional sphere and the mental state of an individual is found in intense dances and ritual pantomime: round dances, shamanic kamlaniye, whirling of dervishes, tawaf, etc. Emerging emotional states and changes in consciousness lead to mystical enlightenment, spiritual experience, or a state of delight [Kovshov:46]. Accelerated rotation of the body around its own axis in people without special physical training changes the work of the inner ear and disconnects the signals of automatic eye movements. Because of this, changes occur in the work of the autonomic nervous system, causing its dysfunction, and affect consciousness [Nigmatullina, Hellyer:559]. The analysis of circular movements in human behavior, including motor dance, drew our attention to the national choreography of the peoples of the North Caucasus. Rotational movements are performed in Adyghe, Ossetian, Avar, Abkhazian and ancient Turkish dances. We conducted our own observation of the creative team of the state folk dance ensemble "Kavkaz" of the Republic of Abkhazia during rehearsals. Our task was to clarify the presence of mental and emotional changes in professional dancers when performing compositions with the pantomime we are interested in. Therefore, we asked 29 boys and girls, aged 15-25, to describe their mental and emotional state after training. More than 80% of the subjects stated that they had "tides" of lightness, euphoria, joy and happiness. 68% of respondents felt a distortion of reality, time and space. The analysis of the video showed that the facial behavior of the dancers illustrated the signs of a trance state: slowing down of blinking, swallowing, mimic movements, flattening of facial features, spontaneous ideomotor reactions, etc.

We analyzed pendulum movements of the "tumbler" or "Chinese ball" type in our study on trans gestures. In our opinion, the monotonous rocking of the body "right-left" and the leg "forward-backward" cause an altered state of consciousness. We associated the nature of movements with regression into the child-parent relationship of the child with the mother and the reproduction of the motor skills of maternal motion sickness, which positively affects the mental state of the individual [Goncharenko, Taisaeva 2023:251].

The ethological approach to the study of behavioral patterns requires analysis and search for homologous etograms in representatives of fauna. Stereotypies are often observed in birds and animals kept in captivity. According to researchers and zoologists, they develop in response to restrictions or isolation and are caused by the impoverishment and impoverishment of the environment and the environment [Tatemoto, Broom]. Observations by Sukhumi primatologists show that obsessive movements occur more often in experimental and laboratory monkeys than in aviary monkeys. S.L. Jalagonia recorded stereotypes in nervous arousal in hamadryad baboons [Dzhagonia:20]. A.M. Chirkov notes that against the background of psychoemotional tension and general anxiety, baboons increase continuous walking around the cage, sweeping hand movements, rhythmic, rotational movements of the head [Chirkov, Chirkova:73]. M.A. Deryagina

and M.L. Butovskaya in the study of behavioral responses to stress stimulation in experimental monkeys, noted stereotypes in the form of monotonous rocking, twitching of the body and random groping movements of the limbs [Butovskaya, Deryagina:97]. A.M. Chirkov and I.S. Voit differentiate two types of obsessive patterns in experimental primates: stereotypical locomotion and rhythmic locomotion [Chirkov, Voit:11]. Aviary animals also produce stereotypical behavior. In the Sukhumi Monkey Nursery, they are observed in groups and families of hamadryad baboons and anubis baboons. We also recorded circular rotations in an anthropoid, a sexually mature female chimpanzee in the Baba Frosya Zoo in the Astrakhan region. Foreign scientists describe similar observations in primatological centers. Homologues of repetitive movements similar to RAS and OCD are analyzed by Fam S.D. and Tan Y.S [Fam, Tuan:840]. The famous primatologist F. De Waal repeatedly noted the circling and swaying of anthropoids at the Chimpanzee Breeding Center [De Waal:213].

The purpose of the study. Comparative analysis of circular, pendulum and diagonal stereotypes in children with mental dysontogenesis and monkeys of the old world.

Materials and methods of research. Classical ethological approaches and methods of registration and analysis of free group and individual behavior were used as a basis for the study of stereotypes of humans and primates:

1. A method of observing the pantomime of 40 children with mental dysonthogenesis aged 3-6 years during hospitalization in the neuropsychiatric department (PHE).
2. A method of observing the pantomimic production of a family of hamadryad baboons (14 individuals) in an aviary.
3. The method of observing the pantomime production of 4 laboratory rhesus macaques and 1 Javanese macaque aged 15 to 25 years.

Observations and registration of primate etograms were carried out in the Sukhumi Monkey Nursery of the Scientific Research Institute of Experimental Pathology and Therapy of the Academy of Sciences of Abkhazia (Research Institute of EPITH of the Academy of Sciences of Abkhazia) in Sukhum. Observations of the behavior of children were carried out in the PHE GBUZ JSC Regional Children's Clinical Hospital named after N.N. Silishcheva in Astrakhan.

The authors were guided by the ethical principles of the "European Convention for the Protection of Vertebrate Animals Used for Experiment and Other Scientific Purposes." The requirements of biomedical ethics and the Helsinki Declaration were met. Voluntary informed consent was obtained from the legal representatives of the children in the medical organization for the supervision of a medical psychologist.

The results of the study

Children with mental dysontogenesis. The selection of respondents was carried out in the process of consulting a medical psychologist, which included a conversation with parents, collecting a psychological and clinical history, and monitoring the child's behavior. All children were patients of the neuropsychiatric department aged three to six years, and were hospitalized for 10-12 days for mental and speech disorders. According to the psychological history, the motor development of patients was studied. The presence of speech was analyzed: gestures-emblems, phonemes, vowel

vocalization, echolalia, vocabulary of simple words, the presence of phrasal speech, defects in sound pronunciation. Social behavior was assessed by the presence of self-service skills and the ability to communicate with peers. Mental operations were diagnosed by analyzing the child's play, passing a mirror, color test, "pointing gesture", etc.

For further observation, children were selected who, according to relatives, often illustrated circular, pendulum and diagonal motor skills, or demonstrated it during a consultation. While the child was in the hospital, we were interested in the appearance/absence of stereotypes in his behavior. With the help of video shooting of parents on the phone, or in the personal presence of a psychologist, the fixation of walking or running in a circle and diagonally, and body movements like a "Chinese ball" was carried out.

Example 1. A boy, age 4 years 10 months. Social status: lives in a full family, the only child of the parents. He started attending kindergarten at the age of three, social adaptation in preschool was low, avoided contact with children, cried a lot, was moody, did not want to go to a group in the morning. He played alone, bit the children who showed friendliness, did not strive for group play. From the age of 4, after the medical and pedagogical commission, he began to attend a correctional kindergarten, studied 2-3 times a week with a speech pathologist, psychologist and speech therapist with minimal dynamics. Neuropsychiatric development: born from the first birth, the first pregnancy, at 39 weeks, at the birth of GIA. Motor development: I did not crawl, I started sitting from 8 months, getting up from 11 months, walking from 1 year 2 months. Speech: the first words "mom", "give" appeared from the year of life, phrasal speech (simple sentences) was formed by the age of 2. After three years, he suffered an acute viral infection, with a high fever, was hospitalized in an infectious diseases hospital, and was discharged on day 12. After the illness, the parents drew attention to the regression in speech development and behavior, and in kindergarten they began to complain about increased aggressiveness towards peers and educators. Self-service skills were formed before the "rollback". Currently: partially puts on and takes off clothes, drinks from a glass, does not use a spoon, does not wash himself. The appetite is selective, consumes a limited amount of food, does not try new food, but often licks and eats inedible objects. Neatness skills were formed by parents by the age of 1.5, they were not lost, she goes to the toilet on her own, there is no bedwetting and calomastia. When expressing emotions, he is labile, aggressive, often bites and pinches his mother and grandmother. According to his mother, he is afraid of loud noises (the buzzing of a drill, vacuum cleaner, hair dryer), covers his ears, hides or screams loudly. Game activity: there is no story and role-playing game, manipulates a toy, fixes on details, turns a wheel on a typewriter and watches the movement for a long time, often lays out numbers and English letters in a row. He is not interested in new cartoons, he watches the same episodes of "The Tractor" or "Masha and the Bear". Regressive patterns in behavior are observed: the clinging reflex - carries a piece of cloth with him, often wipes his face, does not allow the mother to wash the cloth; grooming-pulls out the hair from the mother, puts it in his mouth, chews and swallows; pathological grasping reflex - eats inedible; self-harm-in a state of anger can hit himself hard on the face and head. He does not use an index gesture, but uses his mother's hand to get what he wants. Mirror test: runs up to the mirror, does not admire, glances at his reflection, runs away. Color vision: distinguishes colors, brings a red apple and an orange orange from a plate with different fruits. Tactile test: in response to tactile manipulations with his hands, he pushes and pinches the specialist's hands, runs away and begins to walk in a circle for 78 seconds. In the hospital, when in contact with other children, he pinches and bites them, then walks in a circle. During hospitalization, from two to ten circular

stereotypies per day were noted, the minimum circling time reached 17 seconds, the maximum was 3 minutes 19 seconds.

The timing of pantomime, facial activity and motor fixation of 40 respondents are shown in Table 1.

Table 1. *The external picture of stereotypical pantomime of children.*

Stereotypy	Timing of motor activity (min-max)	Facial activity	Other non-verbal patterns
Monotonous swaying of the body body from right to left	15 -217 seconds	The gaze is fixed, not focused on the surroundings, the facial features soften, the lower jaw slightly drooping down. Low and monotonous vocalization of vowels is possible.	Breathing is slow and shallow, with prolonged timing deep and diaphragmatic.
Continuous circular walking/running	14 - 483 seconds	Similar to a pendulum swing.	Disconnection from external stimuli (do not respond to name and request), reduced perception of external stimuli. Breathing is analogous to "pendulum" swings.
Continuous vertical walking/running	25 -184 seconds	Similar to pendulum readings.	Breathing is similar to "pendulum" swings, disconnecting from external stimuli.

In the external picture of stereotypes, which the children illustrated from one to more than ten times a day, we drew attention to changes in facial behavior, breathing and reduced susceptibility to the outside world. Abrupt cessation of movements, when parents forcibly distracted them from pantomime, caused either an affective reaction or a persistent desire to reproduce motor skills further. Stimmings most often appeared after medical manipulations (blood collection, injections, hardware examinations, massage), or human-to-human contact (involving a child in a group game with other children, when interacting with medical personnel).

Aviary baboons-hamadryas. In the Sukhumi Monkey Nursery, we conducted ethological observations of 14 hamadryad baboons in a tourist aviary. All primates were related to each other and were a family. There were 4 individuals in the group who were over 15 years old and 10 baboons from 9 to 2 years old. The alpha male named Papa turned 25 years old, he was constantly accompanied by an ovulating female and a female with a newborn cub. For three weeks, we observed hierarchical, affiliation, parental and social behavior of animals, it took from 1.5 to 3 hours of daylight. In the morning, as a rule, workers thoroughly wash and clean the enclosures and the baboons are in the winter room, after which they are released and they spend the whole day outdoors. The subtropical climate of Abkhazia allows you not to change this regime all year round. We noticed that after graduation from the winter garden, they first run around the territory, search it, look for leftovers or poke the floor, examine passers-by, then join a group and synchronously walk or run in a circle or diagonally. We were interested in such pantomime, as it resembled circular and diagonal stereotypes of children with mental dysontogenesis. A differentiated analysis of behavior and observation of animals showed that the incentive for kinesics is the upcoming feeding. Primates are visual animals, they have good visual and auditory memory for faces and objects [Ladygina-Cats:318]. The noise of a passing car with food, the distribution of food in neighboring aviaries, the clink of buckets and dishes at first aroused tentative and research interest, emotional vocalization, after the

baboons did not receive food, they developed motor skills of interest to us. An example of the stereotypical behavior of monkeys is given in table 2.

Table 2. *Stereotypical circular and diagonal patterns of the hamadryad baboon family.*

Time	The stimulus or the surrounding background	Behaviour	Other non-verbal patterns
10.16	Workers clean the neighboring aviaries, talk to each other	They came out of the winter aviary and dispersed around the territory. Dad climbed with the females to the top shelf and watches the family members. Two females are grooming, teenagers are playing, others are picking the floor. A male teenager puts his hand into a nearby enclosure to rhesus monkeys and fights, etc.	Vocal communication
10.30 -10.37	They heard the voice of a worker who was handing out food	The beloved female with the cub leads, begins to walk in a circle, the male follows her, other family members immediately join them	Low and rare vocalization in individual baboons
10.38-10.58	Employees are passing by, cars are driving	Social and group behavior, teen games, Dad's hierarchy	Ordinary vocal communication
10.59-11.02	A car with food passed by	They resume circling, all individuals participate, Dad is in the lead	Low guttural sounds from Dad, females and three teenagers
11.03-11.39	Occasionally, employees come, tourists come to the aviary	They show exploratory and friendly behavior if a tourist treats them with a treat. They conflict, fight, and take away food if the individual is low-ranking. Young females Professor 1 and Professor 2 knock on a sign and a metal latch to attract attention to themselves, etc.	Vocal communication expresses aggression, resentment, fear, etc.
11.40-11.57	The employee starts feeding the animals in the neighboring enclosures	The mass group movement is started by Dad, all the monkeys are involved in circling. The facial expressions of animals, the "glassy gaze", the eyes look "inside themselves", do not pay attention to the relatives walking next to them. The head is lowered down or pointed forward. The lower jaw of some baboons is lowered downwards. They start with walking, which gradually speeds up, then transforms into running.	Low and short vocalization in some baboons
10.58	A worker comes up to the aviary with a bucket and opens the latch so that the baboons go into the winter garden, and she pours food into the aviary	Circular motor skills are divided into steps and a person's voice instantly. Monkeys run away to the winter garden to have their food poured out in an open aviary.	Excited vocalization, cries of joy

During the entire observation cycle, we became convinced that the stereotypies of monkeys arise in response to a food stimulus, after which they fell into emotional arousal and performed group circling. During the motor act, their facial activity changes. Usually, the facial behavior of primates is extremely lively and diverse in the expression of emotions [Ladygina-Cats:20]. During stereotypical motor skills, facial flattening occurs, which is illustrated by the maskiness and relaxation of facial muscles, which is accompanied by slow and rare shaking movements of the head. The vocal modulation also changed, and short muffled sounds prevailed in vocalization. A series of short and long (from 1 to 17 min) pantomimes, according to our observations, ended with the satisfaction of food needs, and with an increase in hunger, circling could be repeated. It was revealed that in the evening, when tourists visited the nursery, who distributed treats to monkeys, stereotypes resumed. Dad and his family illustrated group movements in a circle as tourists moved around the nursery with food. When humans approached, the primates climbed onto the cage grate, demonstrated friendly behavior,

extended their hand, and resumed rotation in the absence of contact. We drew attention to two more families of hamadryad baboons, to the synchronous rotation of individuals in the first and second enclosures. The circular movements started by the family of aviary 1 were picked up by the system, induced by motor activity. Imitation behavior in animals has been well studied by primatologists and is associated with hysterical reactions [Jalagonia:13], with mirror neurons [Dinstein, Thomas:13].

Laboratory macaques. Among 34 laboratory animals of the Scientific Research Institute of Experimental Pathology and Therapy of the Academy of Sciences of Abkhazia, we identified 5 macaques that demonstrated pronounced stereotypical behavior. The selection was made among primates who had mental disorders. Primates have neurosis-like, depressive and schizotypal disorders homologous to human diseases [J.]. Hyperagressivity occurs in active individuals, depression, increased anxiety, psychosomatic reactions, and a tendency to self-harm in quiet and submissive monkeys. In pantomime, there is pretentiousness and inadequacy of poses and body movements. Pronounced substitution activity in the form of auto-grooming, clinging to one's own wool and pulling out one's own hair, picking at the floor of the cage, eating inedible, throwing (self-blows) with the body against bars, biting and gnawing on latches and locks are a way of distracting from an unsolvable task and getting rid of negative emotions (anger, fear) [Goncharenko, Mikvabiya:117].

Video filming and observations of rhesus macaques and Javanese macaques with stereotypes for three weeks showed that movements were produced with the visible or auditory presence of a person. Motor acts were performed from min 54 seconds to max 4-5 minutes, performed repeatedly during daylight hours. Facial behavior: facial flatness and lack of emotional expressions were recorded in both quiet and aggressive monkeys. After the interruption of stereotypical activity, there was a "rollback" to aggressive or passive patterns, mimic activity was restored. From day 11, we started giving the monkeys a treat to investigate whether a food-positive stimulus affects behavior change. On the 13th day of the experimental work, stereotypes in four macaques stopped in our presence, in one male they were interrupted only to receive candy, and it was static until the end of the experiment. When visiting the laboratory staff and taking biological material, the subjects experienced a surge of obsessive motor skills. The data obtained allowed us to conclude that the monkeys illustrated stereotypes in response to a stressor.

Table 3. *Stereotypes of experimental rhesus macaques and Javanese macaques*

Prima-tes	Stereotypy	Maximum time	Motivation
Macaque 1	Rotation around its own axis on four legs, with alternating biting of its own hand	54 seconds	The approach of man
Macaque 2	Running in a circle, or fast circular walking, alternates with touching the bars of the cage with your hands	63 seconds	The approach of man
Macaque 3	Pendulum movements on four legs while standing, alternating with touching the feeding window, short bipedal swings on two legs while holding the body by the bars of the cage	274 seconds	The approach of a person, to the voices of people from the corridor via video monitoring
Macaque 4	Pendulum movements of the head and body body while holding the limbs on the crossbars of the upper part of the cage	67 seconds	The approach of man
Macaque 5	Circular walking on all fours, then bending the body, pretentiously turning the head down, then circular walking	97 seconds	The approach of man

Conclusion

Comparative observation of circular, diagonal and pendulum movements of humans and primates revealed homology and specificity of kinesics in three experimental groups. Stereotypes were caused by strong emotional arousal, which appeared in response to a positive stimulus (anticipation of feeding in hamadryad baboons) or a negative stimulus (stressor) (fear of humans and medical manipulation in macaques and children). The facial behavior of monkeys and children: flatness, mimicry, decreased muscle tone, frozen or "glassy" gaze during the execution of movements did not correspond to the differentiated emotional facial expression of humans [Ekman, Friesen:343] and monkeys [Chirkov, Voit:84]. Similar facial changes are described by authors studying trance states [Prokhorov, Yusupov:23] and ISS [Zavyalov:14]. Based on the nonverbal pattern of motor activity of children and monkeys: monotony, structurality, external pattern in space, multiplicity and repeatability, we concluded that the studied stereotypes are stimmings. The above-mentioned mimic and pantomime markers indicate trance, which is caused by self-stimulation of the ISS. Trance, in turn, distracts attention from external stimuli and stimuli and reduces emotional, neuropsychic stress. Modern hardware studies could answer the question of the functional state of the brain during rotational and pendulum stereotypical motor skills.

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