# 22 - THE CONTRIBUTIONS OF THE EQUOTERAPIA IN THE NORMALIZATION OF THE TÔNUS AND RECONSTRUCTION OF THE BALANCE OF TRUNK OF THE CHILD WITH ECNP ESPASTIC

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**INTRODUCTION**

This work is destined to explain it and to divulge the contribution of the equoterapia in the biopsicomotor development of children with chronic encefalopatia not gradual ECNP) espástica, approaching of that it forms it contributes in the motor stimulation, the results that are being found and the paper of the health professional, in special of the physiotherapist, the development of this therapy.

The cerebral paralysis has been defined, according to **Porto**[1], as sequel of cerebral aggression that if characterizes, primordially, for an upheaval persistent, but not invariable, of strenght, the position and the movement; it directly appears in first infancy, being secondary the not development injury of mind, with direct influence in the neurological maturation.

**Lucila F. Neres apud Christensen & Melchior**[2] still defines as a permanent but not invariable riot of the movement and position, which had to a defect or not gradual injury in the brain in the start of the life.

As **De Luca**[3], this cerebral injury occurs in the period of initial growth of the brain, that goes approximately until the two years of age.

Thus, those patients who have a riot of the movement or of the position can be classified as ECNP any that is it, as the paresias, the incoordenações, the hipercinesias and others, and not only the paralyses.

Since then the cerebral paralysis passed to be appraised as not gradual chronic Encefalopatia of infancy, constituting a heterogeneous group in such a way of the etiologic point of view how much in relation to the clinical picture, having as common link the fact to present motor sintomatology predominantly, through a permanent clutter of movement and position, to which they join, in different combinations, other signals and symptoms of different natures.

Although better term ECNP defines this pathology, the term Cerebral Paralysis - PC still continues to be accepted for the majority due not only to the consecration of the use as for the communication easiness that it offers between the professionals who act in this area.

The classification of the not gradual encefalopatias can be made of some forms, leading in account the lesional moment, the place of the injury, the etiology, the sintomatology or the topographical distribution.

As the main element of the clinical picture it is the motor system, being based on this aspect is classified in the following way: pyramidals or espásticas, extrapiramidais or coreoatetósicas, atáxicas and mixed. Betwen the encefalopatias the form most frequent are the espástica pyramidal or, object of this study.

The etiology of the ECNP is multifactorial. Any aggression to the central nervous system, that determines a irreversible and not gradual injury of exactly and that it occurs in precocious age, can theoretically lead to a ECNP picture.

The classification of the espástica ECNP in relation to the localization and extension of the injury is the same classification of the other types of not gradual chronic encefalopatias changing only the characteristics associates to the espastic type.

In the ECNP what it is damaged it is the nervous system, particularly the brain, not having nothing of missed with the muscles and joints. As result nervous impulses they are transmitted to the muscles in incorrect way, in the espástico type the impulses are extreme.

Alteration in the reciprocal inervação takes the agonistas to act at the same time and many times with the same intensity that the antagonists, provoking the blockade of the movement making with that the espaticidade predominates in the flexora musculatura of the superior members and in the extensora of the inferior members.

The cerebral injury that characterizes the espástica ECNP is an injury of staple fibres of the way of the pyramid to bulbar (pyramidal), being the different physiological paper according to levels, what it explains the different clinical variations in function of the place of the injury leading the interference in the elaboration of the gestures and formularization of the attitude and marches.

But the main neurological characteristics will be the disappearance of certain forms elaborated of the reflexibility (reflected cutaneous abdominal, exaggerate of strenght and the tendinosos, sincinesias and reflected consequences of defense.

**Kumagai**[4] still affirms that the blockade will be proximal in agreement the biggest degree of espasticidade, arriving to disable the movement in the cases of severe degree.

The espástica form in the generality is characterized for the occurrence of increase of tônus muscular, espasticidade that can reach the body all, or to still predominate in inferior members or in one hemicorpo, being the form of most serious the espástica quadriplegia.

The clinical picture of the even so persistent child is not invariant, or either, can present variations during its evolution, either in the direction of an improvement or worsening. These improvements that occur must probably to the intervention of areas of the SN not injured and that they are maturam more delayed, or for the capacity of adaptation SN of the child.

The worsenings that can occur must to the appearance of convulsions, infectious processes and metabolic riots that would act on the SN already affected previously.

The child with ECNP has minor stature, minor weight and minor resistance to the infections, what she shows to the importance of a normal brain for a constitution and normal physical development.

In the espástica ECNP the main complications happen of the alteration of tstrenght. What it occurs is that the present high strenght evolves for rigidity of members and trunk being that, when will be small, only one small rigidity in the movements will be verified, but when she will be severe, will be able to involve joints and the movements will be able to become impossible.

Moreover, as the muscular groups are linked will have a great possibility to happen a rigidity in chain: the rigidity of the muscles of soleos will be able to cause a rigidity in the ankles, becoming difficult or impossible to keep the heels in the soil in the hour to be of foot, for example.

Because of the rigidity of the joints, had to strenght muscular increased, it will have difficulty in keeping a normal position, making an abnormal position, being able to be difficult or impossible to keep it correct.

In relation to the espasticidade degree, as it goes increased grows the possibility to develop deformities for setting of

positions.

With the appearance of the rigidity associated with the lack of use of the muscles it will occur shortening and muscular weakness still more contributing to keep one definitive abnormal position, provoking, with the evolution, articulated deformities, tendíneas retractions and riots of growth of the affected members.

In accordance with Kumagai5, strenght is a state of preparation of the movement, a state not alone of the muscles, but of all the device to neuromuscular and if relates directly with the coordination.

Thus, beyond the rigidity complications, shortening, weakness, setting of positions, postural behavior abnormal retardation in the learning of the march damage of the locomotion and I delight of growth will also have incoordenação of the movements, based in the state and preparation of the movements - that they are set of positions and that they depend entirely on one strenght normal.

Perceptuais riots can happen of the experimentations the one that the child will be submitted, to it not to be possible to carry through basic experiences, due to the motor upheavals that present. A time that the first experimentations of the child are essentially corporal, to consider this in the aid to the consequences of the privation of motor experiences in the first years of life.

In a general way, we can divide the treatment of the ECNP in three great groups: the whitewashing, the surgical treatment and the drugs treatment.

The whitewashing must be carried through in centers preferential specialized, with the used professionals who have experience in the treatment of children in ECNP, resources more is precocious stimulation with the methods neuroevolutivo (Bobath) and Samarão Brandão and the hidroterapy, as well as the equoterapy.

Mentals, sensorial, mannering and social the equoterapy or therapeutical riding is a method that uses the horse as reeducativo instrument in motor data, through a playful-porting activity.

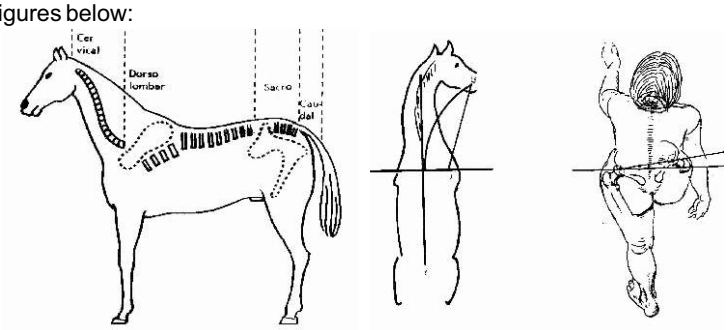
According to Ande-Brazil, the equoterapy was defined in Brazil as a therapeutical method that inside uses the horse of a boarding to interdisciplinar in the areas of health and education, searching the bio-psicossocial development of people with deficiencies.

This activity uses the horse as promotional agent of physical and psychological profits, demanding participation of the entire body also promoting the relaxation, the awareness of the proper body and the perfectioning of the coordination and balance.

The equoterapy has its first registers since the time of Hipócrates, in its "Book of the Diets", being stimulated in the beginning of the second half of century XX when an amazon after to be attacked by pólio if refused to stop to mount and in the olímpicus games of 1952 it got medal of silver. This fact call the curiosity of the health area passing and from years 60-70 some programs of therapeutical riding had appeared in the Europe.

The horse is a complex therapeutical instrument that it makes possible to offer to the practitioner a great variety of stimulatons (visual, kinaesthetic and proprioceptivos) integrated making with that innumerable receivers of the most diverse sensations gifts in the body continuously are elicitados, when it if adapta and reacts to the received stimulatons, being that the therapist acts as a moderator of this process.

The horse to if dislocating to the step carry through in its back a movement that if resembles to the march in agreement human being illustrates the figures below:




The multidirectional movement of the horse, through the vertical displacement (up and down), longitudinal (for front and it stops backwards) and transversal line (for the sides right and left) three-dimensionally dislocates the center of gravity of the horse and also imposing the practitioner, with a displacement of about 5cm of vertical, horizontal order sagittal of its waist and a rotation of 8 degrees for both the sides, what if it resembles to the movement of the pelvic basin human being during the march.

The similarity still increases when comparative the rhythm of steps per minutes of the march human being of an adult with the one of the horse: about 90-120.

With the acceleration and deceleration of the steps of the horse the practitioner feels the rocking of a side to another one, what she stimulates it to remain itself balanced and fortifying the muscle of trunk and members.



As this activity demands participation of the body all also promotes the perfectioning of the coordination, conscience of the proper body and relax. All these proprioceptivas information facilitate the organization of corporal project and orientation space. Further of this the equoterapia provides a new vision of world for the child with espástica ECNP therefore as they live in chairs of wheels, when mounting in a horse and to remain a bigger height mainly allows to a bigger possibility of exploration and knowledge it of the way and of contact with the nature, thus stimulating its mind hearing, seeing, to feel and to interact with the new elements .

**METHODOLOGY**

The present work was armed with exploration analysis with bedding in the objectives considered, research and bibliographical revision and restricted research of field. The searched population consists of carrying children of espástica ECNP in the age of 3 the 15 years, through questionnaires answered by responsible physiotherapists for the work studied in some states of the country that develop the equoterapia in the whitewashing of children with ECNP.

The data harvested in the research had been organized in order to have an analytical vision of the benefits of the equoterapia in children with espástica ECNP, tabulating the answers of the questionnaires in accordance with its affinities in intention to search endorsement to the affirmations on the therapeutical one.

**RESULTS**

60 carrying children of espástica ECNP had been analyzed, related to:

| | | | | | |
|---|---|---|---|---|---|
| **SEX** | feminine | masculine | | | |
| **%** | 33,30% | 66,70% | | | |
| **Age** | below5 | betwen 5 -12 | above 13 | | |
| **%** | 33,30% | 50,00% | 16,70% | | |
| **DIAGNÓSIS** | espástica diplegia with tônus of high base | espástica diplegia with tônus of low base | espástica quadriplegia with tônus of high base | espástica quadriplegia with tônus of low base | hipertonia with espasticidade |
| **%** | 25,8% | 16,9% | 16,1% | 21,1% | 10,1% |
| **DIAGNÓSIS TIME** | Between 10- 18 months | betwen18- 24 months | above 24 months | | |
| **%** | 23,3% | 56,7% | 30,0% | | |
| **PREVIOUS TREATMENTS** | fonoaudiológico | surgical interventions | precocious stimulation | other treatments | |
| **%** | 5,0% | 16,7% | 67,0% | 50,0% | |
| **PARALLEL TREATMENTS** | SIM | NÃO | | | |
| **%** | 83,3% | 16,7% | | | |
| **TIME OF EQUOTERAPy** | more than 1,5 year | less than eleven months | | | |
| **%** | 53,3% | 46,7% | | | |
| **INITIAL EVALUATION** | cervical balance in DD | cervical balance in DV | trunk balance | reaction of previous protection | reactions of lateral protection |
| **%** | 83,3% | 83,3% | 33,3% | 66,7% | 6,7% |
| | reaction of posterior protection | ortostatismo with support | moderate and severe espasticidade | cognitivas alterations | psychic alterations |
| **%** | 1,7% | 14,5% | 96,5% | 71,7% | 21,7% |

Until the moment of the research the following data had been found:
100% presents cervical balance
70.9% presents reaction of previous protection
60.2% presents reactions of lateral protection and posterior
83.3% · 31% presents improvement of the trunk balance presents balance of normalized trunk
100% presents reduction of the espasticidade
63.3% presents improvement of the muscular force
100% presents mind improvement
100% presents psychic improvement
100% presents improvement of the position

In relation to the prognostic of the children presented for the therapists: ·
good 42%
very good 58%
CONSULTED Nº OF THERAPISTS and PLACES ·
15 places Relation to the work with equoterapia

100% of the consulted professionals they believe that the therapy brings so good benefits how much other more common therapies, and 95% find that an advantage is that the result is faster leading to a motor development next to the normal one and a bigger cognitivo development.

**ANALYSIS And INTERPRETATION OF RESULTS**

On the age a band sufficiently varied was observed, that is to the time of diagnosis, information of the parents and partner-economic conditions of the family for the investment of therapies in the child.

In relation to the diagnosis time, one notices that it normally is not precocious. Unhappyly until today in Brazil the parents alone they discover that it has something with its children when these arrive at the 6 months or more and they do not seat or, when becomes clear its impossibility to be of foot.

As the diagnosis is not precocious, the treatment also will not be precocious, leaving to use to advantage innumerable inherent advantages to the state of development of the child gotten by the factor time, as already it was mentioned in the viability of the research, harming the biggest motor and mental profit of these children.

How much to the previous treatments it is observed that 100% of the children already they had carried through another therapy, what still demonstrates to the lack of spreading and knowledge of the equoterapy, still secondary to the spread out therapies more.

How much to the parallel treatments it was verified that when they do not exist the equoterapia she also demonstrated to effectiveness in the normalization of strenght and control of head and trunk, leaving as suggestion an isolated research of the therapy.

With the found time of equoterapy, together to the fond conclusions with the previous treatments, much space is noticed that this therapy still is a new activity in our country, having therefore to be explored.

How much to the initial evaluation it is observed that the majority of the children with espástica ECNP does not possess trunk balance, and cervical precarious, basing the presented theory.

On the minds alterations they consist of mental deficiency, varying of light the severe one. E the found psychic alterations had been hiperatividade or psicomotora agitation.

How much to the current evaluation the joined numbers associates to the little time of therapy demonstrate a significant contribution of the equoterapia in the DNPM of the child with espástica ECNP, mainly how much to the psychic mindand, proving that the motor sensório stimulation and motivation of a therapy influence very in the results gotten with the same one.

As the espasticidade can be evaluated through the scale of Ashworth, rigidity was noticed an improvement through the reduction of the degrees (4 =; 3 = increase of strenght; 2 = minimum resistance; 1 = it has taken increase of strenght and 0 = normal) when the complete normalization of streght did not occur.

In the opened questions, formulated the physiotherapists who act with the equoterapia, one looked to spoon opinions, where all could think with discernment on the subject, which, analyzed in set, could supply a thought. With the total adhesion of the physiotherapists based in its practical experiences and associate to the joined data one proves, therefore, the effectiveness of the equoterapia in the normalization of tstrenght and control of head and trunk of child with espástica ECNP.

**CONCLUSION**

The equoterapia, therefore, can be an important option of complementary therapy to the carriers of espástico ECNP and multiple deficiencies, mainly for its cheap diffusion in all the country since many hípicus centers and the mounted policies already possess structure enough to introduce the activity.

Amongst the contributions the profit of muscular force is distinguished, of static balance and dynamic, control of head and trunk and normalization of tstrenght, and significant alterations in the slight knowledge of corporal project, behavior and attention, collaborating of this form for one better process of whitewashing.

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**THE CONTRIBUTIONS OF THE EQUOTERAPIA IN THE NORMALIZATION OF THE TÔNUS AND RECONSTRUCTION OF THE BALANCE OF TRUNK OF THE CHILD WITH ECNP ESPASTIC**

**SUMMARY**: The Chronic Paralysis Brain, currently classified as chronic encefalopatia not gradual espástica (espástica ECNP) has been defined as sequel of a brain aggression that if characterizes, primordially, for an upheaval persistent, but not invariable, of strength, the position and the movement, appearing in first infancy, being directly secondary to a not development injury cerebral, with direct influence in the neurological maturation. This work is destined to explain it and to divulge the contribution of the equoterapia in the moviment of children with espástica ECNP, approaching of that it forms it contributes in the motor stimulation, the results that are being found and the paper of the professional of health in the development of this therapy. For this 60 (sixty) children through questionnaires answered for professionals of health who follow the developed work, in different places of the country had been analyzed. Some analyzed topics had been sex, age, diagnosis and previous time of diagnosis, treatments, parallel treatments, time of equoterapia, initial and current evaluation (presence of cervical balance, of trunk, mental and psychic reactions of protection, alterations), and prognostic. Amongst the results the profit of muscular force was distinguished, of static balance and dynamic, of control of head and trunk, beyond significant alterations in the slight knowledge of corporal project, concluding itself therefore that the multiple equoterapia are an important option of complementary therapy for the carriers of espástica ECNP and deficiencies therefore contributes for one adequate process of whitewashing.

**Word-keys**: Whitewashing, Equoterapy, Paralysis

**LES CONTRIBUTIONS DE L'EQUOTERAPIA DANS LA NORMALISATION DU TÔNUS ET DE LA RECONSTRUCTION DE L'ÉQUILIBRE DU TRONC DE L'ENFANT AVEC ECNP ESPASTIC**

SOMMAIRE : Le cerveau chronique de paralysie, actuellement classifié pendant que l'espástica non progressif chronique d'encefalopatia (espástica ECNP) a été défini comme suite d'une agression de cerveau qui si caractérise, primordially, pour un bouleversement persistant, mais non invariable, de la force, la position et le mouvement, apparaissant dans la première petite enfance, étant directement secondaire pas a des dommages de développement cérébraux, avec l'influence directe dans la maturation neurologique. Ce travail est destiné pour l'expliquer et pour divulguer la contribution de l'equoterapia dans le moviment des enfants avec l'espástica ECNP, l'approche de celle qu'elle la forme contribue dans la stimulation de moteur, les résultats qui sont trouvés et le papier du professionnel de la santé dans le développement de cette thérapie. Pour le ce 60 (soixante) enfants par des questionnaires répondus pour les professionnels de la santé qui suivent le travail développé, dans différents endroits du pays avaient été analysés. Quelques matières analysées avaient été sexe, âge, diagnostic et période précédente de diagnostic, traitements, traitements parallèles, période d'equoterapia, évaluation initiale et courante (présence de l'équilibre cervical, du tronc, réactions mentales et psychiques de la protection, changements), et prédiction. Parmi les résultats le bénéfice de la force musculaire était distingué, de l'équilibre statique et dynamique, de la commande de la tête et du tronc, au delà des changements significatifs de la légère connaissance du projet corporel, se concluant donc que l'equoterapia multiple sont une option importante de thérapie complémentaire pour les porteurs de l'espástica ECNP et les insuffisances contribue donc pour un à processus proportionné du blanchissement.

Mot-clefs : Blanchissement, Equoterapy, Paralysie

**LAS CONTRIBUCIONES DEL EQUOTERAPIA EN LA NORMALIZACIÓN DEL TÔNUS Y DE LA RECONSTRUCCIÓN DEL EQUILIBRIO DEL TRONCO DEL NIÑO CON ECNP ESPASTIC**

RESUMEN: El Cerebro Crónico de la Parálisis, clasificado actualmente como el espástica no gradual crónico del encefalopatia (espástica ECNP) se ha definido como consecuencia de una agresión del cerebro que si caracteriza, primordialmente, para una agitación persistente, pero no invariable, de tonos, la posición y el movimiento, apareciendo en la primera infancia, siendo directamente secundario no a lesión del desarrollo cerebral, con influencia directa en la maduración neurológica. Este trabajo es destinado explicarlo y divulgar la contribución del equoterapia en el movimiento de niños con el espástica ECNP, el acercarse de ése que lo forma contribuye en el estímulo del motor, los resultados se están encontrando que y el papel del profesional de la salud en el desarrollo de esta terapia. Para este habían analizado a 60 (sesenta) niños a través de los cuestionarios contestados para los profesionales de la salud que siguen el trabajo desarrollado, en diversos lugares del país. Algunos asuntos analizados habían sido sexo, edad, diagnosis y época anterior de la diagnosis, los tratamientos, los tratamientos paralelos, época del equoterapia, la evaluación inicial y actual (presencia del equilibrio cervical, del tronco, las reacciones mentales y psíquicas de la protección, las alteraciones), y pronóstico. Entre los resultados el beneficio de la fuerza muscular era distinguido, de equilibrio estático y dinámico, del control de la cabeza y del tronco, más allá de alteraciones significativas en el conocimiento leve del proyecto corporal, concluyéndose por lo tanto que el equoterapia múltiple es una opción importante de la terapia complementaria para los portadores del espástica ECNP y las deficiencias por lo tanto contribuyen para un proceso adecuado del blanqueo.

Palabra-llaves: Blanqueo, Equoterapy, Parálisis

**AS CONTRIBUIÇÕES DA EQUOTERAPIA NA NORMALIZAÇÃO DO TÔNUS E RECONSTRUÇÃO DO EQUILÍBRIO DE TRONCO DA CRIANÇA COM ECNP ESPÀSTICA**

**RESUMO**: A PCE- Paralisia Crônica Encefálica, atualmente classificada como encefalopatia crônica não progressiva espástica (ECNP espástica) tem sido definida como seqüela de uma agressão encefálica que se caracteriza , primordialmente, por um transtorno persistente, mas não invariável, do tônus, da postura e do movimento, aparecendo na primeira infância, sendo diretamente secundária a uma lesão não evolutiva do encéfalo, com influência direta na maturação neurológica. Este trabalho destina-se a explicar e divulgar a contribuição da equoterapia na motricidade de crianças com ECNP espástica, abordando de que forma ela contribui na estimulação sensório-motora, os resultados que estão sendo encontrados e o papel do profissional de saúde no desenvolvimento dessa terapia. Para isso foram analisadas 60 (sessenta) crianças através de questionários respondidos por profissionais de saúde que acompanham o trabalho desenvolvido , em diferentes locais do país. Alguns tópicos analisados foram sexo, idade,diagnóstico e tempo de diagnóstico, tratamentos anteriores, tratamentos paralelos, tempo de equoterapia, avaliação inicial e atual (presença de equilíbrio cervical, de tronco, reações de proteção, alterações cognitivas e psíquicas) , e prognóstico. Dentre os resultados destacou-se o ganho de força muscular, de equilíbrio estático e dinâmico, de controle de cabeça e tronco, além de alterações significativas nas noções de esquema corporal, concluindo-se portanto que a equoterapia é uma opção importante de terapia complementar para os portadores de ECNP espástica e deficiências múltiplas pois contribui para um adequado processo de reabilitação.

**Palavras-chaves**: Reabilitação,Equoterapia, Paralisia.