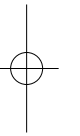


The key to *Why Cry*[®] is you
understanding your baby
will stimulate its development



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Dear Parents:

Your baby has just been born - congratulations!

You have experienced one of the most beautiful, intense events of your life, a unique, unforgettable moment that cannot be put into words.

Your baby is in your arms and you are completely overcome with joy. From now on your child depends on you and you will attend to him/her with infinite tenderness. There will be moments when you are beset by doubts and anxiety, but don't worry, this is all part of the role of parenthood.

Understanding your baby contributes to their well-being. If you have an idea as to the reason for it crying or for a specific type of behaviour then this will allow you to resolve a situation and relieve unnecessary distress.

Anyone who is a parent will have experienced this, and I would, given my awareness of all that having a baby implies, like this modest contribution to the baby world to dispel some of the doubts that most parents tend to face.

I wish to dedicate this book to my dear wife Silvia for her love, support and understanding during these four years and more of research, and to my little Alex, the joy of the household, the fruit of my sleeplessness and a constant inspiration.

A father,

Pedro Monagas Asensio

*With the arrival of the crying analyser resulting from **Why Cry**® technology, we have many reasons to congratulate each other. Firstly, we must congratulate the mothers who gave birth and welcome their children into the world. Secondly, we must thank the professional world of paediatricians and midwives around the world for their outstanding work.*

*I believe the crying analyser is an invaluable asset to understanding and appreciating your newborn baby and to contributing to its healthy and emotional development. Additionally, I am convinced that **Why Cry**® will represent a new incentive to preserve the study of crying as a fundamental and almost unique expression of the language of an unweaned baby during its first few months of life.*

Finally, we must commend the extraordinary work carried out by Pedro Monagas as inventor of this technology. Our scientific community is duty-bound to acknowledge the laborious research and meticulous engineering that the crying analyser has required. Pedro, and his family have sacrificed so much, but he has achieved a remarkable feat of engineering.

Manuel Pardos Algás
Head of Paediatric Service
Corachán Clinic Institute
Barcelona (Spain)

PROLOGUE

The aim of this book is for new parents to recognise important aspects of their baby's development during its first few months of life, and to understand that their attitude during the growing stage is basic in the development of their baby's intellectual and emotional capacity. In fact, this can be reinforced from the very first days of life, if the mother or father is able to interpret the baby's needs and feelings from an early stage. With such attention, the parent will be providing pleasant sensations to the baby; thus, its brain will make more neuronal connections and these, in turn, will consolidate the unweaned baby's security and stimulate its intellectual capacity.

However, in order for these characteristics to evolve, stimulation received by the foetus from its mother during gestation is just as important as that perceived by the baby from its environment over the first few months of life. In addition, parents will find in this book a practical guide to understanding your baby's emotional expressions. Lastly, we wish to emphasise that we are not only addressing parents, but also hope to encourage experts and professionals in the field to research deeper in to a subject as fascinating as the human being's intellectual development.

The importance of the first months of life

During the first few months of the newborn baby's life, numerous biological and environmental changes take place that will influence the development of its physical and intellectual capacities. Over the first six months, the physical and psychological maturing process is fundamental; in fact, organisation of its central nervous system is completed during this period.

Until a few years ago, it was believed that the central nervous system was relatively invariable, and that its basic organisation did not change greatly after the initial stages of evolution that take place during babyhood. But this concept has been modified radically; the influence of two variables stands out in particular: age and neuronal stimulation.

This means that with the appropriate stimulation, neuronal activities will increase their interweaving, filling the communication channels in the tiny brain and by impulses and connections, will provide an order by beginning to activate the different areas of the brain such as the locomotive, memory, intelligence, etc.

There will also be a strengthening of the autonomous nervous system, which directs the corporal activities over which the child does not have conscious control, such as breathing or digestion, for example.

The functions of the central nervous system are not exclusively associated to the brain, but for them to operate correctly, the brain must be prepared and organised.

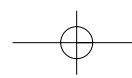
From the moment of birth, your baby initiates its growing and development stage. It is born with less than a third of the cerebral capacity that it will have in adulthood, but, from birth, it can already be seen that the cortex and entire central nervous system will develop rapidly. During this phase, the appropriate mechanisms for receiving, filtering and handling stimuli and sensations surrounding the baby are established. Such stimuli include sounds, smell and contact with its environment as well as experiences that it receives through emotional and affective sensations caused by the relationship with parents.

The experience of living for a baby means impregnating itself with the sensations and emotions of the medium in which it finds itself; in fact, it is the basic element that will condition its cerebral development.

The experiences or sensations that your baby lives or perceives will be the stimuli or inhibitors of the corresponding signals to a greater or lesser degree, and will gradually make up this interwoven neuronal network, thus increasing its size and therefore leading to formation of the brain and its activity in the strict sense of the word.

It is important to emphasise the functions of the nervous system as stimuli are received in it via special sensitive cells: namely receivers. The conducting elements are cells called neurons, some of which carry sensitive signals belonging to the baby's emotions and others transmit muscular replies or reflexes, such as those caused by reception of external stimuli, temperature, pain, a blow, etc.

Below, we outline a brief description of the nervous system and its interactions and by doing so; explain what it is we are trying to achieve from

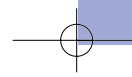


the first moment of the baby's life and with safety in mind.

Even though instinctive behaviour may appear, even in the absence of stimuli, the same does not happen with superior mental activity.

Depending on the emotional response that the baby receives, slow and generalised neuronal activity can take place, which would be the case in the absence of stimuli and sensations, or, on the other hand, fast conducting units may develop, highly effective for its evolution and development in the case of positive stimuli and agreeable or pleasant sensations.

The nervous system could be defined as a set of elements that are related to receiving stimuli, transmitting nervous impulses or activating mechanisms of the muscles.



The nervous system is composed, on the one hand, of the central nervous system, which includes the brain, the spinal chord and its corresponding neuronal networks, and on the other, the peripheral nervous system, connected to the glands and muscles; the latter also includes the sensorial receivers for seeing, hearing, smelling, tasting, touching, feeling, etc.

The peripheral nervous system is in turn divided into the somatic nervous system, which transmits sensations to the central nervous system and also sends signals to the corresponding muscles for movement.

Another part of the peripheral nervous system is the autonomous nervous system, having two subsystems of conflicting actions on general activation and various organs: the sympathetic, which activates the organism and the parasympathetic, which inhibits it.

A simple example of how a stimulus can provoke a response without the brain intervening (by means of a connection via the spinal chord) could be the reflex of a kick: after a blow to the tendon below the kneecap, a signal is sent via the sensorial neuronal network to the spinal chord; this signal activates the motor neurons and causes a contraction of

Postnatal cerebral or neurological development is marked by several ordered factors of reflexes and reflex reactions that develop until they reach a greater number of voluntary actions.

It is normal for organisation of the central nervous system to be completed approximately during the first six months of life, in correlation with psychomotor development.

Right from birth, the baby begins to have a series of reflexes, simple,

predictable actions that are displayed after receiving a sensorial stimulus, such as sounds, lights or reactions to touch. In fact, parents daily observe several of these reflexes in their small children: sucking, swallowing, grasping mummy's finger, reacting to changes in light by blinking, etc

At the same time, reflex reactions can be observed that are different from previous ones in that they help parents to follow the correct evolution of the baby's neurological development. They are complex reactions produced by the convergence of several stimuli, normally using the five senses.

the corresponding muscle that is linked to the tendon, this causing immediate stiffening of the leg and leading to a gentle kick.

Thus, the **relationship of the baby within its environment** does without doubt, depend on interaction of the parents during the first few months of life, and will be a determining factor, both for its intellectual development as well as for its basic personality patterns in the future.

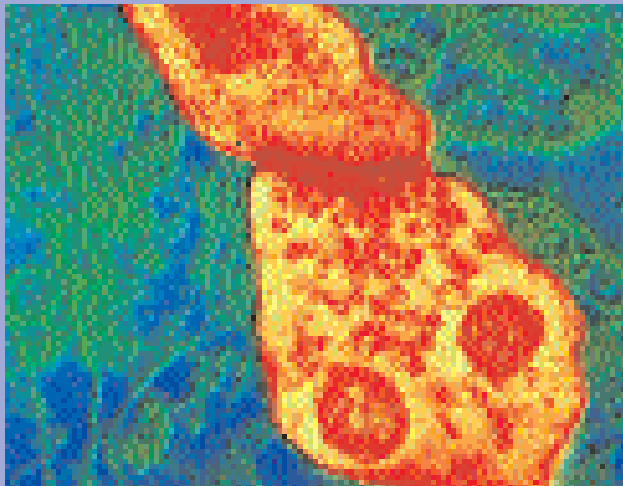
Scientific studies that support these theories

Results of the latest scientific studies demonstrate that, in truth, a baby’s intelligence develops to a great degree during the first few months of life.

Doctor Peter Huttenlocher, neurologist at Chicago University, was the first to prove the abundance of connections in the infant brain among the nervous cells, known as synapses. He demonstrated that from the very first day of life, the baby begins learning. The number of links increases steeply during the first weeks, stimulated by the sensations that the baby perceives and receives. Everything it sees, hears, feels and smells generates synapses among the cells. This means that the brain grows. Proof of this is the fact that in the first month of life the cephalic perimeter increases an average of 3.6cms and in the second month of life, 2.1cms.

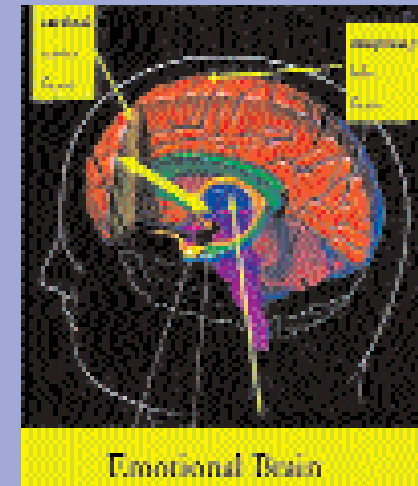
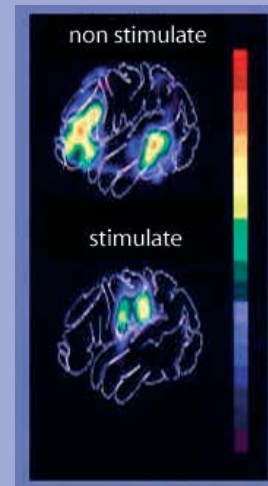
CNRI

Science Photo Library Photo Researchers, Inc.
Synapses' electronic micrographic



Active brain area and energy consumption in a specific situation

STIMULATE: More consumption and different active areas because of non stimulate.
NON STIMULATE: Less consumption and more concentrate action brain area.



By means of a test, called positron emission tomography (PET), specialists are able to see how the baby's brain functions and develops. Images achieved show which parts of the brain that are active and which

On the same subject, according to American specialists in infant psychology, attention to the baby's emotional and physical needs right from the start is directly related to the intelligence that it will develop in the future. A baby who is well-understood and attended to by its parents will develop its intelligence up to 25% more in comparison to another baby who is not, and also its IQ could be up to ten points higher.

are not.

Doctor Harry Chugani, paediatrician at Wayne State University in Detroit, obtained highly revealing results on carrying out positron emission tomography on the brain of several children who had been abandoned at birth. These babies, who in all certainly had been badly cared for, showed insecure and introvert behaviour, something that Doctor Chugani observed in the PET images. For example, black patches were seen in the zones of the brain responsible for feelings and emotions, indicating that these areas had never been activated.

On the other hand, the tomography tests on children who grow up in an environment of affection and attention reveal that there are no blank zones in their brains, because these babies have been able to fill them with positive, pleasant experiences and feelings.

The importance of stimulation in the baby's development

If parents apply some simple techniques, based essentially on observation of human behaviour and on applying the correct solution at each moment, they will achieve proper stimulation both for the baby's emotional development as well as for the future mother.

The first thing that the parents should know is what the baby's evolution and development will resemble in order to know what they can expect; in this way they can prepare themselves for the new situation, and even carry out Prenatal and Postnatal stimulation techniques, which, as their names indicate, will be all the related activities during pregnancy and once the baby has been born.

Prenatal stimulation is a technique for the correct development and harmony of the baby's brain. On the one hand, it implies an orderly observation task on the part of the parents and, on the other, activities, with already existing preparation classes and even special literature.

We must remember that the baby is living in a liquid medium when in the Mother's tummy, in an "underwater" world in which everything takes place at a different speed and is magnified in respect to the outside world, and in this weightlessness, the baby exercises coordination and strength.

By the fifth month, it is already common for the baby to react to sounds both from inside the mother as well as from outside, music, voices or vibrations, as the Mother's body acts as an omni-directional acoustic membrane and the speed of sound in the liquid medium increases.

The rhythm or stridency of sounds and vibrations convey different stimuli to the baby, calming it down with gentle, rhythmic music or sounds, and, on the contrary, producing a state of excitation with extreme high level frequencies or noises in general.

It must also be borne in mind that other different stimuli reach the baby during gestation as, during pregnancy, the future mother experiences frequent emotional changes: she often goes from euphoria to fear, from insecurity to satisfaction and even has sporadic crying bouts. Exhaustion and sleepiness point up the extreme sensitivity of her nervous system and even a heightening of the senses of smell and taste is common, expressed by rejection of smells and flavours, which she previously found pleasant.

Added to all this is anxiety, mixed with concern for the baby, above all in the last months of pregnancy; this stage tends to become never-ending for the future mother, heightened furthermore by the fear of pain at the moment of giving birth and uncertainty, especially if a first-time mother.



It must be remembered that the baby is connected to the mother both physically and emotionally: not only does she transmit to it what she eats, but also her sensations and emotions. This occurs because she shares her endorphins with the future baby; these are chemical substances that produce a tremendous feeling of well-being. For this reason it is so important that the future mother should feel happy, calm and relaxed; in fact, her happiness and positive feelings may induce in the baby feelings that are just as pleasant, already activating the different zones in its tiny brain through synapses or interconnection among neurons.

For all of these reasons, the future mother is recommended to control her diet, to rest as required and to perform risk-free activities which make her feel fulfilled and which she enjoys. It is also wise to practise relaxation techniques, corporal and breathing exercises appropriate to the month of pregnancy; the result will be that mother and child will benefit from this simple, healthy prenatal stimulation.

Once the baby is born, it will be time to apply postnatal stimulation that we can define as both an orderly task of understanding/attention on the part of the parents and of activities.

A family atmosphere in which there is good communication, attention, games and affection will stimulate the reflex reactions that will help the baby to exercise all its senses, including emotional development.

Through their natural bond, every mother stimulates her child naturally, but, also, in their daily relationship she helps it to perceive the surrounding world. This causes the child satisfaction, and it is very important that the appropriate observation, interpretation and attention factors

be respected, otherwise one could make mistakes and threaten the feeling of security and stimulation that is appropriate for the baby.

As we have mentioned, the task of understanding/attention begins with attentive and curious observation and implication by the parents regarding everything related to the baby and its surroundings, such as food, sleep, care in hygiene, etc. It is important that the parents learn to understand their child's **emotional expressions**. Without doubt, it is a powerful, non-verbal form of communication and, in fact, body language, facial gestures and crying will be its only means of expression during the most important period of development of its nervous system for its **emotional intelligence**.

This **emotional intelligence** can be developed from the very first days of life if the parents interpret correctly what the baby feels. The baby will try to express it in its own way, with gestures, sounds, and cries... If the parents know how to interpret what their child is feeling at such times, its brain will create more neuronal connections, which will stimulate its intelligence.

Several simple exercises can be done to stimulate the baby's emotional intelligence, for example:

To make it participate in its surroundings, that is: to familiarise it with where it is, both as far as the physical environment as well as lights, colours, and sounds and even smells.

To use the same communication techniques as the baby at given moments: if it laughs, the parents can do so also, or if it gesticulates or "makes faces" (surprise, joy, fear...).

If all of the above is accompanied by body contact, it will help the little one to perceive feelings and differentiate amongst them.

It is of utmost important to talk to it, as from very early on the baby will learn to relate to others.

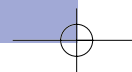
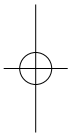
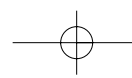
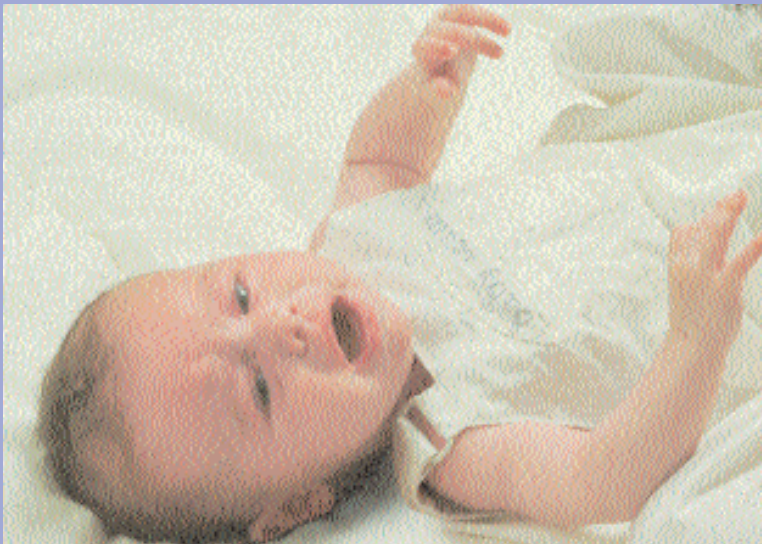
There are numerous stimulation exercises that can be carried out, it all depends on the parents' imagination and creativity; however, as we have said before, the best stimulus for its intelligence is **attention** and **affection**, which without a doubt, makes the baby happiest.



Understanding the cause of crying

The baby is home at last, and after many months of waiting, finally the parents can enjoy their child. However, often the baby's crying impairs this happiness; and is a source of concern and stress apart from representing one of the first tests parents must face.

What tends to happen in the first few days of life is that babies hardly cry, but from the second week onwards, they begin to more and more frequently. One should not become distressed, because babies cry for the same reason that adults speak: to communicate something, but with the difference that their language is still universal. Caring for a crying baby can be unbearable and irritating, but one must remember that crying is its only means of communication. It is not trying to frustrate or upset its parents, simply to transmit a need to them, and when a baby cries incessantly there is a reason for it. In order to calm a baby's crying, it is



vital to know the reason why it is crying.

Normally, to know what the baby needs, parents use the trial and error method and no doubt **after time** they can identify what is wrong with their baby by the cries or sounds that it makes.

Parents should try to face the difficult task of interpreting this crying calmly. Otherwise, as has already been said, the situation turns into a vicious circle, in which parents and baby transmit nervousness to each other. There is no reason for them to feel guilty or incompetent.

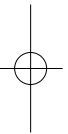
Parents who are anxious or upset will not be able to stimulate the baby properly, as they will not be giving it what it needs. Therefore, parents are recommended to seek help if at any time they feel that they cannot cope.

Listed below is some practical advice for not becoming completely distraught:

- If the parents feel very overwrought, they can ask a relative or close friend to look after the baby for a while; it is vital that parents calm down and do something else, distract themselves; they must look after themselves as well.

- If the parent or carer is very nervous or irritated and needs a break, it is advisable that they put the baby in a safe place, go to another part of the house and do something to distract themselves and calm down.

It is important that there is an understanding early on, that the baby's messages are understood; the idea is that this is possible from day one, as it represents the basis of proper stimulation and attention to the baby's needs.



Intense crying bouts

Daily fits of intense crying affect two out of every ten babies of between three weeks and three months old. It is not easy to console them, and sometimes their crying can continue into the early hours of the morning. It is quite common for the label of “**colicky**” to be applied to these bouts. But what are they? And, more important, why do they occur?

The term “unweaned colic” or “three-month colic” tends to be given to those long periods during which the baby cries without stopping, for no apparent reason and it is almost always associated with an intestinal complaint. It is true that digestive discomfort can cause a baby to cry, in fact, when a newborn baby cries frequently, people tend to say that it is because of wind (colic comes from the Greek kolon that is the large intestine). For this reason, until recently crying babies have been administered aniseed or carminative infusions that help to expel wind, to alleviate stomach-ache and, as a result, the crying.

According to Dr T. Berry Brazelton, a renowned North-American paediatrician, author of the book *The baby’s knowledge* (published by Paid s 1989), when babies cry frequently, they swallow large amounts of air, and this can cause them stomach-ache; but this is not the origin of their crying, rather one of its consequences.

However, the root of these discomforts could lie in an immaturity of the digestive apparatus (lack of peristaltic or anal movement of the intestines to expel faeces or wind), an allergy or intolerance to some components of cow’s milk passed on through maternal or formula milk, or perhaps incorrect feeding habits such as breast-feeding too quickly or the hole in the bottle-teat being too small. But these reasons would only

account for colic in a very small percentage of cases.

So, what is it that causes colic during the unweaned period? Why do the majority of babies cry long and loudly towards the end of the day, to the despair and dismay of their parents? Why is it so difficult to console them?



Experts cannot reach a common agreement, and it does seem that there is no one single reason. According to T. Berry Brazelton and Ernesto S ez P rez, Head of Paediatrics at the University Hospital in Getafe, Madrid and author of the book “What it is saying by crying (published by Temas de Hoy) it is probable that colic is the result of various physiological, temperamental and environmental causes that are beyond the adaptation capacities of an immature baby.

Within these causes, excess stimulation plays a major role; according to this widely accepted theory, colic is due to release of tension accumulated by the baby owing to the stimuli that it has received throughout the day. That is why crying bouts occur late in the evening. The baby's nervous system is still immature and the sensations received, (voices, noises, lights, contacts, etc) progressively overload and saturate it in such a way that by the end of the day, the baby expresses its feelings in the only way that it knows how: by crying. As this is a release valve, it can be viewed as a positive that the baby cries, but one must try to discover whether over-stimulation was the reason. Perhaps by observing both the baby's body language as well as the crying itself, parents can limit these stimuli according to their baby's degree of tolerance and make these crying bouts as non-traumatic as possible for everyone.

It has been observed that children of a nervous nature, who become easily over-excited by whatever stimuli, tend to suffer this type of colic. The parents' attitude is also an influence as, if they despair of the situation, they can transmit this nervousness to the baby, thus creating a vicious circle.

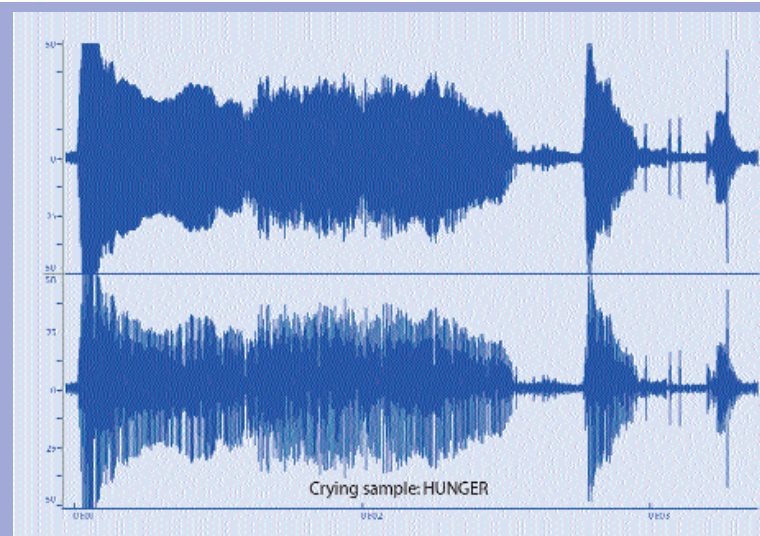
Categories of crying and practical advice

After studying the sounds and crying of over one hundred babies of all races, it has been possible to establish a universal pattern of sounds and crying, deducing from it that the most common types of crying, such as those that arise from the baby being alarmed, being hungry, having a dirty nappy, feeling tired, wanting company, suffering colic, being frightened, being thirsty, feeling hot or feeling some kind of discomfort, can be summarised into five categories.

Hunger

What is the crying like?

Energetic and in a demanding tone. Although at first it is not very intense, little by little it becomes more energetic and rhythmic.



How to calm the baby down?

Breastfeeding or giving it a bottle; if older than four months, check if the baby is thirsty and offer it water.

What is the most common body language?

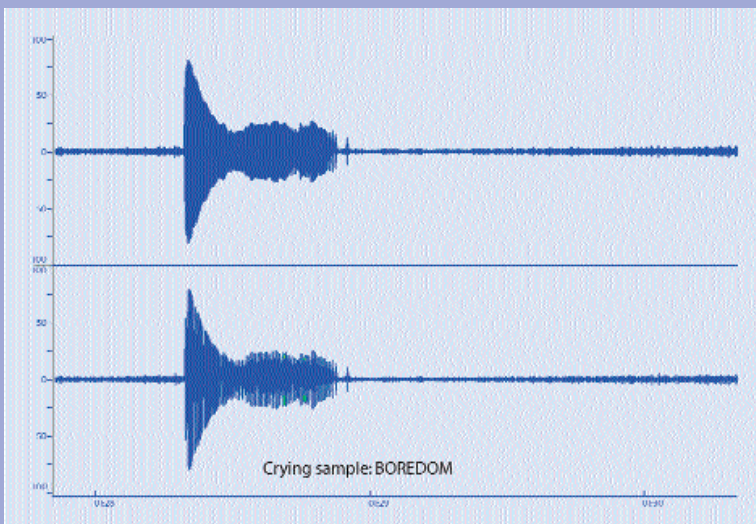
The baby shakes its head and waves its arms, gently kicking, clenching its fists; if we move a hand towards its face, it tries to suck it; it also sucks its fists and its body does not display stiffness.

Boredom

What is the crying like?

It tends to begin with moaning sounds that can become screams if the baby is not attended to.

How to calm the baby down?



- Pick the baby up; the baby will feel stimulated by the parent's presence.

- The parents can cradle it in their arms, cuddling it to their body, while walking or dancing with the baby.

- They can also put on a pleasant record or tape, put on the washing machine or let the water run into the bath for a few minutes: babies enjoy it when they hear rhythmic sounds.

- Sing to it, read it a story or talk to the baby quietly.

- Offer the baby a noisy toy appropriate for its age for it to jiggle about.

- Give it a warm bath while talking softly; the bath will relax it and the temperature of the water will make it feel comfortable.

- Massage the baby's body, hands and feet and lovingly stroke its face while talking or singing in a low voice

- Lay the baby face downwards holding it in the crook of one arm while massaging its tummy with one hand and stroking its back with the other; by doing so, it will have another field of perception and be stimulated at the same time.

- Check for signs or symptoms of illness, such as raised body temperature or swollen gums, etc. If any of these symptoms are apparent, it is necessary to consult a doctor in order to administer the correct treatment.

What is the most common body language?

It gently shakes its head and moves its arms, gently kicking, it does not clench its fists and if we move a hand towards its face it does not try to suck it; nor does it suck its fists and there is no evidence of stiffness in its body.

Discomfort or pain

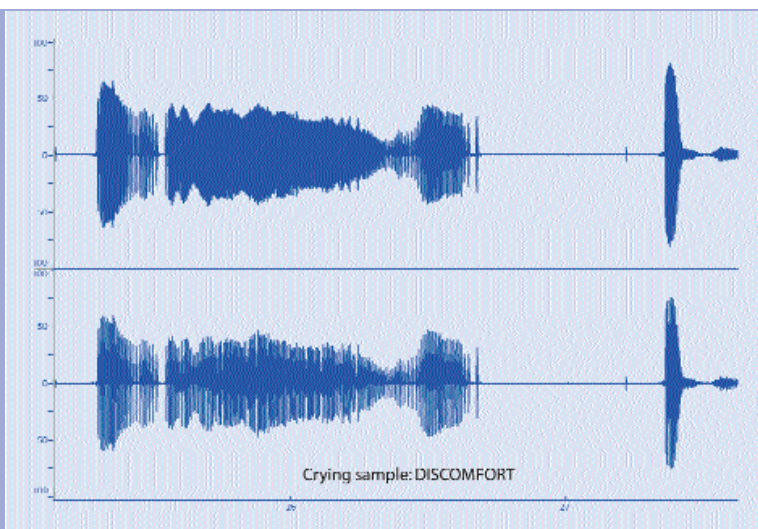
What is the crying like?

It is a drawn out whine, followed by a pause without breathing; the baby pants in short bursts before starting to whine again.

How to calm it down?

There are a lot of possibilities and parents must try to discover the cause as quickly as possible.

- Check if the nappy is dirty and change the baby on a soft,



comfortable changing mat, also checking for possible nappy rash.

- Check that its clothes are not too tight and, therefore, that the baby is not uncomfortable; make sure the baby's toes are not bent or squashed by any garment

- If you think that it is suffering from wind, it is a good idea to sit the baby up to burp it or gently massage its tummy.

- It might be constipated, if so, it is advisable to stimulate the anus with a damp sponge.

- Check that the baby's surroundings are comfortable.

- Give it a dummy/soother or some other appropriate teething item.

- Lay the baby face downwards holding it in the crook of the arm and massage its tummy with one hand while stroking its back with the other.

- Bath the baby in warm water; water at the correct temperature will relax it and make it feel more comfortable.

- Check for signs or symptoms of illness, such as raised body temperature or swollen gums, and that it has burped after feeding. If any concerning symptom is apparent, it is necessary to consult a doctor in order to administer the correct treatment.

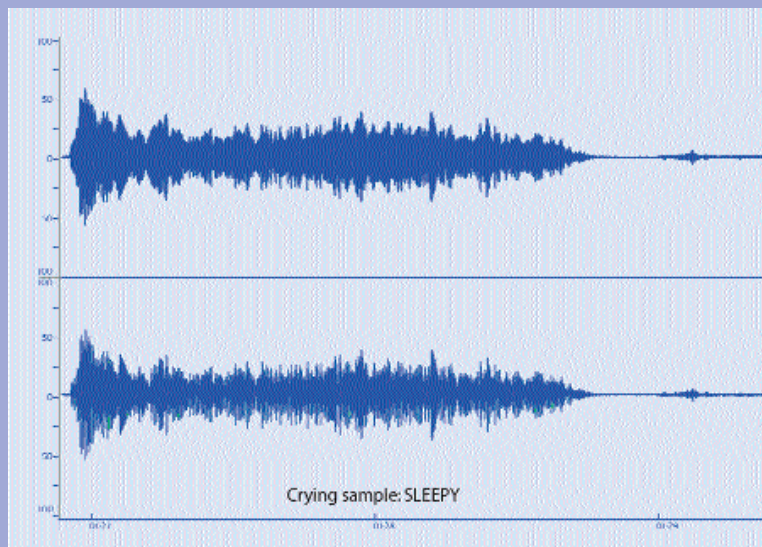
What is the most common body language?

The baby shakes its head and waves its arms, kicking, and clenching its fists and if we move a hand towards its face it tries to suck it, it also sucks its fists, and its body is stiff with possible wind and intestinal noises.

Tiredness

What is the crying like?

It is a soft wailing or whimpering that can increase if we try to stimulate it.



How to calm your baby down?

- Talk to it quietly, and rock it while holding it in foetal

position; cuddle it close to the breast, or place it in the proper position if already lying down.

- Take it for a walk in its pram or in the appropriate car seat for a short drive.

- Put the baby in an appropriate rocker.

- Put on music or put on the washing machine, or let the water run into the bath for a few minutes, as babies are calmed down by rhythmic sounds.

- Read a story or speak to the baby quietly.

- Hold the baby in a comfortable position, cuddled against the mother or father's body so that it can hear their slow, relaxed breathing; this will calm them down.

- Massage the baby's body, hands and feet and softly stroke its face.

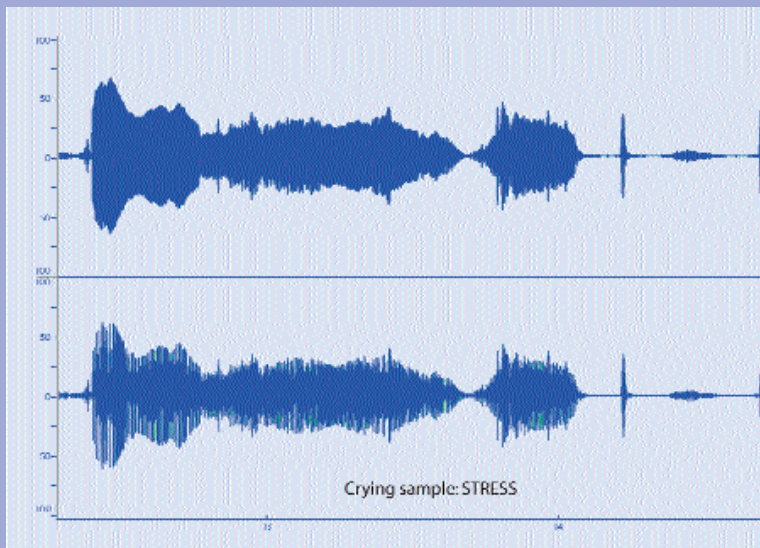
What is the most common body language?

Normally, it does not shake its head, only waving its arms gently; it also kicks gently, without clenching its fists, although it may rub its eyes; if parents move a hand towards its face it does not try to suck it; nor does it suck its fists and its body does not display stiffness.

Nervous or stressed (Colic)

What is the crying like?

It starts as an intense, short scream that decreases and then increases again. It tends to occur last thing in the evening and the baby appears inconsolable.



How to calm it down?

- Take the baby to a quiet room or place with dim atmospheric lighting; hold it in foetal position and rock it in silence, while softly talking to it.
- Warm a blanket and wrap the baby in it; this will provide a feeling of security and comfort.
- Hold the baby in a comfortable position cuddled against the mother or father's body so that it can hear their slow, relaxed

breathing; by doing so will convey peace to it.

- Silently bath the baby in warm water; the bath will relax it and the correct temperature of the water will provide comfort for it.
- Quietly massage the baby's body and feet and hands and lovingly stroke its face.
- It may be advisable to exclude lactose (lactic proteins) if formula feeding; or perhaps the mother should modify her diet if breast-feeding, as the baby could suffer intolerance to certain foods that the mother eats. However, parents should always consult their paediatrician.

What is the most common body language?

It shakes its heads and gesticulates, opening its mouth a lot, frowning and waving its arms; it also kicks, clenching its fists, and if the parents move a hand towards its face it tries to suck it; it also sucks its fists, and its body is somewhat stiff, with possible wind and intestinal noises.

Maternal instinct and stimulation of the baby

Throughout the history of mankind, raising and caring for babies has always been the mother's job. Helped on occasions by the wise experience of grandmothers, little by little mothers acquire their own experience, knowledge and ability for attending to their child.

There are two main factors attributable to women that are aroused and heightened on becoming mothers: **maternal instinct** and **intuition**. They are abilities, which, with time, enable a mother to understand the needs and emotions, including the physical states of their child with a certain degree of clarity. However, what is most beneficial for the child is for the mother to realise its needs practically from the day of birth.

It must be remembered that the connection between mother and child exists well before the birth of your child; at first, the baby has a relationship of dependency with its mother because its survival depends on her; in turn, there is an intense emotional link between them both throughout their entire life. This is truly developed if an active role is taken in the upbringing of your child, ensuring that daily contact is maintained through observations and attention.

Equally, **parental feeling** exists, that could be defined as the psychological perception of the maternal instinct; something felt by, for example, adoptive fathers and mothers or natural fathers; in fact, the man often develops this intuition and knows how to deal with such a fragile, tender being.

There is no doubt that, under normal circumstances and owing to daily contact, nobody knows the baby better than the mother. This is further demonstrated by reports and experiences provided to specialists, which are of great use to them in diagnosing illness or other anomalies.

However, maternal instinct and intuition are not a replacement for the paediatrician, although a mother's knowledge can indeed help and reinforce even further this innate capacity.



Not everyone is lucky enough to be able to rely on the help of grandparents or other experienced relatives, as the age of first-time parents tends to increase all the time for various reasons (work, personal, etc.). Parents no longer have so much time to take complete care of their children. This means that children have to be left at a kindergarten, nursery or at home with a baby-sitter.

Fortunately, ante and postnatal programmes and classes exist for the would be parent to acquire both a theoretical and practical knowledge of what they can expect during birth and thereafter. Any prior knowledge and information is useful and will benefit the baby, while, at the same time, helping the parents to improve their quality of life.

Science advances

Everyday, scientific knowledge and advances take another step forward. Childcare and paediatrics are no exception, and as a result of scientific studies, that combine different disciplines of engineering and medicine, today it is possible to see three-dimensional photographs of the baby before it is born. There are thermometers that take the body temperature within seconds and bottles can be sterilised with complete guarantee and accuracy.

In digital audio processing there have been spectacular engineering developments, from the CD to the latest techniques of compressing audio formats for the telephone industry, etc. These engineering and medical techniques have also been applied to the study of sounds made by babies for different causes and conditions, giving rise to the new technology for interpreting babies' crying.

The crying analyser is based on a digital signal processing that can carry out these tasks in real time using a fraction of the sound emitted by the baby to compare it with the universal pattern that it incorporates. It captures any sound issued within the voice band; these frequencies are approximately between 100 and 6,000 Hz. Previously, some filters were used, making up the form of the sound wave to be analysed.

It analyses the frequency and temporal parameters of the sound defining the start and finish algorithm; these parameters are: frequency, intensity, form of sweep, repetition rhythm, energy content, pulse/beat duration, wave shape, autocorrelation, magnitude, density of crosses through zero, etc. Analysis time is about 20 seconds, this allows for repeated validation of the prognosis before illuminating the visual display icon.

This scientific-technological advance marks a new era in human evolution; it implies a great stimulus for the correct emotional and intellectual development of the baby while also being of tremendous help to the parents, as it assists them in knowing how to interpret their baby's emotional states from the first day of its life



The crying analyser

A device for correct stimulation of the baby

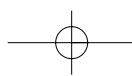
This new technology will help parents to look after their babies, by means of guided assistance in understanding the reasons for their baby's crying. This help lies specifically in prognoses, pointers and advice, in such as way that, in a short time, they will be able to identify what a specific type of crying means and, therefore, what discomfort or concern the baby is voicing.

Success of this technology will depend on parents and carers of babies, as they are fundamental for interpreting and putting into practice the advice they have previously been given. With this technology they will know 95% of the time why the baby is crying; but the rest depends on their involvement and attitude, and putting the recommendations into practice depending on the type of crying. In this way, parents and carers will be in a position to calm the baby down and cater for its needs in the most accurate and efficient way possible.

Use of this new technology in caring for babies is an excellent complement that in no way intends to replace parents, carers and professionals in baby-health.

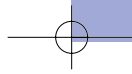
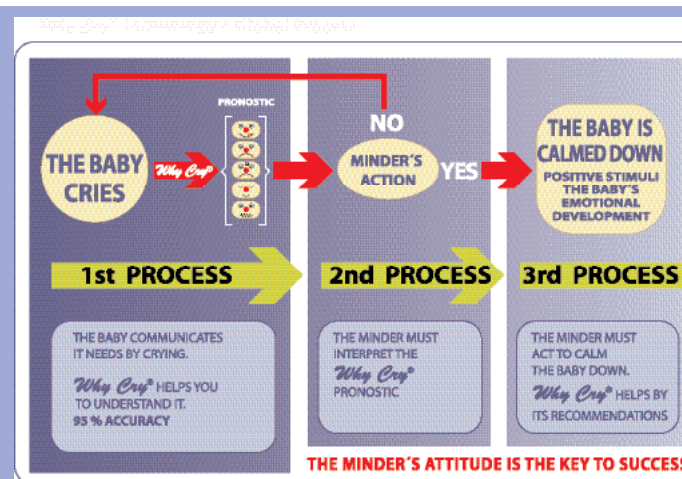
The aim of this technology is to **guide** and **create awareness** of the importance, apart from the need, of proper stimulation of the baby from its first day of life and, as a consequence, interpretation of what the child wishes to tell us through its crying.

In fact, the combination of this new technology and maternal instinct guarantees absolute success in the proper emotional development of the baby as, from day one, it will be properly attended to.



The process of the Crying Analyser technology is simple, although it does require the involvement of the adult in charge of the baby. In fact, their attitude is the key to guaranteeing 95% effectiveness. This means that the Analyser will indicate a prognosis at the moment when the baby cries, but we must bear in mind that the child's demands must be attended to as soon as possible, because otherwise we may find logical progressions in its messages; for example, if the Analyser displays Hunger, there is a logical evolution of the baby's message in its crying and therefore in its demands.

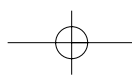
In other words, if it cries through Hunger and it is not attended to immediately, the message in the baby's crying several minutes later may be that it is Nervous, with the Analyser indicating Stress, and if a considerable time lapsed without the baby's first demand being catered for, it would transmit Sleepiness with its crying and the Analyser would indicate Tiredness. It is, therefore, important to follow the Crying Analyser indications as soon as possible, so that the parent or carer will identify the cause and type of crying by interpreting and contrasting indications provided by the device and following the advice given, will manage to calm the baby down, giving it what it really requires and when it requires it.



Advantages of the crying analyser

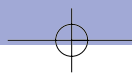
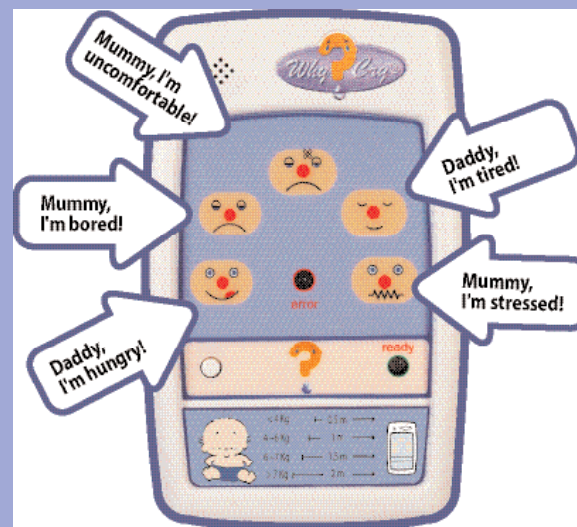
By using the baby crying analyser, parents can immediately understand what is happening to the baby, allowing them to attend to its needs in the most appropriate way. This generates a chain of positive stimuli and pleasant sensations that reinforce development of the baby's intellectual capacities and self-assurance.

It must be borne in mind that the sense of security developed by the baby over the first few months will stay with it for the rest of its life. Through using this technology, parents can find a solution that helps to lessen the anxiety that they feel when they cannot understand what the matter is with the baby when it cries, an anxiety that increases if they are not able to calm it down immediately. If the baby cries and the parents know why, they will be able to attend to its needs; and a peaceful baby means that the parents convey serenity, and will therefore derive more enjoyment from the time spent with their child. In addition, mothers will



see how rapidly their learning and sensitivity processes evolve due to receiving assisted, accurate and fast help in understanding their baby. Finally, carers other than parents, who do not have such a close relationship with the baby, and who perhaps do not know it as well, will be able to understand the baby and attend to it properly.

With the arrival of new technologies, including the crying analyser, has marked a before and after situation in the understanding and early stimulation of the Intelligence of the Human Being



Conclusions

There are several conclusions to be drawn from this report, but we can summarise by saying that mothers and fathers should know that what happens during the first few months of life is very important for the baby. Everything it encounters will affect it, and accompany it, throughout the rest of its life, both physically and psychologically. In this sense, early understanding of the baby will be a determining factor for subsequent attention on the part of the adults and everything will be to the advantage of the child, who will develop happily as its demands are met.





the joys of parenthood