

## **Babies are Conscious** - David Chamberlain, PhD

Newborn babies have been trying for centuries to convince us they are, like the rest of us, sensing, feeling, thinking human beings. Struggling against thousands of years of ignorant supposition that newborns are partly human, sub-human, or not-yet human, the vast majority of babies arrive in hospitals today, greeted by medical specialists who are still skeptical as to whether they can actually see, feel pain, learn, and remember what happens to them. Physicians, immersed in protocol, employ painful procedures, confident no permanent impression, certainly no lasting damage, will result from the manner in which babies are received into this world.

The way "standard medicine" sees infants--by no means universally shared by women or by the midwives who used to assist them at birth--has taken on increasing importance in a country where more than 95% are hospital born and a quarter of these surgically delivered. While this radical change was occurring, the psychological aspects of birth were little considered. In fact, for most of the century, medical beliefs about the infant nervous system prevailed in psychology as well. However, in the last three decades, research psychology has invested heavily in infant studies and uncovered many previously hidden talents of both the fetus and the newborn baby. The findings are surprising: babies are more sensitive, more emotional, and more cognitive than we used to believe. They are not what we thought. Babies are so different that we must create new paradigms to accurately describe who they are and what they can do.

Not long ago, experts in pediatrics and psychology were teaching that babies were virtually blind, had no sense of color, couldn't recognize their mothers, and heard in "echoes. They believed babies cared little about sharp changes in temperature at birth and had only a crude sense of smell and taste. Their pain was "not like our pain," their cries not meaningful, their smiles were "gas," and their emotions undeveloped. Worst of all, most professionals believed babies were not equipped with enough brain matter to permit them to remember, learn, or find meaning in their experiences.

These false and unflattering views are still widely spread among both professionals and the general public. No wonder people find it hard to believe that a traumatic birth, whether cesarean or vaginal, has significant, on-going effects.

Unfortunately, today these unfounded prejudices still have the weight of "science" behind them, but the harmful results to babies are hardly better than the rank superstitions of the past. The resistance of "experts" who continue to see infants in terms of their traditional incapacities may be the last great obstacle for babies to leap over before being embraced for who they really are. Old ideas are bound to die under the sheer weight of new evidence, but not before millions of babies suffer unnecessarily because their parents and their doctors do not know they are fully human.

As the light of research reaches into the dark corners of prejudice, we may thank those in the emerging field of prenatal/perinatal psychology. Since this field is often an inter-professional collaboration and does not fit conveniently to accepted academic departments, the field is not yet recognized in the academic world by endowed chairs or even by formal courses. At present only a few courses exist throughout the world. Yet research teams have achieved a succession of breakthroughs which challenge standard "scientific" ideas of human development.

Scholars in this field respect the full range of evidence of infant capabilities, whether from personal reports contributed by parents, revelations arising from therapeutic work, or from formal experiments. Putting together all the bits and pieces of information gathered from around the globe yields a fundamentally different picture of a baby.

The main way information about sentient, conscious babies has reached the public, especially pregnant parents, has been via popular media: books, movies, magazine features, and television.

Among the most outstanding have been *The Secret Life of the Unborn Child* by Canadian psychiatrist Thomas Verny (now in 25 languages), movies like *Look Who's Talking*, and several talk shows, including Oprah Winfrey, where a program on therapeutic treatment of womb and birth traumas probably reached 25 million viewers in 25 countries. Two scholarly journals are devoted entirely to prenatal/perinatal psychology, one in North America which began in 1986, and one in Europe beginning in 1989. The [Association for Pre- and Perinatal Psychology and Health \(APPPAH\)](#) is a

gathering place for people interested in this field and who keep informed through newsletters, journals, and conferences.

Evidence that babies are sensitive, cognitive, and are affected by their birth experiences may come from various sources. The oldest evidence is anecdotal and intuitive. Mothers are the principal contributors to the idea of baby as a person, one you can talk to, and one who can talk back as well. This process, potentially available to any mother, is better explained in psychic terms than in word-based language. This exchange of thoughts is probably telepathic rather than linguistic.

Mothers who communicate with their infants know that the baby is a person, mind and soul, with understanding, wisdom, and purpose. This phenomenon is cross-cultural, probably universal, although all mothers do not necessarily engage in this dialog. In an age of "science," a mother's intuitive knowledge is too often dismissed. What mothers know has not been considered as valid data. What mothers say about their infants must be venal, self-serving, or imaginary, and can never be equal to what is known by "experts" or "scientists."

This prejudice extends into a second category of information about babies, the evidence derived from clinical work. Although the work of psychotherapy is usually done by formally educated, scientifically trained, licensed persons who are considered expert in their field, the information they listen to is anecdotal and their methods are a blend of science and art.

Their testimony of infant intelligence, based on the recollections of clients, is often compelling. Therapists are privy to clients' surprising revelations, many of which show a direct connection between traumas surrounding birth and later disabilities of heart and mind. Although it is possible for these connections to be purely imaginary, we know they are not when hospital records and eyewitness reports confirm the validity of the memories. Obstetrician David Cheek, using hypnosis with a series of subjects, discovered that they could accurately report the full set of left and right turns and sequences involved in their own deliveries. This is technical information which no ordinary person would have unless his memories are accurate!

In my own work as a psychologist using hypnosis, I found it necessary to test the reliability of memories people gave me about their traumas during the birth process, memories which had not previously been conscious. I hypnotized mother and child pairs who said they had never spoken in any detail about that child's birth. I received a detailed report of what happened from the now-adult child which I compared with the mother's report, given also in hypnosis.

The reports dovetailed at many points and were clearly reports of the same birth. By comparing one story with the other, I could see when the adult child was fantasizing, rather than having accurate recall, but fantasy was rare. I concluded that these birth memories were real memories, and were a reliable guide to what had happened.

Some of the first indications that babies are sentient came from the practice of psychoanalysis, stretching back to the beginning of the century to the pioneering work of Sigmund Freud. Although Freud himself was skeptical about the operation of the infant mind, his clients kept bringing him information which seemed to link their anxieties and fears to events surrounding their births. He theorized that birth might be the original trauma upon which later anxiety was constructed.

Otto Rank, Freud's associate, was more certain that birth traumas underlay many later neuroses, so he reorganized psychoanalysis around the assumption of birth trauma. He was rewarded by the rapid recovery of his clients who were "cured" in far less time than was required for traditional psychoanalysis. In the second half of the century, important advances have been made in resolving early trauma and memories of trauma.

Hypnotherapy, primal therapy, psychedelic therapies, various combinations of body work with breathing and sound stimulation, sand tray therapy, and art work have all proved useful in accessing important imprints, decisions, and memories stored by the infant mind. If there had been no working mind in infancy, of course there would be no need to return to it to heal bad impressions, change decisions, and otherwise resolve mental and emotional problems.

A third burgeoning source of information about the conscious nature of babies comes from scientific experiments and systematic observations utilizing breakthrough technologies. In our culture, with its preference for refined measurement and strict protocols, these are the studies which get funding. And the results are surprising from this contemporary line of empirical research.

We have learned so much about babies in the last twenty years that most of what we thought we knew before is suspect, and much of it is obsolete. I will highlight the new knowledge in three sections: development of the physical senses, beginnings of self-expression, and evidence of active mental life.

First, we have a much better idea of our physical development, the process of embodiment from conception to birth. Our focus here is on the senses and when they become available during gestation. Touch is our first sense and perhaps our last. Sensitivity to touch begins in our faces about seven weeks gestational age (g.a.). Tactile sensitivity expands steadily to include most parts of the fetal body by 17 weeks. In the normal womb, touch is never rough, and temperature is relatively constant. At birth, this placid environment ends with dramatic new experiences of touch which no baby can overlook.

By only 14 weeks gestational age (g.a.), the taste buds are formed, and ultrasound shows both sucking and swallowing. A fetus controls the frequency of swallowing amniotic fluid, and will speed up or slow down in reaction to sweet and bitter tastes. Studies show babies have a definite preference for sweet tastes. Hearing begins earlier than anyone thought possible: at 16 weeks. The ear is not complete until about 24 weeks, a fact revealing the complex nature of listening, which includes reception of vibes through our skin, skeleton, and vestibular system as well as the ear. Babies in the womb are listening to maternal sounds and to the immediate environment for almost six months. By birth, their hearing is about as good as ours.

Our sense of sight also develops before birth, although our eyelids remain fused from week 10 through 26. Nevertheless, babies in the womb will react to a light flashed on the mother's abdomen. By the time of birth, vision is well-advanced, though not yet perfect. Babies have no trouble focusing at the intimate 16 inch distance where the faces of mothers and fathers are usually found.

Mechanisms for pain perception like those for touch, develop early. By about three month g.a., if babies are accidentally struck by a needle inserted into the womb to withdraw fluid during amniocentesis, they quickly twist away and try to escape from the needle. Intrauterine surgery, a new aspect of fetal medicine made possible in part by our new ability to see inside the womb, means new opportunities for fetal pain.

Although surgeons have long denied prenatals experience pain, a recent experiment in London proved unborn babies feel pain. Babies who were needled for intrauterine transfusions showed a 600% increase in beta-endorphins, hormones generated to deal with stress. In just ten minutes of needling, even 23 week old fetuses were mounting a full-scale stress response. Needling at the intrahapatic vein provokes vigorous body and breathing movements.

Finally, our muscle systems develop under buoyant conditions in the fluid environment of the womb and are regularly used in navigating the area. However, after birth, in the dry world of normal gravity, our muscle systems look feeble. As everyone knows, babies cannot walk, and they struggle, usually in vain, to hold up their own heads. Because the muscles are still relatively undeveloped, babies give a misleading appearance of incompetence. In truth, babies have remarkably useful sensory equipment very much like our own.

A second category of evidence for baby consciousness comes from empirical research on bodily movement in utero. Except for the movement a mother and father could sometimes feel, we have had almost no knowledge of the extent and variety of movement inside the womb. This changed with the advent of real-time ultrasound imaging, giving us moment by moment pictures of fetal activity.

One of the surprises is that movement commences between eight and ten weeks gestational age. This has been determined with the aid of the latest round of ultrasound improvements. Fetal movement is voluntary, spontaneous, and graceful, not jerky and reflexive as previously reported. By ten weeks, babies move their hands to their heads, face, and mouth; they flex and extend their arms

and legs; they open and close their mouths; and they rotate longitudinally. From 10 to 12 weeks onward, the repertoire of body language is largely complete and continues throughout gestation. Periodic exercise alternates with rest periods on a voluntary basis reflecting individual needs and interests. Movement is self-expression, an expression of personality.

Twins viewed periodically via ultrasound during gestation often show highly independent motor profiles, and, over time continue to distinguish themselves through movement both inside and outside the womb. They are expressing their individuality.

Close observation has brought many unexpected behaviors to light. By 16 weeks g.a., male babies are having their first erections. As soon as they have hands, they are busy exploring everywhere and everything, feet, toes, mouth, and the umbilical cord: these are their first toys.

By 30 weeks, babies have an intense dream life, spending more time in the dream state of sleep than they ever do after they are born. This is significant because dreaming is definitely a cognitive activity, a creative exercise of the mind, and because it is a spontaneous and personal activity.

Observations of the fetus also reveal a number of reactions to conditions in the womb. Such reactions to provocative circumstances is a further sign of selfhood. Consciousness of danger and maneuvers of self-defense are visible in fetal reactions to amniocentesis. Even when things go normally and babies are not struck by needles, they react with wild variations of normal heart activity, alter their breathing movements, may "hide" from the needle, and often remain motionless for a time--suggesting fear and shock.

Babies react with alarm to loud noises, car accidents, earthquakes, and even to their mother's watching terrifying scenes on television. They swallow less when they do not like the taste of amniotic fluid, and they stop their usual breathing movements when their mothers drink alcohol or smoke cigarettes.

In a documented report of work via ultrasound, a baby struck accidentally by a needle not only twisted away, but located the needle barrel and hit it repeatedly--surely an aggressive and angry behavior. Similarly, ultrasound experts have reported seeing twins hitting each other, while others have seen twins playing together, gently awakening one another, playing cheek-to-cheek, and even kissing. Such scenes, some at only 20 weeks g.a., were never anticipated in developmental psychology. No one anticipated sociable behavior nor emotional behavior until months after a baby's birth.

We can see emotion expressed in crying and smiling long before 40 weeks, the usual time of birth. We see first smiles on the faces of premature infants who are dreaming. Smiles and pleasant looks, along with a variety of unhappy facial expressions, tell us dreams have pleasant or unpleasant contents to which babies are reacting. Mental activity is causing emotional activity. Audible crying has been reported by 23 weeks g.a. in cases of abortion, revealing that babies are experiencing very appropriate emotion by that time. Close to the time of birth, medical personnel have documented crying from within the womb, in association with obstetrical procedures which have allowed air to enter the space around the fetal larynx.

Finally, a third source of evidence for infant consciousness is the research which confirms various forms of learning and memory both in the fetus and the newborn. Since infant consciousness was considered impossible until recently, experts have had to accept a growing body of experimental findings illustrating that babies learn from their experiences. In studies that began in Europe in 1925 and America in 1938, babies have demonstrated all the types of learning formally recognized in psychology at the time: classical conditioning, habituation, and reinforcement conditioning, both inside and outside the womb.

In modern times, as learning has been understood more broadly, experiments have shown a range of learning abilities. Immediately after birth, babies show recognition of musical passages which they have heard repeatedly before birth, whether it is the bassoon passage in *Peter and the Wolf*, "Mary Had a Little Lamb," or the theme music of a popular soap opera.

Language acquisition begins in the womb as babies listen repeatedly to their mothers' intonations and learn their mother tongue. As early as 25 weeks g.a., the recording of a baby's first cry contains so many rhythms, intonations, and other features common to their mother's speech that their spectrographs can be matched. In experiments shortly after birth, babies recognize their mother's voice and prefer her voice to other female voices. In the delivery room, babies recognize their father's voice and recognize specific sentences their fathers have spoken, especially if the babies have heard these sentences frequently while they were in the womb. After birth, babies show special regard for their native language, preferring it to a foreign language.

Fetal learning and memory also includes stories that are read aloud to them repeatedly before birth. At birth, babies will alter their sucking behavior to obtain recordings of the familiar stories. In a recent experiment, a French and American team had mothers repeat a particular children's rhyme each day from week 33 to week 37 g.a. After four weeks of exposure, babies reacted to the target rhymes and not to other rhymes, proving they recognize specific language patterns while they are in the womb.

Newborn babies quickly learn to distinguish their mother's face from other female faces, their mother's breast pads from other breast pads, their mother's distinctive underarm odor, and their mother's perfume if she has worn the same perfume consistently.

Premature babies learn from their unfortunate experiences in neonatal intensive care units. One boy, who endured surgery paralyzed with curare, but was given no pain-killing anesthetic, developed a pervasive fear of doctors and hospitals which remains undiminished in his teens. He also learned to fear the sound and sight of adhesive bandages. This was in reaction to having some of his skin pulled off with adhesive tape during his stay in the premature nursery.

Confirmation that early experiences of pain have serious consequences later has come from recent studies of babies at the time of first vaccinations. Researchers who studied infants being vaccinated four to six months after birth discovered that babies who had experienced the pain of circumcision had higher pain scores and cried longer. The painful ordeal of circumcision had apparently conditioned them to pain and set their pain threshold lower. This is an example of learning from experience: perinatal pain.

Happily, there are other things to learn besides pain and torture. The Prenatal Classroom is a popular program of prenatal stimulation for parents who want to establish strong bonds of communication with a baby in the womb. One of the many exercises is the "Kick Game," which you play by responding to the child's kick by touching the spot your baby just kicked, and saying "Kick, baby, kick!" Babies quickly learn to respond to this kind of attention: they do kick again and they learn to kick anywhere their parents touch. One father taught his baby to kick in a complete circle.

Babies also remember consciously the big event of birth itself, at least during the first years of their lives. Proof of this comes from little children just learning to talk. Usually around two or three years of age, when children are first able to speak about their experiences, some spontaneously recall what their birth was like. They tell what happened in plain language, sometimes accompanied by pantomime, pointing and sound effects. They describe water, black and red colors, the coming light, or dazzling light, and the squeezing sensations. Cesarean babies tell about a door or window suddenly opening, or a zipper that zipped open and let them out. Some babies remember fear and danger. They also remember and can reveal secrets.

One of my favorite stories of a secret birth memory came from Cathy, a midwife's assistant. With the birth completed, she found herself alone with a hungry, restless baby after her mother had gone to bathe and the chief midwife was busy in another room. Instinctively, Cathy offered the baby her own breast for a short time: then she wondered if this were appropriate and stopped feeding the infant without telling anyone what had happened. Years later, when the little girl was almost four, Cathy was babysitting her. In a quiet moment, she asked the child if she remembered her birth. The child did, and volunteered various accurate details. Then, moving closer to whisper a secret, she said "You held me and gave me titty when I cried, and Mommy wasn't there." Cathy said to herself, "Nobody can tell me babies don't remember their births!"

Is a baby a conscious and real person? To me it is no longer appropriate to speculate. It is too late to speculate when so much is known. The range of evidence now available in the form of knowledge of the fetal sensory system, observations of fetal behavior in the womb, and experimental proof of learning and memory--all of this evidence--amply verifies what some mothers and fathers have sensed from time immemorial, that a baby is a real person. The baby is real in having a sense of self which can be seen in creative efforts to adjust to or influence its environment. Babies show self-regulation (as in restricting swallowing and breathing), self-defense (as in retreating from invasive needles and strong light), self-assertion, combat with a needle, or striking out at a bothersome twin!

Babies are like us in having clearly manifested feelings in their reactions to assaults, injuries, irritations, or medically inflicted pain. They smile, cry, and kick in protest, manifest fear, anger, grief, pleasure, or displeasure in ways which seem entirely appropriate in relation to their circumstances. Babies are cognitive beings, thinking their own thoughts, dreaming their own dreams, learning from their own experiences, and remembering their own experiences. Because of all these capabilities, we know babies remember at a very deep level of consciousness their primal journey, the way they entered this world.