

## **Is it a human being?**

"From the moment a baby is conceived, it bears the indelible stamp of a separate distinct personality, an individual different from all other individuals." - *Ultrasound pioneer, Sir William Liley, M.D. 1967.*

"It is scientifically correct to say that an individual human life begins at conception." - *Professor M. Matthews-Roth, Harvard University Medical School.*

"By all the criteria of modern molecular biology, life is present from the moment of conception." - *Professor Hymie Gordon, Mayo Clinic.*

## **When does the heart begin to beat?**

At 18 days [when the mother is only four days late for her first menstrual period], and by 21 days it is pumping, through a closed circulatory system, blood whose type is different from that of the mother. - *J.M. Tanner, G. R. Taylor, and the Editors of Time-Life Books, Growth, New York: Life Science Library, 1965, p*

## **When is the brain functioning?**

Brain waves have been recorded at 40 days on the Electroencephalogram (EEG). - *H. Hamlin, "Life or Death by EEG," JAMA, Oct. 12, 1964, p. 120*

Brain function, as measured on the Electroencephalogram, "appears to be reliably present in the fetus at about eight weeks gestation," or six weeks after conception. - *J. Goldenring, "Development of the Fetal Brain," New England Jour. of Med., Aug. 26, 1982, p. 564*

## **How early do some organs form?**

The eye, ear and respiratory systems begin to form four weeks after fertilization. - *K. Moore, Before We Were Born, 3rd ed., 1989, p. 278*

## **And function?**

Very early, e.g., glucagon, a blood sugar hormone, has been demonstrated in the fetal pancreas 6 weeks after fertilization, and insulin by 7 to 8. F. - *Cunningham, "Pancreas," William's Obstet., 19th ed., 1993, p. 183-4*

Thumb sucking has been photographed at 7 weeks after fertilization. - *W. Liley, The Fetus As Personality, Fetal Therapy, 1986, p. 8-17*

## **When does the developing baby first move?**

"In the sixth to seventh weeks. . . . If the area of the lips is gently stroked, the child responds by bending the upper body to one side and making a quick backward motion with his arms. This is called a 'total pattern response' because it involves most of the body, rather than a local part." - *L. B. Arey, Developmental Anatomy (6th ed.), Philadelphia: W. B. Sanders Co., 1954*

## **When are all her body systems present?**

By eight weeks (two months). - *Hooker & Davenport, The Prenatal Origin of Behavior, University of Kansas Press, 1952*

## **When does he start to breathe?**

Episodic spontaneous breathing movement has been observed in the healthy human fetus as early as ten weeks gestational age. - *Conners et al., "Control of Fetal Breathing in the Human Fetus," Am J. OB-GYN, April '89, p. 932*

## **At what point are all her body systems working?**

By 11 weeks. - *"Life Before Birth," Life Magazine, Apr. 30, 1965, p. 13*

## **How about hearing?**

"Auditory sense is present in the infant 24 weeks before birth [14 weeks after conception]. This involves brain functioning and memory patterns." - *M. Clemens, "5th International Congress Psychosomatic," OB & GYN, Rome: Medical Tribune, Mar. 22, 1978, p. 7*

## **When can she first experience pain?**

The cortex isn't needed to feel pain. The thalamus is needed and is functioning at 8 weeks. Even complete removal of the cortex does not eliminate the sensation of pain. "Indeed there seems to be little evidence that pain information reaches the sensory cortex." - *Patton et al., Intro. to Basic Neurology, W. B. Saunders Co. 1976, p. 178*

"Lip tactile response may be evoked by the end of the 7th week. At 11 weeks, the face and all parts of the upper and lower extremities are sensitive to touch. By 13 1/2 to 14 weeks, the entire body surface, except for the back and the top of the head, are sensitive to pain." - *S. Reinis & J. Goldman, The Development of the Brain C. Thomas Pub., 1980*

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