

# STUDIES IN LAW & MEDICINE

---

## **Fetal Pain and Abortion: The Medical Evidence**

*By:*

Vincent J. Collins, M.D.  
Steven R. Zielinski, M.D.  
Thomas J. Marzen, Esq.

---

**AMERICANS  
UNITED FOR LIFE**  
Legal Defense Fund

---

# Fetal Pain and Abortion: The Medical Evidence

---

*By:*

Vincent J. Collins, M.D.  
Steven R. Zielinski, M.D.  
Thomas J. Marzen, Esq.

---

**AMERICANS  
UNITED FOR LIFE**  
Legal Defense Fund

---

Law and Medicine Series

*Americans United for Life, Inc.  
343 S. Dearborn, Suite 1804  
Chicago, Illinois 60604  
(312) 786-9494*

*Third Printing 1985*

© 1984 by Americans United for Life

## PREFACE

On January 30, 1984, President Reagan sparked controversy in a speech to the National Religious Broadcasters convention when he asserted, "Medical science doctors confirm that when the lives of the unborn are snuffed out, they often feel pain, pain that is long and agonizing." Re-stating this on March 6, 1984, the President said, "[A]s abortions are performed, the unborn children being killed often feel excruciating pain."

Dr. Ervin E. Nichols, Director of Practice Activities for the American College of Obstetricians and Gynecologists (ACOG), an organization that supports the practice of abortion, initially denied the President's contention. *The New York Times* quoted Nichols on January 31 as saying, "We are unaware of any evidence of any kind that would substantiate a claim that pain is perceived by a fetus." Later, however, Dr. Nichols told columnist John Lofton that "the reporting of his views has been only 'partially correct,' that he was talking in the context of the development of the unborn during its first three months and probably the next month and a half. He says he is not a fetal surgeon and lacks both 'expertise' and 'intimate knowledge' of this field" (*The Washington Times*, February 10, 1984).

Reacting with other proponents of abortion, columnist Ellen Goodman also attacked Reagan's first statement. Yet not long afterward, she, like Dr. Nichols, felt the need to publicly refine her position. "At some midpoint in pregnancy" Goodman acknowledged on February 28, "a fetus undoubtedly experiences what anyone would fairly describe as pain" (*The Washington Post*). She suggested that prohibiting abortions after 20 weeks gestation might help to address this situation.

Goodman's reconsideration of abortion, and perhaps that of many others, is very likely due to a letter that was sent to President Reagan on February 13. Fully backing the President's claims on fetal pain, it was signed by two past presidents of ACOG; Dr. Vincent J. Collins, Professor of Anesthesiology at Northwestern University and the University of Illinois, and author of *Principles of Anesthesiology*, one of the leading medical texts on the control of pain; Dr. Bernard Nathanson, Clinical Assistant Professor of Obstetrics and Gynecology at Cornell University and former Director of New York City's Center for Reproductive and Sexual Health, once the nation's largest abortion clinic; Dr. Bernard Pisani, President of the New York State Medical Society, and Professor of Obstetrics and Gynecology at New York University; and 21 other prominent medical specialists. "Mr. President," the letter said, "in drawing attention to the capability of the human fetus to feel pain, you stand on firmly established ground."

What is that firm ground of medical evidence for fetal sensitivity to pain in the abortion process? If fetal pain is considered a decisive moral contraindication to abortion, would a cut-off on abortions beyond 20 weeks adequately address the problem, as Goodman implies? The following study, written by Dr. Vincent Collins, one of the aforementioned co-signers of the letter to the President, with Dr. Steven R. Zielinski and attorney Thomas J. Marzen, explains that as early as 8 weeks, and certainly by 13½ weeks of gestation, unborn human beings are pain-sensitive. Increased public empathy for these who are unable to speak for themselves, as always, remains the key to reform of America's current and devastating abortion policy.

Steven Baer  
Director of Education  
Americans United for Life

February 13, 1984

President Ronald Reagan  
The White House  
Washington, DC 20500

Mr. President:

*As physicians, we, the undersigned, are pleased to associate ourselves with you in drawing the attention of people across the nation to the humanity and sensitivity of the human unborn.*

*That the unborn, the prematurely born, and the newborn of the human species is a highly complex, sentient, functioning, individual organism is established scientific fact. That the human unborn and newly born do respond to stimuli is also established beyond any reasonable doubt.*

*The ability to feel pain and respond to it is clearly not a phenomenon that develops de novo at birth. Indeed, much of enlightened modern obstetrical practice and procedure seeks to minimize sensory deprivation of, and sensory insult to, the fetus during, at, and after birth.*

*Over the last 18 years, real time ultrasonography, fetoscopy, study of the fetal E.K.G. (electrocardiogram) and fetal E.E.G. (electroencephalogram) have demonstrated the remarkable responsiveness of the human fetus to pain, touch, and sound. That the fetus responds to changes in light intensity within the womb, to heat, to cold, and to taste (by altering the chemical nature of the fluid swallowed by the fetus) has been exquisitely documented in the pioneering work of the late Sir William Liley--the father of fetology.*

*Observation of the fetal electrocardiogram and the increase in fetal movements in saline abortions indicate that the fetus experiences discomfort as it dies. Indeed, one doctor who, the New York Times wrote, "conscientiously performs" saline abortions stated, "When you inject the saline, you often see an increase in fetal movements, it's horrible."*

*We state categorically that no finding of modern fetology invalidates the remarkable conclusion drawn after a lifetime of research by the late Professor Arnold Gesell of Yale University. In "The Embryology of Behavior: The Beginnings of the Human Mind" (1945, Harper Bros.), Dr. Gesell wrote, "and so by the close of the first trimester the fetus is a sentient, moving being. We need not speculate as to the nature of his psychic attributes, but we may assert that the organization of his psychosomatic self is well under way."*

*Mr. President, in drawing attention to the capability of the human fetus to feel pain, you stand on firmly established ground.*

Respectfully,

Dr. Richard T. F. Schmidt  
Past President, American College  
of Obstetricians and Gynecologist  
Professor of Ob/Gyn  
University of Cincinnati  
Cincinnati, Ohio

Dr. Fred Hofmeister  
Past President, American College  
of Obstetricians and Gynecologist  
Professor of Ob/Gyn  
University of Wisconsin (Milwaukee)

(More signatories on next page)

(over)

Dr. Vincent Collins  
Professor of Anesthesiology  
Northwestern University and  
University of Illinois Medical Center

Dr. John G. Masterson  
Clinical Professor of Ob/Gyn  
Northwestern University

Dr. Bernard Nathanson, F.A.C.O.G.  
Clinical Assistant Professor  
of Ob/Gyn  
Cornell University

Dr. Denis Cavanaugh, F.A.C.O.G.  
Professor of Ob/Gyn  
University of South Florida

Dr. Watson Bowes, F.A.C.O.G.  
Professor of Maternal and  
Fetal Medicine  
University of North Carolina

Dr. Byron Oberst  
Assistant Clinical Professor of  
Pediatrics  
University of Nebraska

Dr. Eugene Diamond  
Professor of Pediatrics  
Stritch School of Medicine  
Loyola University (Chicago)

Dr. Thomas Potter  
Associate Clinical Professor of  
Pediatrics  
New Jersey Medical College

Dr. Lawrence Dunegan  
Instructor in Clinical Pediatrics  
University of Pittsburgh

Dr. Melvin Thornton  
Professor of Clinical Pediatrics  
University of Texas (San Antonio)

Dr. Norman Vernig  
Assistant Professor of Pediatrics  
University of Minnesota (St. Paul)

Dr. Jerome Shen  
Clinical Professor of Pediatrics  
St. Louis University

Dr. Bernard Pisani, F.A.C.O.G.  
President, New York State Medical  
Society  
Professor of Ob/Gyn  
New York University

Dr. Matthew Bulfin, F.A.C.O.G.  
Lauderdale by the Sea, Florida

Dr. Jay Arena  
Professor Emeritus of Pediatrics  
Duke University

Dr. Herbert Nakata  
Assistant Professor of Clinical  
Pediatrics  
University of Hawaii

Dr. Robert Polley  
Clinical Instructor of Pediatrics  
University of Washington  
(Seattle)

Dr. David Foley  
Professor of Ob/Gyn  
University of Wisconsin  
(Milwaukee)

Dr. Anne Bannon, F.A.A.P.  
Former Chief of Pediatrics  
City Hospital (St. Louis)

Dr. John J. Brennan  
Professor of Ob/Gyn  
Medical College of Wisconsin  
(Milwaukee)

Dr. Walter F. Watts  
Assistant Professor of Ob/Gyn  
Stritch School of Medicine  
Loyola University (Chicago)

Dr. G. C. Tom Nabors  
Assistant Clinical Professor of  
Ob/Gyn  
Southwestern Medical College  
Dallas, Texas

Dr. Konald Prem  
Professor of Ob/Gyn  
University of Minnesota  
(Minneapolis)

Dr. Alfred Derby, F.A.C.O.G.  
Spokane, Washington

## Fetal Pain and Abortion: The Medical Evidence

Vincent J. Collins, M.D.\*  
Steven R. Zielinski, M.D.\*\*  
Thomas J. Marzen, Esq.\*\*\*

The possibility that the human fetus feels pain introduces a new element into the moral discourse, and public policy debate, on abortion.

One can describe the anatomical and physiological development of the unborn—catalogue the body parts as they come into existence, describe their functions, measure their size. Evidence of this sort might or might not convince one that the fetus is sufficiently similar to the child or adult to be reckoned of equivalent value, depending on the predilections of the evaluator. A conviction based on such information, however, depends largely on visual analogy or identification of common features and functions, rather than an identification with the feeling state of the fetus. Empathy, or a certain resonance with the sensitivities of the fetus may develop, but only by implication or inference.

The prospect of fetal pain—pain that results from abortion—cuts through philosophical abstractions and scientific nomenclature, proceeding directly to the heart. A being that feels pain makes an urgent demand for recognition, a demand we know through the experience of our own bodies rather than because of any cool, deductive need of our minds for logical consistency. Real pain cannot, we know, be easily denied or rationalized: It simply exists, and it commands immediate attention. Internalized knowledge that the fetus feels pain forces us to focus on a common feeling state we share with him or her, a state that cuts much closer to what we identify as the essence of life than any mechanistic vision of an assembly of functioning body parts.

The significance of this lies in the tendency of most people to make ethical and political judgments based on empathetic or sympathetic impulses that have little to do with reason or notions of justice. Abortion is approved or tolerated largely because of feelings of sympathy for the pregnant woman, which are seen to conflict with and override any objective evaluation of the moral content of her conduct. But an understanding of fetal pain, assuming its reality, counterbalances the claim the woman makes on the emotions: True, the woman *might* be “hurt” in some sense if abortion were not available to her; but her unborn child will surely experience deadly pain if he or she is subjected to abortion. Implicit in this line of reasoning is an identification with the fetus formerly reserved only for the woman. The fetus is humanized, and conflicting sympathies

\*Professor of Anesthesiology, University of Illinois College of Medicine, University of Illinois, Chicago.

\*\*B.S., M.D. Northwestern University; Medical Consultant, Americans United for Life Legal Defense Fund.

\*\*\*B.A., University of Illinois; J.D., Illinois Institute of Technology; Chief Staff Counsel, Americans United for Life Legal Defense Fund.

Frederick T. Blumer, senior law student at the University of South Carolina, assisted in the preparation of this paper.

create the need to seek more objective criteria in evaluating the legitimacy of the proposed abortion—criteria that already assume that the fetus has some just claim on our feelings and sense of equity.

That a fetus can feel pain should not be a difficult concept to comprehend. Most of us have had the opportunity to hold an infant in our arms and see its response to touch. We have seen and heard a very young child's objection to the irritation of diaper rash, to pangs of hunger, and to the careless poke of a sibling. We know the response of the newborn to the doctor's slap just seconds after birth. Laymen and physicians alike interpret this response to be precisely what it is—a response to the sensation of pain. The baby crying just moments after birth surely had the same capacity to feel pain in the womb just a few moments prior to birth.

But how far back during the course of gestation can it be stated, with reasonable medical certainty, that the human fetus can and does sense pain? On what grounds would such a conclusion rest? Can some abortions, during the times of gestation they are performed, be said to cause fetal pain?

As with a newborn infant, a comatose or uncommunicative adult—or, indeed, as with animals—one is unable to secure from the human fetus a confirmation through speech, or some other intelligent sign, that pain has been sensed. The fetus is not able to state, "I feel pain," which is the indicia of pain that a physician would usually rely on when treating a patient who can verbalize. With a communicative patient who says that he or she feels pain, the physician can only conclude either that the pain exists in somatic or psychosomatic form, or that the patient is lying. Excluding the possibility of the lie, the physician concludes either that the pain is real, or that it is imagined but psychologically "real" to the patient nonetheless. Yet when diagnosing pain in an organism that *cannot* intelligently communicate—like a newborn infant, a comatose adult, an animal, or a fetus—one is compelled to rely on other criteria.

It is essential to emphasize that failure or inability to communicate the existence of a painful sensation does not diminish the potential import or severity of pain suffered by an organism. A physician would not think of performing major surgery on a newborn child without anesthesia. Neither would a veterinarian perform surgery on a dog without pain-killers. It is assumed that the child and animal suffer pain because it is known that each organism has certain neurological systems in place, and that certain responses will be evoked if certain things are done to the child or animal—things which, if done to any one of us, would cause pain. The judgment that pain exists in *any* organism is ultimately based on an inference drawn from experience rather than on physical evidence: It would cause pain to me if done to me; therefore, it causes pain to him. One cannot presently "know" that any organism senses pain in the sense that one can know that another has a cancerous tumor or a bad heart. After all, even the communicative adult could, as with some insurance claims, be lying about the pain said to be felt.

Yet this does not mean that pain is any less real than cancer—one who suffers excruciating pain knows how very real it is. It simply means that the conclusion that pain is felt by another is reached by way of indirect evidence rather than by way of any direct proof.

The mere testimony of a communicative, conscious adult that he or she feels pain is *not* direct, or even the best, evidence of pain because it depends on his or her veracity rather than on physical evidence. From the standpoint of medical practice and science, organic or physiologically based pain is finally judged to exist when anatomical structures necessary to pain sensation are in place, when physiological responses normally associated with pain occur, and when some cause associated with induction of a pain response is present. Put another way, the physician will judge that pain exists if the necessary biological sensory machinery is there, if something causes a response like that which pain would cause and if that "something" is indeed capable of eliciting such a response in human beings generally. This approach focuses on the verifiable existence of neurological systems and the reactions of organisms to stimuli in identifying the presence of pain. From this perspective, verbalization of a communicative and conscious adult is a mere elaboration or a type of pain response that is ancillary to pain sensation, rather than a prerequisite to its existence.

## Neurological Structures and Functions Necessary to Pain Sensation

Certain neurological structures are necessary to pain sensation: pain receptive nerve cells, neural pathways, and the thalamus.

There are two types of nerves: motor and sensory. Motor nerves are involved in functions related to movement. Sensory nerves carry pain, positional, thermal, vibratory, and tactile data.

In the skin and throughout the body are free nerve endings that act as pain receptors and are part of pain sensory nerves. These pain receptive cells, called nociceptors, are sensitive to pressure, mechanical stress (stress that results when body tissue is punctured, crushed, or broken), heat, and chemical invasion. When a nociceptor is affected by a noxious stimulus—something that is harmful or potentially harmful to the cell—it discharges an electrical impulse that travels through interfacing nerve fibers to the spinal cord, and often to the brain.

The spinal cord and brain are together defined as the central nervous system; nerve fibers not completely contained in the spinal cord or brain constitute the peripheral nervous system. The electrical impulses in *motor* nerves travel almost exclusively from the central nervous system to the peripheral system, whereas in *sensory* nerves, such as those that carry pain impulses, impulses travel primarily from the peripheral to the central nervous system.

When a pain-associated electrical impulse travels from a nociceptor, through the fibers of the peripheral system, and arrives at the spinal cord, it is transferred to spinal cord fibers. Interface occurs in the dorsal (posterior) horns of the cord. The pain impulses then travel up the cord primarily in the spinothalamic tract (*i.e.*, in a pathway that runs through the cord into the thalamic portion of the brain).<sup>1</sup>

It is possible, however, for pain impulses to generate a more direct response without first traveling to the brain, a response made possible by

a complex network of interfacing motor and sensory fibers in the spinal cord. When such a motor reaction occurs not involving the brain, but only the spinal cord and peripheral system, it is referred to as a "reflex." Reflexive responses are simple and direct—of the type that occurs in the leg when the knee is tapped with a light hammer. Pain sensation is not necessarily involved in reflexive responses because the brain, where pain is sensed, is not necessarily involved.

When the pain impulse travels up the spinal cord to the brain, however, another kind of response is possible: an "aversive" response. Aversive responses represent the body's attempt to escape noxious stimuli.<sup>2</sup> They involve the more controlled avoidance responses to pain that we normally associate with pain sensation; they are direct evidence that a pain impulse has reached the brain, which is where pain is sensed.

The critical neurological structure in the brain for pain sensation and response is the thalamus. Both animal and human studies underscore its central function:

Aversive behavior can be elicited by stimulation in or near the PO [posterior thalamic] nucleus in [the] cat. In humans there is evidence that electrical stimulation within the posterior ventrolateral thalamus elicits painlike behavior and reports of pain.<sup>3</sup>

\* \* \*

Currently the weight of available evidence seems, in our opinion, to support the view that neurons in the posterior lateral thalamus are necessary for the normal recognition and localization of noxious somatic stimuli. Neurons within the medial and intralaminar thalamus, however, appear to mediate a variety of equally essential functions in pain mechanisms. These functions may include the initiation of arousal, aversive affective mechanisms and behavior, autonomic and somatic motor responses, and the activation of endogenous control mechanisms that attenuate responses to noxious stimuli.<sup>4</sup>

The thalamus lies above the spinal cord and brainstem, but below the cerebral cortex, which is the portion of the brain associated with sophisticated motor activity, cognitive function, and, in human beings, consciousness. Pain impulses that reach the thalamus can be further transmitted to the cortex, where they may generate sophisticated motor responses and cognitive associations.

But the presence of a functioning cortex is not necessary to pain sensation. Even complete removal of the cortex does not eliminate the sensation of pain;<sup>5</sup> no portion of the cortex, if artificially stimulated, results in pain sensation.<sup>6</sup> It follows, therefore, that neither the presence of the cortex nor transmission of pain impulses to the cortex are essential to pain sensation. When the cortex (which develops and functions later in human gestation than the thalamus) is involved in a pain response, it generates elaborated aversive behavior and adds psychological and cognitive components to pain sensation.

The requisite structures for the sensation of pain are, therefore, the nociceptors, a continuous neural pathway of sensory nerves that transmit

pain impulses from the nociceptor through the peripheral nervous system and the spinal cord to the thalamus, and the thalamus. In order to determine that pain is sensed, however, these structures must not only be in place, but also known to be *functioning*. It may someday be possible to measure biochemical or electrical activity in the brain to conclude that pain is sensed, regardless whether any other response occurs or is possible. At present, however, the physician concludes that pain is sensed when some motor response is elicited by a pain stimulus—in particular, when an organism with the requisite neurological structures evidences aversive behavior.

When does the human fetus have the requisite neurological structures necessary to sense pain and respond aversively to noxious stimuli?

### Pain in the Human Fetus

Functioning neurological structures necessary for pain sensation are in place as early as 8 weeks, but certainly by 13½ weeks of gestation. Sensory nerves, including nociceptors, reach the skin of the fetus before the 9th week of gestation.<sup>7</sup> The first detectable brain activity occurs in the thalamus between the 8th and 10th weeks.<sup>8</sup> The movement of electrical impulses through the neural fibers and spinal column takes place between 8 and 9 weeks gestation.<sup>9</sup> By 13½ weeks, the entire sensory nervous system functions as a whole in all parts of the body (except in the skin <sup>on</sup> the back of the head).<sup>10</sup>

Concurrent with the development of the sensory structures is the emerging responsive behavior of the fetus. By the end of the 5th week, a tap on the mouth of the fetus will cause the lips to draw back.<sup>11</sup> By 10 weeks, the palms of the hands are sensitive to touch, and at 11 weeks the face and extremities likewise respond to tactile stimuli.<sup>12</sup> By 13½ weeks, these responses are sufficiently elaborate and sufficiently avoidant to warrant the definite conclusion that the fetus responds aversively, not reflexively. They evidence an integrated physiological attempt to escape noxious stimuli.<sup>13</sup> In response to experiments performed on 12 to 16 week fetuses, movements of the head, body, and limbs have been observed. These movements were vigorous, and consisted of ventro—or dorsoflexion of the trunk, flexion of the limbs, and turning of the head, indicating the presence of acute fetal pain.<sup>14</sup> It is agreed that a fetus must be heavily sedated before intrauterine manipulation, such as transfusions, because such painful stimuli cause the fetus to move, making the procedure difficult.<sup>15</sup>

When doctors first began invading the sanctuary of the womb, they did not know that the unborn baby would react to pain in the same fashion as a child would. But they soon learned that he would. By no means a "vegetable," as he has so often been pictured, the unborn knows perfectly well when he has been hurt, and he will protest it just as violently as would a baby lying in a crib.<sup>16</sup>

\* \* \*

We know the fetus can feel pain. For example, blood can be

transfused directly into the abdominal cavity of the fetus by means of a long, thin hypodermic needle. Of course, the obstetrician can see the fetus under the fluoroscope and easily insert the needle without injury to lungs, liver, or heart. Nevertheless, the upper portion of the hypodermic needle, which still protrudes from the mother's abdomen, can be seen moving about, indicating the fetus is trying to escape this slightly painful object.<sup>17</sup>

Thus, because the requisite neurological structures are present at that time and because they are functioning, as evidenced by the aversive response of the human fetus, it may be concluded with reasonable medical certainty that the fetus can sense pain at least by 13½ weeks. Because the neurological structures are at least partially in place between 8 and 13½ weeks, it seems probable that some pain can also be felt during this time of gestation.

### The Evidence of Pain from Abortion

Induced abortion will cause pain to a fetus with a functioning nervous system if the method-used stimulates the pain receptors, excites the neural pathways, and the impulse reaches the thalamus. Dilatation and evacuation (D & E), abortion, abortion by saline amnio-infusion, and prostaglandin abortions are capable of stimulating pain receptors and exciting neural pathways. These methods of abortion are employed during times in gestation when the fetus can sense pain. It must be concluded, therefore, that they cause pain to the fetus.

D & E abortions are performed after the 12th week of pregnancy (and are performed up to and including the period of viability) when fetal bones are too large and brittle and the size of the fetus is too great for standard first trimester abortion techniques. D & E involves the progressive dismemberment of the fetus prior to extraction in order to facilitate removal of the fetal parts from the uterus.<sup>18</sup> The slicing and crushing involved in dismemberment of the fetus in D & E abortions would obviously excite pain receptors and stimulate the neural pathways, thereby evoking an aversive response in the fetus whose central nervous system is functioning. It must be concluded, therefore, that the fetus suffers pain as the result of D & E. abortion.

Abortions by saline amnio-infusion are performed after the 14th week up to and including the period of fetal viability.<sup>19</sup> The procedure involves the insertion of a hypodermic needle into the amniotic sac to remove the amniotic fluid. In substitution, a hypertonic (highly concentrated) solution of sodium chloride (salt) is injected into the sac. This solution disrupts the placenta, causing fetal expulsion in up to 48 hours after the time the solution is injected.<sup>20</sup> During that period, the corrosive action of the saline solution burns away the upper skin layers of the fetus.<sup>21</sup> The esophagus and mouth are also burned when the fetus swallows amniotic fluid polluted by the saline. By the time the fetus is expelled there is extensive edema and submembranous degeneration.<sup>22</sup> By damaging the surface of the fetus in this fashion, saline would excite pain receptors and stimulate the neural pathways of a functioning central nervous system

during the course of the abortion and until the fetus dies.<sup>23</sup> It is well-known that the fetus reacts with aversive responses when saline is introduced into amniotic fluid. The aborting mother can feel her baby thrashing in the uterus during the approximately two hours it usually takes for the saline solution to kill the fetus.<sup>24</sup> It must be concluded, therefore, that the fetus feels pain as the result of saline amnio-infusion abortion.

The method of abortion involving the introduction of prostaglandin into the mother's system may bring about death of the fetus by constricting the circulation of the blood and/or impairing the heart function.<sup>25</sup> Pain analogous to that of a person experiencing a heart attack can be assumed.

To the extent that the fetus between 8 and 13½ weeks of gestation feels pain, the suction curettage method of abortion—the usual method of abortion used during that time, which tears the fetus from the womb, often part by part, by vacuum aspiration—is certainly capable of causing pain in a manner analogous to D & E abortion.

### CONCLUSION

The medical evidence plainly points to the existence of pain sensation in the human fetus, at least from the onset of the second trimester of pregnancy, and perhaps during the last weeks of the first trimester. It indicates that at least three methods of abortion cause fetal pain.

During the second and third trimesters of pregnancy, approximately 113,500 abortions were performed in the United States by D & E, saline amnio-infusion, or prostaglandin induction in 1980 alone. Of these, approximately 80,000 were by D & E, approximately 24,000 by saline amnio-infusion, and approximately 9,600 by prostaglandin induction.<sup>26</sup>

During the period after the 8th and before the 13th week of pregnancy, approximately 480,500 abortions were performed.<sup>27</sup>

We cannot measure the sum agony of these human beings. We can only know that it was real, hope that it was mercifully brief, and grieve because the ideology that so arrogantly asserts abortion as a "right" has subverted simple human compassion to such a degree that these young human beings continue to die with little or no concern for their pain.

## FOOTNOTES

1. Berkow, R., ed.: *The Merck Manual of Diagnosis and Therapy*. Rahway, N.J.: Merck, Sharp & Dohme Research Labs, 1977, p. 1395.
2. Collins, V.: *Principles of Anesthesiology*. Philadelphia: Lea & Feber, 1976, pp. 906-934.
3. Kitchell, R. L., Erickson, H.H., eds.: *Animal Pain—Perception and Alleviation*. Bethesda, Md.: American Physiological Soc., 1983, p.70; from Benton, R.G., Mefferd, R.B., Jr.: *The Differentiation of Escape and Avoidance Behavior in Two Thalamic Areas in the Cat*. Brain Res. 6:679-685, 1967; and Halliday, A.M., Logue, V.: *Painful Sensations Evoked By Electrical Stimulation in the Thalamus*. In: Neurophysiology Studied in Man, G.G. Somjen, ed. Amsterdam: Excerpta Med., 1972, pp. 221-230.
4. Kitchell, p. 73.
5. Guyton, A.C.: *Textbook of Medical Physiology*. Philadelphia: W.B. Saunders Co., 1976, p. 666. "Indeed there seems to be little evidence that pain information reaches the sensory cortex." Patton. H.D., Sundsten, J.W., Crill, W.E., Swanson, P.D., eds.: *Introduction to Basic Neurology*. Philadelphia: W.B. Saunders Co., 1976, p. 198.
6. Patton, H.D.: *Somatic Sensation and Its Disturbances*. In, Patton, H.D., et al., pp. 188-193.
7. Rugh, R., Shettles, L.B.: *From Conception to Birth*. Evanston: Harper & Row, 1971, pp. 33-34. Reinis, S., Goldman, J.M.: *The Development of the Brain*. Springfield, Ill. Charles C. Thomas, 1980, pp. 223-235.
8. Reinis, pp. 223-235.
9. Page, E.W., Villee, C.A., Villee, D.B.: *Human Reproduction—The Essentials of Reproduction and Perinatal Medicine*. Philadelphia: W. B. Saunders Co., 1981, pp. 269-270; Flanagan, G.L.: *The First Nine Months of Life*. New York: Simon and Schuster, 1965, pp. 76-84. Still, J.W.: J. Wash. Acad. Sci., 59:46, 1969.
10. Reinis, p. 232.
11. Page, p. 269.
12. Reinis, p. 252; in an address, March 9, 1984, at the University of Delaware, Dr. Bernard Nathanson revealed his ultrasound findings of an abortion of an 8 week old fetus. "On the tape, you can see the infant swimming, sucking his thumb, rolling over, flexing his arms and legs and then you see that long, metal instrument slide by the infant, the water break and the infant struggle, suction applied and the arms, legs, and head of that child torn away." Nathanson, B.: *Lifeline*, 11:4, Wilmington, DE: Delaware Right to Life, Inc., 1984.
13. Collins, pp. 922-923.
14. Westin, B., Nybreg, R., Enhoring, G.: *A Technique for the Perfusion of the Preivable Fetus*. Acta Paediatrica, 47:339, 1958.
15. Valman, H.B. Pearson, J.F.: *What the Fetus Feels*. British Med. J., 20 Jan., 1980, p. 233.
16. Liley, H.M.I.: *Modern Motherhood*, rev. ed. New York: Random House, 1969, p. 50.
17. Rugh, p. 78.
18. Benson, R.C.: *Handbook of Obstetrics and Gynecology*. Los Altos: Lange Medical Publication, 1980, p. 434; Cates, W., Jr., *D & E After Twelve Weeks —Safe or Hazardous?* Contemp. Obstet. Gynec. 13:23, 1979.
19. *Second Trimester Abortion: A Symposium By Correspondence*. J. Reprod. Med. 16:2, 1976, pp. 47, 56.
20. Benson, p. 437.
21. Affidavit of William Matview, M.D., 12(b), *Charles V. Carey*, No. 79 C 4548 (N.D. Ill. opinion date Oct. 14, 1983), *appeal filed sub nom. Charles v. Daley*, No. 83-3175 (app. filed Dec. 2, 1983).
22. *Id.*
23. *Id.*
24. Edminson, W.: *A Report on the Abortion Capital of the Country*. The New York Times Magazine, March 11, 1971.
25. Csapo, A. I.: *Termination of Pregnancy with Double Prostaglandin Input*. Amer. J. Obstet. Gynec. 124:1, 1976.
26. Based on calculations from Centers for Disease Control—Abortion Surveillance, Annual Summary 1979-1980. U.S. Dept. of Health and Human Services, May 1983.
27. *Id.*